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ABBREVIATED COMPANY CODES

Table with 2 columns: Code and Company Name. Includes entries like AIA AUCKLAND INTERNATIONAL AIRPORT, ALP ALPINE ENERGY, ANC ANCHOR (NOW FONTERRA), etc.

DRAWING LIST

Table with 3 columns: SHT. NO., DRAWING TITLE, and TP51989. Lists 40 regional single line diagrams (sheets 1-40) with their respective titles and sheet numbers.

Please Note: The Revision column has been removed from the Drawing List as the Drawing List was intended to be used to indicate the relevant sheet title only. Refer to the Transpower website for a list of the latest sheet revisions for these drawings.

SUBSTATION LIST

Table with 3 columns: SITE, CODE, and TP51989. Lists various substations such as ADDINGTON, ALBANY, ALBURY, etc., with their codes and sheet numbers.

OPERATIONAL CONTROL KEY

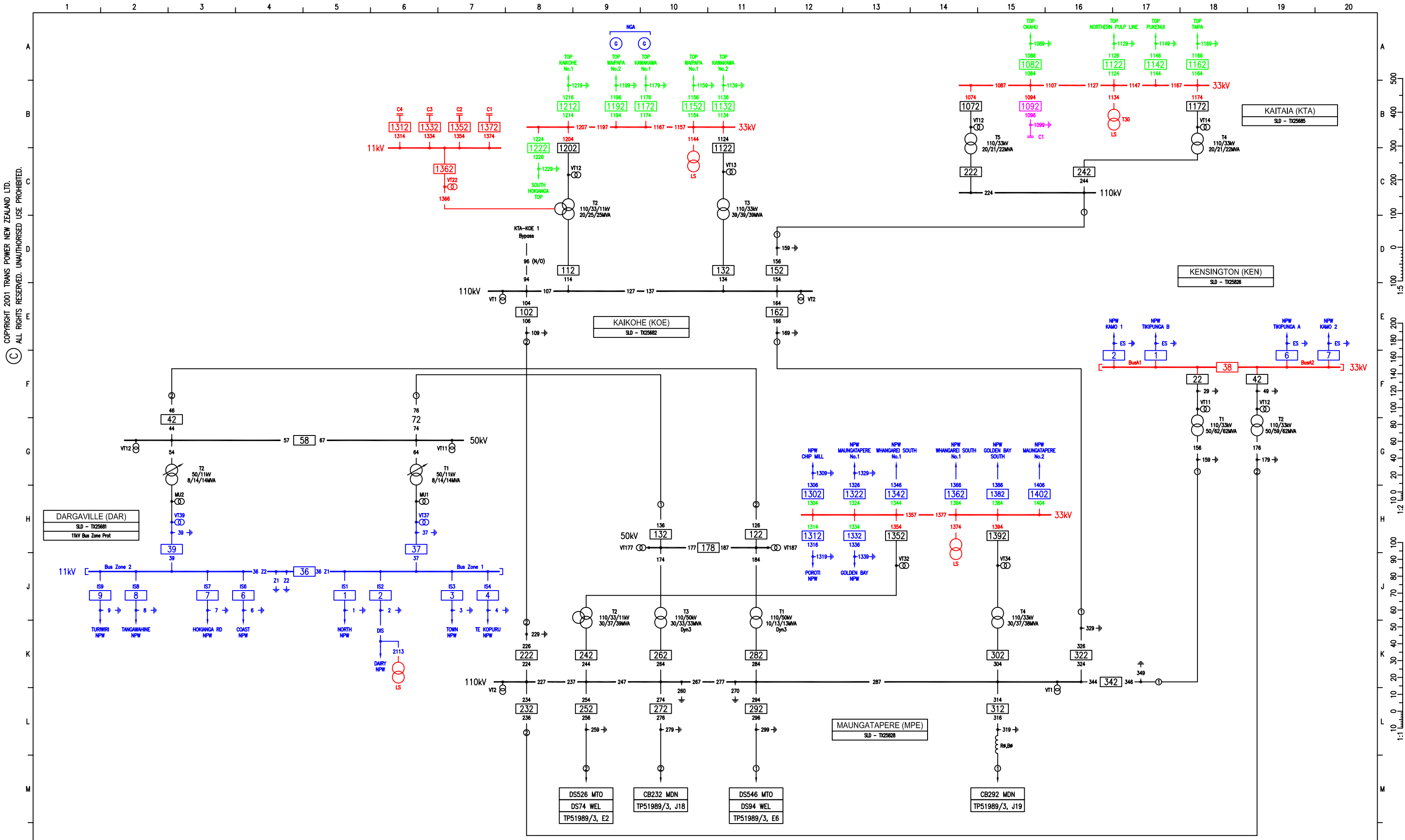
- List of operational control keys with descriptions: 42 Transpower Grid System Assets, Transpower ROC Operational Control; 42 Transpower Grid System Assets, Transpower SO Operational Control; etc.

Legend section containing symbols and descriptions for various electrical components: Circuit Breaker, Disconnector, Earth Switch, Voltage Transformer, Synchronising Voltage Transformer, Capacitive Voltage Transformer, Synchronising Capacitive Voltage Transformer, Power Transformer, On Load Tap changer for Power Transformer, Auto-Transformer with Tertiary, Auto-Transformer, Earthing Transformer, Generator, Synchronous Condenser, Filter, Transductor, 110kV Bus Voltage, Limited CBs (No Protection), Enclosed Switchgear, Capacitor Bank, Circuit Number, Transformer Ratings, Reactor, Line Trap.



TRANSPOWER NZ LTD header and metadata including: REGIONAL SINGLE LINE DIAGRAM (SHEET 1 OF 40) INFORMATION SHEET, FOLDER GEN/24, ISSUE AC, DATE JAN 09, TP APP'D J HUGHES.

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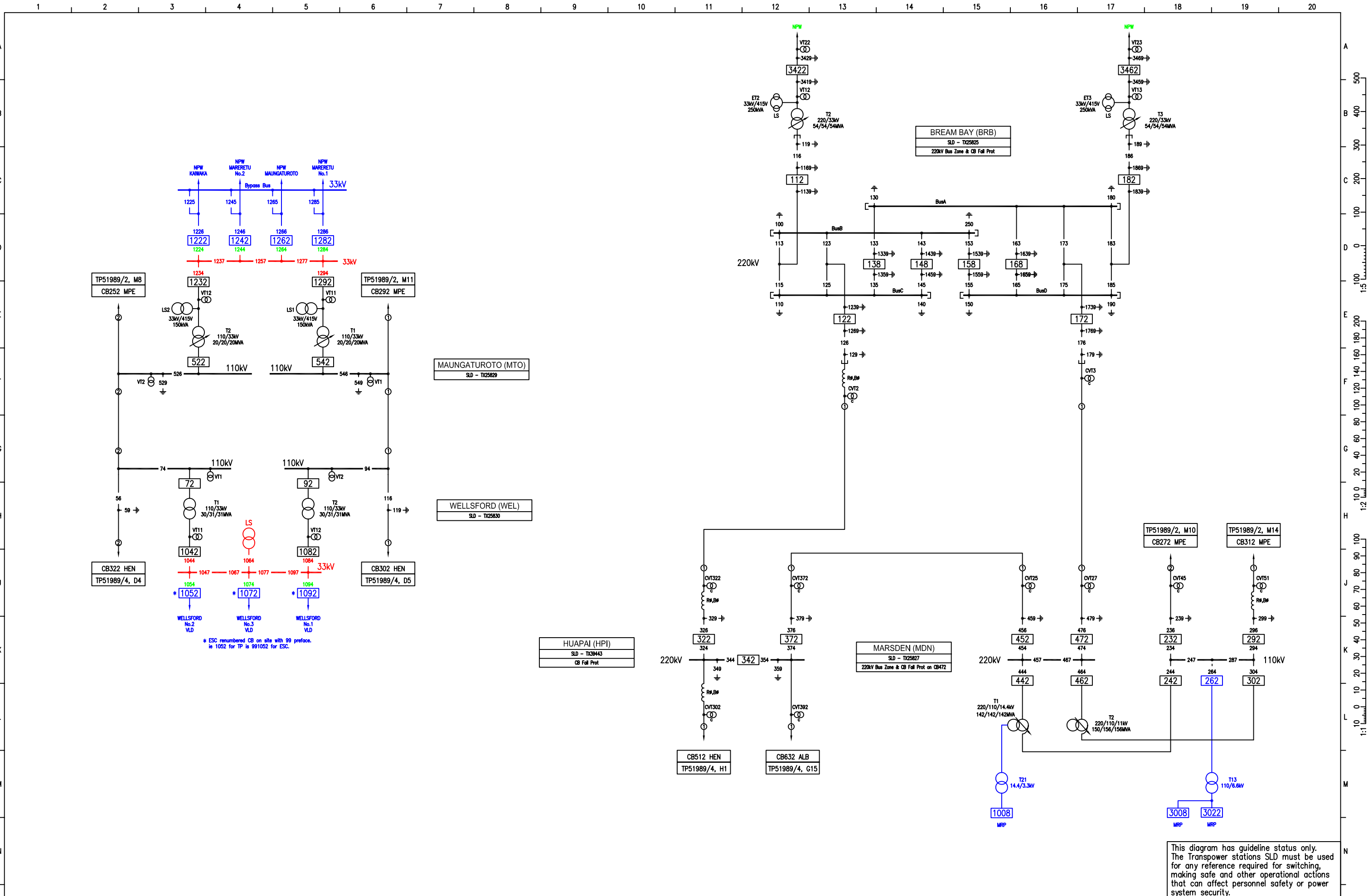
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Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 	<ul style="list-style-type: none"> Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer 	<ul style="list-style-type: none"> Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary 	<ul style="list-style-type: none"> Auto-Transformer Earthing Transformer Earthing Transformer 	<ul style="list-style-type: none"> Generator Synchronous Condenser Filter Transductor 	<ul style="list-style-type: none"> 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number 	<ul style="list-style-type: none"> Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets 42 TP ROC Operational Control 42 Transpower Grid System Assets 42 TP S0 Operational Control 42 Transpower Network System Assets 42 TP ROC Operational Control 42 Transpower Grid System & Network Assets 42 Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control
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TRANSPower NZ LTD		TP51989/2.dwg	
REGIONAL SINGLE LINE DIAGRAM			
(SHEET 2 OF 40)			
KTA, KOE, MPE, KEN & DAR			
FOLDER	GEN/24	ISSUE	S
DATE	MAY 09	TP APP'D	J HUGHES

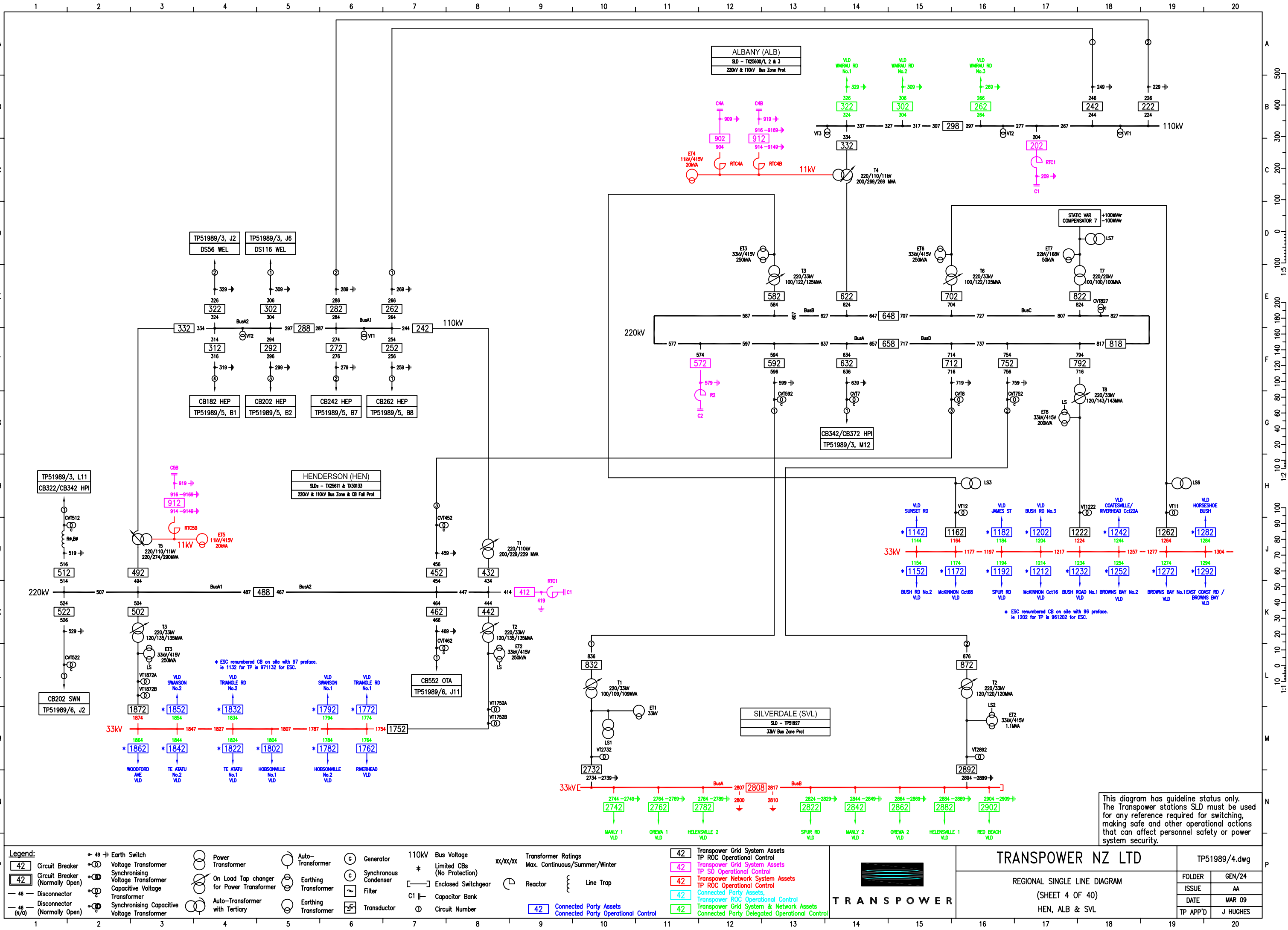
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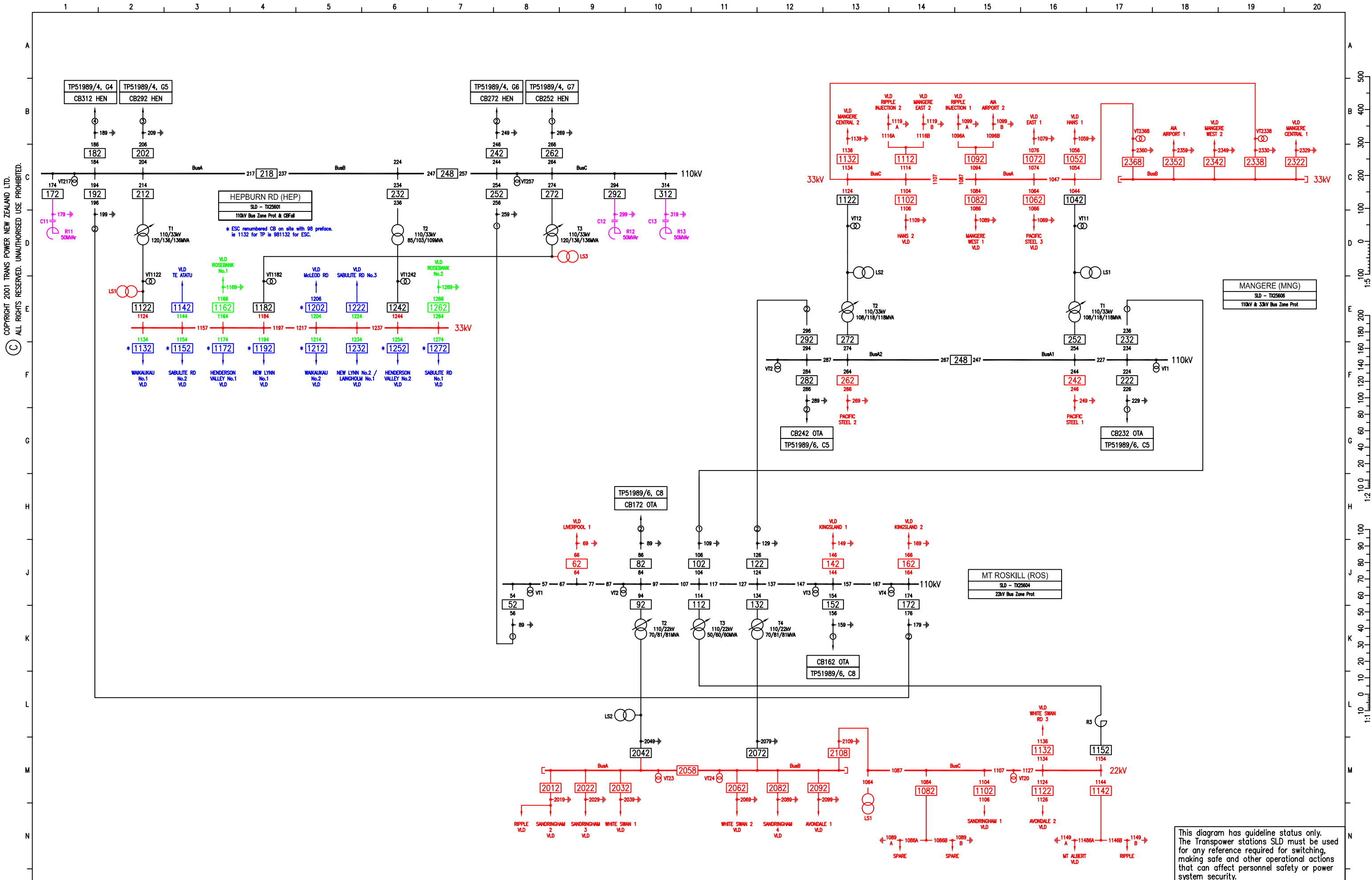
Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) C1 Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 3 OF 40) MTO, WEL, HPI, MDN & BRB		TP51989/3.dwg FOLDER GEN/24 ISSUE U DATE APR 09 TP APP'D J HUGHES	
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) - 46 - Disconnector - 46 (N/O) Disconnector (Normally Open)		49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer Transductor		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage * Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Connected Party Assets Transpower ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 4 OF 40) HEN, ALB & SVL		TP51989/4.dwg FOLDER GEN/24 ISSUE AA DATE MAR 09 TP APP'D J HUGHES	
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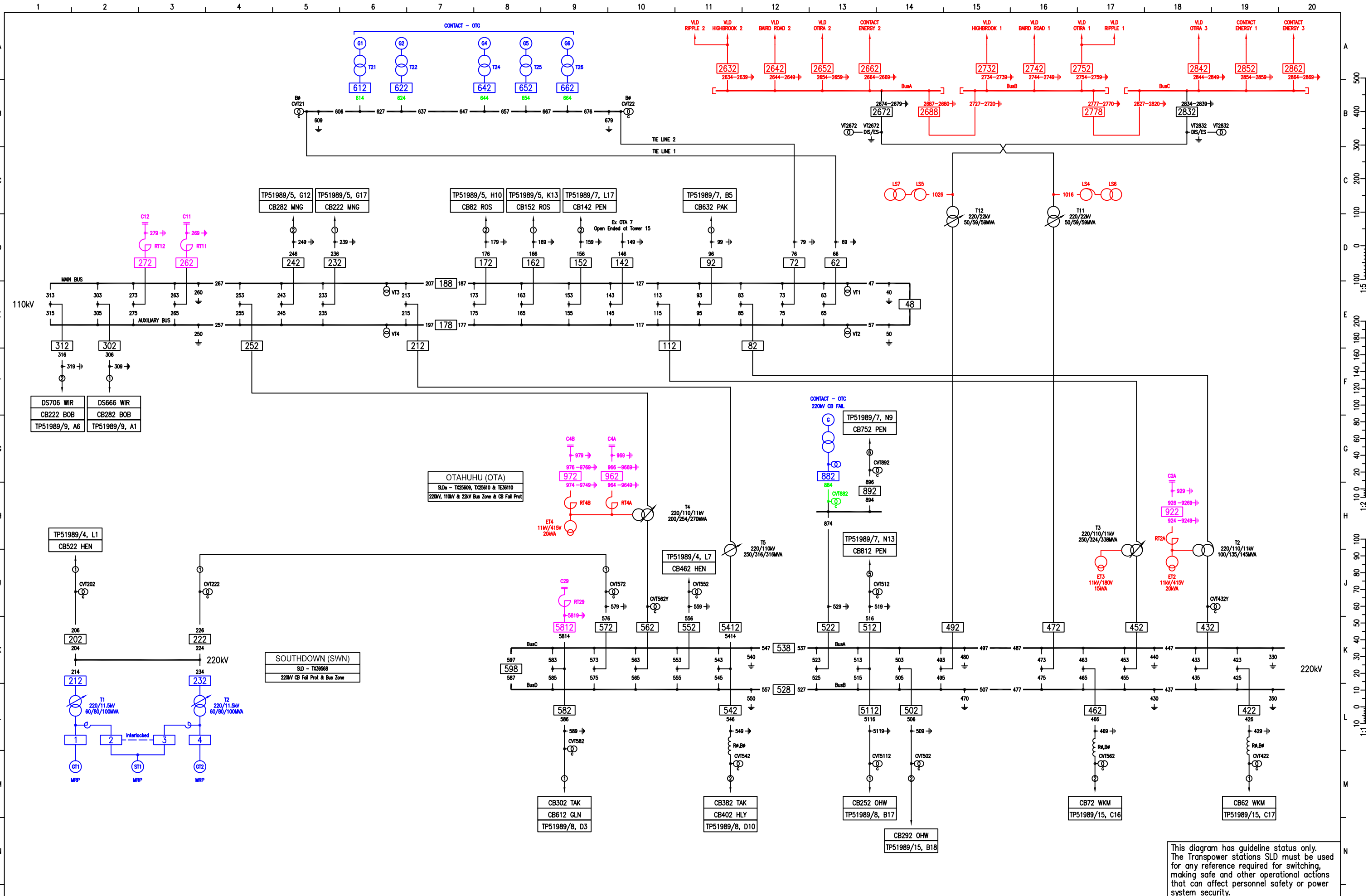


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Legend: <table style="width: 100%; font-size: small;"> <tr> <td>42</td><td>Circuit Breaker</td> <td>49</td><td>Earth Switch</td> <td>Power Transformer</td> <td>Auto-Transformer</td> <td>Generator</td> <td>110kV Bus Voltage</td> <td>xx/xx/xx</td><td>Transformer Ratings</td> <td>42</td><td>Transpower Grid System Assets</td> </tr> <tr> <td>42</td><td>Circuit Breaker (Normally Open)</td> <td>VT</td><td>Voltage Transformer</td> <td>On Load Tap changer for Power Transformer</td> <td>Earthing Transformer</td> <td>Synchronous Condenser</td> <td>* Limited CBs (No Protection)</td> <td>Reactor</td> <td>42</td><td>TP ROC Operational Control</td> </tr> <tr> <td>46</td><td>Disconnector</td> <td>VT</td><td>Synchronising Voltage Transformer</td> <td>Auto-Transformer with Tertiary</td> <td>Earthing Transformer</td> <td>Filter</td> <td>C1 Capacitor Bank</td> <td>Line Trap</td> <td>42</td><td>Transpower Grid System Assets</td> </tr> <tr> <td>46 (N/O)</td><td>Disconnector (Normally Open)</td> <td>VT</td><td>Capacitive Voltage Transformer</td> <td></td> <td>Earthing Transformer</td> <td>Transducer</td> <td></td> <td></td> <td>42</td><td>TP S0 Operational Control</td> </tr> <tr> <td></td><td></td> <td>VT</td><td>Transformer</td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>Transpower Network System Assets</td> </tr> <tr> <td></td><td></td> <td>VT</td><td>Synchronising Capacitive Voltage Transformer</td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>TP ROC Operational Control</td> </tr> <tr> <td></td><td></td> <td>VT</td><td></td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>Transpower Grid System & Network Assets</td> </tr> <tr> <td></td><td></td> <td>VT</td><td></td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>Connected Party Delegated Operational Control</td> </tr> <tr> <td></td><td></td> <td>VT</td><td></td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>Connected Party Assets</td> </tr> <tr> <td></td><td></td> <td>VT</td><td></td> <td></td> <td>Earthing Transformer</td> <td></td> <td></td> <td></td> <td>42</td><td>Connected Party Operational Control</td> </tr> </table>										42	Circuit Breaker	49	Earth Switch	Power Transformer	Auto-Transformer	Generator	110kV Bus Voltage	xx/xx/xx	Transformer Ratings	42	Transpower Grid System Assets	42	Circuit Breaker (Normally Open)	VT	Voltage Transformer	On Load Tap changer for Power Transformer	Earthing Transformer	Synchronous Condenser	* Limited CBs (No Protection)	Reactor	42	TP ROC Operational Control	46	Disconnector	VT	Synchronising Voltage Transformer	Auto-Transformer with Tertiary	Earthing Transformer	Filter	C1 Capacitor Bank	Line Trap	42	Transpower Grid System Assets	46 (N/O)	Disconnector (Normally Open)	VT	Capacitive Voltage Transformer		Earthing Transformer	Transducer			42	TP S0 Operational Control			VT	Transformer		Earthing Transformer				42	Transpower Network System Assets			VT	Synchronising Capacitive Voltage Transformer		Earthing Transformer				42	TP ROC Operational Control			VT			Earthing Transformer				42	Transpower Grid System & Network Assets			VT			Earthing Transformer				42	Connected Party Delegated Operational Control			VT			Earthing Transformer				42	Connected Party Assets			VT			Earthing Transformer				42	Connected Party Operational Control			TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 5 OF 40) HEP, MNG & ROS		TP51989/5.dwg <table border="1" style="width: 100%; font-size: x-small;"> <tr> <td>FOLDER</td><td>GEN/24</td> </tr> <tr> <td>ISSUE</td><td>AA</td> </tr> <tr> <td>DATE</td><td>JAN 09</td> </tr> <tr> <td>TP APP'D</td><td>J HUGHES</td> </tr> </table>		FOLDER	GEN/24	ISSUE	AA	DATE	JAN 09	TP APP'D	J HUGHES
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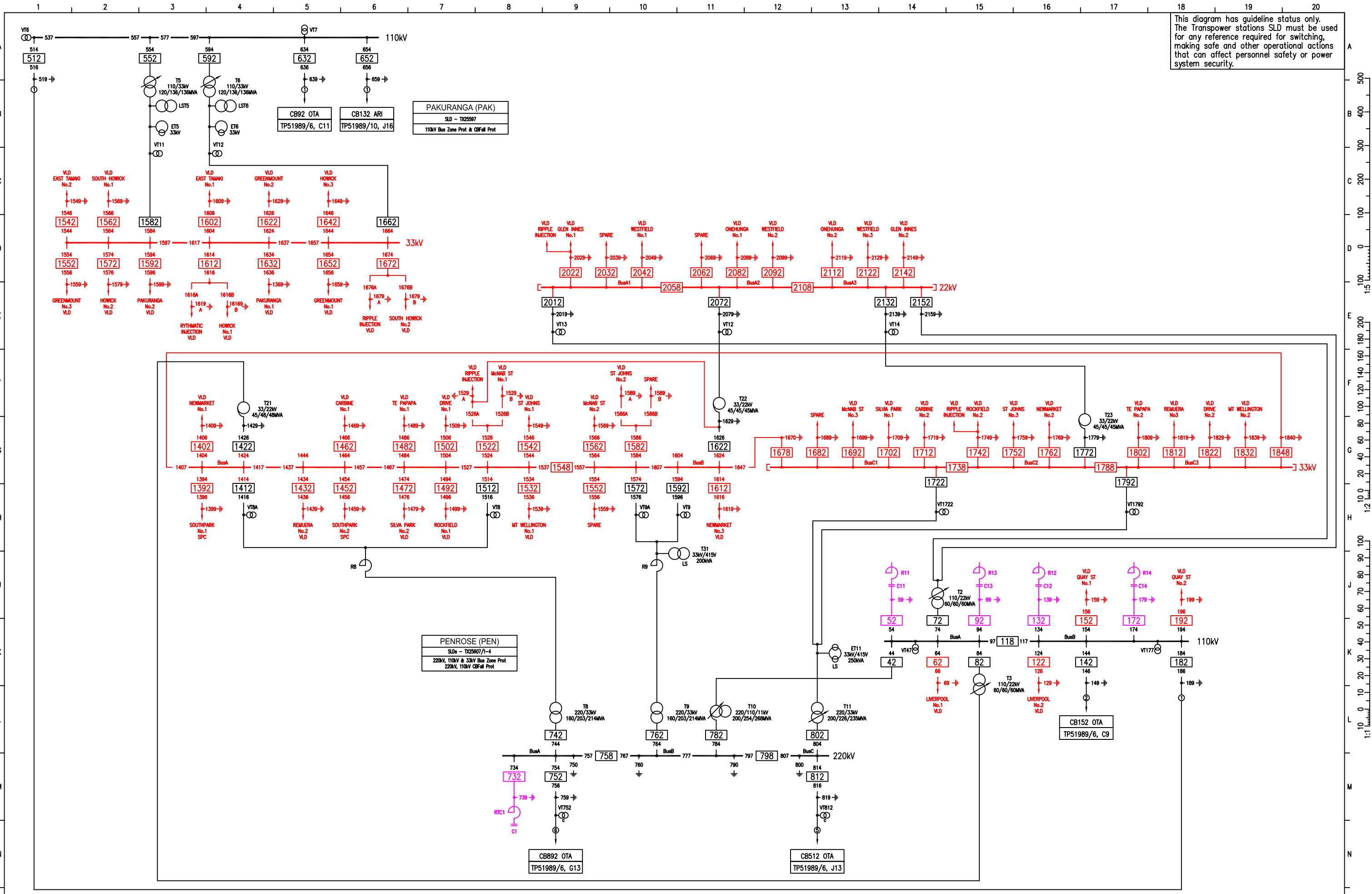


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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 6 OF 24) OTA & SWN		TP51989/6.dwg FOLDER GEN/24 ISSUE AE DATE MAR 09 TP APP'D J HUGHES	
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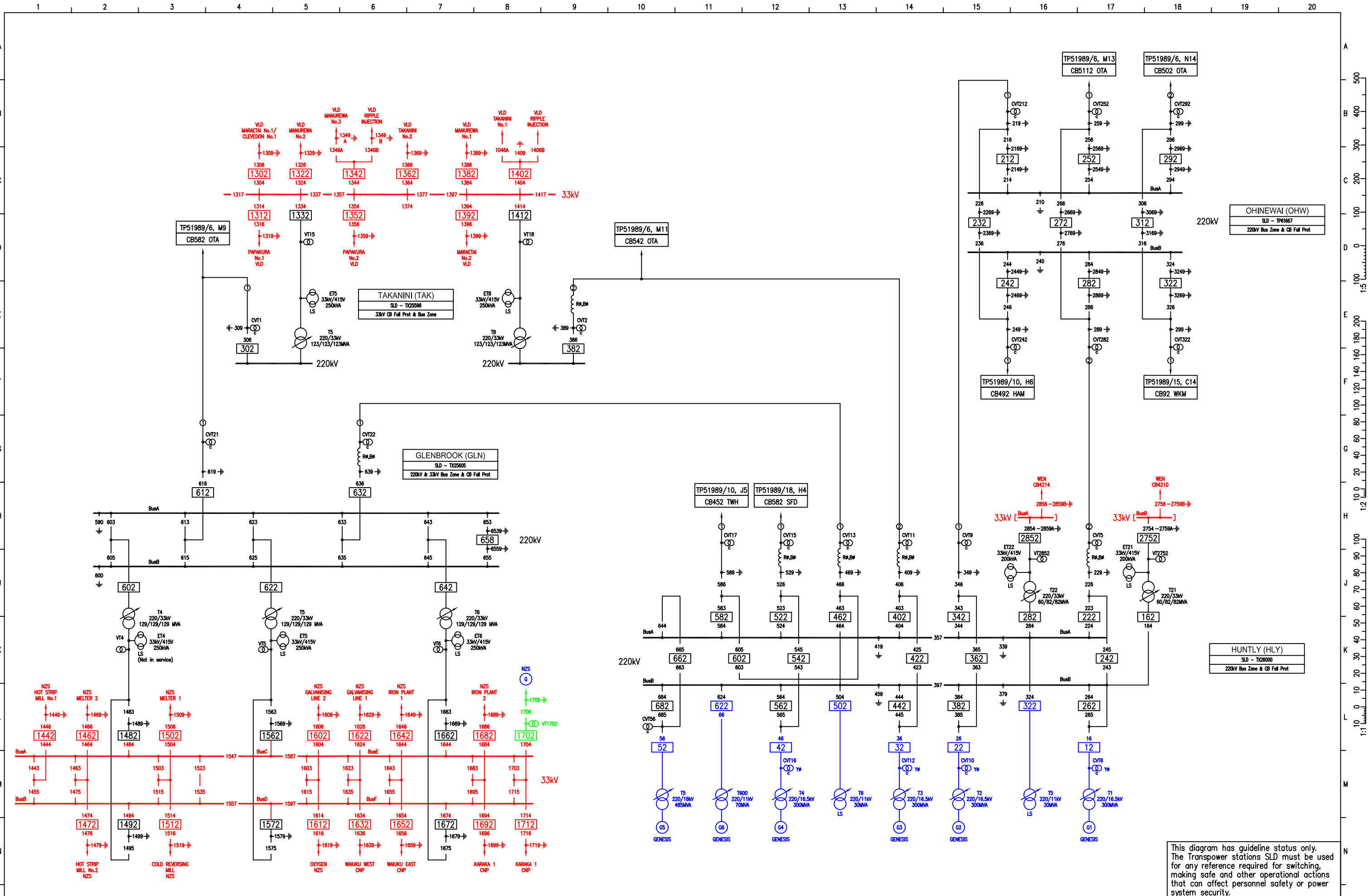
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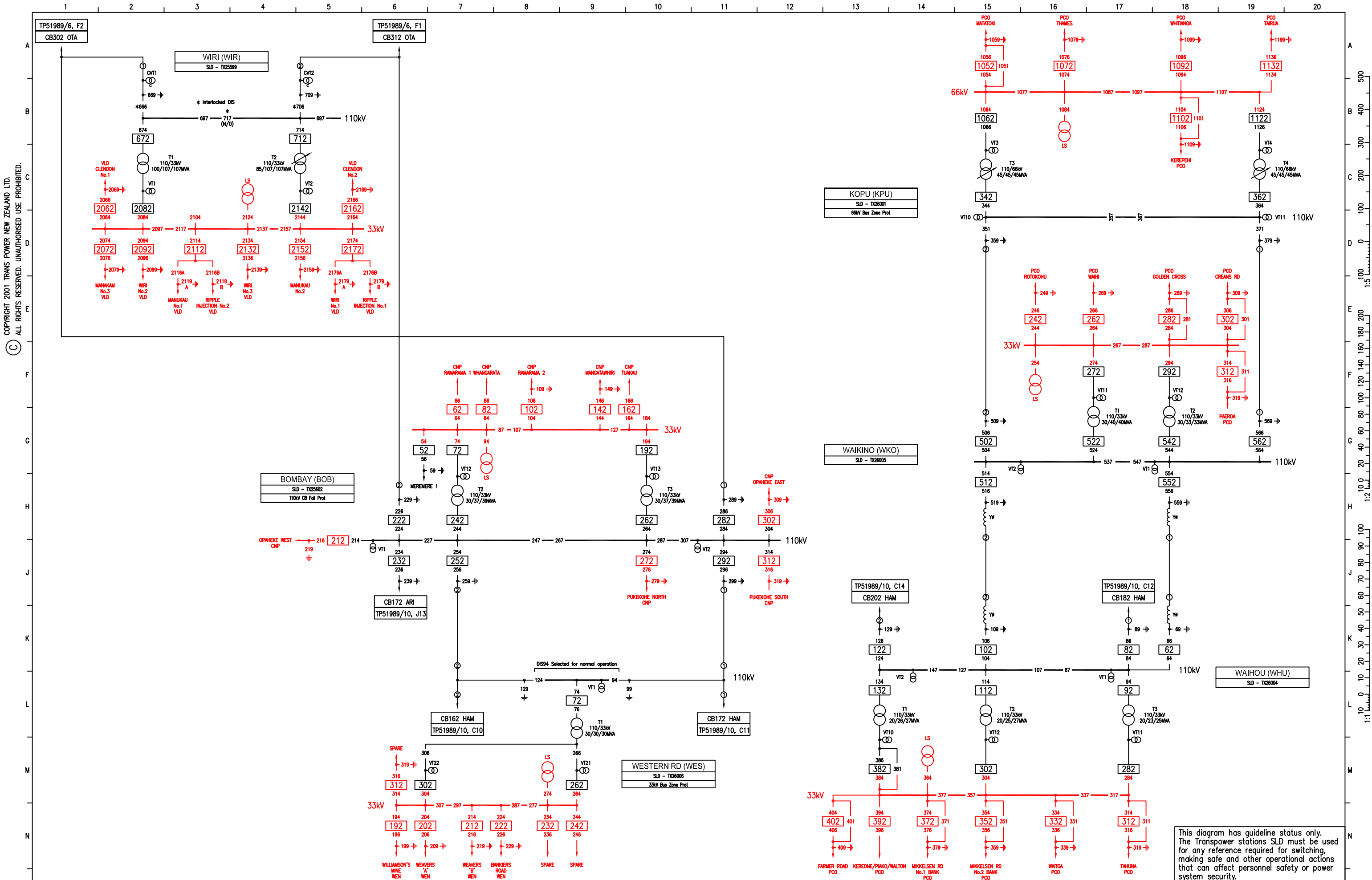
Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transducer 110kV Bus Voltage * Limited CBs (No Protection) Enclosed Switchgear C1 Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap										42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 7 OF 40) PEN & PAK		TP51989/7.dwg FOLDER GEN/24 ISSUE Y DATE APR 09 TP APP'D J HUGHES	
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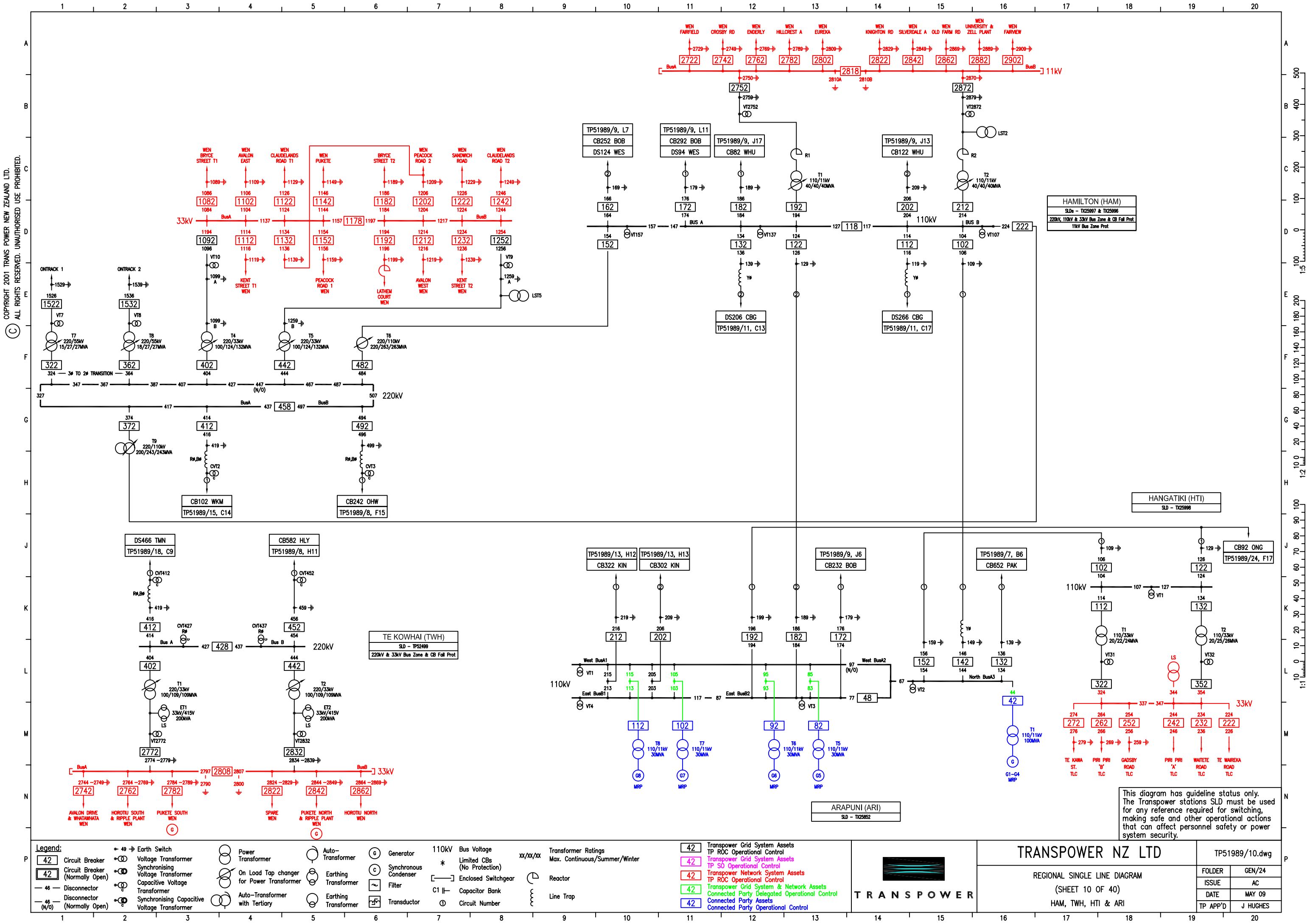
Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector Disconnector (Normally Open) 49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer Auto-Transformer Auto-Transformer with Tertiary Reactor Earthing Transformer Earthing Transformer Generator Motorised Disconnector With Remote Operation Filter Transducer 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter On Load Tap changer for Power Transformer Line Trap	42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP SO Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control		TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 8 OF 40) TAK, GLN, HLY & OHW	TP51989/8.dwg <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>FOLDER</td> <td>GEN/24</td> </tr> <tr> <td>ISSUE</td> <td>V</td> </tr> <tr> <td>DATE</td> <td>NOV 08</td> </tr> <tr> <td>TP APP'D</td> <td>J HUGHES</td> </tr> </table>	FOLDER	GEN/24	ISSUE	V	DATE	NOV 08	TP APP'D	J HUGHES
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TP APP'D	J HUGHES											



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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control		 TRANSPOWER		TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 9 OF 40) BOB, WIR, WES, KPU, WKO & WHU		TP51989/9.dwg FOLDER GEN/24 ISSUE W DATE MAR 09 TP APP'D J HUGHES	
		42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control							

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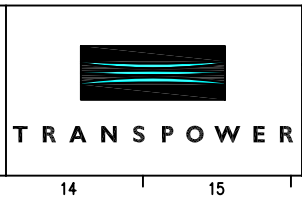


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Legend:

42	49				G	110kV Bus Voltage	xx/xx/xx	42
42						* Limited CBs (No Protection)		42
46						C1		42
46 (N/O)								42

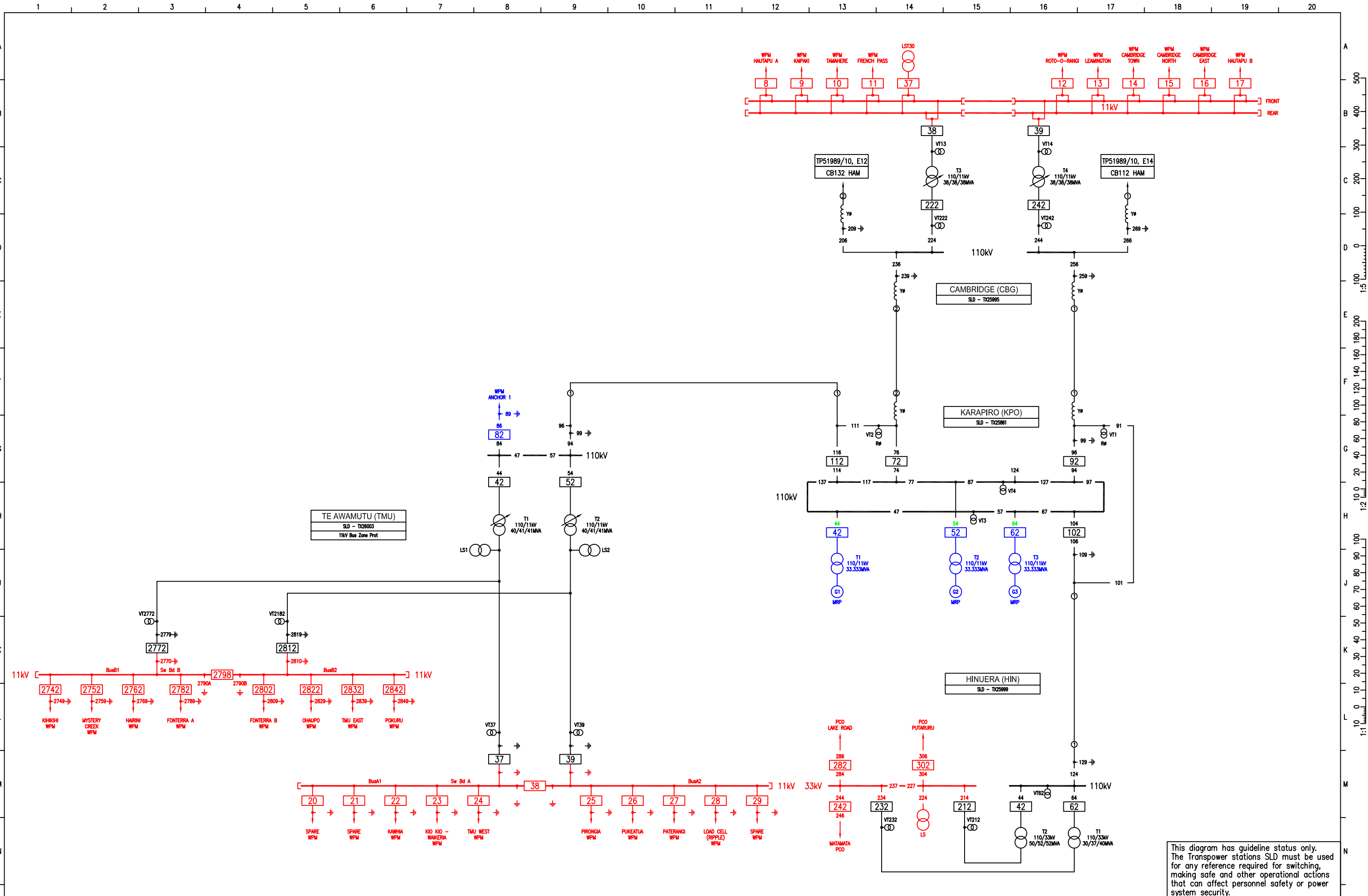
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TRANSPower NZ LTD		TP51989/10.dwg	
REGIONAL SINGLE LINE DIAGRAM (SHEET 10 OF 40) HAM, TWH, HTI & ARI			
FOLDER	GEN/24	ISSUE	AC
DATE	MAY 09	TP APP'D	J HUGHES

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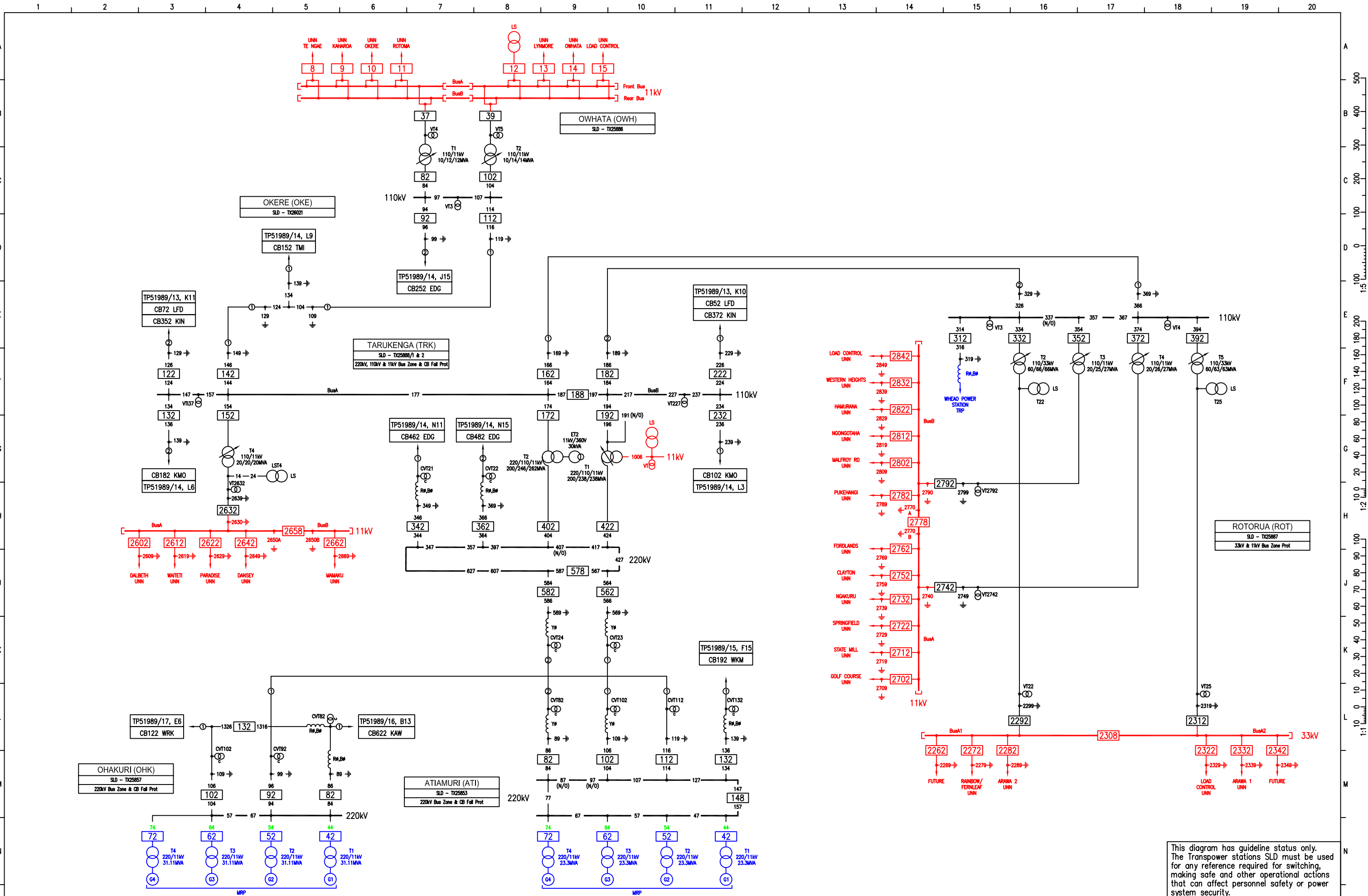
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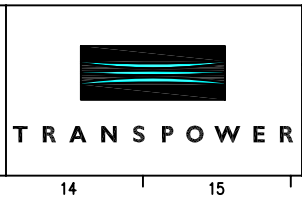
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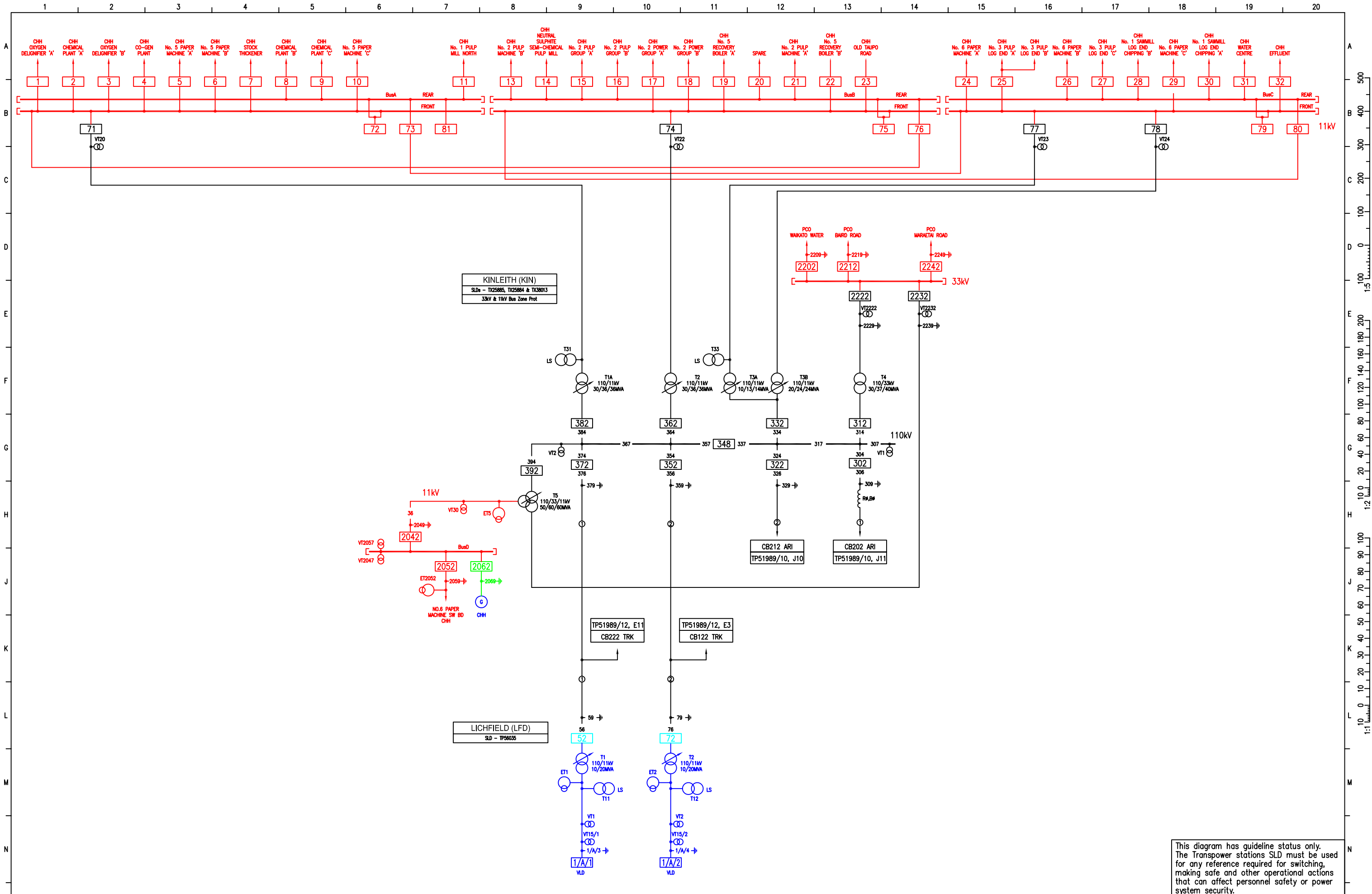
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Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 	<ul style="list-style-type: none"> Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer 	<ul style="list-style-type: none"> Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary 	<ul style="list-style-type: none"> Auto-Transformer Earthing Transformer Earthing Transformer 	<ul style="list-style-type: none"> Generator Synchronous Condenser Filter Transducer 	<ul style="list-style-type: none"> 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number 	<ul style="list-style-type: none"> Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets 42 TP ROC Operational Control 42 Transpower Grid System Assets 42 TP S0 Operational Control 42 Transpower Network System Assets 42 TP ROC Operational Control 42 Transpower Grid System & Network Assets 42 Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control
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TRANSPower NZ LTD		TP51989/12.dwg	
REGIONAL SINGLE LINE DIAGRAM (SHEET 12 OF 40)			
ATI, OHK, OKE, OWH, ROT & TRK			
FOLDER	GEN/24	DATE	MAR 09
ISSUE	R	TP APP'D	J HUGHES

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Legend:

42 Circuit Breaker	Earth Switch	Power Transformer	Auto-Transformer	Generator	110kV Bus Voltage	Transducer	TP ROC Operational Control
42 Circuit Breaker (Normally Open)	Voltage Transformer	On Load Tap changer for Power Transformer	Earthing Transformer	Synchronous Condenser	* Limited CBs (No Protection)	Reactor	TP S0 Operational Control
46 Disconnector	Synchronising Voltage Transformer	Auto-Transformer with Tertiary	Earthing Transformer	Filter	C1 Capacitor Bank	Line Trap	TP Network System Assets
46 (N/O) Disconnector (Normally Open)	Capacitive Voltage Transformer		Earthing Transformer	Transducer	Circuit Number	Connected Party Assets	TP ROC Operational Control
	Synchronising Capacitive Voltage Transformer					Connected Party Assets	TP ROC Operational Control

Transformer Ratings: Max. Continuous/Summer/Winter

TP ROC Operational Control: TP ROC Operational Control

TP S0 Operational Control: TP S0 Operational Control

TP Network System Assets: TP Network System Assets

TP ROC Operational Control: TP ROC Operational Control

TP Grid System & Network Assets: TP Grid System & Network Assets

TP ROC Operational Control: TP ROC Operational Control

TP S0 Operational Control: TP S0 Operational Control

TP ROC Operational Control: TP ROC Operational Control

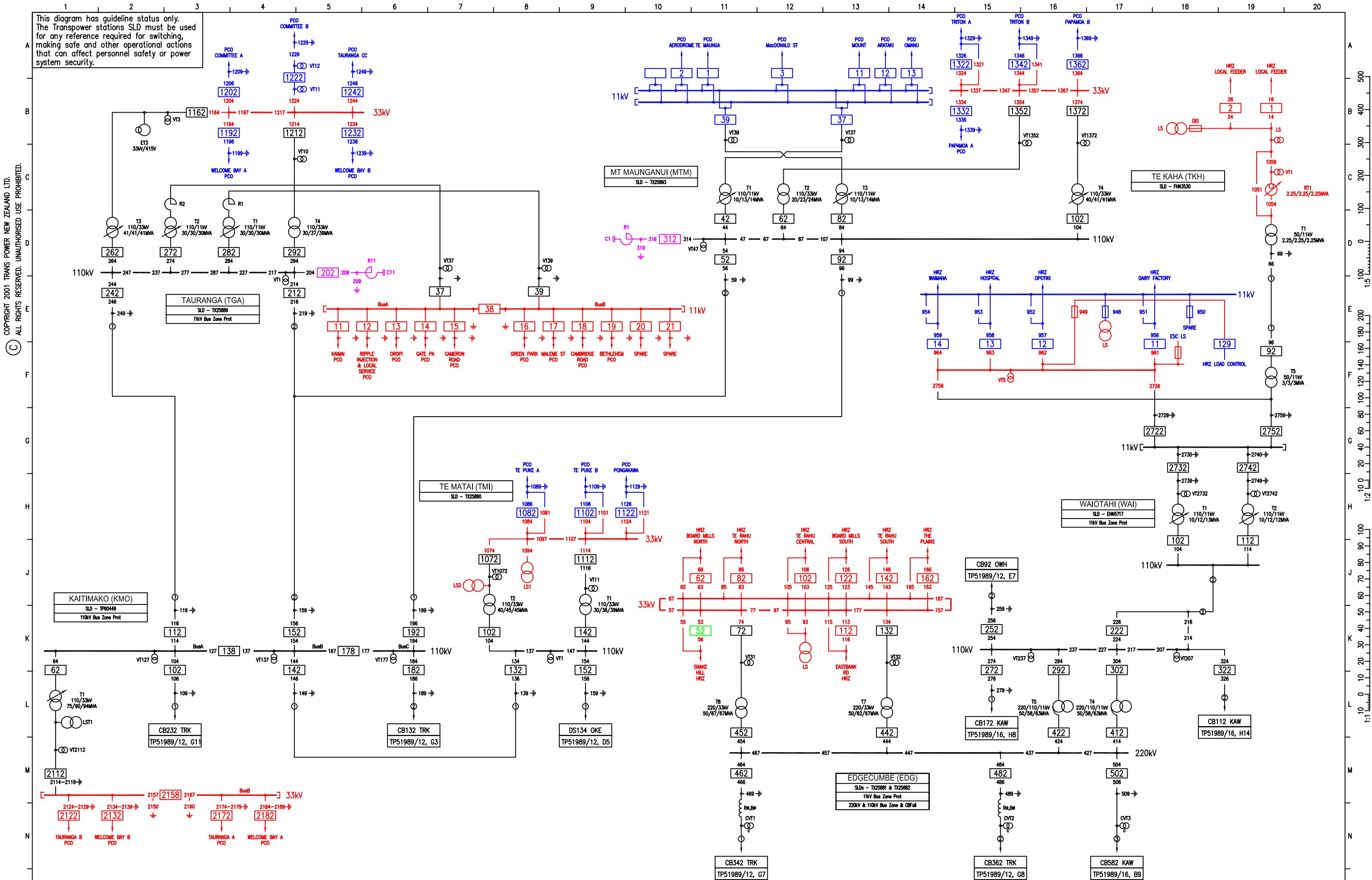
TP ROC Operational Control: TP ROC Operational Control

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REGIONAL SINGLE LINE DIAGRAM
 (SHEET 13 OF 40)
 KIN & LFD

TP1989/13.dwg

FOLDER	GEN/24
ISSUE	N
DATE	MAR 09
TP APP'D	J HUGHES



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Legend:		Power Transformer		Auto-Transformer		Generator		110kV Bus Voltage		Transformer Ratings		Transpower Grid System Assets	
	Circuit Breaker		Voltage Transformer		Auto-Transformer		Generator	110kV	Bus Voltage	xx/xx/xx	Max. Continuous/Summer/Winter		TP ROC Operational Control
	Circuit Breaker (Normally Open)		Synchronising Voltage Transformer		On Load Tap changer for Power Transformer		Synchronous Condenser	*	Limited CBs (No Protection)		Reactor		Transpower Grid System Assets
	Disconnector		Capacitive Voltage Transformer		Earthing Transformer		Filter		Enclosed Switchgear		Line Trap		Transpower Network System Assets
	Disconnector (Normally Open)		Synchronising Capacitive Voltage Transformer		Auto-Transformer with Tertiary		Transducer		Capacitor Bank		Circuit Number		TP ROC Operational Control

Legend:

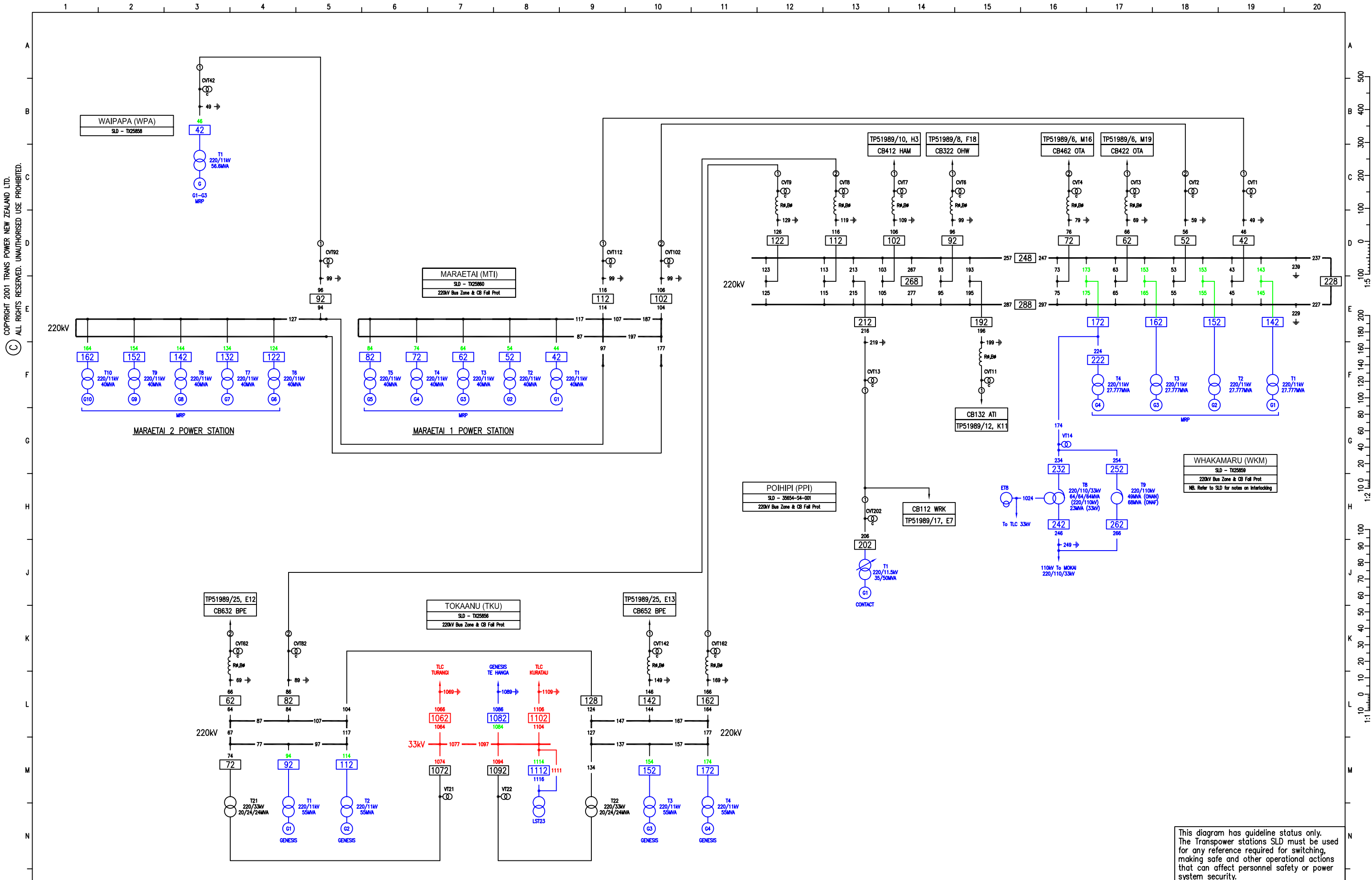
- Transpower Grid System Assets
- TP ROC Operational Control
- Transpower Grid System Assets
- TP S0 Operational Control
- Transpower Network System Assets
- TP ROC Operational Control
- Transpower Grid System & Network Assets
- Connected Party Delegated Operational Control
- Connected Party Assets
- Connected Party Operational Control

TRANSPOWER

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REGIONAL SINGLE LINE DIAGRAM
(SHEET 14 OF 40)
TGA, MTM, TMI, KMO, EDG, WAI & TKH

TP1989/14.dwg	
FOLDER	GEN/24
ISSUE	Y
DATE	MAR 09
TP APP'D	J HUGHES

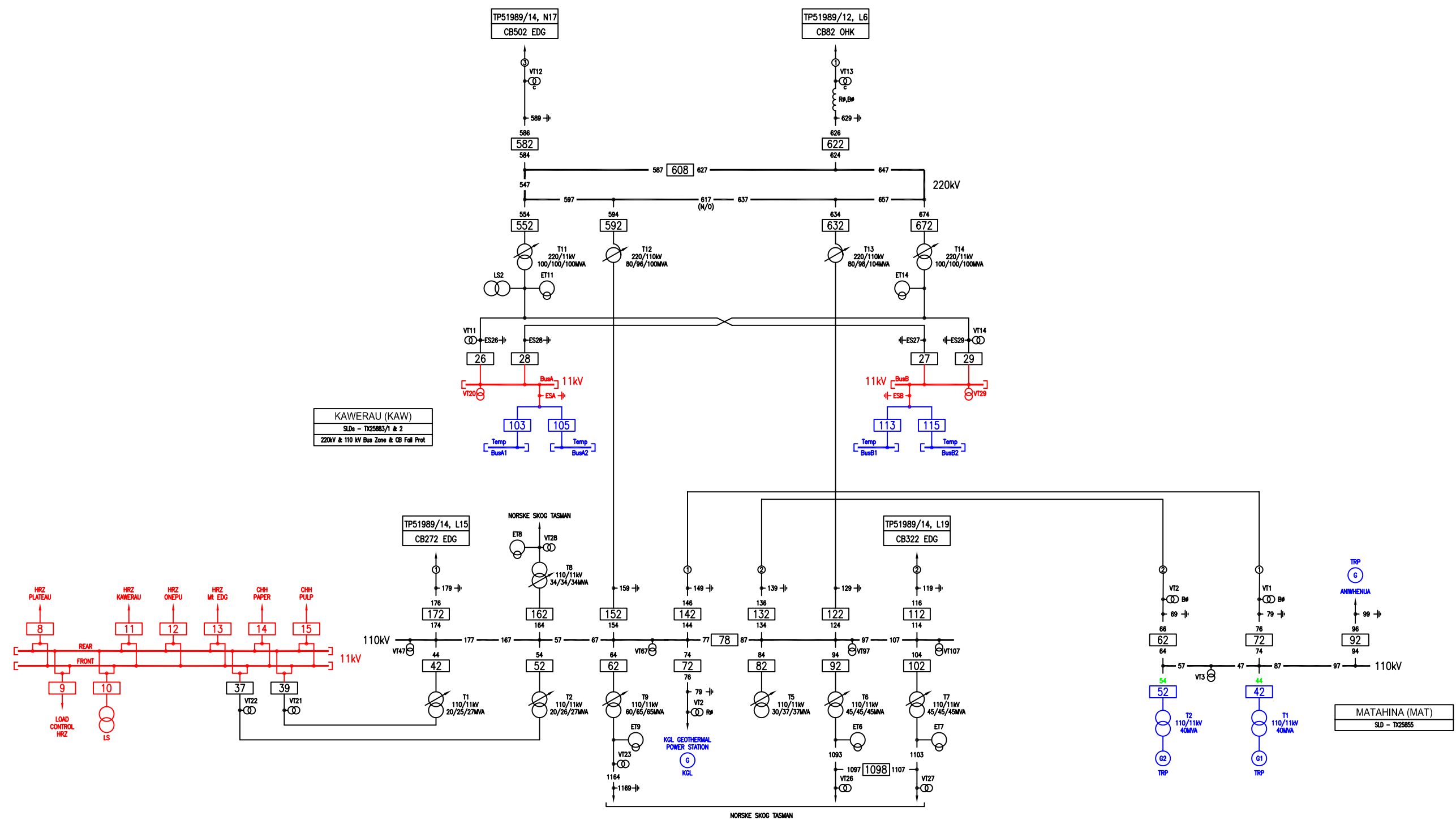


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This diagram has guideline status only.
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 making safe and other operational actions
 that can affect personnel safety or power
 system security.

Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) - 46 - Disconnector - 46 (N/O) Disconnector (Normally Open)	Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer	Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary	Auto-Transformer Earthing Transformer Earthing Transformer	Generator Synchronous Condenser Filter Transducer	110kV Bus Voltage * Limited CBs (No Protection) Enclosed Switchgear C1 Capacitor Bank Circuit Number	Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap	42 Transpower Grid System Assets TP ROC Operational Control TP ROC Operational Control TP S0 Operational Control TP ROC Operational Control TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control		TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 15 OF 40) WPA, MTI, WKM, PPI & TKU	TP51989/15.dwg <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">FOLDER</td> <td>GEN/24</td> </tr> <tr> <td>ISSUE</td> <td>P</td> </tr> <tr> <td>DATE</td> <td>SEPT 08</td> </tr> <tr> <td>TP APP'D</td> <td>J HUGHES</td> </tr> </table>	FOLDER	GEN/24	ISSUE	P	DATE	SEPT 08	TP APP'D	J HUGHES
FOLDER	GEN/24																	
ISSUE	P																	
DATE	SEPT 08																	
TP APP'D	J HUGHES																	

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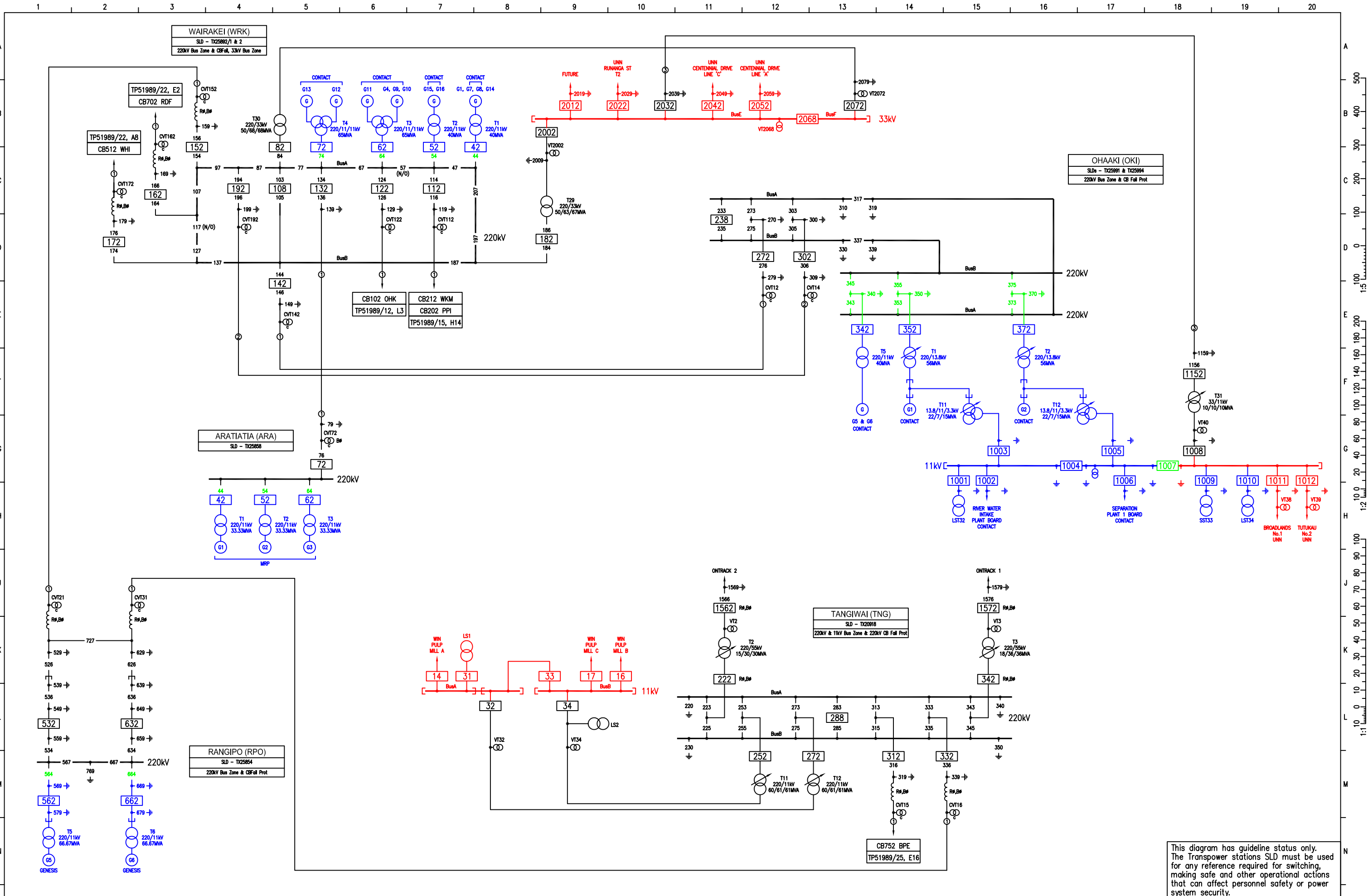
This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 	<ul style="list-style-type: none"> Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer 	<ul style="list-style-type: none"> Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary 	<ul style="list-style-type: none"> Auto-Transformer Earthing Transformer Earthing Transformer 	<ul style="list-style-type: none"> Generator Synchronous Condenser Filter Transductor 	<ul style="list-style-type: none"> 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number 	<ul style="list-style-type: none"> Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets TP ROC Operational Control TP ROC Operational Control TP NCC SO Operational Control TP NCC SO Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets Connected Party Operational Control
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REGIONAL SINGLE LINE DIAGRAM			
(SHEET 16 OF 40)			
KAW & MAT			
FOLDER	GEN/24	ISSUE	S
DATE	MAR 09	TP APP'D	J HUGHES

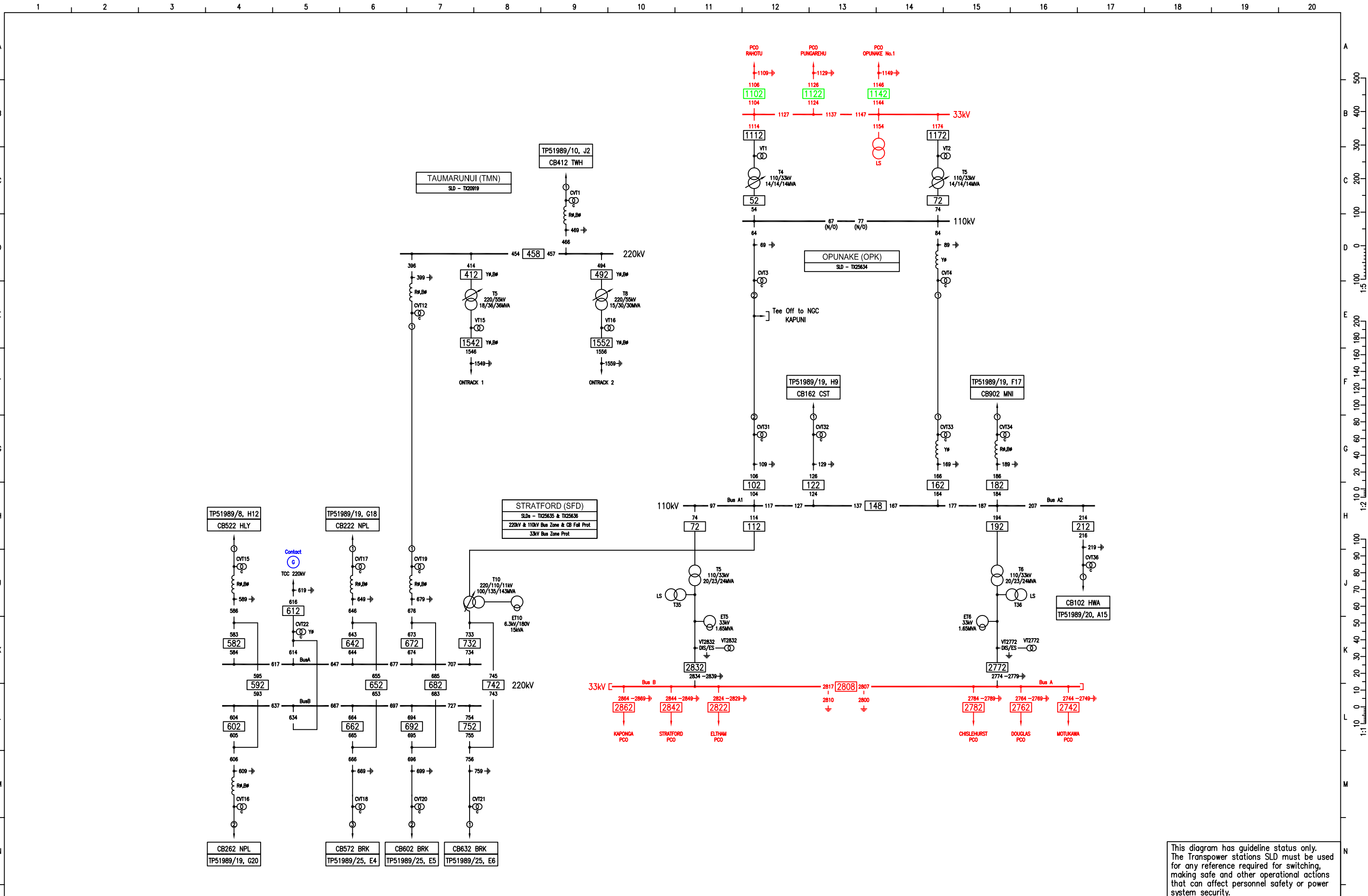
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage * Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 17 OF 40) WRK, OKI, ARA, RPO & TNG		TP51989/17.dwg FOLDER GEN/24 ISSUE V DATE JAN 09 TP APP'D J FARNWORTH	
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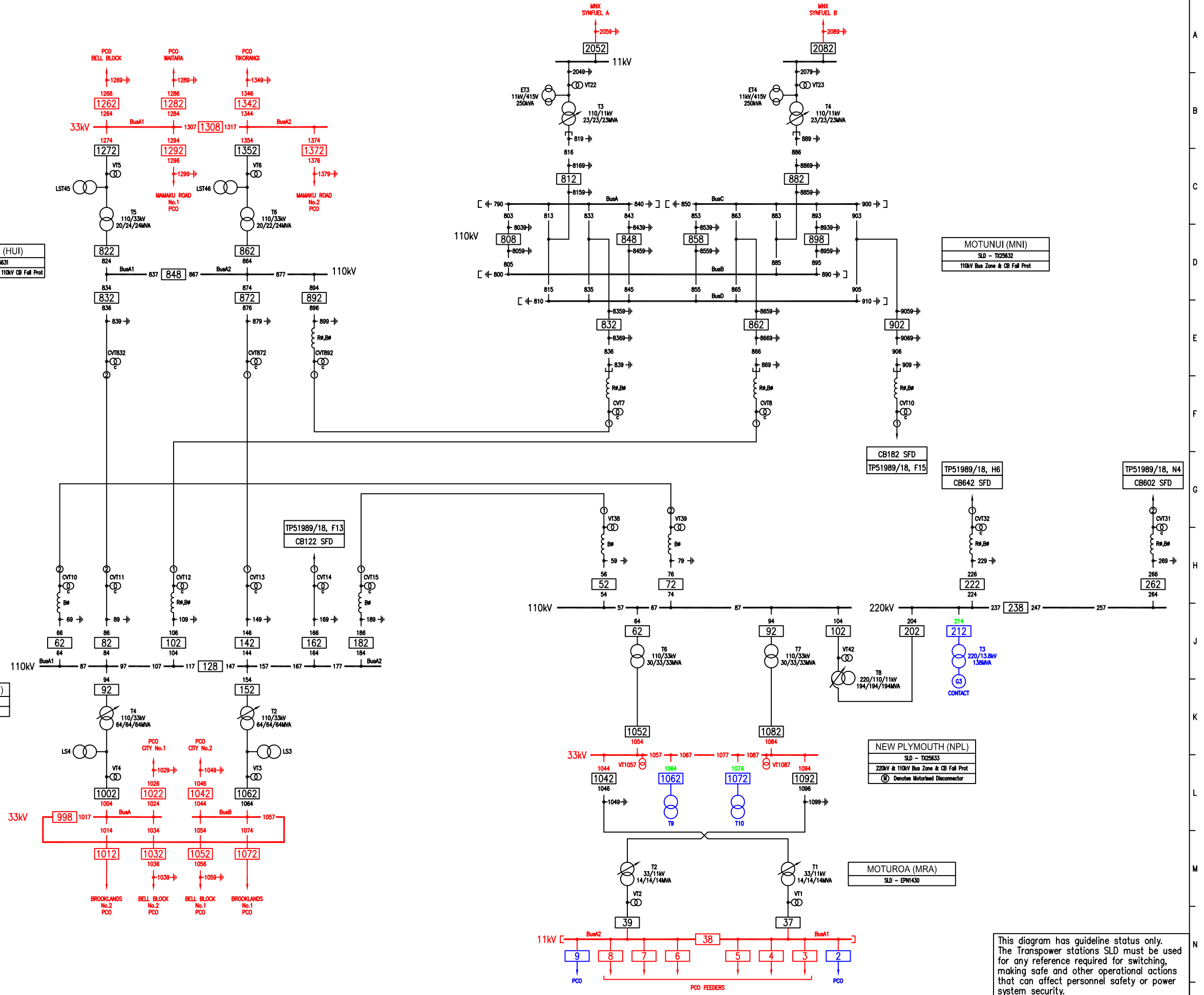
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 (N/O) Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP SO Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 18 OF 40) TMN, SFD & OPK		TP51989/18.dwg FOLDER GEN/24 ISSUE N DATE JAN 09 TP APP'D J FARNWORTH	
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HUIRANGI (HUI)
SLD - TX25631
110kV & 33kV Bus Zone & 110kV CB Fall Prot

CARRINGTON ST (CST)
SLD - TX25629
110kV Bus Zone & CB Fall Prot

MOTUNUI (MNI)
SLD - TX25632
110kV Bus Zone & CB Fall Prot

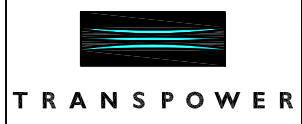
NEW PLYMOUTH (NPL)
SLD - TX25633
220kV & 110kV Bus Zone & CB Fall Prot
(M) Denotes Motorised Disconnector

MOTUROA (MRA)
SLD - EPH430

This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend:		110kV Bus Voltage		Transformer Ratings		Generator		Auto-Transformer		Synchronous Condenser		Filter		Transductor	
42	Circuit Breaker	49	Earth Switch	110kV	Bus Voltage	xx/xx/xx	Max. Continuous/Summer/Winter	⊕	Generator	⊕	Synchronous Condenser	~	Filter	C1	Capacitor Bank
42	Circuit Breaker (Normally Open)	⊕	Voltage Transformer	*	Limited CBs (No Protection)	⊕	Reactor	⊕	Auto-Transformer	⊕	Enclosed Switchgear	⊕	Line Trap		
46	Disconnector	⊕	Synchronising Voltage Transformer	⊕	On Load Tap changer for Power Transformer	⊕	Earthing Transformer	⊕	Auto-Transformer with Tertiary	⊕	Earthing Transformer	⊕			
46 (N/O)	Disconnector (Normally Open)	⊕	Capacitive Voltage Transformer	⊕	Auto-Transformer	⊕	Earthing Transformer	⊕		⊕	Transducer	⊕			

42	Transpower Grid System Assets
42	TP ROC Operational Control
42	Transpower Network System Assets
42	TP ROC Operational Control
42	Transpower Grid System & Network Assets
42	Connected Party Delegated Operational Control
42	Connected Party Assets
42	Connected Party Operational Control
42	Connected Party Assets
42	TP ROC Operational Control

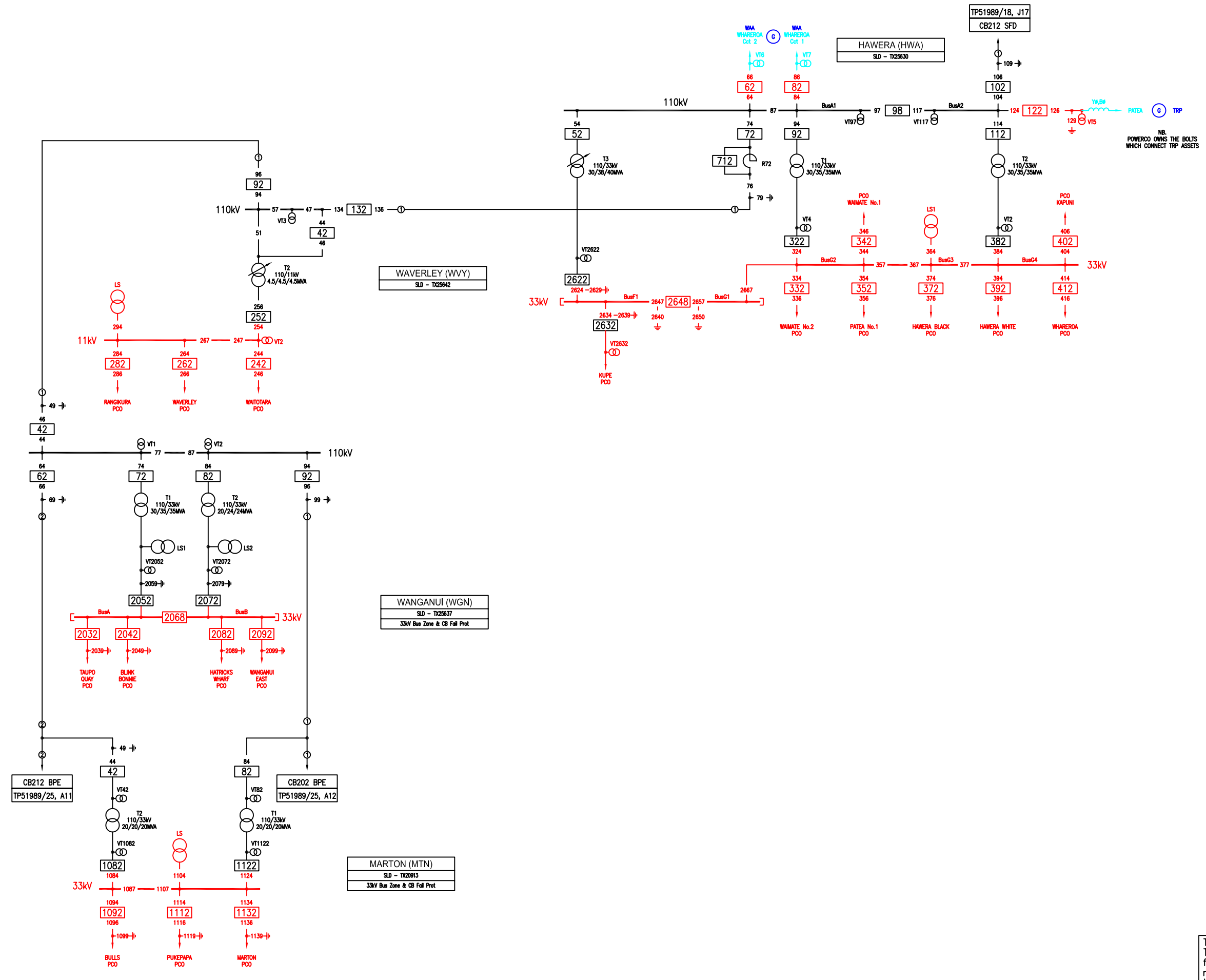


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REGIONAL SINGLE LINE DIAGRAM
(SHEET 19 OF 40)
HUI, NPL, MRA, MNI & CST

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FOLDER	GEN/24
ISSUE	W
DATE	APR 09
TP APP'D	J FARNWORTH

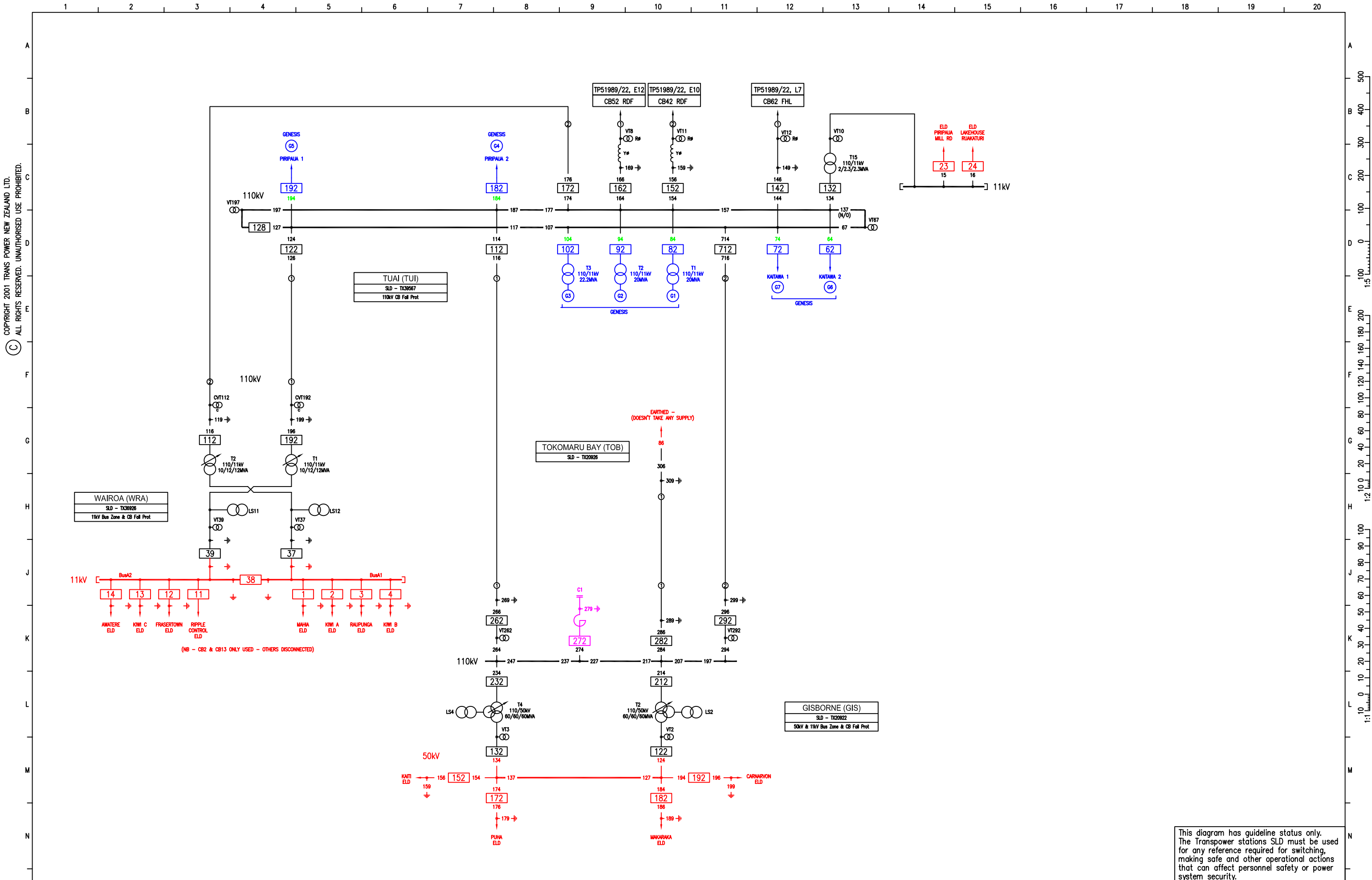
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 that can affect personnel safety or power
 system security.

Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Connected Party Assets Transpower ROC Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 20 OF 40) HWA, WVY, WGN & MTN		TP51989/20.dwg FOLDER GEN/24 ISSUE N DATE JAN 09 TP APP'D J FARNWORTH	
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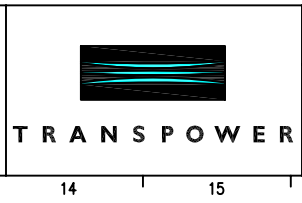
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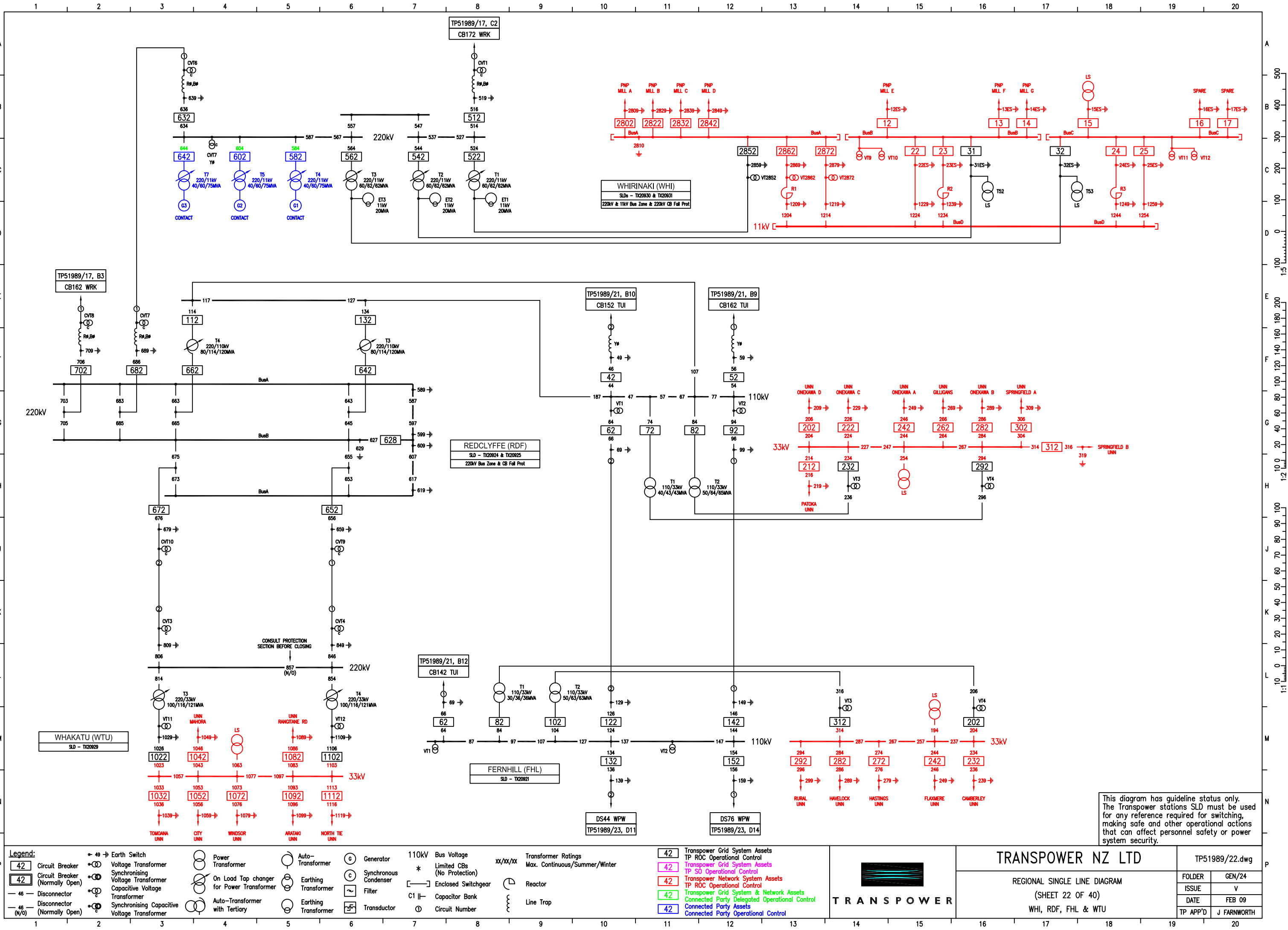
This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 	<ul style="list-style-type: none"> Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer 	<ul style="list-style-type: none"> Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary 	<ul style="list-style-type: none"> Auto-Transformer Earthing Transformer Earthing Transformer 	<ul style="list-style-type: none"> Generator Synchronous Condenser Filter Transducer 	<ul style="list-style-type: none"> 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number 	<ul style="list-style-type: none"> Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets TP ROC Operational Control TP S0 Operational Control TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control
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REGIONAL SINGLE LINE DIAGRAM			
(SHEET 21 OF 40)			
WRA, TUI, GIS, & TOB			
FOLDER	GEN/24	ISSUE	R
DATE	JAN 09	TP APP'D	J FARNWORTH

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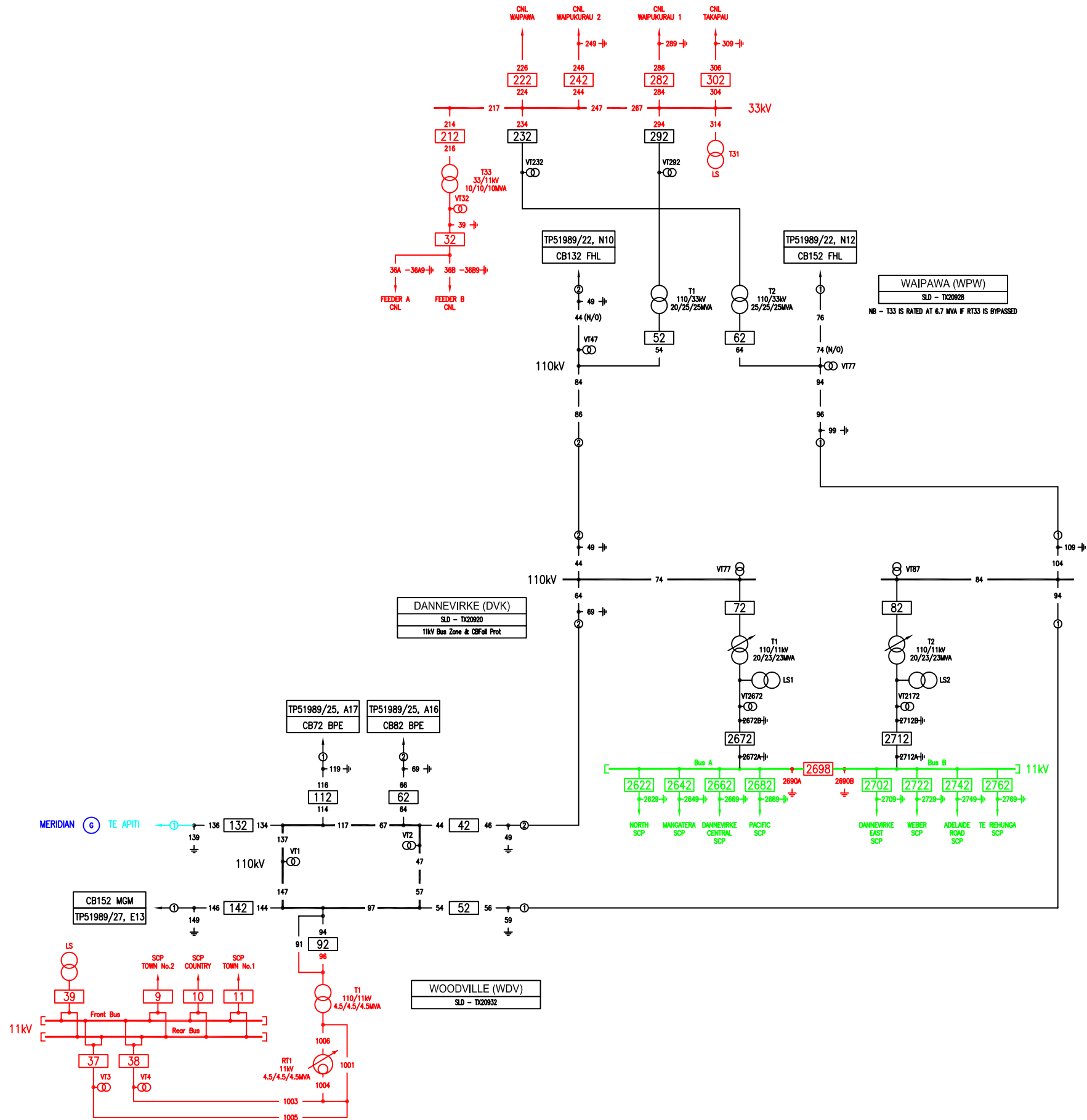
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Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 (N/O) Disconnector (Normally Open) Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transducer 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear C1 Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets TP ROC Operational Control 42 Transpower Grid System Assets TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control
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REGIONAL SINGLE LINE DIAGRAM			
(SHEET 22 OF 40)			
WHI, RDF, FHL & WTU			
FOLDER	GEN/24	ISSUE	V
DATE	FEB 09	TP APP'D	J FARNWORTH

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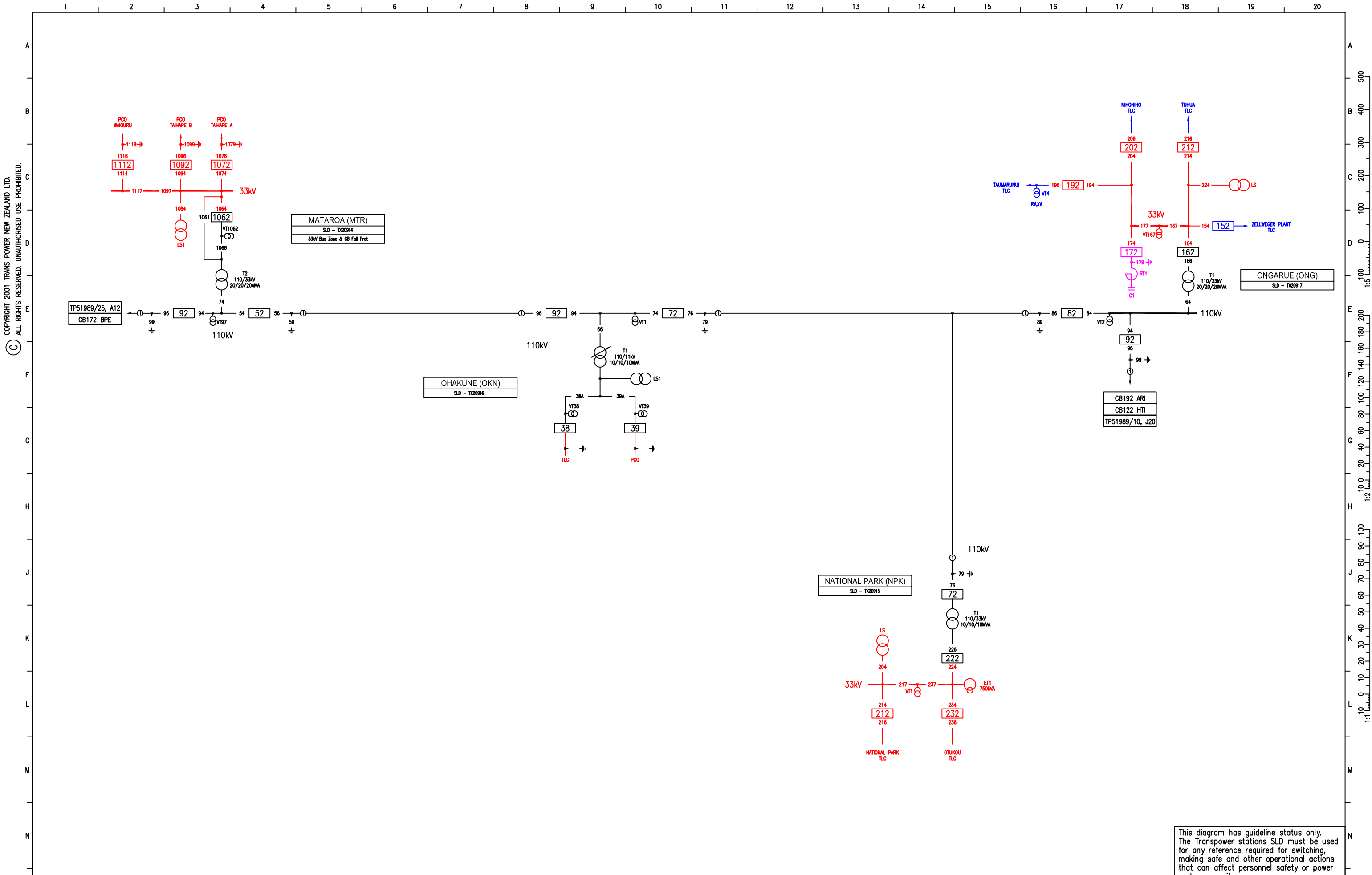
WAIPAWA (WPW)
SLD - TX20928
NB - T33 IS RATED AT 6.7 MVA IF RT33 IS BYPASSED

DANNEVIRKE (DVK)
SLD - TX20920
110V Bus Zone & CB Fall Prot

WOODVILLE (WDV)
SLD - TX20932

This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 (N/O) Disconnector (Normally Open) Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transductor 110kV Bus Voltage * Limited CBs (No Protection) C1 Enclosed Switchgear C2 Capacitor Bank C3 Circuit Number XX/XX/XX Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 42 Transpower Grid System Assets 42 TP ROC Operational Control 42 Connected Party Assets 42 Transpower Network System Assets 42 TP ROC Operational Control 42 Transpower Grid System & Network Assets 42 Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control														TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 23 OF 40) WPW, DVK & WDV		TP51989/23.dwg FOLDER GEN/24 ISSUE V DATE MAY 09 TP APP'D J FARNWORTH	
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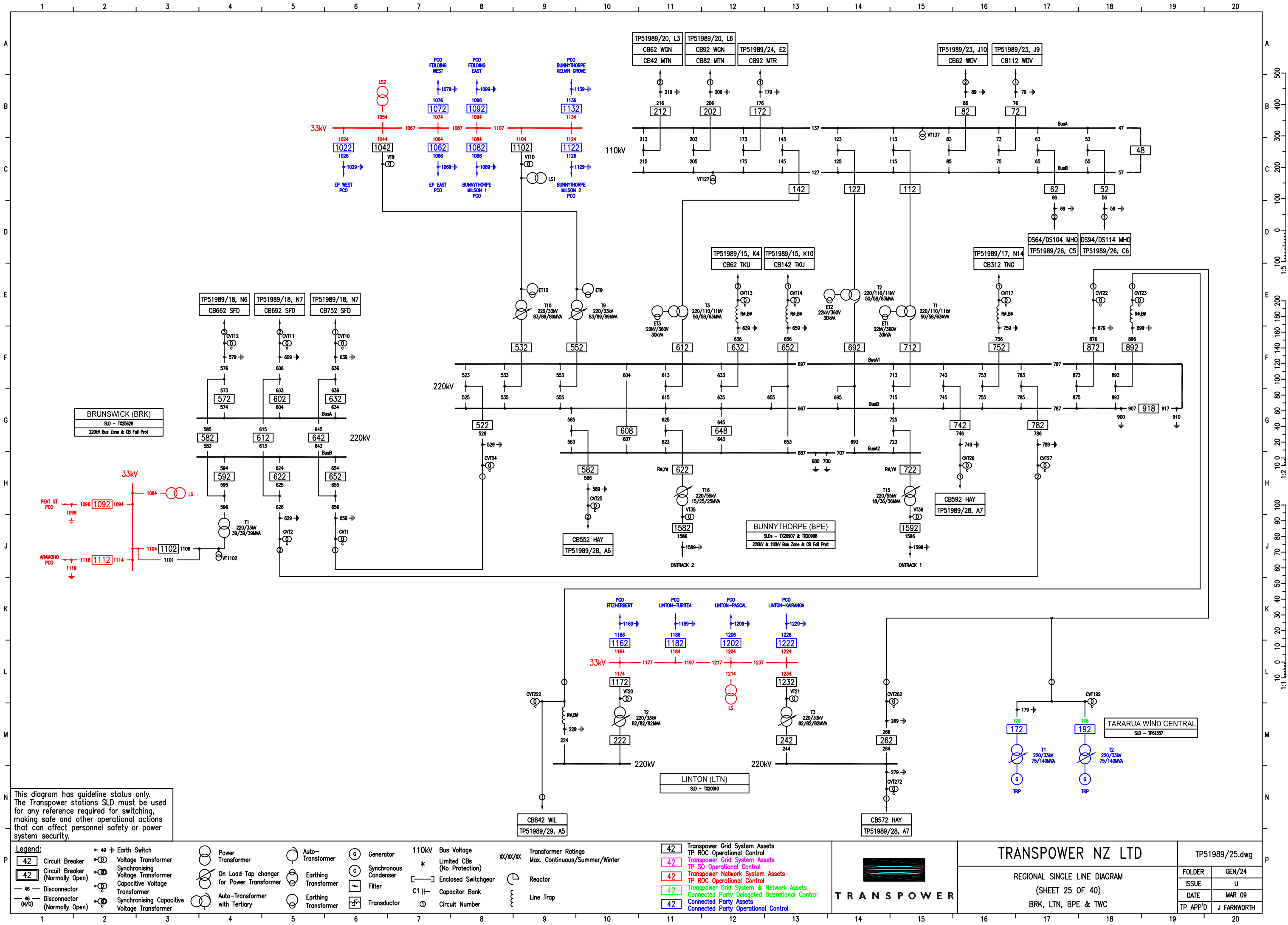
This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend:	<ul style="list-style-type: none"> Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transductor 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap 	<ul style="list-style-type: none"> 42 Transpower Grid System Assets TP ROC Operational Control 42 Transpower Grid System Assets TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets Connected Party Operational Control
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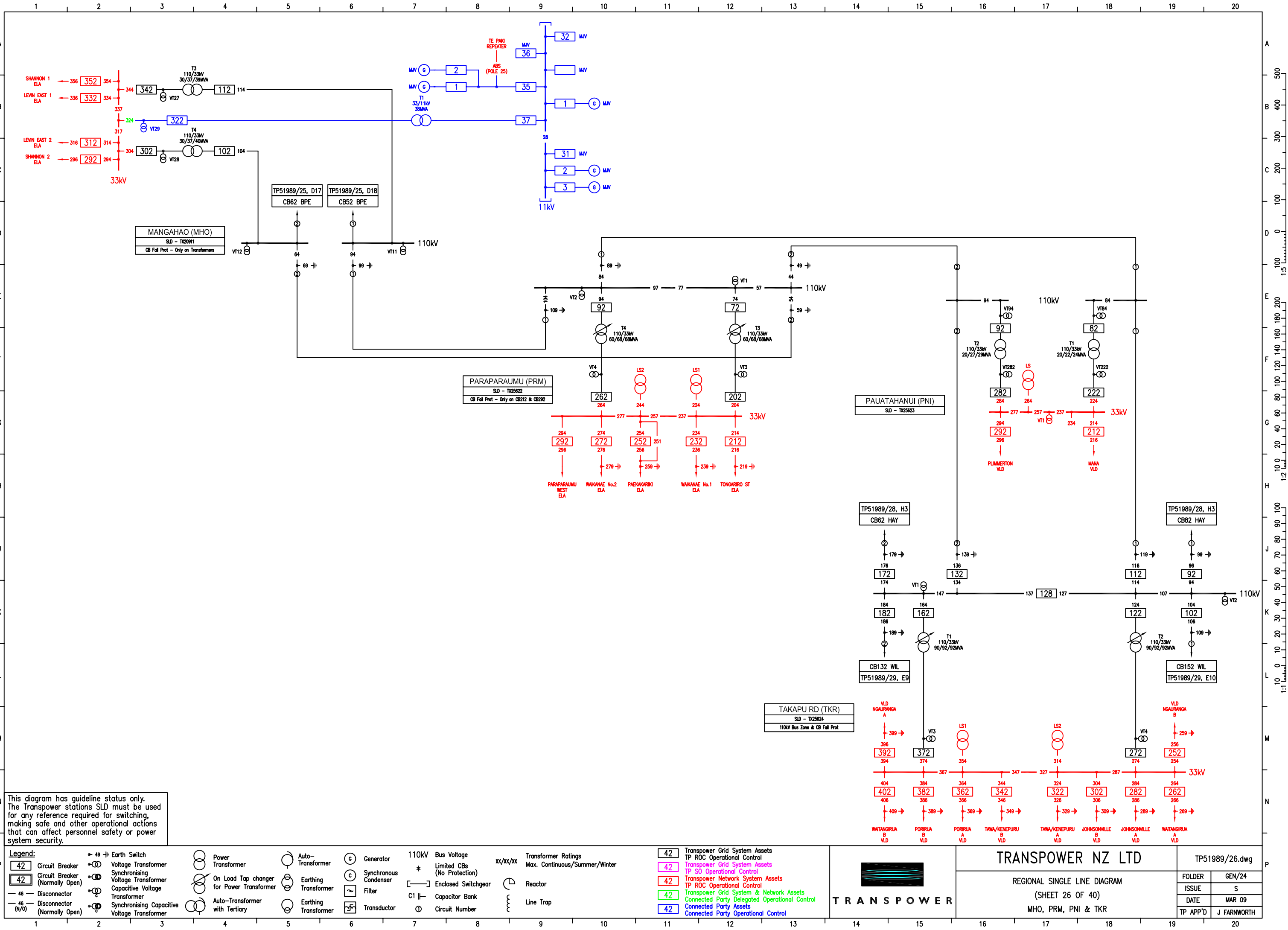


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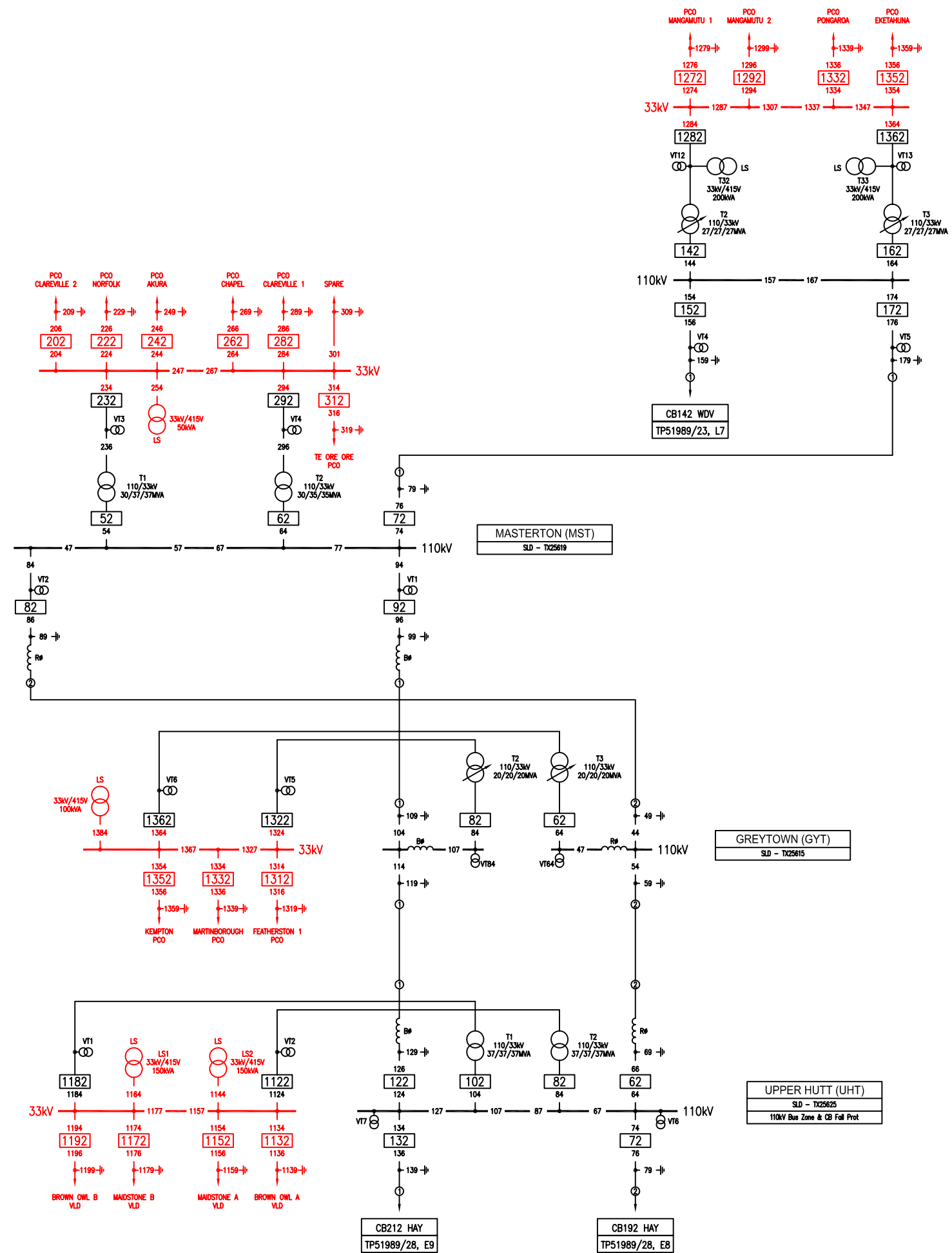
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transductor		110kV Bus Voltage * Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets 42 Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 26 OF 40) MHO, PRM, PNI & TKR		TP51989/26.dwg FOLDER GEN/24 ISSUE S DATE MAR 09 TP APP'D J FARNWORTH	
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MANGAMAIRE (MGM)
SLD - TX20923

MASTERTON (MST)
SLD - TX25619

GREYTOWN (GYT)
SLD - TX25615

UPPER HUTT (UHT)
SLD - TX25625
110kV Bus Zone & CB Fall Prot.

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Legend:	Earth Switch	Power Transformer	Auto-Transformer	Generator	110kV Bus Voltage	Transformer Ratings	42 Transpower Grid System Assets
42 Circuit Breaker	Voltage Transformer	On Load Tap changer for Power Transformer	Auto-Transformer	Synchronous Condenser	Limited CBs (No Protection)	Max. Continuous/Summer/Winter	TP ROC Operational Control
42 Circuit Breaker (Normally Open)	Synchronising Voltage Transformer	Auto-Transformer with Tertiary	Earthing Transformer	Filter	Enclosed Switchgear	Reactor	Transpower Grid System Assets
46 Disconnector	Capacitive Voltage Transformer		Earthing Transformer	Transductor	Capacitor Bank	Line Trap	TP S0 Operational Control
46 Disconnector (Normally Open)	Synchronising Capacitive Voltage Transformer				Circuit Number		Transpower Network System Assets
							TP ROC Operational Control
							Transpower Grid System & Network Assets
							Connected Party Delegated Operational Control
							Connected Party Assets
							Connected Party Operational Control



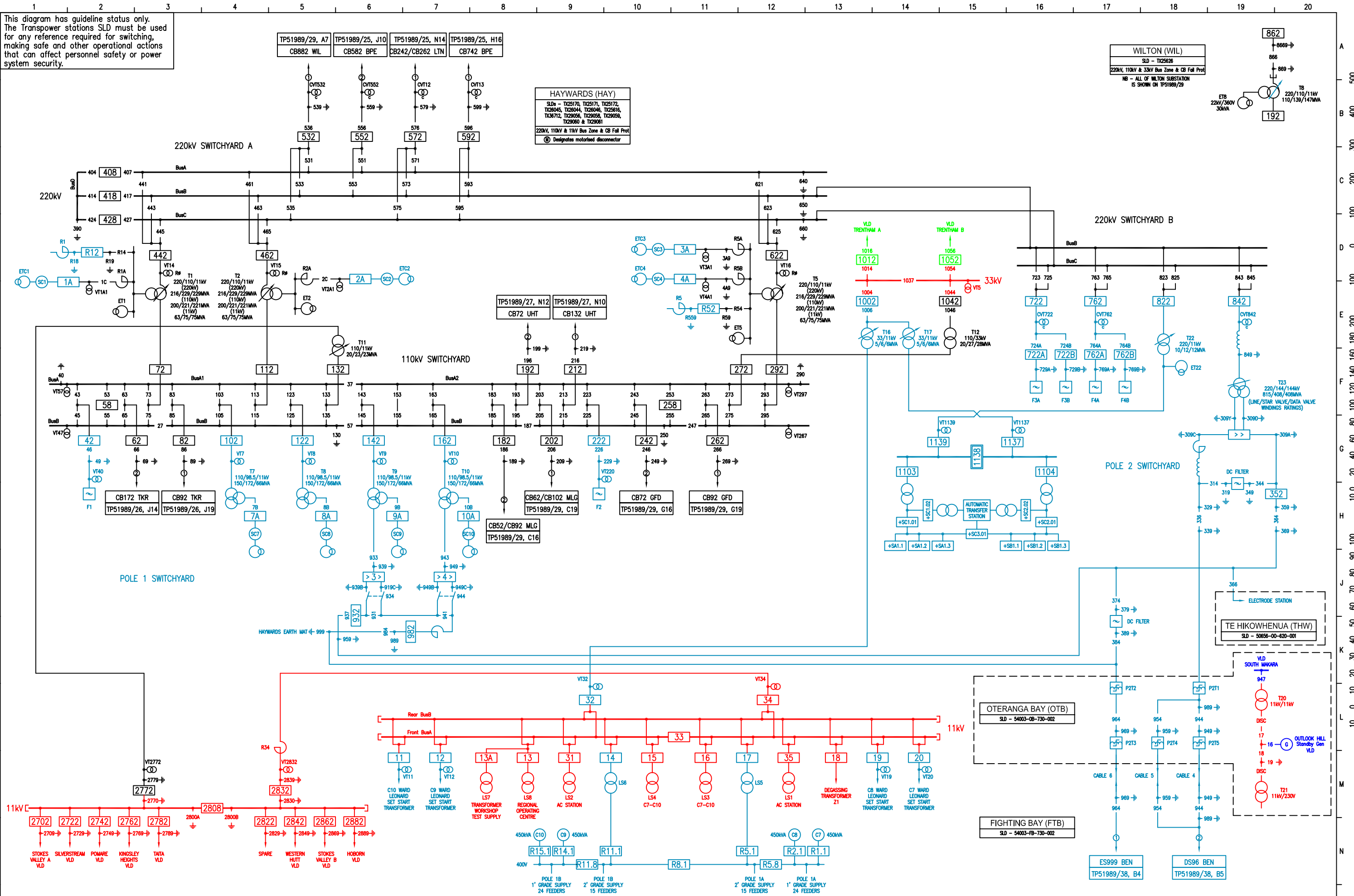
TRANSPower NZ LTD		TP51989/27.dwg	
REGIONAL SINGLE LINE DIAGRAM			
(SHEET 27 OF 40)			
MGM, MST, GYT, & UHT			
FOLDER	GEN/24	ISSUE	L
DATE	DEC 07	TP APP'D	J FARNWORTH

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TP51989/29, A7	TP51989/25, J10	TP51989/25, N14	TP51989/25, H16
CB882 WIL	CB582 BPE	CB242/CB262 LTN	CB742 BPE

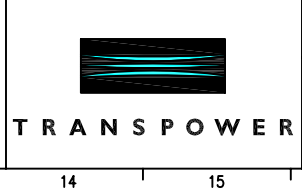
HAYWARDS (HAY)	
SLDs - TC25170, TC25171, TC25172, TC28045, TC28044, TC28046, TC28048, TC28072, TC29056, TC29058, TC29059, TC29080 & TC29081	
220kV, 110kV & 11kV Bus Zone & CB Fall Prot	
⊕ Designates motorised disconnector	

WILTON (WIL)	
SLD - TX25626	
220kV, 110kV & 33kV Bus Zone & CB Fall Prot	
NB - ALL OF WILTON SUBSTATION IS SHOWN ON TP51989/29	



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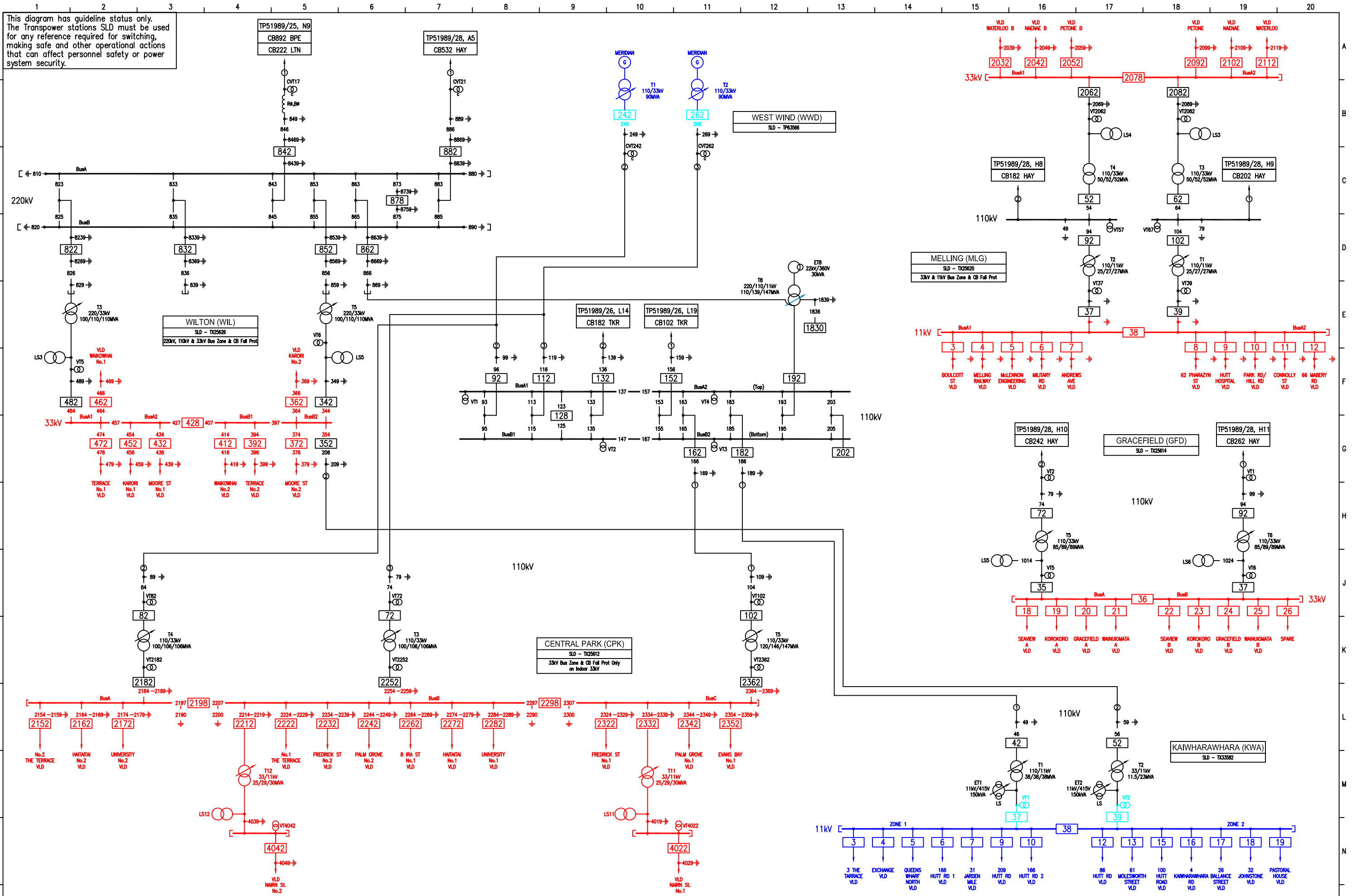
Legend:	⊕ Earth Switch	⊕ Power Transformer	⊕ Auto-Transformer	⊕ 110kV Bus Voltage	⊕ Transformer Ratings	⊕ 42 Transpower Grid System Assets
42 Circuit Breaker	⊕ Voltage Transformer	⊕ On Load Tap changer for Power Transformer	⊕ Earthing Transformer	* Limited CBs (No Protection)	⊕ Max. Continuous/Summer/Winter	42 TP ROC Operational Control
42 Circuit Breaker (Normally Open)	⊕ Synchronising Voltage Transformer	⊕ Auto-Transformer with Tertiary	⊕ Earthing Transformer	⊕ Enclosed Switchgear	⊕ Reactor	42 Transpower Grid System Assets
46 Disconnector	⊕ Capacitive Voltage Transformer	⊕ Auto-Transformer with Tertiary	⊕ Earthing Transformer	⊕ Capacitor Bank	⊕ Line Trap	42 Transpower Network System Assets
46 Disconnector (Normally Open)	⊕ Synchronising Capacitive Voltage Transformer	⊕ Auto-Transformer with Tertiary	⊕ Earthing Transformer	⊕ Circuit Number		42 TP ROC Operational Control
						42 Transpower Grid System & Network Assets
						42 Connected Party Delegated Operational Control
						42 Connected Party Assets
						42 Connected Party Operational Control



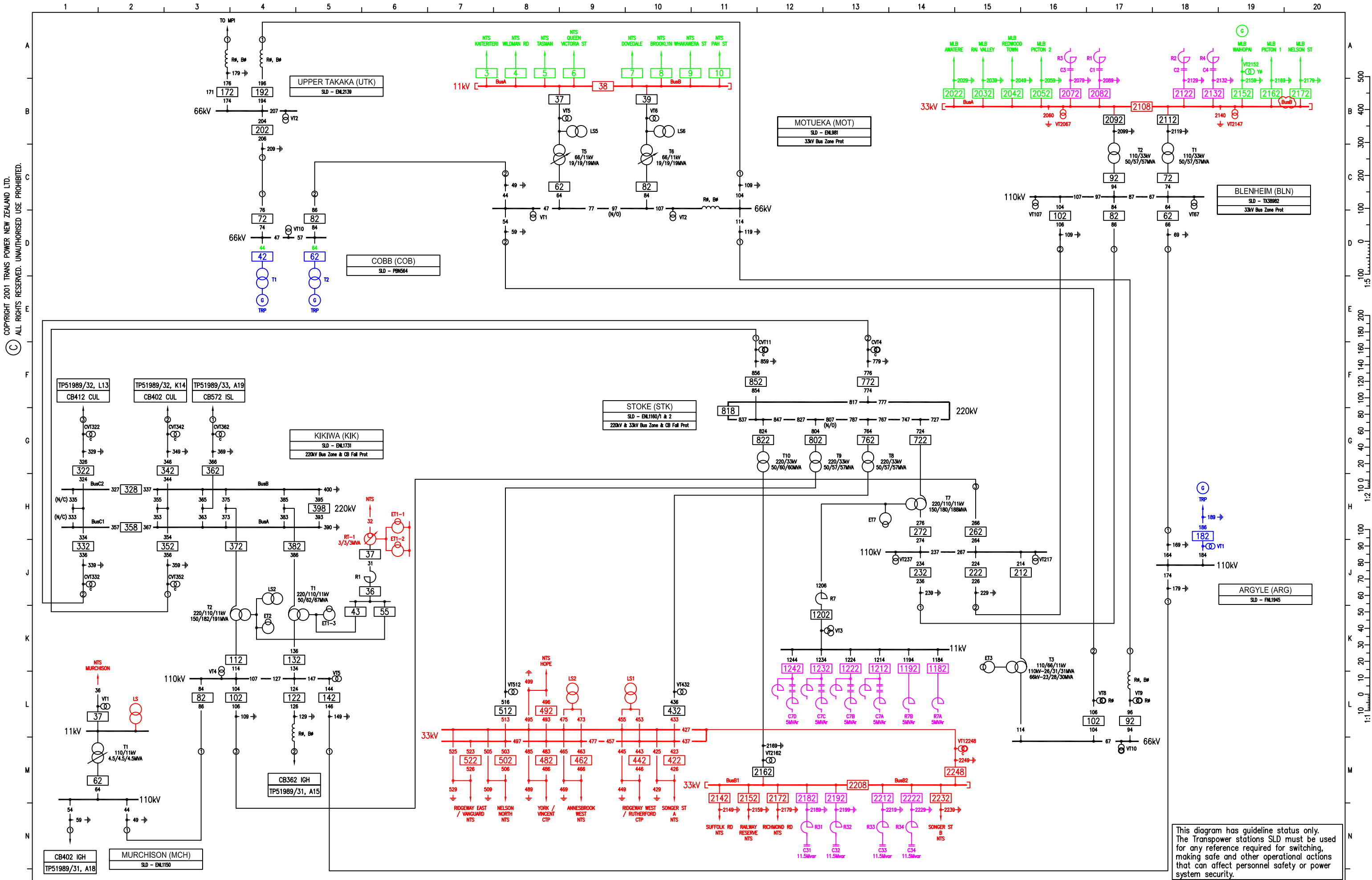
TRANSPower NZ LTD		TP51989/28.dwg	
REGIONAL SINGLE LINE DIAGRAM			
(SHEET 28 OF 40)			
HAY, OTB, FTB, THW & WIL			
FOLDER	GEN/24	DATE	MAR 09
ISSUE	Y	TP APP'D	J FARNWORTH

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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Connected Party Assets Transpower ROC Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 29 OF 40) GFD, MLG, WIL, CPK, KWA & WWD		TP51989/29.dwg FOLDER GEN/24 ISSUE X DATE MAR 09 TP APP'D J FARNWORTH	
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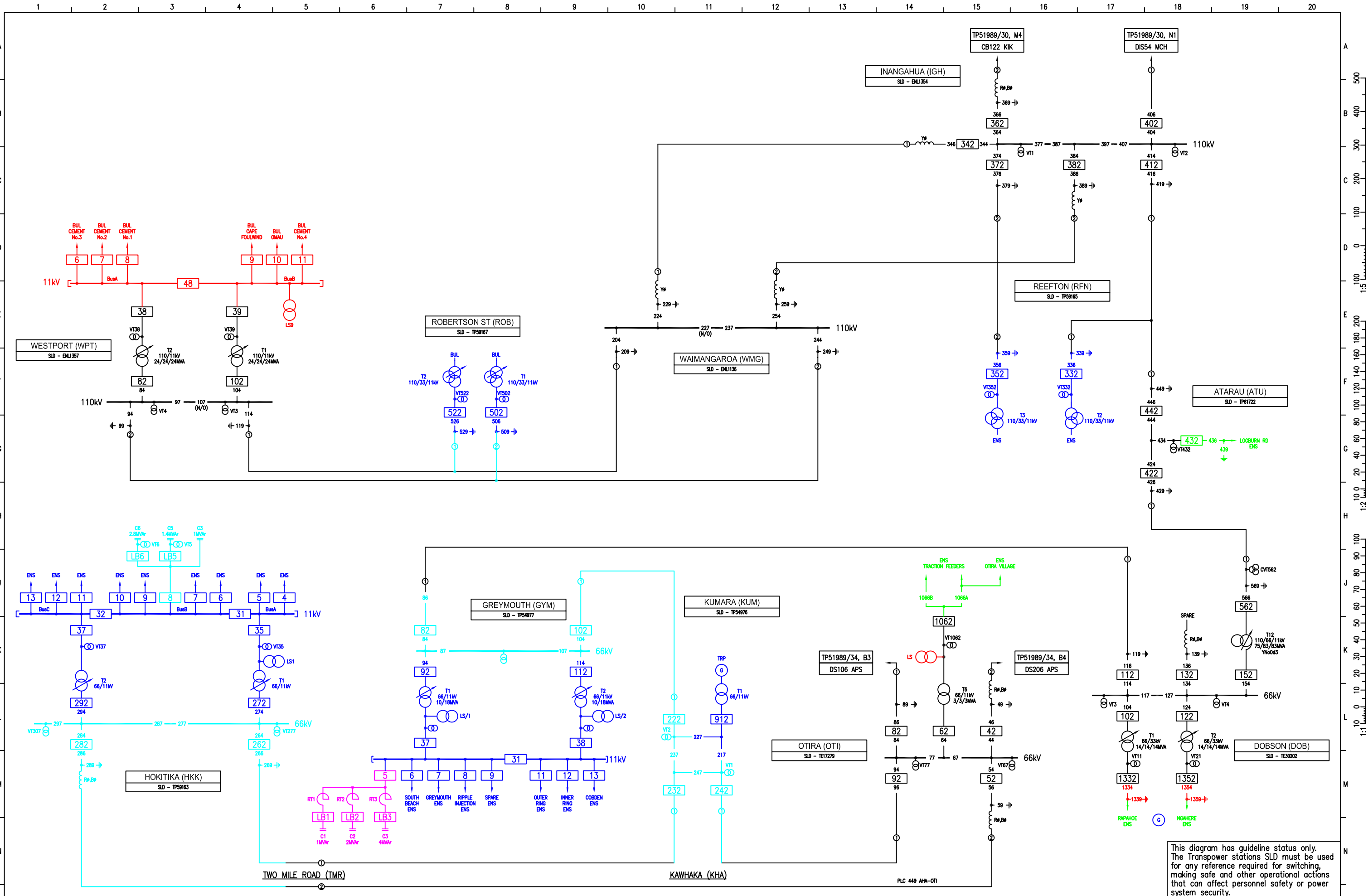
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(C)

Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) (N/O) (Normally Open) (N/C) (Normally Closed)		Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer		Auto-Transformer Earthing Transformer Earthing Transformer Transducer		Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 30 OF 40) COB, UTK, MCH, KIK, STK, MOT, BLN & ARG		TP51989/30.dwg FOLDER GEN/24 ISSUE JAN 09 DATE W 09 TP APP'D A DIXON	
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 The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

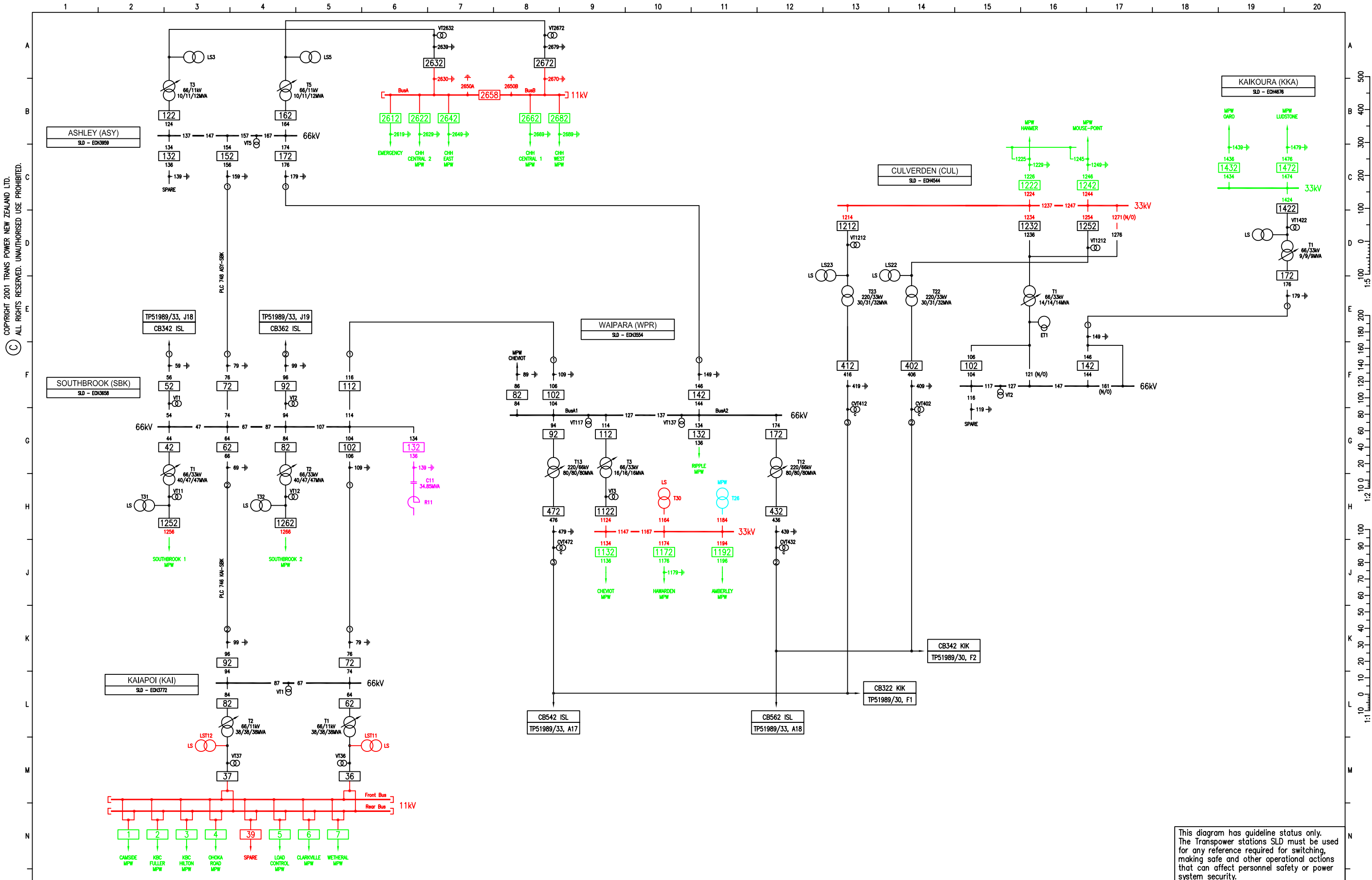
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Legend:	<ul style="list-style-type: none"> 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Auto-Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Power Transformer Generator Synchronous Condenser Filter Transductor Earthing Transformer Earthing Transformer Auto-Transformer Earthing Transformer Transductor 	<ul style="list-style-type: none"> 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number Generator Synchronous Condenser Filter Transductor Earthing Transformer Earthing Transformer Auto-Transformer Earthing Transformer Transductor 	<ul style="list-style-type: none"> xx/xx/xx Max. Continuous/Summer/Winter Reactor Line Trap 42 Connected Party Assets 42 Connected Party Operational Control 42 Transpower Grid System Assets 42 TP ROC Operational Control 42 Transpower Grid System Assets 42 TP S0 Operational Control 42 Transpower Network System Assets 42 TP ROC Operational Control 42 Transpower Grid System & Network Assets 42 Connected Party Delegated Operational Control 42 Connected Party Assets 42 Transpower ROC Operational Control
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TRANSPOWER

TRANSPOWER NZ LTD		TP51989/31.dwg	
REGIONAL SINGLE LINE DIAGRAM			
(SHEET 31 OF 40)			
HKK, WPT, GYM, WMG, KUM, IGH, OTI, DOB, RFN, ATU & ROB			
FOLDER	GEN/24	ISSUE	X
DATE	MAR 09	TP APP'D	A DIXON

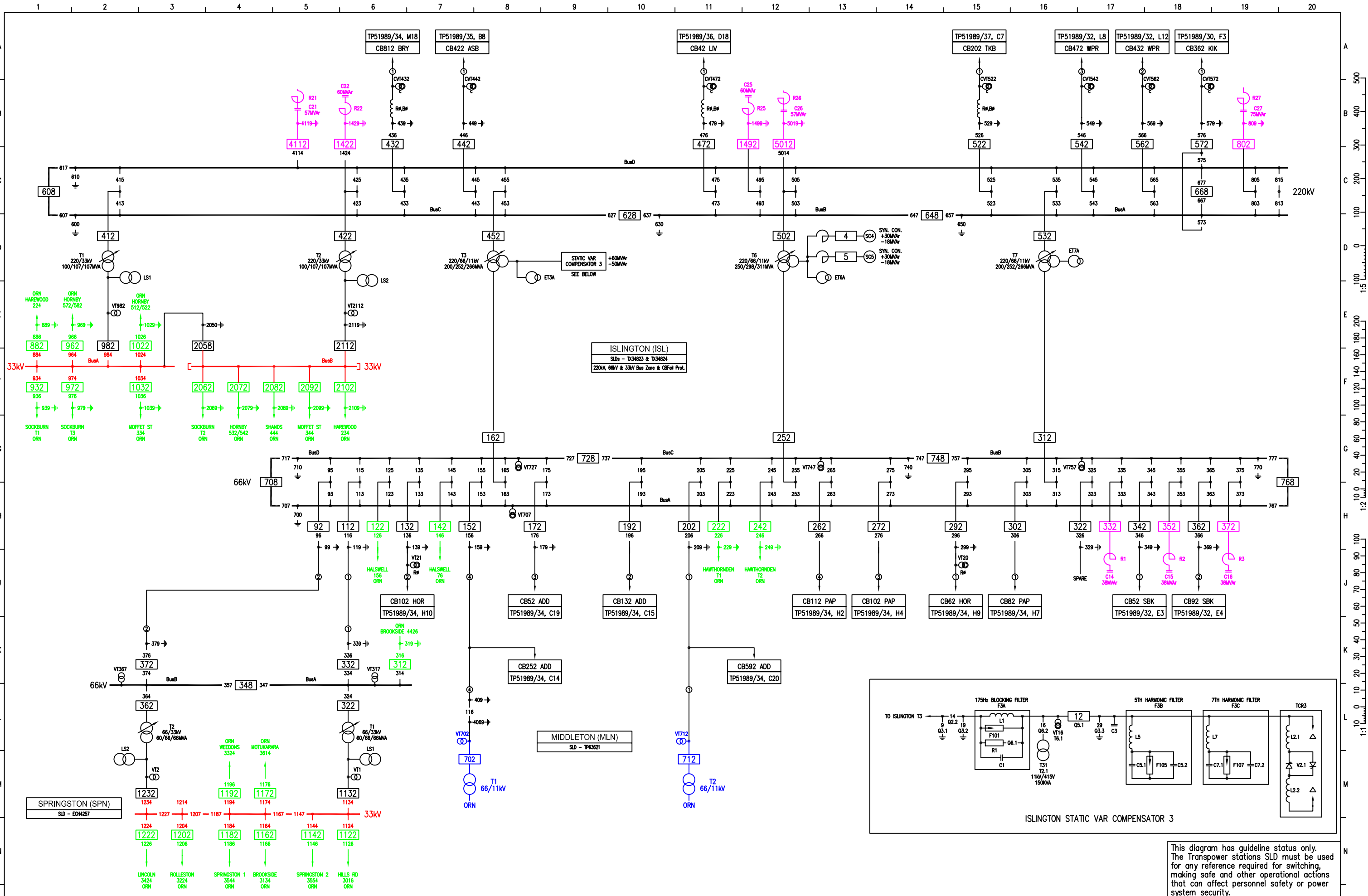


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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 (N/O) Disconnector (Normally Open) Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transducer 110kV Bus Voltage * Limited CBs (No Protection) Enclosed Switchgear C1 Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap										42 Transpower Grid System Assets TP ROC Operational Control TP ROC Operational Control TP S0 Operational Control TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets 42 Transpower ROC Operational Control				TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 32 OF 40) ASY, SBK, KAI, WPR, CUL & KKA		TP51989/32.dwg FOLDER GEN/24 ISSUE T DATE JAN 09 TP APP'D A DIXON	
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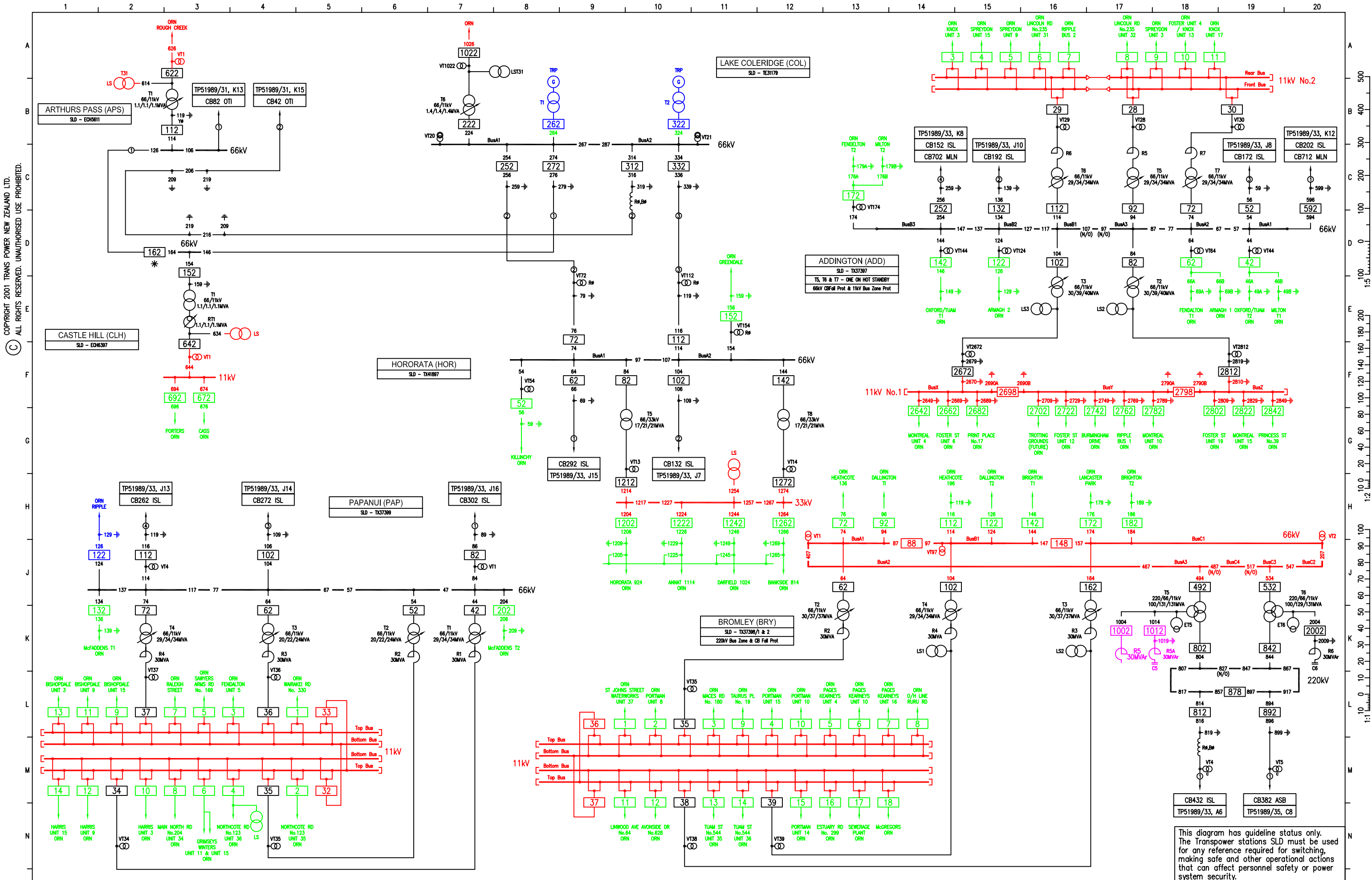
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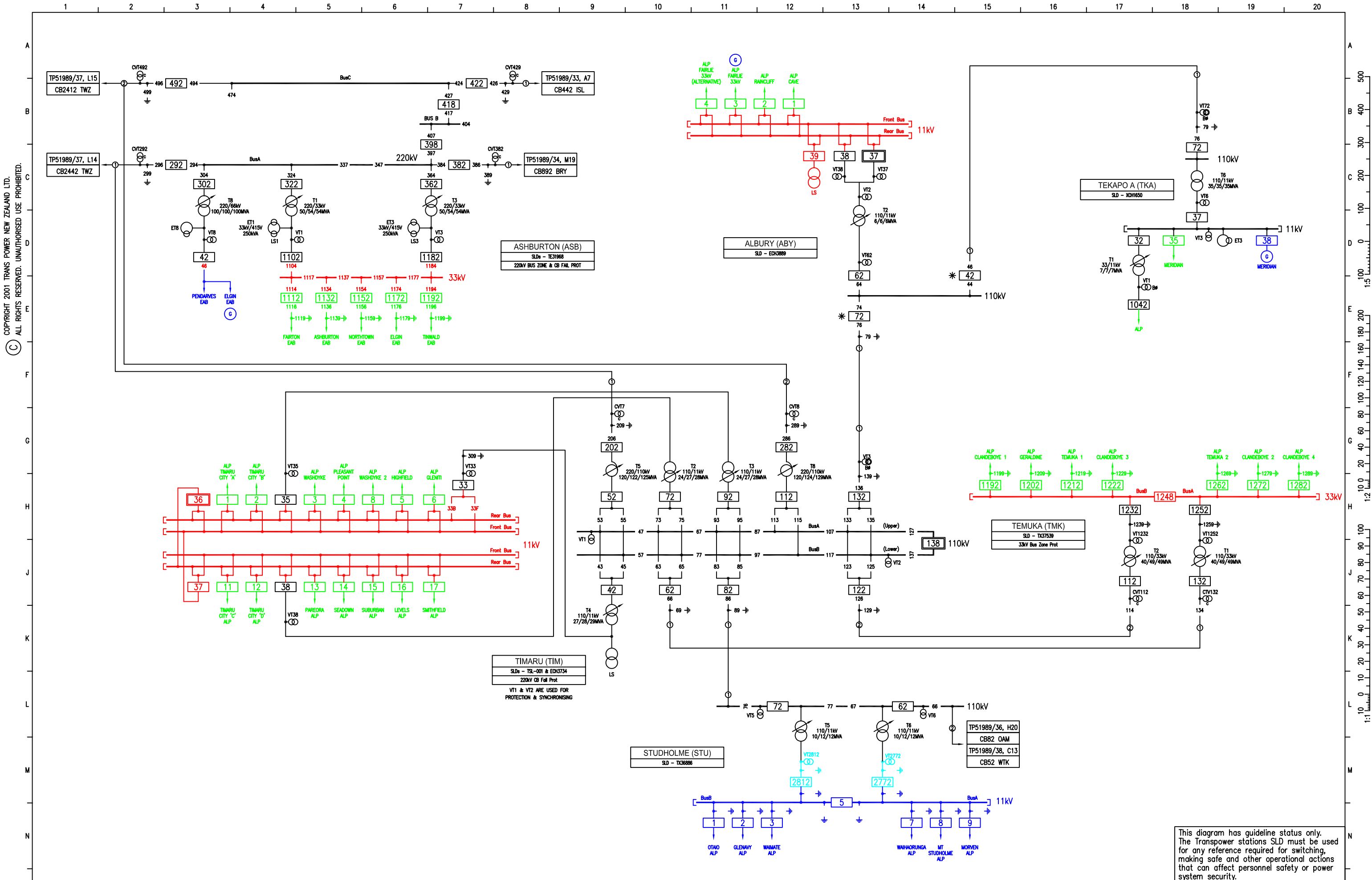
Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer		Generator Synchronous Condenser Transducer		110kV Bus Voltage * Limited CBs (No Protection) C1 Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control				TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 33 OF 40) ISL, MLN & SPN		TP51989/33.dwg FOLDER GEN/24 ISSUE T DATE MAY 09 TP APP'D A DIXON	
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open) 49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transducer 110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear C1 Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap	42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP S0 Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control	 TRANSPower NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 34 OF 40) APS, CLH, HOR, COL, ADD, BRY & PAP	TP51989/34.dwg <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>FOLDER</td> <td>GEN/24</td> </tr> <tr> <td>ISSUE</td> <td>AE</td> </tr> <tr> <td>DATE</td> <td>JAN 09</td> </tr> <tr> <td>TP APP'D</td> <td>A DIXON</td> </tr> </table>	FOLDER	GEN/24	ISSUE	AE	DATE	JAN 09	TP APP'D	A DIXON
FOLDER	GEN/24										
ISSUE	AE										
DATE	JAN 09										
TP APP'D	A DIXON										

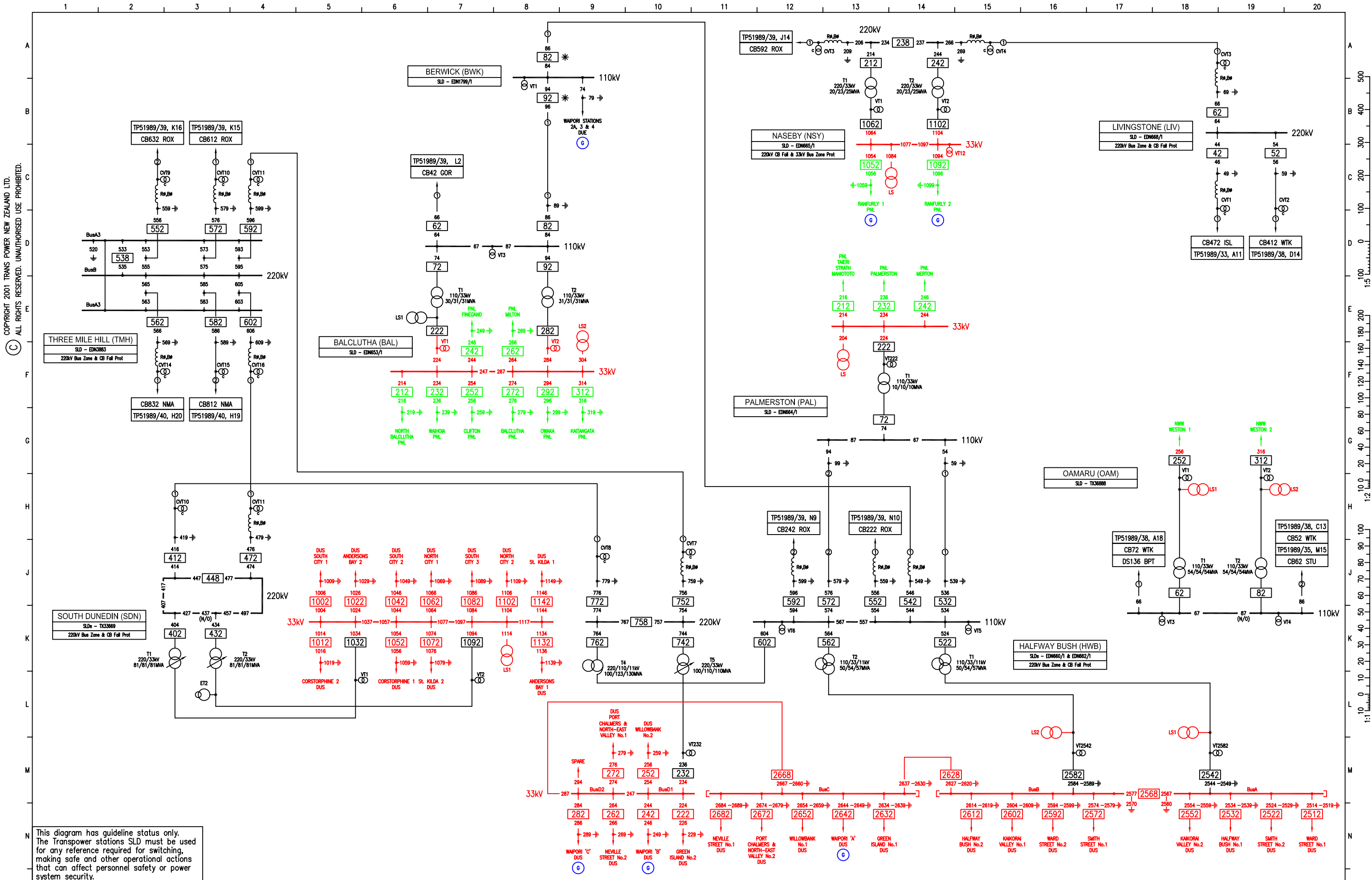
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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (N/O) Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary Auto-Transformer Earthing Transformer Earthing Transformer Generator Synchronous Condenser Filter Transducer 110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number Transformer Ratings Max. Continuous/Summer/Winter Enclosed Switchgear Reactor Line Trap										42 Transpower Grid System Assets 42 TP ROC Operational Control 42 Transpower Network System Assets 42 TP ROC Operational Control 42 Transpower Grid System & Network Assets 42 Connected Party Delegated Operational Control 42 Connected Party Assets 42 Connected Party Operational Control 42 Connected Party Assets 42 Transpower ROC Operational Control										TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 35 OF 40) ASB, TIM, STU, TMK, ABY & TKA					TP51989/35.dwg FOLDER GEN/24 ISSUE N DATE JAN 09 TP APP'D D FORLONG				
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Legend:		110kV Bus Voltage		Transformer Ratings		42	
	Circuit Breaker		Earth Switch		Power Transformer		TP ROC Operational Control
	Circuit Breaker (Normally Open)		Voltage Transformer		Auto-Transformer		Transpower Grid System Assets
	Disconnector		Synchronising Voltage Transformer		On Load Tap changer for Power Transformer		TP S0 Operational Control
	Disconnector (Normally Open)		Capacitive Voltage Transformer		Earthing Transformer		Transpower Network System Assets
	Synchronising Capacitive Voltage Transformer		Auto-Transformer with Tertiary		Synchronous Condenser		TP ROC Operational Control
			Filter		Generator		Connected Party Delegated Operational Control
			Transductor		Earthing Transformer		Connected Party Assets
			Reactor		Circuit Number		Connected Party Operational Control
			Line Trap				

TRANSPOWER

TP ROC Operational Control

Transpower Grid System Assets

TP S0 Operational Control

Transpower Network System Assets

TP ROC Operational Control

Transpower Grid System & Network Assets

Connected Party Delegated Operational Control

Connected Party Assets

Connected Party Operational Control

TRANSPOWER NZ LTD

REGIONAL SINGLE LINE DIAGRAM

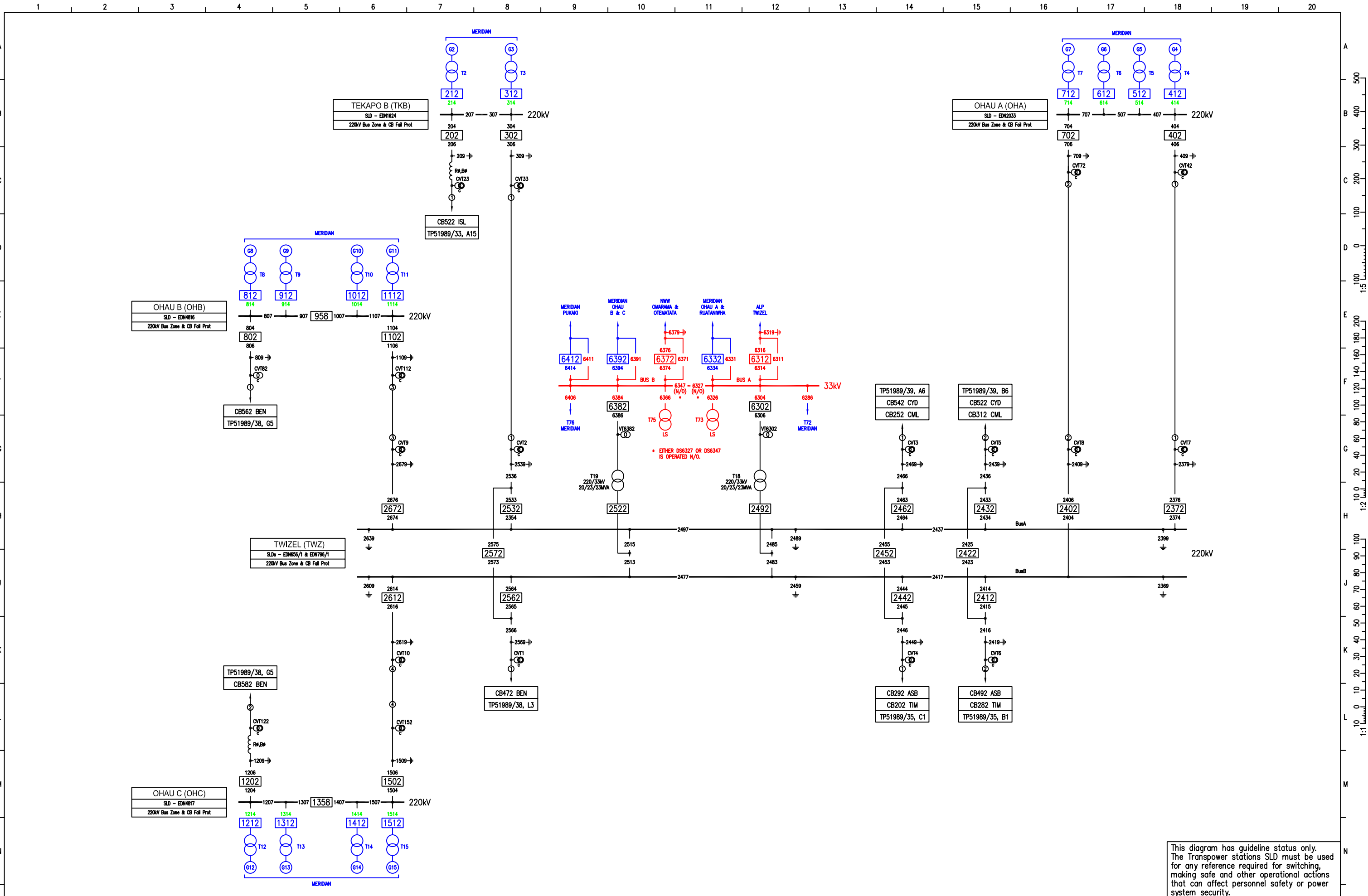
(SHEET 36 OF 40)

TMH, SDN, BAL, BWK, PAL, NSY, LIV, OAM & HWB

TP1989/36.dwg

FOLDER	GEN/24
ISSUE	T
DATE	MAY 09
TP APP'D	A DIXON

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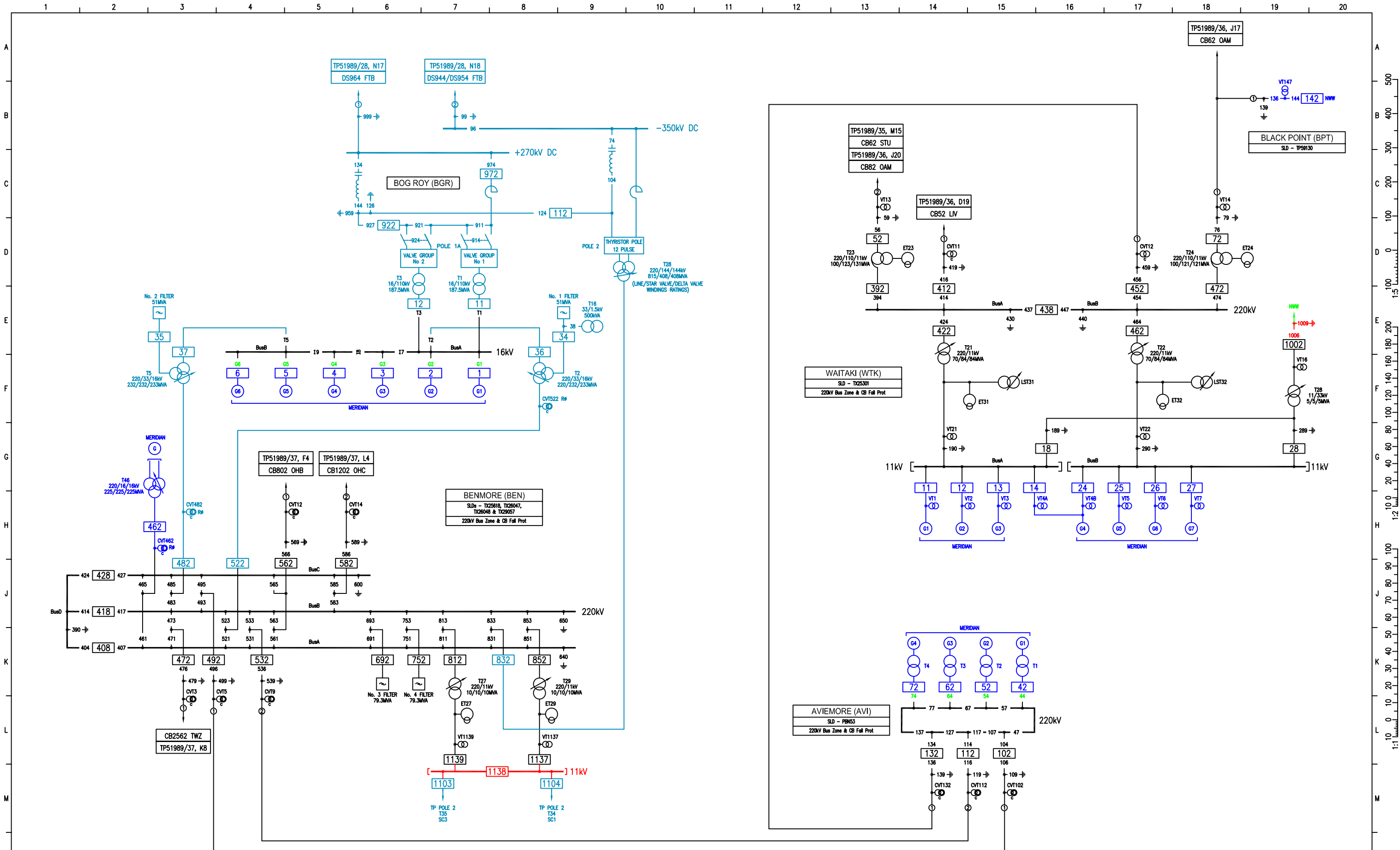
This diagram has guideline status only. The Transpower stations SLD must be used for any reference required for switching, making safe and other operational actions that can affect personnel safety or power system security.

Legend:	Earth Switch	Power Transformer	Auto-Transformer	Generator	110kV Bus Voltage	Transformer Ratings	42 Transpower Grid System Assets
42 Circuit Breaker	Voltage Transformer	On Load Tap changer for Power Transformer	Generator	110kV Bus Voltage	Max. Continuous/Summer/Winter	TP ROC Operational Control	TP ROC Operational Control
42 Circuit Breaker (Normally Open)	Synchronising Voltage Transformer	Auto-Transformer with Tertiary	Synchronous Condenser	Limited CBs (No Protection)	Reactor	Transpower Grid System Assets	TP S0 Operational Control
46 Disconnector	Capacitive Voltage Transformer	Earthing Transformer	Filter	C1 Capacitor Bank	Line Trap	Transpower Network System Assets	TP ROC Operational Control
46 Disconnector (Normally Open)	Synchronising Capacitive Voltage Transformer	Earthing Transformer	Transductor	Circuit Number		Transpower Grid System & Network Assets	TP ROC Operational Control
						Connected Party Delegated Operational Control	42 Connected Party Assets
						Connected Party Operational Control	42 Connected Party Operational Control



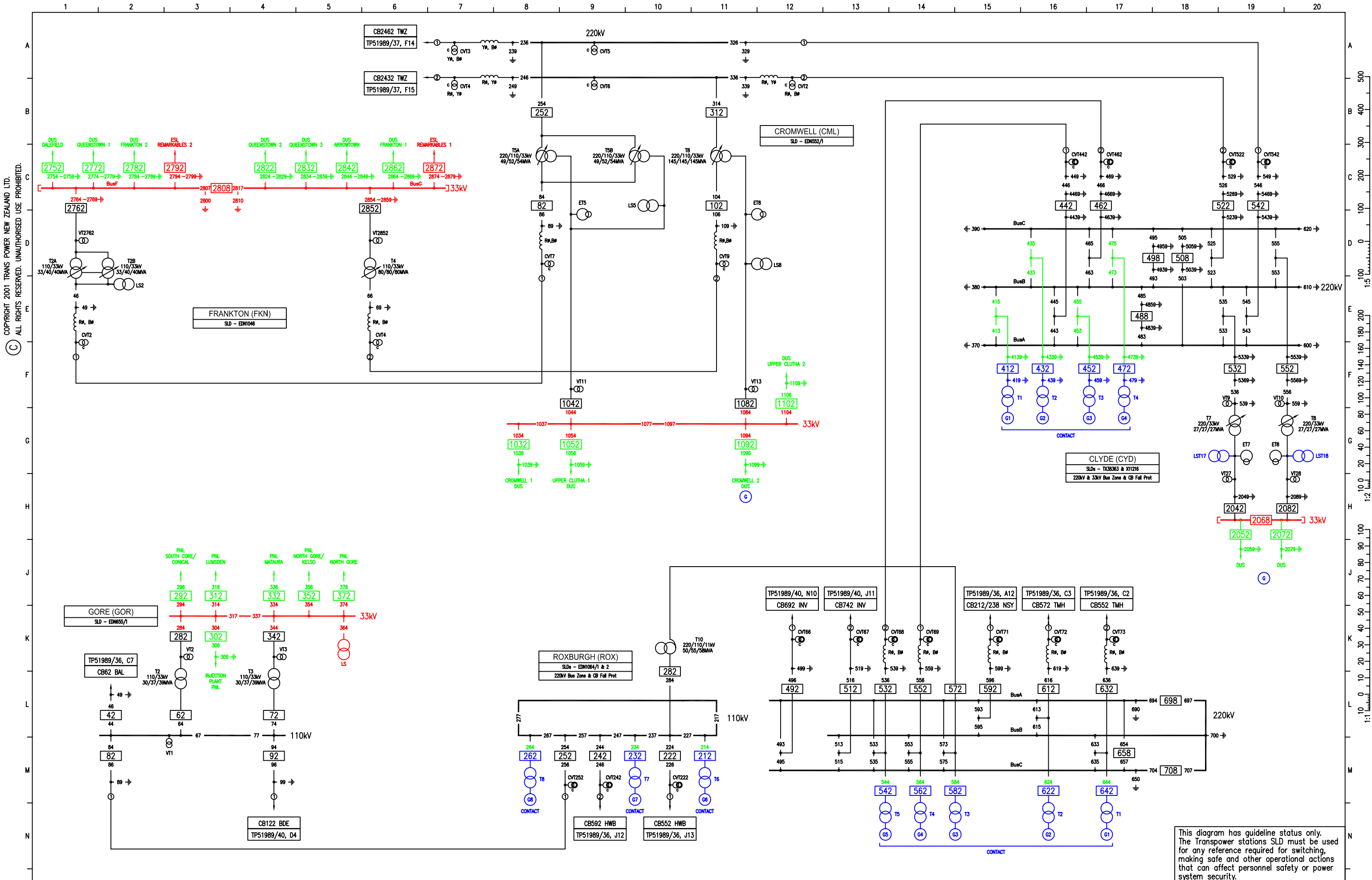
TRANSPower NZ LTD		TP51989/37.dwg	
REGIONAL SINGLE LINE DIAGRAM (SHEET 37 OF 40)			
OHB, TKB, OHA, TWZ & OHC			
FOLDER	GEN/24	ISSUE	K
DATE	JAN 09	TP APP'D	A DIXON

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Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)										42 Voltage Transformer 42 Synchronising Voltage Transformer 42 Capacitive Voltage Transformer 42 Synchronising Capacitive Voltage Transformer										Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary										Auto-Transformer Earthing Transformer Earthing Transformer										Generator Synchronous Condenser Filter Transducer										110kV Bus Voltage Limited CBs (No Protection) C1 Capacitor Bank Circuit Number										Transformer Ratings Max. Continuous/Summer/Winter xx/xx/xx Reactor Line Trap										42 Transpower Grid System Assets TP ROC Operational Control Transpower Grid System Assets TP RCS Operational Control Transpower Network System Assets TP ROC Operational Control Transpower Grid System & Network Assets Connected Party Delegated Operational Control Connected Party Assets Connected Party Operational Control															TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 38 OF 40) BEN, BGR, WTK, BPT & AVI					TP51989/38.dwg FOLDER GEN/24 ISSUE N DATE FEB 09 TP APP'D A DIXON				
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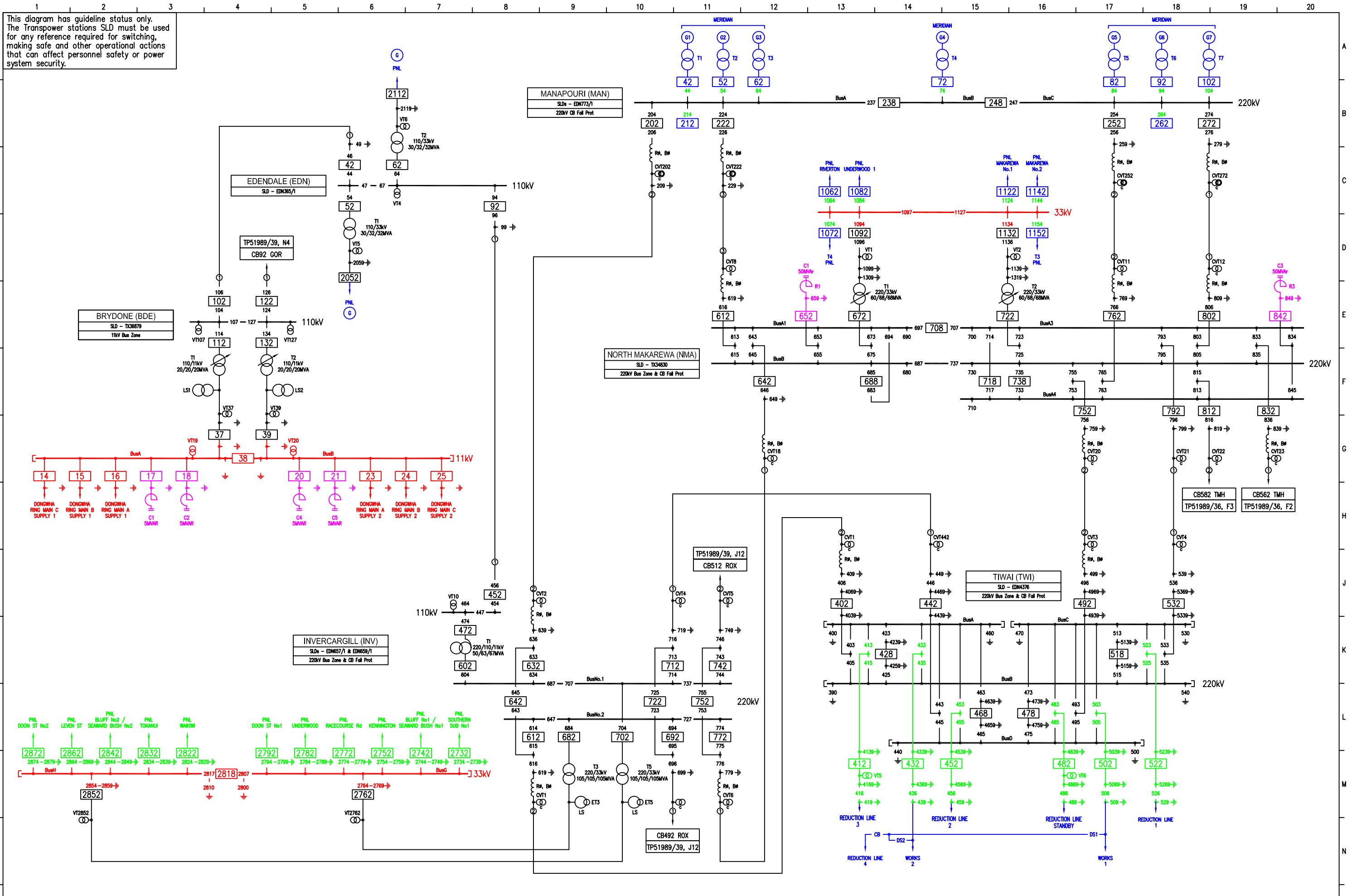
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Legend: <table style="width: 100%; border: none;"> <tr> <td style="border: 1px solid black; padding: 2px;">42</td> <td>Circuit Breaker</td> <td style="border: none; padding: 2px;">⊕</td> <td>Earth Switch</td> <td style="border: none; padding: 2px;">⊕</td> <td>Power Transformer</td> <td style="border: none; padding: 2px;">⊕</td> <td>Auto-Transformer</td> <td style="border: none; padding: 2px;">⊕</td> <td>Generator</td> <td style="border: none; padding: 2px;">110kV</td> <td>Bus Voltage</td> <td style="border: none; padding: 2px;">XX/XX/XX</td> <td>Transformer Ratings Max. 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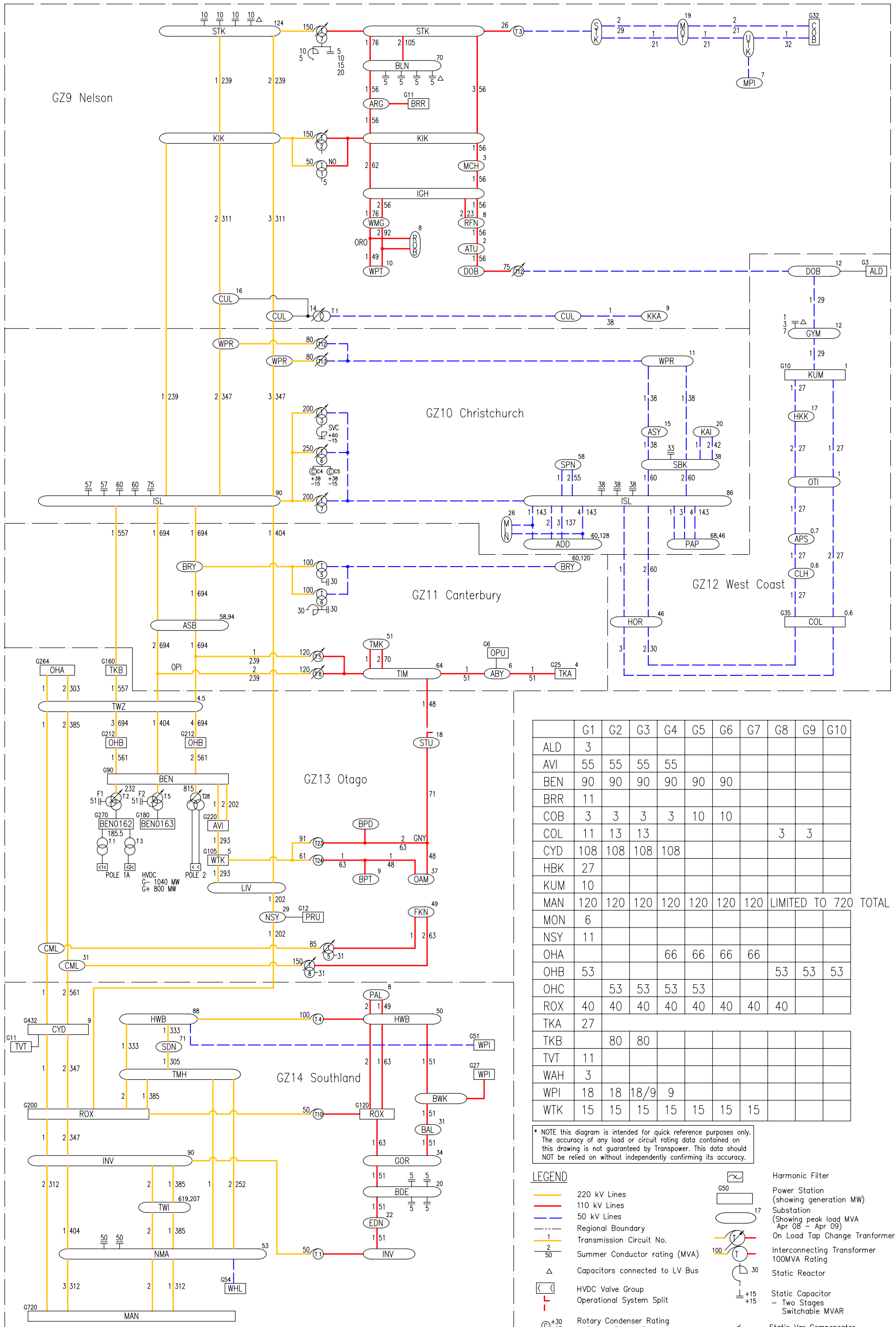


Legend: 42 Circuit Breaker 42 Circuit Breaker (Normally Open) 46 Disconnector 46 Disconnector (Normally Open)		49 Earth Switch Voltage Transformer Synchronising Voltage Transformer Capacitive Voltage Transformer Synchronising Capacitive Voltage Transformer		Power Transformer On Load Tap changer for Power Transformer Auto-Transformer with Tertiary		Auto-Transformer Earthing Transformer Earthing Transformer Transducer		6 Generator Synchronous Condenser Filter Transducer		110kV Bus Voltage Limited CBs (No Protection) Enclosed Switchgear Capacitor Bank Circuit Number		Transformer Ratings Max. Continuous/Summer/Winter Reactor Line Trap		42 Transpower Grid System Assets TP ROC Operational Control 42 Transpower Grid System Assets TP S0 Operational Control 42 Transpower Network System Assets TP ROC Operational Control 42 Transpower Grid System & Network Assets Connected Party Delegated Operational Control 42 Connected Party Assets Connected Party Operational Control				TRANSPOWER NZ LTD REGIONAL SINGLE LINE DIAGRAM (SHEET 40 OF 40) MAN, NMA, INV, EDN, BDE & TWI		TP51989/40.dwg FOLDER GEN/24 ISSUE U DATE JAN 09 TP APP'D A DIXON	
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AP. C.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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220 kV 110 kV 66 kV



Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Albany

Circuit Branch: ALB-HEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[505] Amps and [96.26] MVA [for summer period] and [552] Amps and [105.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04613] PU (using 100MVA as the base) Reactance [0.18245] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02547] PU (using 100MVA as the base) Reactance [0.05527] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ALB-HEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[505] Amps and [96.26] MVA [for summer period] and [552] Amps and [105.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04612] PU (using 100MVA as the base) Reactance [0.18634] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02546] PU (using 100MVA as the base) Reactance [0.05526] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ALB-HEN-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00987] PU (using 100MVA as the base) Reactance [0.04888] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00183] PU (using 100MVA as the base) Reactance [0.01564] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ALB-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00539] PU (using 100MVA as the base) Reactance [0.03296] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00100] PU (using 100MVA as the base) Reactance [0.00860] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: ALB-TF-T4

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [719] Amps and [274.00] MVA [for summer period] and [761] Amps and [290.00] MVA [for winter period] MV [1438] Amps and [274.00] MVA [for summer period] and [1440] Amps and [274.27] MVA [for winter period] LV [3727] Amps and [71.01] MVA [for summer period] and [3727] Amps and [71.01] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1050] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00028] PU (using 100MVA as the base) HV Reactance [0.02627] PU (using 100MVA as the base) MV Resistance [0.00044] PU (using 100MVA as the base) MV Reactance [-0.00081] PU (using 100MVA as the base) LV Resistance [0.00334] PU (using 100MVA as the base) LV Reactance [0.06875] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00028] PU (using 100MVA as the base) HV Reactance [0.02627] PU (using 100MVA as the base) MV Resistance [0.00044] PU (using 100MVA as the base) MV Reactance [-0.00081] PU (using 100MVA as the base) LV Resistance [0.00334] PU (using 100MVA as the base) LV Reactance [0.06875] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges ALB-TF-T4B ALB-TF-T4B-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ALB-TF-T4R ALB-TF-T4R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges ALB-TF-T4Y ALB-TF-T4Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ALB-TF-T4B ALB-TF-T4B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges ALB-TF-T4R ALB-TF-T4R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges ALB-TF-T4Y</p> <p>ALB-TF-T4Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Arthurs Pass

Circuit Branch: APS-CLH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39973] PU (using 100MVA as the base) Reactance [1.31210] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.25897] PU (using 100MVA as the base) Reactance [0.39621] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [69.3] kV Minimum: [62.7] kV

Circuit Branch: APS-OTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12777] PU (using 100MVA as the base) Reactance [0.44010] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08158] PU (using 100MVA as the base) Reactance [0.12403] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Argyle

Circuit Branch: ARG-BLN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.20415] PU (using 100MVA as the base) Reactance [0.72983] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12178] PU (using 100MVA as the base) Reactance [0.23232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARG-KIK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12181] PU (using 100MVA as the base) Reactance [0.43335] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07266] PU (using 100MVA as the base) Reactance [0.13806] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Arapuni

Circuit Branch: ARI-BOB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.36731] PU (using 100MVA as the base) Reactance [1.38185] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21683] PU (using 100MVA as the base) Reactance [0.41780] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-HAM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [324] Amps and [61.73] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14363] PU (using 100MVA as the base) Reactance [0.47734] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08615] PU (using 100MVA as the base) Reactance [0.16494] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-HAM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [324] Amps and [61.73] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14444] PU (using 100MVA as the base) Reactance [0.47985] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08660] PU (using 100MVA as the base) Reactance [0.16594] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-HTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14832] PU (using 100MVA as the base) Reactance [0.59414] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08212] PU (using 100MVA as the base) Reactance [0.19094] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-KIN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09842] PU (using 100MVA as the base) Reactance [0.35669] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05443] PU (using 100MVA as the base) Reactance [0.12342] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-KIN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10045] PU (using 100MVA as the base) Reactance [0.39708] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05547] PU (using 100MVA as the base) Reactance [0.12262] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-PAK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[584] Amps and [111.36] MVA [for summer period] and [714] Amps and [135.98] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.30558] PU (using 100MVA as the base) Reactance [1.39893] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.11342] PU (using 100MVA as the base) Reactance [0.24678] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11147] PU (using 100MVA as the base) Reactance [0.45164] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06177] PU (using 100MVA as the base) Reactance [0.14518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Ashburton

Circuit Branch: ASB-BRY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03477] PU (using 100MVA as the base) Reactance [0.21329] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00645] PU (using 100MVA as the base) Reactance [0.05507] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ASB-OPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02607] PU (using 100MVA as the base) Reactance [0.16035] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00484] PU (using 100MVA as the base) Reactance [0.04136] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ASB-OPI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02601] PU (using 100MVA as the base) Reactance [0.16005] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00483] PU (using 100MVA as the base) Reactance [0.04127] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ASB-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02996] PU (using 100MVA as the base) Reactance [0.18339] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00556] PU (using 100MVA as the base) Reactance [0.04751] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ashley

Circuit Branch: ASY-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09001] PU (using 100MVA as the base) Reactance [0.35531] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04971] PU (using 100MVA as the base) Reactance [0.10628] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ASY-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [406] Amps and [46.41] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21834] PU (using 100MVA as the base) Reactance [0.88206] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12058] PU (using 100MVA as the base) Reactance [0.25782] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Atiamuri

Circuit Branch: ATI-OHK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00294] PU (using 100MVA as the base) Reactance [0.01223] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00110] PU (using 100MVA as the base) Reactance [0.00529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ATI-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ATI-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ATI-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01169] PU (using 100MVA as the base) Reactance [0.04838] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00439] PU (using 100MVA as the base) Reactance [0.02107] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Atarau

Circuit Branch: ATU-DOB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08824] PU (using 100MVA as the base) Reactance [0.32450] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05264] PU (using 100MVA as the base) Reactance [0.09571] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ATU-RFC-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12460] PU (using 100MVA as the base) Reactance [0.45079] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07433] PU (using 100MVA as the base) Reactance [0.14009] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Aviemore

Circuit Branch: AVI-BEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00854] PU (using 100MVA as the base) Reactance [0.03754] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00320] PU (using 100MVA as the base) Reactance [0.01509] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: AVI-BEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00853] PU (using 100MVA as the base) Reactance [0.03751] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00320] PU (using 100MVA as the base) Reactance [0.01508] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: AVI-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00424] PU (using 100MVA as the base) Reactance [0.02100] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00155] PU (using 100MVA as the base) Reactance [0.00772] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Balclutha

Circuit Branch: BAL-BWK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.15998] PU (using 100MVA as the base) Reactance [0.59256] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09583] PU (using 100MVA as the base) Reactance [0.18177] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BAL-GOR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.25350] PU (using 100MVA as the base) Reactance [0.92485] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.15191] PU (using 100MVA as the base) Reactance [0.29670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Brydone Substation

Circuit Branch: BDE-EDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04200] PU (using 100MVA as the base) Reactance [0.15296] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02516] PU (using 100MVA as the base) Reactance [0.04920] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BDE-GOR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05115] PU (using 100MVA as the base) Reactance [0.18527] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03065] PU (using 100MVA as the base) Reactance [0.06008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Bells Pond Tee Point

Circuit Branch: BDT-WTK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13208] PU (using 100MVA as the base) Reactance [0.53115] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07294] PU (using 100MVA as the base) Reactance [0.15945] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BDT-GNY-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03466] PU (using 100MVA as the base) Reactance [0.13943] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01914] PU (using 100MVA as the base) Reactance [0.04184] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Benmore AC

Circuit Branch: AVI-BEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00854] PU (using 100MVA as the base) Reactance [0.03754] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00320] PU (using 100MVA as the base) Reactance [0.01509] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: AVI-BEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00853] PU (using 100MVA as the base) Reactance [0.03751] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00320] PU (using 100MVA as the base) Reactance [0.01508] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BEN-OHB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01265] PU (using 100MVA as the base) Reactance [0.06233] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00228] PU (using 100MVA as the base) Reactance [0.02545] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BEN-OHC-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.04813] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00178] PU (using 100MVA as the base) Reactance [0.02117] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BEN-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01841] PU (using 100MVA as the base) Reactance [0.09215] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02953] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Blenheim

Circuit Branch: ARG-BLN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.20415] PU (using 100MVA as the base) Reactance [0.72983] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12178] PU (using 100MVA as the base) Reactance [0.23232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BLN-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14963] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05617] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BLN-STK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[551] Amps and [104.89] MVA [for summer period] and [672] Amps and [127.97] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14553] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05207] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Bombay

Circuit Branch: ARI-BOB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.36731] PU (using 100MVA as the base) Reactance [1.38185] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21683] PU (using 100MVA as the base) Reactance [0.41780] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13906] PU (using 100MVA as the base) Reactance [0.51726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08315] PU (using 100MVA as the base) Reactance [0.15987] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13908] PU (using 100MVA as the base) Reactance [0.51766] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08316] PU (using 100MVA as the base) Reactance [0.15989] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06655] PU (using 100MVA as the base) Reactance [0.26813] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03611] PU (using 100MVA as the base) Reactance [0.08080] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06635] PU (using 100MVA as the base) Reactance [0.26748] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03600] PU (using 100MVA as the base) Reactance [0.08055] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Black Point Transmission Tee Point

Circuit Branch: BPC-OAM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.18336] PU (using 100MVA as the base) Reactance [0.63855] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.11215] PU (using 100MVA as the base) Reactance [0.19889] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPC-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08034] PU (using 100MVA as the base) Reactance [0.31730] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04437] PU (using 100MVA as the base) Reactance [0.09699] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Bunnythorpe

Circuit Branch: BPE-BRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1870] Amps and [712.57] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02671] PU (using 100MVA as the base) Reactance [0.16459] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00496] PU (using 100MVA as the base) Reactance [0.04250] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-BRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1870] Amps and [712.57] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02678] PU (using 100MVA as the base) Reactance [0.16559] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00497] PU (using 100MVA as the base) Reactance [0.04252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-HAY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05821] PU (using 100MVA as the base) Reactance [0.29568] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02185] PU (using 100MVA as the base) Reactance [0.10480] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-HAY-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05818] PU (using 100MVA as the base) Reactance [0.29568] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02184] PU (using 100MVA as the base) Reactance [0.10475] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-LTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00769] PU (using 100MVA as the base) Reactance [0.03870] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00143] PU (using 100MVA as the base) Reactance [0.01251] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-MHO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14324] PU (using 100MVA as the base) Reactance [0.46649] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09258] PU (using 100MVA as the base) Reactance [0.13803] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MHO-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14351] PU (using 100MVA as the base) Reactance [0.46223] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09275] PU (using 100MVA as the base) Reactance [0.13826] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08669] PU (using 100MVA as the base) Reactance [0.34535] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04787] PU (using 100MVA as the base) Reactance [0.10502] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MTN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08710] PU (using 100MVA as the base) Reactance [0.35032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04810] PU (using 100MVA as the base) Reactance [0.10554] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19405] PU (using 100MVA as the base) Reactance [0.77949] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10753] PU (using 100MVA as the base) Reactance [0.25290] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-TKU-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07968] PU (using 100MVA as the base) Reactance [0.40470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02991] PU (using 100MVA as the base) Reactance [0.14342] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-TKU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07964] PU (using 100MVA as the base) Reactance [0.40436] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02989] PU (using 100MVA as the base) Reactance [0.14334] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.24537] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07576] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.25060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07577] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00429] PU (using 100MVA as the base) Reactance [0.02158] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00080] PU (using 100MVA as the base) Reactance [0.00698] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: BPE-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [152] Amps and [58.00] MVA [for summer period] and [164] Amps and [62.50] MVA [for winter period] MV [304] Amps and [58.00] MVA [for summer period] and [328] Amps and [62.50] MVA [for winter period] LV [1827] Amps and [34.80] MVA [for summer period] and [1968] Amps and [37.50] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [131] Amps and [50.01] MVA MV [262] Amps and [50.01] MVA LV [1575] Amps and [30.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [-0.00013] PU (using 100MVA as the base) HV Reactance [0.03677] PU (using 100MVA as the base) MV Resistance [0.00405] PU (using 100MVA as the base) MV Reactance [0.05886] PU (using 100MVA as the base) LV Resistance [0.01168] PU (using 100MVA as the base) LV Reactance [0.14235] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [-0.00013] PU (using 100MVA as the base) HV Reactance [0.03677] PU (using 100MVA as the base) MV Resistance [0.00405] PU (using 100MVA as the base) MV Reactance [0.05886] PU (using 100MVA as the base) LV Resistance [0.01168] PU (using 100MVA as the base) LV Reactance [0.14235] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges BPE-TF-T1B BPE-TF-T1B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T1R BPE-TF-T1R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T1Y BPE-TF-T1Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges BPE-TF-T1B BPE-TF-T1B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T1R BPE-TF-T1R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T1Y BPE-TF-T1Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: BPE-TF-T2

Service Measure	Service Level
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Interconnection Branch Report

As at : 01/07/2009 12:48

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [152] Amps and [58.00] MVA [for summer period] and [164] Amps and [62.50] MVA [for winter period]</p> <p>MV [304] Amps and [58.00] MVA [for summer period] and [328] Amps and [62.50] MVA [for winter period]</p> <p>LV [1827] Amps and [34.80] MVA [for summer period] and [1968] Amps and [37.50] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [131] Amps and [50.01] MVA</p> <p>MV [262] Amps and [50.01] MVA</p> <p>LV [1575] Amps and [30.00] MVA</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	<p>HV Resistance [-0.00013] PU (using 100MVA as the base)</p> <p>HV Reactance [0.03677] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00405] PU (using 100MVA as the base)</p> <p>MV Reactance [0.05887] PU (using 100MVA as the base)</p> <p>LV Resistance [0.01169] PU (using 100MVA as the base)</p> <p>LV Reactance [0.14235] PU (using 100MVA as the base)</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	<p>HV Resistance [-0.00013] PU (using 100MVA as the base)</p> <p>HV Reactance [0.03677] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00405] PU (using 100MVA as the base)</p> <p>MV Reactance [0.05887] PU (using 100MVA as the base)</p> <p>LV Resistance [0.01169] PU (using 100MVA as the base)</p> <p>LV Reactance [0.14235] PU (using 100MVA as the base)</p>
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
<p>Tapping steps and ranges BPE-TF-T2B</p> <p>BPE-TF-T2B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges BPE-TF-T2R BPE-TF-T2R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T2Y BPE-TF-T2Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T2B BPE-TF-T2B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Tapping steps and ranges BPE-TF-T2R BPE-TF-T2R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges BPE-TF-T2Y BPE-TF-T2Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Transformer Branch: BPE-TF-T3

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [152] Amps and [58.00] MVA [for summer period] and [164] Amps and [62.50] MVA [for winter period] MV [304] Amps and [58.00] MVA [for summer period] and [328] Amps and [62.50] MVA [for winter period] LV [1827] Amps and [34.80] MVA [for summer period] and [1968] Amps and [37.50] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [131] Amps and [50.01] MVA MV [262] Amps and [50.01] MVA LV [1575] Amps and [30.00] MVA

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [-0.00013] PU (using 100MVA as the base) HV Reactance [0.03677] PU (using 100MVA as the base) MV Resistance [0.00405] PU (using 100MVA as the base) MV Reactance [0.05887] PU (using 100MVA as the base) LV Resistance [0.01169] PU (using 100MVA as the base) LV Reactance [0.14235] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [-0.00013] PU (using 100MVA as the base) HV Reactance [0.03677] PU (using 100MVA as the base) MV Resistance [0.00405] PU (using 100MVA as the base) MV Reactance [0.05887] PU (using 100MVA as the base) LV Resistance [0.01169] PU (using 100MVA as the base) LV Reactance [0.14235] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges BPE-TF-T3B BPE-TF-T3B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T3R BPE-TF-T3R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges BPE-TF-T3Y BPE-TF-T3Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T3B BPE-TF-T3B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges BPE-TF-T3R BPE-TF-T3R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges BPE-TF-T3Y</p> <p>BPE-TF-T3Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Bream Bay

Circuit Branch: BRB-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04769] PU (using 100MVA as the base) Reactance [0.22119] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01408] PU (using 100MVA as the base) Reactance [0.08723] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRB-MDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00137] PU (using 100MVA as the base) Reactance [0.00649] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00025] PU (using 100MVA as the base) Reactance [0.00226] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Brunswick

Circuit Branch: BPE-BRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1870] Amps and [712.57] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02671] PU (using 100MVA as the base) Reactance [0.16459] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00496] PU (using 100MVA as the base) Reactance [0.04250] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-BRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1870] Amps and [712.57] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02678] PU (using 100MVA as the base) Reactance [0.16559] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00497] PU (using 100MVA as the base) Reactance [0.04252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24387] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [232.53] MVA [for summer period] and [752] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24388] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04301] PU (using 100MVA as the base) Reactance [0.20104] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01346] PU (using 100MVA as the base) Reactance [0.08140] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Bromley

Circuit Branch: ASB-BRY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03477] PU (using 100MVA as the base) Reactance [0.21329] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00645] PU (using 100MVA as the base) Reactance [0.05507] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRY-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01056] PU (using 100MVA as the base) Reactance [0.06547] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00196] PU (using 100MVA as the base) Reactance [0.01662] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Berwick

Circuit Branch: BAL-BWK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.15998] PU (using 100MVA as the base) Reactance [0.59256] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09583] PU (using 100MVA as the base) Reactance [0.18177] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BWK-HWB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10833] PU (using 100MVA as the base) Reactance [0.39472] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06494] PU (using 100MVA as the base) Reactance [0.12815] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Castle Hill

Circuit Branch: APS-CLH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39973] PU (using 100MVA as the base) Reactance [1.31210] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.25897] PU (using 100MVA as the base) Reactance [0.39621] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [69.3] kV Minimum: [62.7] kV

Circuit Branch: CLH-COL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.27785] PU (using 100MVA as the base) Reactance [0.95642] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.18005] PU (using 100MVA as the base) Reactance [0.26770] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Cromwell

Circuit Branch: CML-CYD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00772] PU (using 100MVA as the base) Reactance [0.05219] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.01638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-CYD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00773] PU (using 100MVA as the base) Reactance [0.05221] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.01638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Coleridge

Circuit Branch: COL-OTI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.80552] PU (using 100MVA as the base) Reactance [2.70927] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.52070] PU (using 100MVA as the base) Reactance [0.78811] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: CLH-COL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.27785] PU (using 100MVA as the base) Reactance [0.95642] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.18005] PU (using 100MVA as the base) Reactance [0.26770] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: COL-HOR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [30.41] MVA [for summer period] and [325] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39637] PU (using 100MVA as the base) Reactance [1.49392] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.23684] PU (using 100MVA as the base) Reactance [0.42520] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: COL-HOR-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [30.41] MVA [for summer period] and [325] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39615] PU (using 100MVA as the base) Reactance [1.49327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.23669] PU (using 100MVA as the base) Reactance [0.42503] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Site: Carrington Street

Circuit Branch: CST-HUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[195] Amps and [37.15] MVA [for summer period] and [195] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04174] PU (using 100MVA as the base) Reactance [0.15063] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02305] PU (using 100MVA as the base) Reactance [0.05050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-HUI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[195] Amps and [37.15] MVA [for summer period] and [195] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04174] PU (using 100MVA as the base) Reactance [0.15053] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02305] PU (using 100MVA as the base) Reactance [0.05050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-MNI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [395] Amps and [75.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09160] PU (using 100MVA as the base) Reactance [0.31421] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05059] PU (using 100MVA as the base) Reactance [0.10912] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-NPL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1220] Amps and [232.53] MVA [for summer period] and [1503] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01608] PU (using 100MVA as the base) Reactance [0.07037] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00299] PU (using 100MVA as the base) Reactance [0.02289] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-NPL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1220] Amps and [232.53] MVA [for summer period] and [1503] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01608] PU (using 100MVA as the base) Reactance [0.07045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00299] PU (using 100MVA as the base) Reactance [0.02289] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09843] PU (using 100MVA as the base) Reactance [0.35588] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05435] PU (using 100MVA as the base) Reactance [0.11906] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Culverden Transmission Tee Point

Circuit Branch: CUT-KIK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[816] Amps and [310.94] MVA [for summer period] and [816] Amps and [310.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06022] PU (using 100MVA as the base) Reactance [0.31002] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01853] PU (using 100MVA as the base) Reactance [0.11406] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-KIK-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[816] Amps and [310.94] MVA [for summer period] and [816] Amps and [310.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06068] PU (using 100MVA as the base) Reactance [0.34129] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01900] PU (using 100MVA as the base) Reactance [0.11406] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Clyde

Circuit Branch: CML-CYD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00772] PU (using 100MVA as the base) Reactance [0.05219] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.01638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-CYD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00773] PU (using 100MVA as the base) Reactance [0.05221] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.01638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CYD-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08768] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CYD-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08767] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Dobson

Circuit Branch: DOB-GYM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [28.94] MVA [for summer period] and [309] Amps and [35.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09283] PU (using 100MVA as the base) Reactance [0.29128] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06029] PU (using 100MVA as the base) Reactance [0.08600] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ATU-DOB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08824] PU (using 100MVA as the base) Reactance [0.32450] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05264] PU (using 100MVA as the base) Reactance [0.09571] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: DOB-TF-T12

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [498] Amps and [94.80] MVA [for summer period] and [520] Amps and [99.00] MVA [for winter period] MV [726] Amps and [82.94] MVA [for summer period] and [726] Amps and [82.94] MVA [for winter period] LV [1659] Amps and [31.60] MVA [for summer period] and [1732] Amps and [33.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [394] Amps and [75.00] MVA MV [656] Amps and [75.00] MVA LV [1312] Amps and [25.00] MVA

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.14461] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.01157] PU (using 100MVA as the base) LV Resistance [0.00000] PU (using 100MVA as the base) LV Reactance [0.29047] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00200] PU (using 100MVA as the base) HV Reactance [0.14460] PU (using 100MVA as the base) MV Resistance [0.00200] PU (using 100MVA as the base) MV Reactance [-0.01140] PU (using 100MVA as the base) LV Resistance [0.01533] PU (using 100MVA as the base) LV Reactance [0.29007] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[110] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [121] kV Minimum: [99] kV</p>
<p>Tapping steps and ranges DOB-TF-T12 DOB-TF-T12-On Load Tap Changer</p>	<p>Tap voltage range: Maximum: [118.25] kV Minimum: [93.5] kV Number of tapping steps: [18] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [7]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Dannevirke

Circuit Branch: DVK-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07163] PU (using 100MVA as the base) Reactance [0.23462] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04630] PU (using 100MVA as the base) Reactance [0.06841] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07475] PU (using 100MVA as the base) Reactance [0.24380] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04830] PU (using 100MVA as the base) Reactance [0.07189] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14381] PU (using 100MVA as the base) Reactance [0.53770] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08625] PU (using 100MVA as the base) Reactance [0.16396] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14599] PU (using 100MVA as the base) Reactance [0.54610] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08752] PU (using 100MVA as the base) Reactance [0.16647] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Edgumbe

Circuit Branch: EDG-KAW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.24] MVA [for summer period] and [309] Amps and [58.91] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04842] PU (using 100MVA as the base) Reactance [0.14933] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03138] PU (using 100MVA as the base) Reactance [0.04923] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDG-KAW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04901] PU (using 100MVA as the base) Reactance [0.15149] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03177] PU (using 100MVA as the base) Reactance [0.04980] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDG-KAW-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01011] PU (using 100MVA as the base) Reactance [0.04741] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00316] PU (using 100MVA as the base) Reactance [0.01924] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-OWH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14362] PU (using 100MVA as the base) Reactance [0.57918] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07616] PU (using 100MVA as the base) Reactance [0.19185] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDG-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16975] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05519] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16974] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: EDG-TF-T4

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [152] Amps and [58.00] MVA [for summer period] and [164] Amps and [62.50] MVA [for winter period] MV [304] Amps and [58.00] MVA [for summer period] and [328] Amps and [62.50] MVA [for winter period] LV [1827] Amps and [34.80] MVA [for summer period] and [1968] Amps and [37.50] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [131] Amps and [50.01] MVA MV [262] Amps and [50.01] MVA LV [1575] Amps and [30.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [-0.00033] PU (using 100MVA as the base) HV Reactance [0.03676] PU (using 100MVA as the base) MV Resistance [0.00421] PU (using 100MVA as the base) MV Reactance [0.05847] PU (using 100MVA as the base) LV Resistance [0.01166] PU (using 100MVA as the base) LV Reactance [0.14223] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [-0.00033] PU (using 100MVA as the base) HV Reactance [0.03676] PU (using 100MVA as the base) MV Resistance [0.00421] PU (using 100MVA as the base) MV Reactance [0.05847] PU (using 100MVA as the base) LV Resistance [0.01166] PU (using 100MVA as the base) LV Reactance [0.14223] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges EDG-TF-T4B EDG-TF-T4B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T4R EDG-TF-T4R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T4Y EDG-TF-T4Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges EDG-TF-T4B EDG-TF-T4B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T4R EDG-TF-T4R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T4Y EDG-TF-T4Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: EDG-TF-T5

Service Measure	Service Level
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Interconnection Branch Report

As at : 01/07/2009 12:48

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [152] Amps and [58.00] MVA [for summer period] and [164] Amps and [62.50] MVA [for winter period]</p> <p>MV [304] Amps and [58.00] MVA [for summer period] and [328] Amps and [62.50] MVA [for winter period]</p> <p>LV [1827] Amps and [34.80] MVA [for summer period] and [1968] Amps and [37.50] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [131] Amps and [50.01] MVA</p> <p>MV [262] Amps and [50.01] MVA</p> <p>LV [1575] Amps and [30.00] MVA</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	<p>HV Resistance [0.00005] PU (using 100MVA as the base)</p> <p>HV Reactance [0.03782] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00392] PU (using 100MVA as the base)</p> <p>MV Reactance [0.05746] PU (using 100MVA as the base)</p> <p>LV Resistance [0.01169] PU (using 100MVA as the base)</p> <p>LV Reactance [0.14201] PU (using 100MVA as the base)</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	<p>HV Resistance [0.00005] PU (using 100MVA as the base)</p> <p>HV Reactance [0.03782] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00392] PU (using 100MVA as the base)</p> <p>MV Reactance [0.05746] PU (using 100MVA as the base)</p> <p>LV Resistance [0.01169] PU (using 100MVA as the base)</p> <p>LV Reactance [0.14201] PU (using 100MVA as the base)</p>
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
<p>Tapping steps and ranges EDG-TF-T5B</p> <p>EDG-TF-T5B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges EDG-TF-T5R EDG-TF-T5R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T5Y EDG-TF-T5Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T5B EDG-TF-T5B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges EDG-TF-T5R EDG-TF-T5R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges EDG-TF-T5Y EDG-TF-T5Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Edendale

Circuit Branch: BDE-EDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04200] PU (using 100MVA as the base) Reactance [0.15296] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02516] PU (using 100MVA as the base) Reactance [0.04920] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDN-INV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09888] PU (using 100MVA as the base) Reactance [0.36083] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05914] PU (using 100MVA as the base) Reactance [0.11743] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Fernhill

Circuit Branch: FHL-RDF-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02346] PU (using 100MVA as the base) Reactance [0.08780] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01406] PU (using 100MVA as the base) Reactance [0.02655] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-RDF-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02397] PU (using 100MVA as the base) Reactance [0.08939] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01437] PU (using 100MVA as the base) Reactance [0.02728] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[549] Amps and [104.60] MVA [for summer period] and [549] Amps and [104.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21417] PU (using 100MVA as the base) Reactance [1.04940] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07766] PU (using 100MVA as the base) Reactance [0.17860] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13805] PU (using 100MVA as the base) Reactance [0.51827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08281] PU (using 100MVA as the base) Reactance [0.15655] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13800] PU (using 100MVA as the base) Reactance [0.51593] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08278] PU (using 100MVA as the base) Reactance [0.15754] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Glenbrook

Circuit Branch: GLN-HLY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02824] PU (using 100MVA as the base) Reactance [0.16054] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00524] PU (using 100MVA as the base) Reactance [0.04566] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: GLN-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01203] PU (using 100MVA as the base) Reactance [0.05852] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00191] PU (using 100MVA as the base) Reactance [0.01952] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Glenavy

Circuit Branch: GNY-STU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[371] Amps and [70.76] MVA [for summer period] and [409] Amps and [77.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07611] PU (using 100MVA as the base) Reactance [0.24787] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04919] PU (using 100MVA as the base) Reactance [0.07338] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BDT-GNY-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03466] PU (using 100MVA as the base) Reactance [0.13943] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01914] PU (using 100MVA as the base) Reactance [0.04184] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Gore

Circuit Branch: BAL-GOR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.25350] PU (using 100MVA as the base) Reactance [0.92485] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.15191] PU (using 100MVA as the base) Reactance [0.29670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BDE-GOR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05115] PU (using 100MVA as the base) Reactance [0.18527] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03065] PU (using 100MVA as the base) Reactance [0.06008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GOR-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22961] PU (using 100MVA as the base) Reactance [0.91303] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12679] PU (using 100MVA as the base) Reactance [0.28215] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Greymouth

Circuit Branch: DOB-GYM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [28.94] MVA [for summer period] and [309] Amps and [35.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09283] PU (using 100MVA as the base) Reactance [0.29128] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06029] PU (using 100MVA as the base) Reactance [0.08600] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: GYM-KUM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [28.94] MVA [for summer period] and [300] Amps and [34.29] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22579] PU (using 100MVA as the base) Reactance [0.79357] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14635] PU (using 100MVA as the base) Reactance [0.18756] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Greytown

Circuit Branch: GYT-MST-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06223] PU (using 100MVA as the base) Reactance [0.22452] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03436] PU (using 100MVA as the base) Reactance [0.07457] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-MST-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06223] PU (using 100MVA as the base) Reactance [0.22451] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03436] PU (using 100MVA as the base) Reactance [0.07456] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.33647] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.34184] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Hamilton

Circuit Branch: ARI-HAM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [324] Amps and [61.73] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14363] PU (using 100MVA as the base) Reactance [0.47734] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08615] PU (using 100MVA as the base) Reactance [0.16494] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-HAM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [324] Amps and [61.73] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14444] PU (using 100MVA as the base) Reactance [0.47985] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08660] PU (using 100MVA as the base) Reactance [0.16594] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-OHW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01533] PU (using 100MVA as the base) Reactance [0.08117] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00353] PU (using 100MVA as the base) Reactance [0.02304] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAM-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08475] PU (using 100MVA as the base) Reactance [0.32142] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08476] PU (using 100MVA as the base) Reactance [0.32209] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09831] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03618] PU (using 100MVA as the base) Reactance [0.19087] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00836] PU (using 100MVA as the base) Reactance [0.05423] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: HAM-TF-T6

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[1383] Amps and [263.40] MVA [for summer period] and [1383] Amps and [263.40] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [1155] Amps and [220.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.07412] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00214] PU (using 100MVA as the base) Reactance [0.07409] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges HAM-TF-T6 HAM-TF-T6-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]

Interconnection Branch Report

As at : 01/07/2009 12:48

Transformer Branch: HAM-TF-T9

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[1276] Amps and [243.15] MVA [for summer period] and [1276] Amps and [243.15] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [1050] Amps and [200.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00035] PU (using 100MVA as the base) Reactance [0.07339] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00111] PU (using 100MVA as the base) Reactance [0.07353] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges HAM-TF-T9 HAM-TF-T9-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Haywards AC Substation

Circuit Branch: BPE-HAY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05821] PU (using 100MVA as the base) Reactance [0.29568] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02185] PU (using 100MVA as the base) Reactance [0.10480] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-HAY-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05818] PU (using 100MVA as the base) Reactance [0.29568] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02184] PU (using 100MVA as the base) Reactance [0.10475] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAY-LTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04051] PU (using 100MVA as the base) Reactance [0.20255] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00752] PU (using 100MVA as the base) Reactance [0.06586] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAY-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08536] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08550] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01851] PU (using 100MVA as the base) Reactance [0.08678] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00423] PU (using 100MVA as the base) Reactance [0.02471] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01861] PU (using 100MVA as the base) Reactance [0.08680] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02475] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1941] Amps and [739.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01251] PU (using 100MVA as the base) Reactance [0.06845] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00232] PU (using 100MVA as the base) Reactance [0.01991] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Transformer Branch: HAY-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [659] Amps and [251.30] MVA [for summer period] and [688] Amps and [262.30] MVA [for winter period] MV [1221] Amps and [232.70] MVA [for summer period] and [1275] Amps and [242.90] MVA [for winter period] LV [3960] Amps and [75.45] MVA [for summer period] and [3960] Amps and [75.45] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [567] Amps and [216.00] MVA MV [1050] Amps and [200.00] MVA LV [3300] Amps and [62.87] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.01104] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.06694] PU (using 100MVA as the base) LV Resistance [0.00000] PU (using 100MVA as the base) LV Reactance [0.07935] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00010] PU (using 100MVA as the base) HV Reactance [-0.01103] PU (using 100MVA as the base) MV Resistance [0.00082] PU (using 100MVA as the base) MV Reactance [0.06693] PU (using 100MVA as the base) LV Resistance [0.00341] PU (using 100MVA as the base) LV Reactance [0.07928] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges HAY-TF-T1 HAY-TF-T1-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [187] kV Number of tapping steps: [20] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]

Interconnection Branch Report

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<p>Tapping steps and ranges HAY-TF-T1</p> <p>HAY-TF-T1-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Transformer Branch: HAY-TF-T2

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [659] Amps and [251.30] MVA [for summer period] and [688] Amps and [262.30] MVA [for winter period]</p> <p>MV [1221] Amps and [232.70] MVA [for summer period] and [1275] Amps and [242.90] MVA [for winter period]</p> <p>LV [3960] Amps and [75.45] MVA [for summer period] and [3960] Amps and [75.45] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [567] Amps and [216.00] MVA</p> <p>MV [1050] Amps and [200.00] MVA</p> <p>LV [3300] Amps and [62.87] MVA</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	<p>HV Resistance [0.00000] PU (using 100MVA as the base)</p> <p>HV Reactance [0.01104] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00000] PU (using 100MVA as the base)</p> <p>MV Reactance [0.06694] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00000] PU (using 100MVA as the base)</p> <p>LV Reactance [0.07935] PU (using 100MVA as the base)</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	<p>HV Resistance [0.00010] PU (using 100MVA as the base)</p> <p>HV Reactance [-0.01103] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00082] PU (using 100MVA as the base)</p> <p>MV Reactance [0.06693] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00341] PU (using 100MVA as the base)</p> <p>LV Reactance [0.07928] PU (using 100MVA as the base)</p>
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

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<p>Tapping steps and ranges HAY-TF-T2</p> <p>HAY-TF-T2-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [242] kV Minimum: [187] kV</p> <p>Number of tapping steps: [20]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]</p>
<p>Tapping steps and ranges HAY-TF-T2</p> <p>HAY-TF-T2-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: HAY-TF-T5

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [659] Amps and [251.30] MVA [for summer period] and [688] Amps and [262.30] MVA [for winter period]</p> <p>MV [1221] Amps and [232.70] MVA [for summer period] and [1275] Amps and [242.90] MVA [for winter period]</p> <p>LV [3960] Amps and [75.45] MVA [for summer period] and [3960] Amps and [75.45] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [567] Amps and [216.00] MVA</p> <p>MV [1050] Amps and [200.00] MVA</p> <p>LV [3300] Amps and [62.87] MVA</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.01104] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.06694] PU (using 100MVA as the base) LV Resistance [0.00000] PU (using 100MVA as the base) LV Reactance [0.07935] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00010] PU (using 100MVA as the base) HV Reactance [-0.01103] PU (using 100MVA as the base) MV Resistance [0.00082] PU (using 100MVA as the base) MV Reactance [0.06693] PU (using 100MVA as the base) LV Resistance [0.00341] PU (using 100MVA as the base) LV Reactance [0.07928] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges HAY-TF-T5 HAY-TF-T5-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [242] kV Minimum: [187] kV Number of tapping steps: [20] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]</p>
<p>Tapping steps and ranges HAY-TF-T5 HAY-TF-T5-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Henderson

Circuit Branch: ALB-HEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[505] Amps and [96.26] MVA [for summer period] and [552] Amps and [105.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04613] PU (using 100MVA as the base) Reactance [0.18245] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02547] PU (using 100MVA as the base) Reactance [0.05527] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ALB-HEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[505] Amps and [96.26] MVA [for summer period] and [552] Amps and [105.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04612] PU (using 100MVA as the base) Reactance [0.18634] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02546] PU (using 100MVA as the base) Reactance [0.05526] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ALB-HEN-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00987] PU (using 100MVA as the base) Reactance [0.04888] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00183] PU (using 100MVA as the base) Reactance [0.01564] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HEN-HEP-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01824] PU (using 100MVA as the base) Reactance [0.06896] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01007] PU (using 100MVA as the base) Reactance [0.02162] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01823] PU (using 100MVA as the base) Reactance [0.07277] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01007] PU (using 100MVA as the base) Reactance [0.02161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01807] PU (using 100MVA as the base) Reactance [0.06682] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00998] PU (using 100MVA as the base) Reactance [0.02165] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-4

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01807] PU (using 100MVA as the base) Reactance [0.06684] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00998] PU (using 100MVA as the base) Reactance [0.02166] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00448] PU (using 100MVA as the base) Reactance [0.02128] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00083] PU (using 100MVA as the base) Reactance [0.00705] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HEN-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00957] PU (using 100MVA as the base) Reactance [0.05950] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00178] PU (using 100MVA as the base) Reactance [0.01555] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HEN-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2400] Amps and [914.52] MVA [for summer period] and [2400] Amps and [914.52] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01184] PU (using 100MVA as the base) Reactance [0.05881] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00220] PU (using 100MVA as the base) Reactance [0.01922] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HEN-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.20994] PU (using 100MVA as the base) Reactance [0.78159] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12523] PU (using 100MVA as the base) Reactance [0.22076] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21235] PU (using 100MVA as the base) Reactance [0.80034] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12658] PU (using 100MVA as the base) Reactance [0.22348] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: HEN-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [667] Amps and [254.00] MVA [for summer period] and [709] Amps and [270.00] MVA [for winter period] MV [1202] Amps and [229.09] MVA [for summer period] and [1202] Amps and [229.09] MVA [for winter period] LV [3999] Amps and [76.20] MVA [for summer period] and [4157] Amps and [79.20] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1050] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00034] PU (using 100MVA as the base) HV Reactance [0.02901] PU (using 100MVA as the base) MV Resistance [0.00037] PU (using 100MVA as the base) MV Reactance [-0.00321] PU (using 100MVA as the base) LV Resistance [0.00319] PU (using 100MVA as the base) LV Reactance [0.06938] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00034] PU (using 100MVA as the base) HV Reactance [0.02901] PU (using 100MVA as the base) MV Resistance [0.00037] PU (using 100MVA as the base) MV Reactance [-0.00321] PU (using 100MVA as the base) LV Resistance [0.00319] PU (using 100MVA as the base) LV Reactance [0.06938] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges HEN-TF-T1B HEN-TF-T1B-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges HEN-TF-T1R HEN-TF-T1R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges HEN-TF-T1Y HEN-TF-T1Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges HEN-TF-T1B HEN-TF-T1B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HEN-TF-T1R HEN-TF-T1R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HEN-TF-T1Y HEN-TF-T1Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: HEN-TF-T5

Service Measure	Service Level
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Interconnection Branch Report

As at : 01/07/2009 12:48

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [719] Amps and [274.00] MVA [for summer period] and [761] Amps and [290.00] MVA [for winter period] MV [1397] Amps and [266.11] MVA [for summer period] and [1397] Amps and [266.11] MVA [for winter period] LV [4157] Amps and [79.20] MVA [for summer period] and [4157] Amps and [79.20] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1050] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00028] PU (using 100MVA as the base) HV Reactance [0.02627] PU (using 100MVA as the base) MV Resistance [0.00044] PU (using 100MVA as the base) MV Reactance [-0.00081] PU (using 100MVA as the base) LV Resistance [0.00334] PU (using 100MVA as the base) LV Reactance [0.06875] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00028] PU (using 100MVA as the base) HV Reactance [0.02627] PU (using 100MVA as the base) MV Resistance [0.00044] PU (using 100MVA as the base) MV Reactance [-0.00081] PU (using 100MVA as the base) LV Resistance [0.00334] PU (using 100MVA as the base) LV Reactance [0.06875] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges HEN-TF-T5B HEN-TF-T5B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges HEN-TF-T5R HEN-TF-T5R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges HEN-TF-T5Y HEN-TF-T5Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges HEN-TF-T5B HEN-TF-T5B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges HEN-TF-T5R HEN-TF-T5R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HEN-TF-T5Y HEN-TF-T5Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Site: Hepburn Road

Circuit Branch: HEN-HEP-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01824] PU (using 100MVA as the base) Reactance [0.06896] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01007] PU (using 100MVA as the base) Reactance [0.02162] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01823] PU (using 100MVA as the base) Reactance [0.07277] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01007] PU (using 100MVA as the base) Reactance [0.02161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01807] PU (using 100MVA as the base) Reactance [0.06682] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00998] PU (using 100MVA as the base) Reactance [0.02165] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-HEP-4

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01807] PU (using 100MVA as the base) Reactance [0.06684] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00998] PU (using 100MVA as the base) Reactance [0.02166] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEP-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01457] PU (using 100MVA as the base) Reactance [0.05947] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00555] PU (using 100MVA as the base) Reactance [0.01188] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEP-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01407] PU (using 100MVA as the base) Reactance [0.06316] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00535] PU (using 100MVA as the base) Reactance [0.01131] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Hokitika (Westpower)

Circuit Branch: HKK-OTI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.67800] PU (using 100MVA as the base) Reactance [2.36250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.43695] PU (using 100MVA as the base) Reactance [0.65176] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Huntly

Circuit Branch: GLN-HLY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02824] PU (using 100MVA as the base) Reactance [0.16054] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00524] PU (using 100MVA as the base) Reactance [0.04566] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12488] PU (using 100MVA as the base) Reactance [0.71431] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03910] PU (using 100MVA as the base) Reactance [0.23497] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02356] PU (using 100MVA as the base) Reactance [0.11917] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00405] PU (using 100MVA as the base) Reactance [0.03861] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01338] PU (using 100MVA as the base) Reactance [0.07567] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.02506] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-OHW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1806] Amps and [688.18] MVA [for summer period] and [1806] Amps and [688.18] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00627] PU (using 100MVA as the base) Reactance [0.03325] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00116] PU (using 100MVA as the base) Reactance [0.01020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-OHW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00628] PU (using 100MVA as the base) Reactance [0.03329] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00116] PU (using 100MVA as the base) Reactance [0.01022] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [198] kV Minimum: [242] kV

Site: Hororata

Circuit Branch: COL-HOR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [30.41] MVA [for summer period] and [325] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39637] PU (using 100MVA as the base) Reactance [1.49392] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.23684] PU (using 100MVA as the base) Reactance [0.42520] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: COL-HOR-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [30.41] MVA [for summer period] and [325] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39615] PU (using 100MVA as the base) Reactance [1.49327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.23669] PU (using 100MVA as the base) Reactance [0.42503] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: HOR-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [550] Amps and [62.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39105] PU (using 100MVA as the base) Reactance [1.62428] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21013] PU (using 100MVA as the base) Reactance [0.48247] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: HOR-ISL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [550] Amps and [62.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39105] PU (using 100MVA as the base) Reactance [1.62428] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21013] PU (using 100MVA as the base) Reactance [0.48247] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Huapai

Circuit Branch: ALB-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00539] PU (using 100MVA as the base) Reactance [0.03296] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00100] PU (using 100MVA as the base) Reactance [0.00860] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRB-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04769] PU (using 100MVA as the base) Reactance [0.22119] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01408] PU (using 100MVA as the base) Reactance [0.08723] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HEN-HPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00448] PU (using 100MVA as the base) Reactance [0.02128] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00083] PU (using 100MVA as the base) Reactance [0.00705] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HPI-MDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04006] PU (using 100MVA as the base) Reactance [0.19737] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00744] PU (using 100MVA as the base) Reactance [0.06325] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Hangatiki

Circuit Branch: ARI-HTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14832] PU (using 100MVA as the base) Reactance [0.59414] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08212] PU (using 100MVA as the base) Reactance [0.19094] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Huirangi

Circuit Branch: CST-HUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[195] Amps and [37.15] MVA [for summer period] and [195] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04174] PU (using 100MVA as the base) Reactance [0.15063] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02305] PU (using 100MVA as the base) Reactance [0.05050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-HUI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[195] Amps and [37.15] MVA [for summer period] and [195] Amps and [37.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04174] PU (using 100MVA as the base) Reactance [0.15053] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02305] PU (using 100MVA as the base) Reactance [0.05050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HUI-MNI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [495] Amps and [94.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02315] PU (using 100MVA as the base) Reactance [0.07382] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01278] PU (using 100MVA as the base) Reactance [0.02757] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

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Site: Hawera

Circuit Branch: HWA-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08109] PU (using 100MVA as the base) Reactance [0.29256] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04860] PU (using 100MVA as the base) Reactance [0.09764] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWA-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10804] PU (using 100MVA as the base) Reactance [0.37257] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06481] PU (using 100MVA as the base) Reactance [0.13091] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

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Site: Halfway Bush

Circuit Branch: BWK-HWB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10833] PU (using 100MVA as the base) Reactance [0.39472] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06494] PU (using 100MVA as the base) Reactance [0.12815] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34497] PU (using 100MVA as the base) Reactance [1.32332] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19050] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34500] PU (using 100MVA as the base) Reactance [1.32345] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19051] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00167] PU (using 100MVA as the base) Reactance [0.00955] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00052] PU (using 100MVA as the base) Reactance [0.00313] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HWB-SDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00547] PU (using 100MVA as the base) Reactance [0.02887] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00171] PU (using 100MVA as the base) Reactance [0.01024] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

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Transformer Branch: HWB-TF-T4

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [377] Amps and [143.50] MVA [for summer period] and [398] Amps and [151.70] MVA [for winter period] MV [646] Amps and [123.00] MVA [for summer period] and [682] Amps and [130.00] MVA [for winter period] LV [3873] Amps and [73.80] MVA [for summer period] and [4094] Amps and [78.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [306] Amps and [116.70] MVA MV [525] Amps and [99.99] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00040] PU (using 100MVA as the base) HV Reactance [0.02291] PU (using 100MVA as the base) MV Resistance [0.00132] PU (using 100MVA as the base) MV Reactance [0.02356] PU (using 100MVA as the base) LV Resistance [0.00449] PU (using 100MVA as the base) LV Reactance [0.04455] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00040] PU (using 100MVA as the base) HV Reactance [0.02291] PU (using 100MVA as the base) MV Resistance [0.00132] PU (using 100MVA as the base) MV Reactance [0.02356] PU (using 100MVA as the base) LV Resistance [0.00449] PU (using 100MVA as the base) LV Reactance [0.04455] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges HWB-TF-T4B HWB-TF-T4B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

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<p>Tapping steps and ranges HWB-TF-T4R HWB-TF-T4R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HWB-TF-T4Y HWB-TF-T4Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HWB-TF-T4B HWB-TF-T4B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges HWB-TF-T4R HWB-TF-T4R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges HWB-TF-T4Y HWB-TF-T4Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Site: Inangahua

Circuit Branch: IGH-KIK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[327] Amps and [62.30] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.18781] PU (using 100MVA as the base) Reactance [0.79850] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05802] PU (using 100MVA as the base) Reactance [0.35128] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: IGH-MCH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11255] PU (using 100MVA as the base) Reactance [0.39102] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06714] PU (using 100MVA as the base) Reactance [0.13129] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: IGH-RFN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07864] PU (using 100MVA as the base) Reactance [0.36448] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03851] PU (using 100MVA as the base) Reactance [0.10149] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: IGH-RFC-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08711] PU (using 100MVA as the base) Reactance [0.30609] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05197] PU (using 100MVA as the base) Reactance [0.10050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

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Site: Invercargill

Circuit Branch: EDN-INV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09888] PU (using 100MVA as the base) Reactance [0.36083] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05914] PU (using 100MVA as the base) Reactance [0.11743] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: INV-NMA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1132] Amps and [431.35] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00421] PU (using 100MVA as the base) Reactance [0.02238] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00097] PU (using 100MVA as the base) Reactance [0.00638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05884] PU (using 100MVA as the base) Reactance [0.27204] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01842] PU (using 100MVA as the base) Reactance [0.11249] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05779] PU (using 100MVA as the base) Reactance [0.32327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01809] PU (using 100MVA as the base) Reactance [0.11214] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05320] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05868] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-MAN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05744] PU (using 100MVA as the base) Reactance [0.30772] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01329] PU (using 100MVA as the base) Reactance [0.09179] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: INV-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [192] Amps and [73.10] MVA [for summer period] and [206] Amps and [78.40] MVA [for winter period] MV [328] Amps and [62.50] MVA [for summer period] and [352] Amps and [67.00] MVA [for winter period] LV [1330] Amps and [25.34] MVA [for summer period] and [1330] Amps and [25.34] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [154] Amps and [58.50] MVA MV [262] Amps and [50.01] MVA LV [1109] Amps and [21.12] MVA

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00772] PU (using 100MVA as the base) HV Reactance [0.03309] PU (using 100MVA as the base) MV Resistance [0.00788] PU (using 100MVA as the base) MV Reactance [0.05609] PU (using 100MVA as the base) LV Resistance [0.00488] PU (using 100MVA as the base) LV Reactance [0.14727] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00772] PU (using 100MVA as the base) HV Reactance [0.03309] PU (using 100MVA as the base) MV Resistance [0.00788] PU (using 100MVA as the base) MV Reactance [0.05609] PU (using 100MVA as the base) LV Resistance [0.00488] PU (using 100MVA as the base) LV Reactance [0.14727] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges INV-TF-T1B INV-TF-T1B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges INV-TF-T1R INV-TF-T1R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges INV-TF-T1Y INV-TF-T1Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges INV-TF-T1B INV-TF-T1B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges INV-TF-T1R INV-TF-T1R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges INV-TF-T1Y</p> <p>INV-TF-T1Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Site: Islington

Circuit Branch: BRY-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01056] PU (using 100MVA as the base) Reactance [0.06547] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00196] PU (using 100MVA as the base) Reactance [0.01662] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HOR-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [550] Amps and [62.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39105] PU (using 100MVA as the base) Reactance [1.62428] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21013] PU (using 100MVA as the base) Reactance [0.48247] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: HOR-ISL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [550] Amps and [62.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.39105] PU (using 100MVA as the base) Reactance [1.62428] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.21013] PU (using 100MVA as the base) Reactance [0.48247] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-KIK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10219] PU (using 100MVA as the base) Reactance [0.56972] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03200] PU (using 100MVA as the base) Reactance [0.20030] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-LIV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09195] PU (using 100MVA as the base) Reactance [0.52359] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02064] PU (using 100MVA as the base) Reactance [0.14903] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19307] PU (using 100MVA as the base) Reactance [0.78559] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10662] PU (using 100MVA as the base) Reactance [0.22473] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-SBK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19305] PU (using 100MVA as the base) Reactance [0.78552] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10661] PU (using 100MVA as the base) Reactance [0.22470] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-TKB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08491] PU (using 100MVA as the base) Reactance [0.38650] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01962] PU (using 100MVA as the base) Reactance [0.13391] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02599] PU (using 100MVA as the base) Reactance [0.13556] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00735] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02616] PU (using 100MVA as the base) Reactance [0.13520] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00752] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ASB-ISL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02996] PU (using 100MVA as the base) Reactance [0.18339] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00556] PU (using 100MVA as the base) Reactance [0.04751] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: ISL-TF-T3

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [661] Amps and [252.00] MVA [for summer period] and [698] Amps and [266.00] MVA [for winter period] MV [2204] Amps and [252.00] MVA [for summer period] and [2327] Amps and [266.00] MVA [for winter period] LV [3160] Amps and [60.21] MVA [for summer period] and [3160] Amps and [60.21] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1750] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00078] PU (using 100MVA as the base) HV Reactance [0.08322] PU (using 100MVA as the base) MV Resistance [0.00039] PU (using 100MVA as the base) MV Reactance [-0.00477] PU (using 100MVA as the base) LV Resistance [0.01735] PU (using 100MVA as the base) LV Reactance [0.05613] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00078] PU (using 100MVA as the base) HV Reactance [0.08322] PU (using 100MVA as the base) MV Resistance [0.00039] PU (using 100MVA as the base) MV Reactance [-0.00477] PU (using 100MVA as the base) LV Resistance [0.00247] PU (using 100MVA as the base) LV Reactance [0.05745] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges ISL-TF-T3B ISL-TF-T3B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

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<p>Tapping steps and ranges ISL-TF-T3R</p> <p>ISL-TF-T3R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [187] kV</p> <p>Number of tapping steps: [16]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ISL-TF-T3Y</p> <p>ISL-TF-T3Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [187] kV</p> <p>Number of tapping steps: [16]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ISL-TF-T3B</p> <p>ISL-TF-T3B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.48] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.37]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges ISL-TF-T3R</p> <p>ISL-TF-T3R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.48] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.37]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges ISL-TF-T3Y</p> <p>ISL-TF-T3Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.48] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.37]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: ISL-TF-T6

Service Measure	Service Level
<p>Overall 24 hour post contingency capacity rating of the interconnection transformer branch</p>	<p>HV [801] Amps and [305.10] MVA [for summer period] and [836] Amps and [318.40] MVA [for winter period]</p> <p>MV [2595] Amps and [296.70] MVA [for summer period] and [2709] Amps and [309.70] MVA [for winter period]</p> <p>LV [3737] Amps and [71.20] MVA [for summer period] and [3900] Amps and [74.30] MVA [for winter period]</p>
<p>Continuous capacity rating of the interconnection transformer branch</p>	<p>HV [674] Amps and [257.00] MVA</p> <p>MV [2187] Amps and [250.00] MVA</p> <p>LV [3149] Amps and [60.00] MVA</p>

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.07600] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.00453] PU (using 100MVA as the base) LV Resistance [0.00000] PU (using 100MVA as the base) LV Reactance [0.05162] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00080] PU (using 100MVA as the base) HV Reactance [0.07600] PU (using 100MVA as the base) MV Resistance [0.00055] PU (using 100MVA as the base) MV Reactance [-0.00450] PU (using 100MVA as the base) LV Resistance [0.00345] PU (using 100MVA as the base) LV Reactance [0.05150] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges ISL-TF-T6 ISL-TF-T6-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [240.02] kV Minimum: [194.26] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.3]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [8]</p>
<p>Tapping steps and ranges ISL-TF-T6 ISL-TF-T6-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: ISL-TF-T7

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [661] Amps and [252.00] MVA [for summer period] and [698] Amps and [266.00] MVA [for winter period] MV [2204] Amps and [252.00] MVA [for summer period] and [2327] Amps and [266.00] MVA [for winter period] LV [3968] Amps and [75.60] MVA [for summer period] and [4188] Amps and [79.80] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1750] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00079] PU (using 100MVA as the base) HV Reactance [0.08276] PU (using 100MVA as the base) MV Resistance [0.00037] PU (using 100MVA as the base) MV Reactance [-0.00465] PU (using 100MVA as the base) LV Resistance [0.00137] PU (using 100MVA as the base) LV Reactance [0.05495] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00079] PU (using 100MVA as the base) HV Reactance [0.08276] PU (using 100MVA as the base) MV Resistance [0.00037] PU (using 100MVA as the base) MV Reactance [-0.00465] PU (using 100MVA as the base) LV Resistance [0.00137] PU (using 100MVA as the base) LV Reactance [0.05495] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges ISL-TF-T7B ISL-TF-T7B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

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<p>Tapping steps and ranges ISL-TF-T7R ISL-TF-T7R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ISL-TF-T7Y ISL-TF-T7Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges ISL-TF-T7B ISL-TF-T7B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.48] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.37]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges ISL-TF-T7R</p> <p>ISL-TF-T7R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.48] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.37]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges ISL-TF-T7Y</p> <p>ISL-TF-T7Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.48] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.37]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Site: Kawerau

Circuit Branch: EDG-KAW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.24] MVA [for summer period] and [309] Amps and [58.91] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04842] PU (using 100MVA as the base) Reactance [0.14933] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03138] PU (using 100MVA as the base) Reactance [0.04923] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDG-KAW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04901] PU (using 100MVA as the base) Reactance [0.15149] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03177] PU (using 100MVA as the base) Reactance [0.04980] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: EDG-KAW-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01011] PU (using 100MVA as the base) Reactance [0.04741] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00316] PU (using 100MVA as the base) Reactance [0.01924] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KAW-OHK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03993] PU (using 100MVA as the base) Reactance [0.18434] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01250] PU (using 100MVA as the base) Reactance [0.07651] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: KAW-TF-T12

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[505] Amps and [96.20] MVA [for summer period] and [527] Amps and [100.40] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [420] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.19995] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00494] PU (using 100MVA as the base) Reactance [0.19989] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV

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High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges KAW-TF-T12 KAW-TF-T12-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Transformer Branch: KAW-TF-T13

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[516] Amps and [98.40] MVA [for summer period] and [546] Amps and [104.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [420] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.09688] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00285] PU (using 100MVA as the base) Reactance [0.09684] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

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<p>Tapping steps and ranges KAW-TF-T13</p> <p>KAW-TF-T13-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [187] kV</p> <p>Number of tapping steps: [16]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Kikiwa

Circuit Branch: ARG-KIK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12181] PU (using 100MVA as the base) Reactance [0.43335] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07266] PU (using 100MVA as the base) Reactance [0.13806] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: IGH-KIK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[327] Amps and [62.30] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.18781] PU (using 100MVA as the base) Reactance [0.79850] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05802] PU (using 100MVA as the base) Reactance [0.35128] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ISL-KIK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10219] PU (using 100MVA as the base) Reactance [0.56972] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03200] PU (using 100MVA as the base) Reactance [0.20030] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-MCH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16268] PU (using 100MVA as the base) Reactance [0.56961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09705] PU (using 100MVA as the base) Reactance [0.18990] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIK-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02333] PU (using 100MVA as the base) Reactance [0.11401] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04353] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02334] PU (using 100MVA as the base) Reactance [0.11405] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04354] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16025] PU (using 100MVA as the base) Reactance [0.57619] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09560] PU (using 100MVA as the base) Reactance [0.17996] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CUT-KIK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[816] Amps and [310.94] MVA [for summer period] and [816] Amps and [310.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06022] PU (using 100MVA as the base) Reactance [0.31002] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01853] PU (using 100MVA as the base) Reactance [0.11406] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-KIK-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[816] Amps and [310.94] MVA [for summer period] and [816] Amps and [310.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06068] PU (using 100MVA as the base) Reactance [0.34129] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01900] PU (using 100MVA as the base) Reactance [0.11406] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: KIK-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [164] Amps and [62.50] MVA [for summer period] and [176] Amps and [67.00] MVA [for winter period] MV [328] Amps and [62.50] MVA [for summer period] and [352] Amps and [67.00] MVA [for winter period] LV [296] Amps and [5.64] MVA [for summer period] and [296] Amps and [5.64] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [131] Amps and [50.01] MVA MV [262] Amps and [50.01] MVA LV [296] Amps and [5.64] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00096] PU (using 100MVA as the base) HV Reactance [0.02906] PU (using 100MVA as the base) MV Resistance [0.00308] PU (using 100MVA as the base) MV Reactance [0.09485] PU (using 100MVA as the base) LV Resistance [0.01314] PU (using 100MVA as the base) LV Reactance [0.09804] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00096] PU (using 100MVA as the base) HV Reactance [0.02906] PU (using 100MVA as the base) MV Resistance [0.00308] PU (using 100MVA as the base) MV Reactance [0.09485] PU (using 100MVA as the base) LV Resistance [0.01091] PU (using 100MVA as the base) LV Reactance [0.09862] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [239.8] kV Minimum: [198] kV

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<p>Tapping steps and ranges KIK-TF-T1B KIK-TF-T1B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges KIK-TF-T1R KIK-TF-T1R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges KIK-TF-T1Y KIK-TF-T1Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges KIK-TF-T1B KIK-TF-T1B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges KIK-TF-T1R KIK-TF-T1R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges KIK-TF-T1Y KIK-TF-T1Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: KIK-TF-T2

Service Measure	Service Level
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Interconnection Branch Report

As at : 01/07/2009 12:48

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [478] Amps and [182.30] MVA [for summer period] and [500] Amps and [190.60] MVA [for winter period]</p> <p>MV [957] Amps and [182.30] MVA [for summer period] and [1000] Amps and [190.60] MVA [for winter period]</p> <p>LV [296] Amps and [5.64] MVA [for summer period] and [296] Amps and [5.64] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [394] Amps and [150.00] MVA</p> <p>MV [787] Amps and [150.00] MVA</p> <p>LV [296] Amps and [5.64] MVA</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	<p>HV Resistance [0.00000] PU (using 100MVA as the base)</p> <p>HV Reactance [0.06999] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00000] PU (using 100MVA as the base)</p> <p>MV Reactance [0.00495] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00893] PU (using 100MVA as the base)</p> <p>LV Reactance [0.10717] PU (using 100MVA as the base)</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	<p>HV Resistance [0.00016] PU (using 100MVA as the base)</p> <p>HV Reactance [0.06999] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00106] PU (using 100MVA as the base)</p> <p>MV Reactance [-0.00484] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00878] PU (using 100MVA as the base)</p> <p>LV Reactance [0.10854] PU (using 100MVA as the base)</p>
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges KIK-TF-T2 KIK-TF-T2-Tap Changer	<p>Tap voltage range:</p> <p>Maximum: [242] kV Minimum: [198] kV</p> <p>Number of tapping steps: [16]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]</p>

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<p>Tapping steps and ranges KIK-TF-T2</p> <p>KIK-TF-T2-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [5]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Kinleith

Circuit Branch: ARI-KIN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09842] PU (using 100MVA as the base) Reactance [0.35669] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05443] PU (using 100MVA as the base) Reactance [0.12342] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ARI-KIN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10045] PU (using 100MVA as the base) Reactance [0.39708] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05547] PU (using 100MVA as the base) Reactance [0.12262] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIN-LFT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05000] PU (using 100MVA as the base) Reactance [0.18224] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02962] PU (using 100MVA as the base) Reactance [0.06040] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIN-LFT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [395] Amps and [75.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04867] PU (using 100MVA as the base) Reactance [0.19126] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02688] PU (using 100MVA as the base) Reactance [0.05961] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Kaitimako

Circuit Branch: KMO-MTM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02716] PU (using 100MVA as the base) Reactance [0.09304] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01484] PU (using 100MVA as the base) Reactance [0.02938] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04859] PU (using 100MVA as the base) Reactance [0.19327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02683] PU (using 100MVA as the base) Reactance [0.05981] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07033] PU (using 100MVA as the base) Reactance [0.40162] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02201] PU (using 100MVA as the base) Reactance [0.13121] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07013] PU (using 100MVA as the base) Reactance [0.40030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02195] PU (using 100MVA as the base) Reactance [0.13087] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Kumara Substation

Circuit Branch: KUM-OTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [240] Amps and [27.44] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.58379] PU (using 100MVA as the base) Reactance [2.05040] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.37488] PU (using 100MVA as the base) Reactance [0.56057] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: GYM-KUM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [28.94] MVA [for summer period] and [300] Amps and [34.29] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22579] PU (using 100MVA as the base) Reactance [0.79357] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14635] PU (using 100MVA as the base) Reactance [0.18756] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Lichfield

Circuit Branch: LFD-LFT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[60] Amps and [11.43] MVA [for summer period] and [60] Amps and [11.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00009] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00001] PU (using 100MVA as the base) Reactance [0.00003] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFD-LFT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[60] Amps and [11.43] MVA [for summer period] and [60] Amps and [11.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00009] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00001] PU (using 100MVA as the base) Reactance [0.00003] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Lichfield Transmission Tee Point

Circuit Branch: KIN-LFT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05000] PU (using 100MVA as the base) Reactance [0.18224] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02962] PU (using 100MVA as the base) Reactance [0.06040] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIN-LFT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [395] Amps and [75.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04867] PU (using 100MVA as the base) Reactance [0.19126] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02688] PU (using 100MVA as the base) Reactance [0.05961] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFT-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10011] PU (using 100MVA as the base) Reactance [0.40023] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05580] PU (using 100MVA as the base) Reactance [0.12960] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFT-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12038] PU (using 100MVA as the base) Reactance [0.47760] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06648] PU (using 100MVA as the base) Reactance [0.14799] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFD-LFT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[60] Amps and [11.43] MVA [for summer period] and [60] Amps and [11.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00009] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00001] PU (using 100MVA as the base) Reactance [0.00003] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFD-LFT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[60] Amps and [11.43] MVA [for summer period] and [60] Amps and [11.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00009] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00001] PU (using 100MVA as the base) Reactance [0.00003] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Livingstone

Circuit Branch: ISL-LIV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09195] PU (using 100MVA as the base) Reactance [0.52359] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02064] PU (using 100MVA as the base) Reactance [0.14903] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LIV-NSY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02353] PU (using 100MVA as the base) Reactance [0.11983] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00883] PU (using 100MVA as the base) Reactance [0.04236] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LIV-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01627] PU (using 100MVA as the base) Reactance [0.08246] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.02940] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Linton

Circuit Branch: BPE-LTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00769] PU (using 100MVA as the base) Reactance [0.03870] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00143] PU (using 100MVA as the base) Reactance [0.01251] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAY-LTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04051] PU (using 100MVA as the base) Reactance [0.20255] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00752] PU (using 100MVA as the base) Reactance [0.06586] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04886] PU (using 100MVA as the base) Reactance [0.25101] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00907] PU (using 100MVA as the base) Reactance [0.07917] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00339] PU (using 100MVA as the base) Reactance [0.01709] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00063] PU (using 100MVA as the base) Reactance [0.00553] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Manapouri

Circuit Branch: MAN-NMA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05302] PU (using 100MVA as the base) Reactance [0.28850] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01228] PU (using 100MVA as the base) Reactance [0.08692] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MAN-NMA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05304] PU (using 100MVA as the base) Reactance [0.28864] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01228] PU (using 100MVA as the base) Reactance [0.08694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MAN-NMA-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05321] PU (using 100MVA as the base) Reactance [0.28526] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01231] PU (using 100MVA as the base) Reactance [0.08538] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-MAN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05744] PU (using 100MVA as the base) Reactance [0.30772] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01329] PU (using 100MVA as the base) Reactance [0.09179] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Murchison

Circuit Branch: IGH-MCH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11255] PU (using 100MVA as the base) Reactance [0.39102] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06714] PU (using 100MVA as the base) Reactance [0.13129] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIK-MCH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [327] Amps and [62.30] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16268] PU (using 100MVA as the base) Reactance [0.56961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09705] PU (using 100MVA as the base) Reactance [0.18990] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Marsden

Circuit Branch: BRB-MDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00137] PU (using 100MVA as the base) Reactance [0.00649] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00025] PU (using 100MVA as the base) Reactance [0.00226] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HPI-MDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04006] PU (using 100MVA as the base) Reactance [0.19737] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00744] PU (using 100MVA as the base) Reactance [0.06325] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MDN-MPE-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [228.63] MVA [for summer period] and [1200] Amps and [228.63] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04619] PU (using 100MVA as the base) Reactance [0.18050] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01067] PU (using 100MVA as the base) Reactance [0.06252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MDN-MPE-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [228.63] MVA [for summer period] and [1200] Amps and [228.63] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04619] PU (using 100MVA as the base) Reactance [0.18050] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01067] PU (using 100MVA as the base) Reactance [0.06252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: MDN-TF-T3

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [] Amps and [] MVA [for summer period] and [] Amps and [] MVA [for winter period] MV [] Amps and [] MVA [for summer period] and [] Amps and [] MVA [for winter period] LV [] Amps and [] MVA [for summer period] and [] Amps and [] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [] Amps and [] MVA MV [] Amps and [] MVA LV [] Amps and [] MVA

Interconnection Branch Report

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [] PU (using 100MVA as the base) HV Reactance [] PU (using 100MVA as the base) MV Resistance [] PU (using 100MVA as the base) MV Reactance [] PU (using 100MVA as the base) LV Resistance [] PU (using 100MVA as the base) LV Reactance [] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [] PU (using 100MVA as the base) HV Reactance [] PU (using 100MVA as the base) MV Resistance [] PU (using 100MVA as the base) MV Reactance [] PU (using 100MVA as the base) LV Resistance [] PU (using 100MVA as the base) LV Reactance [] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges MDN-TF-T3B MDN-TF-T3B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges MDN-TF-T3R MDN-TF-T3R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges MDN-TF-T3Y MDN-TF-T3Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges MDN-TF-T3B MDN-TF-T3B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.62] kV Minimum: [10.38] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.6]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges MDN-TF-T3R MDN-TF-T3R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.62] kV Minimum: [10.38] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.6]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges MDN-TF-T3Y</p> <p>MDN-TF-T3Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.62] kV Minimum: [10.38] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5.6]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Mangamaire

Circuit Branch: MGM-MST-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[221] Amps and [42.10] MVA [for summer period] and [270] Amps and [51.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22570] PU (using 100MVA as the base) Reactance [0.64007] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.15664] PU (using 100MVA as the base) Reactance [0.19263] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MGM-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[221] Amps and [42.10] MVA [for summer period] and [270] Amps and [51.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10457] PU (using 100MVA as the base) Reactance [0.29862] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07236] PU (using 100MVA as the base) Reactance [0.08959] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Mangahao

Circuit Branch: BPE-MHO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14324] PU (using 100MVA as the base) Reactance [0.46649] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09258] PU (using 100MVA as the base) Reactance [0.13803] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MHO-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14351] PU (using 100MVA as the base) Reactance [0.46223] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09275] PU (using 100MVA as the base) Reactance [0.13826] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MHO-PRM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.17628] PU (using 100MVA as the base) Reactance [0.65175] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10662] PU (using 100MVA as the base) Reactance [0.19587] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MHO-PRM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.17649] PU (using 100MVA as the base) Reactance [0.64938] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10674] PU (using 100MVA as the base) Reactance [0.19608] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Mangere

Circuit Branch: MNG-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00554] PU (using 100MVA as the base) Reactance [0.02922] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00103] PU (using 100MVA as the base) Reactance [0.00786] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-OTA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00554] PU (using 100MVA as the base) Reactance [0.02924] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00103] PU (using 100MVA as the base) Reactance [0.00787] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03184] PU (using 100MVA as the base) Reactance [0.12726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03822] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03182] PU (using 100MVA as the base) Reactance [0.12715] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03820] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Motunui

Circuit Branch: CST-MNI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [395] Amps and [75.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09160] PU (using 100MVA as the base) Reactance [0.31421] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05059] PU (using 100MVA as the base) Reactance [0.10912] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HUI-MNI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [495] Amps and [94.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02315] PU (using 100MVA as the base) Reactance [0.07382] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01278] PU (using 100MVA as the base) Reactance [0.02757] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNI-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [495] Amps and [94.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14178] PU (using 100MVA as the base) Reactance [0.54306] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07830] PU (using 100MVA as the base) Reactance [0.16982] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Maungatapere

Circuit Branch: MDN-MPE-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [228.63] MVA [for summer period] and [1200] Amps and [228.63] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04619] PU (using 100MVA as the base) Reactance [0.18050] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01067] PU (using 100MVA as the base) Reactance [0.06252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MDN-MPE-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [228.63] MVA [for summer period] and [1200] Amps and [228.63] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04619] PU (using 100MVA as the base) Reactance [0.18050] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01067] PU (using 100MVA as the base) Reactance [0.06252] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MPE-MTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11830] PU (using 100MVA as the base) Reactance [0.44040] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07056] PU (using 100MVA as the base) Reactance [0.12448] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MPE-MTO-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11830] PU (using 100MVA as the base) Reactance [0.44513] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07056] PU (using 100MVA as the base) Reactance [0.12448] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Masterton

Circuit Branch: GYT-MST-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06223] PU (using 100MVA as the base) Reactance [0.22452] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03436] PU (using 100MVA as the base) Reactance [0.07457] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-MST-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06223] PU (using 100MVA as the base) Reactance [0.22451] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03436] PU (using 100MVA as the base) Reactance [0.07456] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MGM-MST-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[221] Amps and [42.10] MVA [for summer period] and [270] Amps and [51.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22570] PU (using 100MVA as the base) Reactance [0.64007] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.15664] PU (using 100MVA as the base) Reactance [0.19263] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Mt Maunganui

Circuit Branch: MTM-PIE-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02622] PU (using 100MVA as the base) Reactance [0.10177] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01497] PU (using 100MVA as the base) Reactance [0.03039] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-MTM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02716] PU (using 100MVA as the base) Reactance [0.09304] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01484] PU (using 100MVA as the base) Reactance [0.02938] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Marton

Circuit Branch: BPE-MTN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08669] PU (using 100MVA as the base) Reactance [0.34535] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04787] PU (using 100MVA as the base) Reactance [0.10502] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-MTN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08710] PU (using 100MVA as the base) Reactance [0.35032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04810] PU (using 100MVA as the base) Reactance [0.10554] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTN-WGN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07635] PU (using 100MVA as the base) Reactance [0.30451] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04216] PU (using 100MVA as the base) Reactance [0.09244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTN-WGN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07636] PU (using 100MVA as the base) Reactance [0.30597] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04217] PU (using 100MVA as the base) Reactance [0.09246] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Maungaturoto

Circuit Branch: MPE-MTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11830] PU (using 100MVA as the base) Reactance [0.44040] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07056] PU (using 100MVA as the base) Reactance [0.12448] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MPE-MTO-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11830] PU (using 100MVA as the base) Reactance [0.44513] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07056] PU (using 100MVA as the base) Reactance [0.12448] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31312] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31416] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Mataroa

Circuit Branch: BPE-MTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19405] PU (using 100MVA as the base) Reactance [0.77949] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10753] PU (using 100MVA as the base) Reactance [0.25290] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTR-OKN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10771] PU (using 100MVA as the base) Reactance [0.43019] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05969] PU (using 100MVA as the base) Reactance [0.13993] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: North Makarewa

Circuit Branch: INV-NMA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1132] Amps and [431.35] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00421] PU (using 100MVA as the base) Reactance [0.02238] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00097] PU (using 100MVA as the base) Reactance [0.00638] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MAN-NMA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05302] PU (using 100MVA as the base) Reactance [0.28850] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01228] PU (using 100MVA as the base) Reactance [0.08692] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MAN-NMA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05304] PU (using 100MVA as the base) Reactance [0.28864] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01228] PU (using 100MVA as the base) Reactance [0.08694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MAN-NMA-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[818] Amps and [311.62] MVA [for summer period] and [997] Amps and [379.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05321] PU (using 100MVA as the base) Reactance [0.28526] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01231] PU (using 100MVA as the base) Reactance [0.08538] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.39938] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.50314] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: New Plymouth

Circuit Branch: CST-NPL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1220] Amps and [232.53] MVA [for summer period] and [1503] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01608] PU (using 100MVA as the base) Reactance [0.07037] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00299] PU (using 100MVA as the base) Reactance [0.02289] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: CST-NPL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1220] Amps and [232.53] MVA [for summer period] and [1503] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01608] PU (using 100MVA as the base) Reactance [0.07045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00299] PU (using 100MVA as the base) Reactance [0.02289] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: NPL-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01587] PU (using 100MVA as the base) Reactance [0.09727] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00294] PU (using 100MVA as the base) Reactance [0.02505] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NPL-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01588] PU (using 100MVA as the base) Reactance [0.09725] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00295] PU (using 100MVA as the base) Reactance [0.02509] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: NPL-TF-T8

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [525] Amps and [200.05] MVA [for summer period] and [525] Amps and [200.05] MVA [for winter period] MV [1025] Amps and [195.28] MVA [for summer period] and [1025] Amps and [195.28] MVA [for winter period] LV [3637] Amps and [69.30] MVA [for summer period] and [3637] Amps and [69.30] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1025] Amps and [195.28] MVA LV [3031] Amps and [57.75] MVA

Interconnection Branch Report

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00031] PU (using 100MVA as the base) HV Reactance [0.02756] PU (using 100MVA as the base) MV Resistance [0.00054] PU (using 100MVA as the base) MV Reactance [-0.00134] PU (using 100MVA as the base) LV Resistance [0.00265] PU (using 100MVA as the base) LV Reactance [0.05607] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00030] PU (using 100MVA as the base) HV Reactance [0.02756] PU (using 100MVA as the base) MV Resistance [0.00052] PU (using 100MVA as the base) MV Reactance [-0.00132] PU (using 100MVA as the base) LV Resistance [0.00265] PU (using 100MVA as the base) LV Reactance [0.05607] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges NPL-TF-T8B NPL-TF-T8B-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges NPL-TF-T8R NPL-TF-T8R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges NPL-TF-T8Y</p> <p>NPL-TF-T8Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [12]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Naseby

Circuit Branch: LIV-NSY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02353] PU (using 100MVA as the base) Reactance [0.11983] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00883] PU (using 100MVA as the base) Reactance [0.04236] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NSY-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04612] PU (using 100MVA as the base) Reactance [0.23489] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08303] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Oamaru

Circuit Branch: BPC-OAM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [309] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.18336] PU (using 100MVA as the base) Reactance [0.63855] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.11215] PU (using 100MVA as the base) Reactance [0.19889] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ohau A

Circuit Branch: OHA-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHA-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ohau B

Circuit Branch: BEN-OHB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01265] PU (using 100MVA as the base) Reactance [0.06233] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00228] PU (using 100MVA as the base) Reactance [0.02545] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHB-TWZ-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00136] PU (using 100MVA as the base) Reactance [0.00573] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00025] PU (using 100MVA as the base) Reactance [0.00220] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Ohau C

Circuit Branch: BEN-OHC-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1473] Amps and [561.32] MVA [for summer period] and [1620] Amps and [617.46] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.04813] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00178] PU (using 100MVA as the base) Reactance [0.02117] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHC-TWZ-4

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00448] PU (using 100MVA as the base) Reactance [0.01891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00083] PU (using 100MVA as the base) Reactance [0.00725] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ohakuri

Circuit Branch: ATI-OHK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00294] PU (using 100MVA as the base) Reactance [0.01223] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00110] PU (using 100MVA as the base) Reactance [0.00529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KAW-OHK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03993] PU (using 100MVA as the base) Reactance [0.18434] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01250] PU (using 100MVA as the base) Reactance [0.07651] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHK-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01267] PU (using 100MVA as the base) Reactance [0.05235] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00475] PU (using 100MVA as the base) Reactance [0.02282] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ohinewai

Circuit Branch: HAM-OHW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01533] PU (using 100MVA as the base) Reactance [0.08117] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00353] PU (using 100MVA as the base) Reactance [0.02304] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-OTA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1614] Amps and [615.03] MVA [for summer period] and [1761] Amps and [670.96] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02886] PU (using 100MVA as the base) Reactance [0.15227] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00667] PU (using 100MVA as the base) Reactance [0.04323] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04706] PU (using 100MVA as the base) Reactance [0.24827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01087] PU (using 100MVA as the base) Reactance [0.07049] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-OHW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1806] Amps and [688.18] MVA [for summer period] and [1806] Amps and [688.18] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00627] PU (using 100MVA as the base) Reactance [0.03325] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00116] PU (using 100MVA as the base) Reactance [0.01020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-OHW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00628] PU (using 100MVA as the base) Reactance [0.03329] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00116] PU (using 100MVA as the base) Reactance [0.01022] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [198] kV Minimum: [242] kV

Circuit Branch: OHW-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1614] Amps and [615.03] MVA [for summer period] and [1761] Amps and [670.96] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02891] PU (using 100MVA as the base) Reactance [0.15252] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00668] PU (using 100MVA as the base) Reactance [0.04330] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Okere

Circuit Branch: OKE-OWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[306] Amps and [58.27] MVA [for summer period] and [373] Amps and [71.16] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02987] PU (using 100MVA as the base) Reactance [0.12572] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01292] PU (using 100MVA as the base) Reactance [0.04684] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKE-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07130] PU (using 100MVA as the base) Reactance [0.28349] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03937] PU (using 100MVA as the base) Reactance [0.08773] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKE-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05723] PU (using 100MVA as the base) Reactance [0.22639] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03160] PU (using 100MVA as the base) Reactance [0.07034] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ohakune

Circuit Branch: MTR-OKN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10771] PU (using 100MVA as the base) Reactance [0.43019] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05969] PU (using 100MVA as the base) Reactance [0.13993] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKN-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07958] PU (using 100MVA as the base) Reactance [0.32200] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04411] PU (using 100MVA as the base) Reactance [0.10086] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Ongarue

Circuit Branch: ONG-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13884] PU (using 100MVA as the base) Reactance [0.55786] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07694] PU (using 100MVA as the base) Reactance [0.18082] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ONG-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13615] PU (using 100MVA as the base) Reactance [0.54871] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07545] PU (using 100MVA as the base) Reactance [0.17731] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Opihi

Circuit Branch: ASB-OPI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02607] PU (using 100MVA as the base) Reactance [0.16035] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00484] PU (using 100MVA as the base) Reactance [0.04136] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ASB-OPI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02601] PU (using 100MVA as the base) Reactance [0.16005] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00483] PU (using 100MVA as the base) Reactance [0.04127] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TIM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Otahuhu

Circuit Branch: HEN-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2400] Amps and [914.52] MVA [for summer period] and [2400] Amps and [914.52] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01184] PU (using 100MVA as the base) Reactance [0.05881] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00220] PU (using 100MVA as the base) Reactance [0.01922] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-OTA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1614] Amps and [615.03] MVA [for summer period] and [1761] Amps and [670.96] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02886] PU (using 100MVA as the base) Reactance [0.15227] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00667] PU (using 100MVA as the base) Reactance [0.04323] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: MNG-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00554] PU (using 100MVA as the base) Reactance [0.02922] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00103] PU (using 100MVA as the base) Reactance [0.00786] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-OTA-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00554] PU (using 100MVA as the base) Reactance [0.02924] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00103] PU (using 100MVA as the base) Reactance [0.00787] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-PAK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1292] Amps and [246.16] MVA [for summer period] and [1292] Amps and [246.16] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00718] PU (using 100MVA as the base) Reactance [0.03335] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00073] PU (using 100MVA as the base) Reactance [0.01215] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-PEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [173.58] MVA [for summer period] and [1003] Amps and [191.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01791] PU (using 100MVA as the base) Reactance [0.05557] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00590] PU (using 100MVA as the base) Reactance [0.01485] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-PEN-5

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00444] PU (using 100MVA as the base) Reactance [0.02091] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.00849] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05132] PU (using 100MVA as the base) Reactance [0.15470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02707] PU (using 100MVA as the base) Reactance [0.05975] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05087] PU (using 100MVA as the base) Reactance [0.19704] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02693] PU (using 100MVA as the base) Reactance [0.05899] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01419] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00042] PU (using 100MVA as the base) Reactance [0.00367] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2802] Amps and [1,067.71] MVA [for summer period] and [2802] Amps and [1,067.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00398] PU (using 100MVA as the base) Reactance [0.02060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00675] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2000] Amps and [762.10] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00399] PU (using 100MVA as the base) Reactance [0.02064] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00676] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09342] PU (using 100MVA as the base) Reactance [0.47433] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03507] PU (using 100MVA as the base) Reactance [0.16851] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09348] PU (using 100MVA as the base) Reactance [0.47530] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03509] PU (using 100MVA as the base) Reactance [0.16829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01163] PU (using 100MVA as the base) Reactance [0.04344] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00642] PU (using 100MVA as the base) Reactance [0.01408] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01182] PU (using 100MVA as the base) Reactance [0.04738] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00653] PU (using 100MVA as the base) Reactance [0.01430] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-OTG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00043] PU (using 100MVA as the base) Reactance [0.00245] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00008] PU (using 100MVA as the base) Reactance [0.00060] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-OTG-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00100] PU (using 100MVA as the base) Reactance [0.00546] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00019] PU (using 100MVA as the base) Reactance [0.00150] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-OTC-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00024] PU (using 100MVA as the base) Reactance [0.00114] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00040] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-OTA-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1614] Amps and [615.03] MVA [for summer period] and [1761] Amps and [670.96] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02891] PU (using 100MVA as the base) Reactance [0.15252] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00668] PU (using 100MVA as the base) Reactance [0.04330] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Transformer Branch: OTA-TF-T2

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [415] Amps and [158.00] MVA [for summer period] and [445] Amps and [169.70] MVA [for winter period] MV [709] Amps and [135.00] MVA [for summer period] and [761] Amps and [145.00] MVA [for winter period] LV [4157] Amps and [79.20] MVA [for summer period] and [4157] Amps and [79.20] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [307] Amps and [117.00] MVA MV [525] Amps and [99.99] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00055] PU (using 100MVA as the base) HV Reactance [0.01858] PU (using 100MVA as the base) MV Resistance [0.00111] PU (using 100MVA as the base) MV Reactance [0.02225] PU (using 100MVA as the base) LV Resistance [0.00239] PU (using 100MVA as the base) LV Reactance [0.03888] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00055] PU (using 100MVA as the base) HV Reactance [0.01858] PU (using 100MVA as the base) MV Resistance [0.00111] PU (using 100MVA as the base) MV Reactance [0.02225] PU (using 100MVA as the base) LV Resistance [0.00239] PU (using 100MVA as the base) LV Reactance [0.03888] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [239.8] kV Minimum: [198] kV
Tapping steps and ranges OTA-TF-T2B OTA-TF-T2B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

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<p>Tapping steps and ranges OTA-TF-T2R OTA-TF-T2R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges OTA-TF-T2Y OTA-TF-T2Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges OTA-TF-T2B OTA-TF-T2B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.62] kV Minimum: [10.38] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.6]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

<p>Tapping steps and ranges OTA-TF-T2R OTA-TF-T2R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.62] kV Minimum: [10.38] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.6]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges OTA-TF-T2Y OTA-TF-T2Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.62] kV Minimum: [10.38] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5.6]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: OTA-TF-T3

Service Measure	Service Level
<p>Overall 24 hour post contingency capacity rating of the interconnection transformer branch</p>	<p>HV [849] Amps and [323.60] MVA [for summer period] and [886] Amps and [337.70] MVA [for winter period] MV [1698] Amps and [323.60] MVA [for summer period] and [1772] Amps and [337.70] MVA [for winter period] LV [4755] Amps and [90.60] MVA [for summer period] and [4965] Amps and [94.60] MVA [for winter period]</p>
<p>Continuous capacity rating of the interconnection transformer branch</p>	<p>HV [656] Amps and [250.00] MVA MV [1312] Amps and [250.00] MVA LV [3674] Amps and [70.00] MVA</p>

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.06419] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.00587] PU (using 100MVA as the base) LV Resistance [0.00000] PU (using 100MVA as the base) LV Reactance [0.09587] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00030] PU (using 100MVA as the base) HV Reactance [0.06419] PU (using 100MVA as the base) MV Resistance [0.00054] PU (using 100MVA as the base) MV Reactance [-0.00584] PU (using 100MVA as the base) LV Resistance [0.00327] PU (using 100MVA as the base) LV Reactance [0.09581] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges OTA-TF-T3 OTA-TF-T3-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]</p>
<p>Tapping steps and ranges OTA-TF-T3 OTA-TF-T3-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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Transformer Branch: OTA-TF-T4

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [667] Amps and [254.00] MVA [for summer period] and [709] Amps and [270.00] MVA [for winter period] MV [1333] Amps and [254.00] MVA [for summer period] and [1417] Amps and [270.00] MVA [for winter period] LV [3999] Amps and [76.20] MVA [for summer period] and [4251] Amps and [81.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1050] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00129] PU (using 100MVA as the base) HV Reactance [0.02716] PU (using 100MVA as the base) MV Resistance [0.00068] PU (using 100MVA as the base) MV Reactance [-0.00169] PU (using 100MVA as the base) LV Resistance [0.00183] PU (using 100MVA as the base) LV Reactance [0.06404] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00129] PU (using 100MVA as the base) HV Reactance [0.02716] PU (using 100MVA as the base) MV Resistance [0.00068] PU (using 100MVA as the base) MV Reactance [-0.00169] PU (using 100MVA as the base) LV Resistance [0.00183] PU (using 100MVA as the base) LV Reactance [0.06404] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges OTA-TF-T4B OTA-TF-T4B-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

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<p>Tapping steps and ranges OTA-TF-T4R OTA-TF-T4R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges OTA-TF-T4Y OTA-TF-T4Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges OTA-TF-T4B OTA-TF-T4B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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Tapping steps and ranges OTA-TF-T4R OTA-TF-T4R-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]
Tapping steps and ranges OTA-TF-T4Y OTA-TF-T4Y-Tap Changer -- OFFLOAD -- LV	Tap voltage range: Maximum: [11.73] kV Minimum: [10.27] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [3.33]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

Transformer Branch: OTA-TF-T5

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[1660] Amps and [316.19] MVA [for summer period] and [1660] Amps and [316.19] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [1312] Amps and [250.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.05868] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00068] PU (using 100MVA as the base) Reactance [0.05868] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

<p>Tapping steps and ranges OTA-TF-T5</p> <p>OTA-TF-T5-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [242] kV Minimum: [198] kV</p> <p>Number of tapping steps: [16]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Otahuhu Combined Cycle Power Station

Circuit Branch: OTC-PEN-6

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.01900] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00130] PU (using 100MVA as the base) Reactance [0.00801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-OTC-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00024] PU (using 100MVA as the base) Reactance [0.00114] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00040] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

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Site: Otahuhu Power Station

Circuit Branch: OTA-OTG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00043] PU (using 100MVA as the base) Reactance [0.00245] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00008] PU (using 100MVA as the base) Reactance [0.00060] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-OTG-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1600] Amps and [304.84] MVA [for summer period] and [1600] Amps and [304.84] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00100] PU (using 100MVA as the base) Reactance [0.00546] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00019] PU (using 100MVA as the base) Reactance [0.00150] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

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Site: Otira

Circuit Branch: COL-OTI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.80552] PU (using 100MVA as the base) Reactance [2.70927] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.52070] PU (using 100MVA as the base) Reactance [0.78811] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: APS-OTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12777] PU (using 100MVA as the base) Reactance [0.44010] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08158] PU (using 100MVA as the base) Reactance [0.12403] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: HKK-OTI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [283] Amps and [32.39] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.67800] PU (using 100MVA as the base) Reactance [2.36250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.43695] PU (using 100MVA as the base) Reactance [0.65176] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: KUM-OTI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[232] Amps and [26.51] MVA [for summer period] and [240] Amps and [27.44] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.58379] PU (using 100MVA as the base) Reactance [2.05040] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.37488] PU (using 100MVA as the base) Reactance [0.56057] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

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Site: Owkata

Circuit Branch: EDG-OWH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14362] PU (using 100MVA as the base) Reactance [0.57918] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07616] PU (using 100MVA as the base) Reactance [0.19185] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKE-OWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[306] Amps and [58.27] MVA [for summer period] and [373] Amps and [71.16] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02987] PU (using 100MVA as the base) Reactance [0.12572] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01292] PU (using 100MVA as the base) Reactance [0.04684] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Pakuranga

Circuit Branch: ARI-PAK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[584] Amps and [111.36] MVA [for summer period] and [714] Amps and [135.98] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.30558] PU (using 100MVA as the base) Reactance [1.39893] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.11342] PU (using 100MVA as the base) Reactance [0.24678] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-PAK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1292] Amps and [246.16] MVA [for summer period] and [1292] Amps and [246.16] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00718] PU (using 100MVA as the base) Reactance [0.03335] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00073] PU (using 100MVA as the base) Reactance [0.01215] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PAK-PEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[600] Amps and [114.28] MVA [for summer period] and [733] Amps and [139.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01117] PU (using 100MVA as the base) Reactance [0.04622] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00573] PU (using 100MVA as the base) Reactance [0.01456] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

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Site: Penrose

Circuit Branch: OTA-PEN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [173.58] MVA [for summer period] and [1003] Amps and [191.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01791] PU (using 100MVA as the base) Reactance [0.05557] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00590] PU (using 100MVA as the base) Reactance [0.01485] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-PEN-5

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00444] PU (using 100MVA as the base) Reactance [0.02091] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00138] PU (using 100MVA as the base) Reactance [0.00849] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PAK-PEN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[600] Amps and [114.28] MVA [for summer period] and [733] Amps and [139.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01117] PU (using 100MVA as the base) Reactance [0.04622] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00573] PU (using 100MVA as the base) Reactance [0.01456] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTC-PEN-6

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1200] Amps and [457.26] MVA [for summer period] and [1200] Amps and [457.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.01900] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00130] PU (using 100MVA as the base) Reactance [0.00801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Poike

Circuit Branch: MTM-PIE-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02622] PU (using 100MVA as the base) Reactance [0.10177] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01497] PU (using 100MVA as the base) Reactance [0.03039] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Pauatahanui Tee

Circuit Branch: PNT-PRM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[258] Amps and [49.22] MVA [for summer period] and [319] Amps and [60.77] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06217] PU (using 100MVA as the base) Reactance [0.25279] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03434] PU (using 100MVA as the base) Reactance [0.07263] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-PRM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[258] Amps and [49.22] MVA [for summer period] and [319] Amps and [60.77] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06138] PU (using 100MVA as the base) Reactance [0.24922] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03390] PU (using 100MVA as the base) Reactance [0.07158] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01854] PU (using 100MVA as the base) Reactance [0.07461] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01023] PU (using 100MVA as the base) Reactance [0.02159] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01858] PU (using 100MVA as the base) Reactance [0.07625] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01026] PU (using 100MVA as the base) Reactance [0.02164] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Poihipi Tee

Circuit Branch: PPT-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01459] PU (using 100MVA as the base) Reactance [0.06699] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00457] PU (using 100MVA as the base) Reactance [0.02802] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PPT-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00207] PU (using 100MVA as the base) Reactance [0.00951] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00065] PU (using 100MVA as the base) Reactance [0.00398] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Paraparaumu

Circuit Branch: MHO-PRM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.17628] PU (using 100MVA as the base) Reactance [0.65175] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10662] PU (using 100MVA as the base) Reactance [0.19587] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MHO-PRM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.17649] PU (using 100MVA as the base) Reactance [0.64938] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10674] PU (using 100MVA as the base) Reactance [0.19608] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-PRM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[258] Amps and [49.22] MVA [for summer period] and [319] Amps and [60.77] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06217] PU (using 100MVA as the base) Reactance [0.25279] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03434] PU (using 100MVA as the base) Reactance [0.07263] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-PRM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[258] Amps and [49.22] MVA [for summer period] and [319] Amps and [60.77] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06138] PU (using 100MVA as the base) Reactance [0.24922] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03390] PU (using 100MVA as the base) Reactance [0.07158] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Redclyffe

Circuit Branch: FHL-RDF-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02346] PU (using 100MVA as the base) Reactance [0.08780] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01406] PU (using 100MVA as the base) Reactance [0.02655] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-RDF-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02397] PU (using 100MVA as the base) Reactance [0.08939] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01437] PU (using 100MVA as the base) Reactance [0.02728] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26980] PU (using 100MVA as the base) Reactance [1.11476] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14948] PU (using 100MVA as the base) Reactance [0.33993] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26981] PU (using 100MVA as the base) Reactance [1.10751] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14949] PU (using 100MVA as the base) Reactance [0.33994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-WHI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1250] Amps and [476.31] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00863] PU (using 100MVA as the base) Reactance [0.05145] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00160] PU (using 100MVA as the base) Reactance [0.01371] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RDF-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05136] PU (using 100MVA as the base) Reactance [0.31543] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00953] PU (using 100MVA as the base) Reactance [0.08150] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: RDF-TF-T3

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[596] Amps and [113.60] MVA [for summer period] and [630] Amps and [120.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [420] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.10100] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.10091] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges RDF-TF-T3 RDF-TF-T3-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Interconnection Branch Report

As at : 01/07/2009 12:48

Transformer Branch: RDF-TF-T4

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[596] Amps and [113.60] MVA [for summer period] and [630] Amps and [120.00] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [420] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.10100] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.10091] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges RDF-TF-T4 RDF-TF-T4-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [187] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Reefton Transmission Tee Point

Circuit Branch: IGH-RFC-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08711] PU (using 100MVA as the base) Reactance [0.30609] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05197] PU (using 100MVA as the base) Reactance [0.10050] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RFC-RFN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00037] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00006] PU (using 100MVA as the base) Reactance [0.00011] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ATU-RFC-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12460] PU (using 100MVA as the base) Reactance [0.45079] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07433] PU (using 100MVA as the base) Reactance [0.14009] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Reefton

Circuit Branch: IGH-RFN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07864] PU (using 100MVA as the base) Reactance [0.36448] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03851] PU (using 100MVA as the base) Reactance [0.10149] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RFC-RFN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[120] Amps and [22.86] MVA [for summer period] and [120] Amps and [22.86] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00037] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00006] PU (using 100MVA as the base) Reactance [0.00011] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Mount Roskill

Circuit Branch: HEP-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01457] PU (using 100MVA as the base) Reactance [0.05947] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00555] PU (using 100MVA as the base) Reactance [0.01188] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEP-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[800] Amps and [152.42] MVA [for summer period] and [800] Amps and [152.42] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01407] PU (using 100MVA as the base) Reactance [0.06316] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00535] PU (using 100MVA as the base) Reactance [0.01131] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03184] PU (using 100MVA as the base) Reactance [0.12726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03822] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNG-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03182] PU (using 100MVA as the base) Reactance [0.12715] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01751] PU (using 100MVA as the base) Reactance [0.03820] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-ROS-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05132] PU (using 100MVA as the base) Reactance [0.15470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02707] PU (using 100MVA as the base) Reactance [0.05975] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-ROS-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05087] PU (using 100MVA as the base) Reactance [0.19704] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02693] PU (using 100MVA as the base) Reactance [0.05899] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Roxburgh

Circuit Branch: CYD-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08768] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CYD-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.08767] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00477] PU (using 100MVA as the base) Reactance [0.02856] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: GOR-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.22961] PU (using 100MVA as the base) Reactance [0.91303] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12679] PU (using 100MVA as the base) Reactance [0.28215] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34497] PU (using 100MVA as the base) Reactance [1.32332] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19050] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HWB-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.34500] PU (using 100MVA as the base) Reactance [1.32345] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.19051] PU (using 100MVA as the base) Reactance [0.44688] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: INV-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05884] PU (using 100MVA as the base) Reactance [0.27204] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01842] PU (using 100MVA as the base) Reactance [0.11249] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-ROX-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05779] PU (using 100MVA as the base) Reactance [0.32327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01809] PU (using 100MVA as the base) Reactance [0.11214] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NSY-ROX-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[530] Amps and [201.99] MVA [for summer period] and [647] Amps and [246.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04612] PU (using 100MVA as the base) Reactance [0.23489] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08303] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23723] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23757] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: ROX-TF-T10

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [144] Amps and [55.00] MVA [for summer period] and [154] Amps and [58.50] MVA [for winter period] MV [289] Amps and [55.00] MVA [for summer period] and [307] Amps and [58.50] MVA [for winter period] LV [570] Amps and [10.86] MVA [for summer period] and [570] Amps and [10.86] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [131] Amps and [50.01] MVA MV [262] Amps and [50.01] MVA LV [570] Amps and [10.86] MVA

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00363] PU (using 100MVA as the base) HV Reactance [0.21500] PU (using 100MVA as the base) MV Resistance [0.00363] PU (using 100MVA as the base) MV Reactance [-0.05653] PU (using 100MVA as the base) LV Resistance [0.01828] PU (using 100MVA as the base) LV Reactance [0.38590] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00363] PU (using 100MVA as the base) HV Reactance [0.21500] PU (using 100MVA as the base) MV Resistance [0.00363] PU (using 100MVA as the base) MV Reactance [-0.05653] PU (using 100MVA as the base) LV Resistance [0.00539] PU (using 100MVA as the base) LV Reactance [0.38838] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges ROX-TF-T10B ROX-TF-T10B-Tap Changer -- OFFLOAD -- MV</p>	<p>Tap voltage range: Maximum: [115] kV Minimum: [105] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.27]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges ROX-TF-T10R ROX-TF-T10R-Tap Changer -- OFFLOAD -- MV</p>	<p>Tap voltage range: Maximum: [115] kV Minimum: [105] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.27]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges ROX-TF-T10Y</p> <p>ROX-TF-T10Y-Tap Changer -- OFFLOAD -- MV</p>	<p>Tap voltage range:</p> <p>Maximum: [115] kV Minimum: [105] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.27]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Rangipo

Circuit Branch: RPO-TNG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02565] PU (using 100MVA as the base) Reactance [0.14274] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00803] PU (using 100MVA as the base) Reactance [0.04901] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RPO-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[955] Amps and [363.85] MVA [for summer period] and [1042] Amps and [396.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03284] PU (using 100MVA as the base) Reactance [0.18268] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01028] PU (using 100MVA as the base) Reactance [0.06302] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Rangitoto Hills

Circuit Branch: ARI-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.11147] PU (using 100MVA as the base) Reactance [0.45164] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06177] PU (using 100MVA as the base) Reactance [0.14518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ONG-RTO-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13884] PU (using 100MVA as the base) Reactance [0.55786] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07694] PU (using 100MVA as the base) Reactance [0.18082] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Retaruke

Circuit Branch: OKN-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07958] PU (using 100MVA as the base) Reactance [0.32200] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04411] PU (using 100MVA as the base) Reactance [0.10086] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: ONG-RTR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13615] PU (using 100MVA as the base) Reactance [0.54871] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07545] PU (using 100MVA as the base) Reactance [0.17731] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Southbrook

Circuit Branch: ASY-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09001] PU (using 100MVA as the base) Reactance [0.35531] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04971] PU (using 100MVA as the base) Reactance [0.10628] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-SBK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19307] PU (using 100MVA as the base) Reactance [0.78559] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10662] PU (using 100MVA as the base) Reactance [0.22473] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: ISL-SBK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[527] Amps and [60.21] MVA [for summer period] and [571] Amps and [65.23] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.19305] PU (using 100MVA as the base) Reactance [0.78552] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10661] PU (using 100MVA as the base) Reactance [0.22470] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: SBK-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26285] PU (using 100MVA as the base) Reactance [1.06736] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14515] PU (using 100MVA as the base) Reactance [0.31037] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: South Dunedin

Circuit Branch: HWB-SDN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00547] PU (using 100MVA as the base) Reactance [0.02887] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00171] PU (using 100MVA as the base) Reactance [0.01024] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Stratford Power Station

Circuit Branch: BRK-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24387] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [232.53] MVA [for summer period] and [752] Amps and [286.38] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04266] PU (using 100MVA as the base) Reactance [0.24388] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01336] PU (using 100MVA as the base) Reactance [0.07999] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BRK-SFD-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04301] PU (using 100MVA as the base) Reactance [0.20104] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01346] PU (using 100MVA as the base) Reactance [0.08140] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CST-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09843] PU (using 100MVA as the base) Reactance [0.35588] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05435] PU (using 100MVA as the base) Reactance [0.11906] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HLY-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12488] PU (using 100MVA as the base) Reactance [0.71431] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03910] PU (using 100MVA as the base) Reactance [0.23497] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HWA-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08109] PU (using 100MVA as the base) Reactance [0.29256] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04860] PU (using 100MVA as the base) Reactance [0.09764] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MNI-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [495] Amps and [94.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14178] PU (using 100MVA as the base) Reactance [0.54306] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07830] PU (using 100MVA as the base) Reactance [0.16982] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: NPL-SFD-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01587] PU (using 100MVA as the base) Reactance [0.09727] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00294] PU (using 100MVA as the base) Reactance [0.02505] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NPL-SFD-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1537] Amps and [585.68] MVA [for summer period] and [1537] Amps and [585.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01588] PU (using 100MVA as the base) Reactance [0.09725] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00295] PU (using 100MVA as the base) Reactance [0.02509] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: SFD-TMN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04872] PU (using 100MVA as the base) Reactance [0.27658] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.09232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: SFD-TF-T10

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [412] Amps and [157.10] MVA [for summer period] and [437] Amps and [166.50] MVA [for winter period] MV [709] Amps and [135.00] MVA [for summer period] and [751] Amps and [143.00] MVA [for winter period] LV [4251] Amps and [81.00] MVA [for summer period] and [4503] Amps and [85.80] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [305] Amps and [116.40] MVA MV [525] Amps and [99.99] MVA LV [3149] Amps and [60.00] MVA

Interconnection Branch Report

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00048] PU (using 100MVA as the base) HV Reactance [0.02500] PU (using 100MVA as the base) MV Resistance [0.00152] PU (using 100MVA as the base) MV Reactance [0.02790] PU (using 100MVA as the base) LV Resistance [0.00441] PU (using 100MVA as the base) LV Reactance [0.07955] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00048] PU (using 100MVA as the base) HV Reactance [0.02500] PU (using 100MVA as the base) MV Resistance [0.00152] PU (using 100MVA as the base) MV Reactance [0.02790] PU (using 100MVA as the base) LV Resistance [0.00441] PU (using 100MVA as the base) LV Reactance [0.07955] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges SFD-TF-T10B SFD-TF-T10B-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges SFD-TF-T10R SFD-TF-T10R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges SFD-TF-T10Y</p> <p>SFD-TF-T10Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [12]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges SFD-TF-T10B</p> <p>SFD-TF-T10B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges SFD-TF-T10R</p> <p>SFD-TF-T10R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges SFD-TF-T10Y</p> <p>SFD-TF-T10Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Site: STK

Circuit Branch: BLN-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[400] Amps and [76.21] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14963] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05617] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BLN-STK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[551] Amps and [104.89] MVA [for summer period] and [672] Amps and [127.97] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14553] PU (using 100MVA as the base) Reactance [0.66961] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05207] PU (using 100MVA as the base) Reactance [0.24010] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KIK-STK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection	[627] Amps and [238.85] MVA [for summer period] and

circuit branch	[765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02333] PU (using 100MVA as the base) Reactance [0.11401] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04353] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02334] PU (using 100MVA as the base) Reactance [0.11405] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00731] PU (using 100MVA as the base) Reactance [0.04354] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: KIK-STK-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16025] PU (using 100MVA as the base) Reactance [0.57619] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.09560] PU (using 100MVA as the base) Reactance [0.17996] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV

branch	
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: STK-TF-T7

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [472] Amps and [180.00] MVA [for summer period] and [494] Amps and [188.20] MVA [for winter period] MV [839] Amps and [159.85] MVA [for summer period] and [839] Amps and [159.85] MVA [for winter period] LV [1262] Amps and [24.04] MVA [for summer period] and [1262] Amps and [24.04] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	3 Winding HV [394] Amps and [150.00] MVA MV [787] Amps and [150.00] MVA LV [1262] Amps and [24.04] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00000] PU (using 100MVA as the base) HV Reactance [0.07010] PU (using 100MVA as the base) MV Resistance [0.00000] PU (using 100MVA as the base) MV Reactance [0.00500] PU (using 100MVA as the base) LV Resistance [0.02843] PU (using 100MVA as the base) LV Reactance [0.10386] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00009] PU (using 100MVA as the base) HV Reactance [0.07010] PU (using 100MVA as the base) MV Resistance [0.00112] PU (using 100MVA as the base) MV Reactance [-0.00487] PU (using 100MVA as the base) LV Resistance [0.01049] PU (using 100MVA as the base) LV Reactance [0.24918] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [239.8] kV Minimum: [198] kV
Tapping steps and ranges STK-TF-T7 STK-TF-T7-Tap Changer	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [17]

	<p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability []</p> <p>If on-load tapping capability is automatic, is it auto selected? []</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges STK-TF-T7</p> <p>STK-TF-T7-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [5]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Site: STU

Circuit Branch: GNY-STU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[371] Amps and [70.76] MVA [for summer period] and [409] Amps and [77.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07611] PU (using 100MVA as the base) Reactance [0.24787] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04919] PU (using 100MVA as the base) Reactance [0.07338] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: STU-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[253] Amps and [48.23] MVA [for summer period] and [295] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16721] PU (using 100MVA as the base) Reactance [0.54749] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10777] PU (using 100MVA as the base) Reactance [0.16161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

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Site: Southdown

Circuit Branch: HEN-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00957] PU (using 100MVA as the base) Reactance [0.05950] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00178] PU (using 100MVA as the base) Reactance [0.01555] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-SWN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2395] Amps and [912.62] MVA [for summer period] and [2395] Amps and [912.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01419] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00042] PU (using 100MVA as the base) Reactance [0.00367] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Takanini Transmission Tee Point

Circuit Branch: GLN-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01203] PU (using 100MVA as the base) Reactance [0.05852] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00191] PU (using 100MVA as the base) Reactance [0.01952] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HLY-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02356] PU (using 100MVA as the base) Reactance [0.11917] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00405] PU (using 100MVA as the base) Reactance [0.03861] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2802] Amps and [1,067.71] MVA [for summer period] and [2802] Amps and [1,067.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00398] PU (using 100MVA as the base) Reactance [0.02060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00675] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-TAT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2000] Amps and [762.10] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00399] PU (using 100MVA as the base) Reactance [0.02064] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00039] PU (using 100MVA as the base) Reactance [0.00676] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: TIM

Circuit Branch: OPI-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TIM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01441] PU (using 100MVA as the base) Reactance [0.08172] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00451] PU (using 100MVA as the base) Reactance [0.02736] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: STU-TIM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection	[253] Amps and [48.23] MVA [for summer period] and

circuit branch	[295] Amps and [58.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.16721] PU (using 100MVA as the base) Reactance [0.54749] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.10777] PU (using 100MVA as the base) Reactance [0.16161] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: TIM-TF-T5

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[641] Amps and [122.10] MVA [for summer period] and [656] Amps and [124.94] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [630] Amps and [120.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.16948] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00481] PU (using 100MVA as the base) Reactance [0.16942] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TIM-TF-T5 TIM-TF-T5-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is

	normally set? (Actual or expected position at winter peak demand) [9]
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Transformer Branch: TIM-TF-T8

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[653] Amps and [124.40] MVA [for summer period] and [676] Amps and [128.73] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [630] Amps and [120.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.16888] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00476] PU (using 100MVA as the base) Reactance [0.16882] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TIM-TF-T8 TIM-TF-T8-Tap Changer -- ONLOAD -- HV	Tap voltage range: Maximum: [242] kV Minimum: [198] kV Number of tapping steps: [16] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [9]

Site: Tekapo B

Circuit Branch: ISL-TKB-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1600] Amps and [609.68] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08491] PU (using 100MVA as the base) Reactance [0.38650] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01962] PU (using 100MVA as the base) Reactance [0.13391] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKB-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1626] Amps and [619.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01013] PU (using 100MVA as the base) Reactance [0.04891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00233] PU (using 100MVA as the base) Reactance [0.01605] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Takapu Road

Circuit Branch: HAY-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08536] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[2160] Amps and [411.46] MVA [for summer period] and [2266] Amps and [431.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01434] PU (using 100MVA as the base) Reactance [0.08550] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00313] PU (using 100MVA as the base) Reactance [0.01994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01854] PU (using 100MVA as the base) Reactance [0.07461] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01023] PU (using 100MVA as the base) Reactance [0.02159] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: PNT-TKR-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.24] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01858] PU (using 100MVA as the base) Reactance [0.07625] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01026] PU (using 100MVA as the base) Reactance [0.02164] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02726] PU (using 100MVA as the base) Reactance [0.11230] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00605] PU (using 100MVA as the base) Reactance [0.03858] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02731] PU (using 100MVA as the base) Reactance [0.11250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.03865] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tokaanu

Circuit Branch: BPE-TKU-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07968] PU (using 100MVA as the base) Reactance [0.40470] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02991] PU (using 100MVA as the base) Reactance [0.14342] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPE-TKU-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07964] PU (using 100MVA as the base) Reactance [0.40436] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02989] PU (using 100MVA as the base) Reactance [0.14334] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03325] PU (using 100MVA as the base) Reactance [0.16844] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01248] PU (using 100MVA as the base) Reactance [0.05988] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03344] PU (using 100MVA as the base) Reactance [0.16954] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01255] PU (using 100MVA as the base) Reactance [0.06020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Three Mile Hill

Circuit Branch: HWB-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[875] Amps and [333.31] MVA [for summer period] and [971] Amps and [370.08] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00167] PU (using 100MVA as the base) Reactance [0.00955] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00052] PU (using 100MVA as the base) Reactance [0.00313] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.39938] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[662] Amps and [252.26] MVA [for summer period] and [662] Amps and [252.26] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08820] PU (using 100MVA as the base) Reactance [0.50314] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02751] PU (using 100MVA as the base) Reactance [0.16771] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23723] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ROX-TMH-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03791] PU (using 100MVA as the base) Reactance [0.23757] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00699] PU (using 100MVA as the base) Reactance [0.06329] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Te Matai

Circuit Branch: OKE-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07130] PU (using 100MVA as the base) Reactance [0.28349] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03937] PU (using 100MVA as the base) Reactance [0.08773] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TMI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04859] PU (using 100MVA as the base) Reactance [0.19327] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02683] PU (using 100MVA as the base) Reactance [0.05981] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Taumarunui

Circuit Branch: SFD-TMN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1195] Amps and [455.36] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04872] PU (using 100MVA as the base) Reactance [0.27658] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01525] PU (using 100MVA as the base) Reactance [0.09232] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TMN-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06452] PU (using 100MVA as the base) Reactance [0.36962] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02020] PU (using 100MVA as the base) Reactance [0.12084] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Tangiwai

Circuit Branch: RPO-TNG-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02565] PU (using 100MVA as the base) Reactance [0.14274] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00803] PU (using 100MVA as the base) Reactance [0.04901] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tarukenga

Circuit Branch: ATI-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ATI-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [332.94] MVA [for summer period] and [970] Amps and [369.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01980] PU (using 100MVA as the base) Reactance [0.11412] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00620] PU (using 100MVA as the base) Reactance [0.03694] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16975] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05519] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: EDG-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[627] Amps and [238.85] MVA [for summer period] and [765] Amps and [291.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02950] PU (using 100MVA as the base) Reactance [0.16974] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00924] PU (using 100MVA as the base) Reactance [0.05518] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LFT-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10011] PU (using 100MVA as the base) Reactance [0.40023] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05580] PU (using 100MVA as the base) Reactance [0.12960] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LFT-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.12038] PU (using 100MVA as the base) Reactance [0.47760] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06648] PU (using 100MVA as the base) Reactance [0.14799] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OKE-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05723] PU (using 100MVA as the base) Reactance [0.22639] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03160] PU (using 100MVA as the base) Reactance [0.07034] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07033] PU (using 100MVA as the base) Reactance [0.40162] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02201] PU (using 100MVA as the base) Reactance [0.13121] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: KMO-TRK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[610] Amps and [116.27] MVA [for summer period] and [752] Amps and [143.19] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07013] PU (using 100MVA as the base) Reactance [0.40030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02195] PU (using 100MVA as the base) Reactance [0.13087] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: TRK-TF-T1

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [651] Amps and [248.00] MVA [for summer period] and [693] Amps and [264.00] MVA [for winter period] MV [1302] Amps and [248.00] MVA [for summer period] and [1386] Amps and [264.00] MVA [for winter period] LV [200] Amps and [3.81] MVA [for summer period] and [200] Amps and [3.81] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [525] Amps and [200.01] MVA MV [1050] Amps and [200.01] MVA LV [200] Amps and [3.81] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [-0.00002] PU (using 100MVA as the base) HV Reactance [0.02802] PU (using 100MVA as the base) MV Resistance [0.00080] PU (using 100MVA as the base) MV Reactance [-0.00261] PU (using 100MVA as the base) LV Resistance [0.00344] PU (using 100MVA as the base) LV Reactance [0.06797] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [-0.00002] PU (using 100MVA as the base) HV Reactance [0.02802] PU (using 100MVA as the base) MV Resistance [0.00080] PU (using 100MVA as the base) MV Reactance [-0.00261] PU (using 100MVA as the base) LV Resistance [0.00344] PU (using 100MVA as the base) LV Reactance [0.06797] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Tapping steps and ranges TRK-TF-T1B</p> <p>TRK-TF-T1B-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [12]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges TRK-TF-T1R</p> <p>TRK-TF-T1R-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [12]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges TRK-TF-T1Y</p> <p>TRK-TF-T1Y-Tap Changer -- ONLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [12]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

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<p>Tapping steps and ranges TRK-TF-T1B</p> <p>TRK-TF-T1B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.67] kV Minimum: [10.3] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [3.13]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges TRK-TF-T1R</p> <p>TRK-TF-T1R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.67] kV Minimum: [10.3] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [3.13]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges TRK-TF-T1Y</p> <p>TRK-TF-T1Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.67] kV Minimum: [10.3] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [3.13]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Transformer Branch: TRK-TF-T2

Service Measure	Service Level
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Interconnection Branch Report

As at : 01/07/2009 12:48

Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [674] Amps and [256.80] MVA [for summer period] and [718] Amps and [273.50] MVA [for winter period] MV [1291] Amps and [246.00] MVA [for summer period] and [1375] Amps and [262.00] MVA [for winter period] LV [3873] Amps and [73.80] MVA [for summer period] and [4125] Amps and [78.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [548] Amps and [208.80] MVA MV [1050] Amps and [200.01] MVA LV [3149] Amps and [60.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	HV Resistance [0.00025] PU (using 100MVA as the base) HV Reactance [0.02147] PU (using 100MVA as the base) MV Resistance [0.00064] PU (using 100MVA as the base) MV Reactance [-0.00316] PU (using 100MVA as the base) LV Resistance [0.00398] PU (using 100MVA as the base) LV Reactance [0.03651] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	HV Resistance [0.00025] PU (using 100MVA as the base) HV Reactance [0.02147] PU (using 100MVA as the base) MV Resistance [0.00064] PU (using 100MVA as the base) MV Reactance [-0.00316] PU (using 100MVA as the base) LV Resistance [0.00398] PU (using 100MVA as the base) LV Reactance [0.03651] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges TRK-TF-T2B TRK-TF-T2B-Tap Changer -- OFFLOAD -- HV	Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [6] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]

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<p>Tapping steps and ranges TRK-TF-T2R</p> <p>TRK-TF-T2R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [6]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges TRK-TF-T2Y</p> <p>TRK-TF-T2Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [231] kV Minimum: [198] kV</p> <p>Number of tapping steps: [6]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges TRK-TF-T2B</p> <p>TRK-TF-T2B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.6] kV Minimum: [10.4] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5.45]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges TRK-TF-T2R</p> <p>TRK-TF-T2R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.6] kV Minimum: [10.4] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5.45]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges TRK-TF-T2Y</p> <p>TRK-TF-T2Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.6] kV Minimum: [10.4] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5.45]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Tuai

Circuit Branch: FHL-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[549] Amps and [104.60] MVA [for summer period] and [549] Amps and [104.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21417] PU (using 100MVA as the base) Reactance [1.04940] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07766] PU (using 100MVA as the base) Reactance [0.17860] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26980] PU (using 100MVA as the base) Reactance [1.11476] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14948] PU (using 100MVA as the base) Reactance [0.33993] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: RDF-TUI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.15] MVA [for summer period] and [366] Amps and [69.81] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26981] PU (using 100MVA as the base) Reactance [1.10751] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14949] PU (using 100MVA as the base) Reactance [0.33994] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Te Kowhai

Circuit Branch: HLY-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01338] PU (using 100MVA as the base) Reactance [0.07567] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00419] PU (using 100MVA as the base) Reactance [0.02506] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TMN-TWH-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1231] Amps and [469.17] MVA [for summer period] and [1292] Amps and [492.27] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06452] PU (using 100MVA as the base) Reactance [0.36962] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.02020] PU (using 100MVA as the base) Reactance [0.12084] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Tiwai

Circuit Branch: INV-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05320] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: INV-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1195] Amps and [455.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00995] PU (using 100MVA as the base) Reactance [0.05868] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00227] PU (using 100MVA as the base) Reactance [0.01536] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: NMA-TWI-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01440] PU (using 100MVA as the base) Reactance [0.07695] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00330] PU (using 100MVA as the base) Reactance [0.02212] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Site: Tararua Wind Central Tee

Circuit Branch: BPE-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00429] PU (using 100MVA as the base) Reactance [0.02158] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00080] PU (using 100MVA as the base) Reactance [0.00698] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-TWT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00339] PU (using 100MVA as the base) Reactance [0.01709] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00063] PU (using 100MVA as the base) Reactance [0.00553] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

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Site: Twizel

Circuit Branch: BEN-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01841] PU (using 100MVA as the base) Reactance [0.09215] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02953] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CML-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1011] Amps and [385.41] MVA [for summer period] and [1233] Amps and [469.76] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04424] PU (using 100MVA as the base) Reactance [0.29807] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00789] PU (using 100MVA as the base) Reactance [0.09383] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHA-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHA-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[795] Amps and [302.94] MVA [for summer period] and [795] Amps and [302.94] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00359] PU (using 100MVA as the base) Reactance [0.02045] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00112] PU (using 100MVA as the base) Reactance [0.00681] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHB-TWZ-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2006] Amps and [764.34] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00136] PU (using 100MVA as the base) Reactance [0.00573] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00025] PU (using 100MVA as the base) Reactance [0.00220] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHC-TWZ-4

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00448] PU (using 100MVA as the base) Reactance [0.01891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00083] PU (using 100MVA as the base) Reactance [0.00725] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OPI-TWZ-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1995] Amps and [760.20] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02811] PU (using 100MVA as the base) Reactance [0.15375] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00522] PU (using 100MVA as the base) Reactance [0.04460] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKB-TWZ-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1461] Amps and [556.65] MVA [for summer period] and [1626] Amps and [619.59] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01013] PU (using 100MVA as the base) Reactance [0.04891] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00233] PU (using 100MVA as the base) Reactance [0.01605] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Upper Hutt

Circuit Branch: GYT-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.33647] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: GYT-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [400] Amps and [76.21] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08404] PU (using 100MVA as the base) Reactance [0.34184] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04641] PU (using 100MVA as the base) Reactance [0.09956] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01851] PU (using 100MVA as the base) Reactance [0.08678] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00423] PU (using 100MVA as the base) Reactance [0.02471] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAY-UHT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[576] Amps and [109.74] MVA [for summer period] and [576] Amps and [109.74] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01861] PU (using 100MVA as the base) Reactance [0.08680] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00425] PU (using 100MVA as the base) Reactance [0.02475] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Woodville

Circuit Branch: BPE-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.24537] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07576] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BPE-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[300] Amps and [57.14] MVA [for summer period] and [366] Amps and [69.80] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06089] PU (using 100MVA as the base) Reactance [0.25060] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03371] PU (using 100MVA as the base) Reactance [0.07577] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07163] PU (using 100MVA as the base) Reactance [0.23462] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04630] PU (using 100MVA as the base) Reactance [0.06841] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WDV-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[256] Amps and [48.85] MVA [for summer period] and [313] Amps and [59.65] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07475] PU (using 100MVA as the base) Reactance [0.24380] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04830] PU (using 100MVA as the base) Reactance [0.07189] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MGM-WDV-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[221] Amps and [42.10] MVA [for summer period] and [270] Amps and [51.43] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10457] PU (using 100MVA as the base) Reactance [0.29862] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07236] PU (using 100MVA as the base) Reactance [0.08959] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wellsford

Circuit Branch: HEN-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.20994] PU (using 100MVA as the base) Reactance [0.78159] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12523] PU (using 100MVA as the base) Reactance [0.22076] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HEN-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21235] PU (using 100MVA as the base) Reactance [0.80034] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12658] PU (using 100MVA as the base) Reactance [0.22348] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31312] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTO-WEL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[292] Amps and [55.68] MVA [for summer period] and [357] Amps and [67.99] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08528] PU (using 100MVA as the base) Reactance [0.31416] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.05084] PU (using 100MVA as the base) Reactance [0.09305] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Western Road

Circuit Branch: WES-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00020] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00004] PU (using 100MVA as the base) Reactance [0.00008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00012] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Western Road Transmission Tee Point

Circuit Branch: BOB-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13906] PU (using 100MVA as the base) Reactance [0.51726] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08315] PU (using 100MVA as the base) Reactance [0.15987] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13908] PU (using 100MVA as the base) Reactance [0.51766] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08316] PU (using 100MVA as the base) Reactance [0.15989] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08475] PU (using 100MVA as the base) Reactance [0.32142] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: HAM-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08476] PU (using 100MVA as the base) Reactance [0.32209] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04957] PU (using 100MVA as the base) Reactance [0.09831] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00020] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00004] PU (using 100MVA as the base) Reactance [0.00008] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WES-WET-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00010] PU (using 100MVA as the base) Reactance [0.00030] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00005] PU (using 100MVA as the base) Reactance [0.00012] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wanganui

Circuit Branch: MTN-WGN-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07635] PU (using 100MVA as the base) Reactance [0.30451] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04216] PU (using 100MVA as the base) Reactance [0.09244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: MTN-WGN-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.07636] PU (using 100MVA as the base) Reactance [0.30597] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04217] PU (using 100MVA as the base) Reactance [0.09246] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WGN-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14535] PU (using 100MVA as the base) Reactance [0.52389] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08717] PU (using 100MVA as the base) Reactance [0.17529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Site: Whirinaki

Circuit Branch: RDF-WHI-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1250] Amps and [476.31] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00863] PU (using 100MVA as the base) Reactance [0.05145] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00160] PU (using 100MVA as the base) Reactance [0.01371] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WHI-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04277] PU (using 100MVA as the base) Reactance [0.26417] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00794] PU (using 100MVA as the base) Reactance [0.06785] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wilton

Circuit Branch: HAY-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [1941] Amps and [739.62] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01251] PU (using 100MVA as the base) Reactance [0.06845] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00232] PU (using 100MVA as the base) Reactance [0.01991] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: LTN-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1822] Amps and [694.33] MVA [for summer period] and [2000] Amps and [762.10] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04886] PU (using 100MVA as the base) Reactance [0.25101] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00907] PU (using 100MVA as the base) Reactance [0.07917] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKR-WIL-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02726] PU (using 100MVA as the base) Reactance [0.11230] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00605] PU (using 100MVA as the base) Reactance [0.03858] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: TKR-WIL-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1477] Amps and [281.44] MVA [for summer period] and [1595] Amps and [303.89] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02731] PU (using 100MVA as the base) Reactance [0.11250] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.03865] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: WIL-TF-T8

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [413] Amps and [157.30] MVA [for summer period] and [437] Amps and [166.70] MVA [for winter period] MV [709] Amps and [135.00] MVA [for summer period] and [717] Amps and [136.60] MVA [for winter period] LV [4251] Amps and [81.00] MVA [for summer period] and [4503] Amps and [85.80] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [306] Amps and [116.55] MVA MV [525] Amps and [99.99] MVA LV [3149] Amps and [60.00] MVA

Interconnection Branch Report

As at : 01/07/2009 12:48

<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00059] PU (using 100MVA as the base) HV Reactance [0.02607] PU (using 100MVA as the base) MV Resistance [0.00145] PU (using 100MVA as the base) MV Reactance [0.02685] PU (using 100MVA as the base) LV Resistance [0.00455] PU (using 100MVA as the base) LV Reactance [0.07936] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00056] PU (using 100MVA as the base) HV Reactance [0.02611] PU (using 100MVA as the base) MV Resistance [0.00145] PU (using 100MVA as the base) MV Reactance [0.02685] PU (using 100MVA as the base) LV Resistance [0.00455] PU (using 100MVA as the base) LV Reactance [0.07936] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges WIL-TF-T8B WIL-TF-T8B-Tap Changer --ONLOAD--HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges WIL-TF-T8R WIL-TF-T8R-Tap Changer --ON LOAD--HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>

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<p>Tapping steps and ranges WIL-TF-T8Y WIL-TF-T8Y-Tap Changer --ONLOAD--HV</p>	<p>Tap voltage range: Maximum: [231] kV Minimum: [198] kV Number of tapping steps: [12] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [5]</p>
<p>Tapping steps and ranges WIL-TF-T8B WIL-TF-T8B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WIL-TF-T8R WIL-TF-T8R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range: Maximum: [11.55] kV Minimum: [10.45] kV Number of tapping steps: [2] Size of each tapping step as a percentage of nominal operating voltage range: [5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

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<p>Tapping steps and ranges WIL-TF-T8Y</p> <p>WIL-TF-T8Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Whakamaru AC Substation

Circuit Branch: ATI-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01169] PU (using 100MVA as the base) Reactance [0.04838] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00439] PU (using 100MVA as the base) Reactance [0.02107] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: HAM-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1250] Amps and [476.31] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03618] PU (using 100MVA as the base) Reactance [0.19087] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00836] PU (using 100MVA as the base) Reactance [0.05423] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09342] PU (using 100MVA as the base) Reactance [0.47433] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03507] PU (using 100MVA as the base) Reactance [0.16851] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OTA-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.09348] PU (using 100MVA as the base) Reactance [0.47530] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03509] PU (using 100MVA as the base) Reactance [0.16829] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: OHW-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1060] Amps and [403.98] MVA [for summer period] and [1293] Amps and [492.85] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04706] PU (using 100MVA as the base) Reactance [0.24827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01087] PU (using 100MVA as the base) Reactance [0.07049] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PPT-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01459] PU (using 100MVA as the base) Reactance [0.06699] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00457] PU (using 100MVA as the base) Reactance [0.02802] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03325] PU (using 100MVA as the base) Reactance [0.16844] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01248] PU (using 100MVA as the base) Reactance [0.05988] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: TKU-WKM-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[807] Amps and [307.52] MVA [for summer period] and [880] Amps and [335.48] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03344] PU (using 100MVA as the base) Reactance [0.16954] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01255] PU (using 100MVA as the base) Reactance [0.06020] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waipara

Circuit Branch: ASY-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [406] Amps and [46.41] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.21834] PU (using 100MVA as the base) Reactance [0.88206] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.12058] PU (using 100MVA as the base) Reactance [0.25782] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: SBK-WPR-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [38.02] MVA [for summer period] and [395] Amps and [45.15] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.26285] PU (using 100MVA as the base) Reactance [1.06736] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.14515] PU (using 100MVA as the base) Reactance [0.31037] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[66] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [72.6] kV Minimum: [59.4] kV

Circuit Branch: WPR-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00013] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00009] PU (using 100MVA as the base) Reactance [0.00044] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00003] PU (using 100MVA as the base) Reactance [0.00017] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Transformer Branch: WPR-TF-T12

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[925] Amps and [105.70] MVA [for summer period] and [967] Amps and [110.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [700] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.15674] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00360] PU (using 100MVA as the base) Reactance [0.15670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV

Interconnection Branch Report

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High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV
Tapping steps and ranges WPR-TF-T12 WPR-TF-T12-Tap Changer - T12	Tap voltage range: Maximum: [236.5] kV Minimum: [187] kV Number of tapping steps: [18] Size of each tapping step as a percentage of nominal operating voltage range: [1.25]% On-load/Off-load [Onload] On-load tapping capability [Manual] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [7]

Transformer Branch: WPR-TF-T13

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	[925] Amps and [105.70] MVA [for summer period] and [967] Amps and [110.60] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	2 Winding [700] Amps and [80.00] MVA
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	Resistance [0.00000] PU (using 100MVA as the base) Reactance [0.15674] PU (using 100MVA as the base)
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	Resistance [0.00360] PU (using 100MVA as the base) Reactance [0.15670] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

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<p>Tapping steps and ranges WPR-TF-T13</p> <p>WPR-TF-T13-Tap Changer - T13</p>	<p>Tap voltage range:</p> <p>Maximum: [236.5] kV Minimum: [187] kV</p> <p>Number of tapping steps: [18]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [1.25]%</p> <p>On-load/Off-load [Onload]</p> <p>On-load tapping capability [Manual]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [7]</p>
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Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waipawa

Circuit Branch: DVK-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14381] PU (using 100MVA as the base) Reactance [0.53770] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08625] PU (using 100MVA as the base) Reactance [0.16396] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: DVK-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14599] PU (using 100MVA as the base) Reactance [0.54610] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08752] PU (using 100MVA as the base) Reactance [0.16647] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13805] PU (using 100MVA as the base) Reactance [0.51827] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08281] PU (using 100MVA as the base) Reactance [0.15655] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: FHL-WPW-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13800] PU (using 100MVA as the base) Reactance [0.51593] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08278] PU (using 100MVA as the base) Reactance [0.15754] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wairakei

Circuit Branch: OHK-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[874] Amps and [333.13] MVA [for summer period] and [940] Amps and [358.32] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01267] PU (using 100MVA as the base) Reactance [0.05235] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00475] PU (using 100MVA as the base) Reactance [0.02282] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: PPT-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1106] Amps and [421.51] MVA [for summer period] and [1177] Amps and [448.60] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00207] PU (using 100MVA as the base) Reactance [0.00951] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00065] PU (using 100MVA as the base) Reactance [0.00398] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RDF-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.05136] PU (using 100MVA as the base) Reactance [0.31543] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00953] PU (using 100MVA as the base) Reactance [0.08150] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: RPO-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[955] Amps and [363.85] MVA [for summer period] and [1042] Amps and [396.87] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.03284] PU (using 100MVA as the base) Reactance [0.18268] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.01028] PU (using 100MVA as the base) Reactance [0.06302] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WHI-WRK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[1254] Amps and [477.69] MVA [for summer period] and [1440] Amps and [548.71] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.04277] PU (using 100MVA as the base) Reactance [0.26417] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00794] PU (using 100MVA as the base) Reactance [0.06785] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Wiri Transmission Tee Point

Circuit Branch: BOB-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06655] PU (using 100MVA as the base) Reactance [0.26813] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03611] PU (using 100MVA as the base) Reactance [0.08080] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: BOB-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[324] Amps and [61.69] MVA [for summer period] and [399] Amps and [76.05] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.06635] PU (using 100MVA as the base) Reactance [0.26748] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.03600] PU (using 100MVA as the base) Reactance [0.08055] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-WRT-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01163] PU (using 100MVA as the base) Reactance [0.04344] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00642] PU (using 100MVA as the base) Reactance [0.01408] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: OTA-WRT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[482] Amps and [91.89] MVA [for summer period] and [531] Amps and [101.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01182] PU (using 100MVA as the base) Reactance [0.04738] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00653] PU (using 100MVA as the base) Reactance [0.01430] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waitaki

Circuit Branch: AVI-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00424] PU (using 100MVA as the base) Reactance [0.02100] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00155] PU (using 100MVA as the base) Reactance [0.00772] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BDT-WTK-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.13208] PU (using 100MVA as the base) Reactance [0.53115] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.07294] PU (using 100MVA as the base) Reactance [0.15945] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: LIV-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[770] Amps and [293.44] MVA [for summer period] and [848] Amps and [323.09] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01627] PU (using 100MVA as the base) Reactance [0.08246] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00606] PU (using 100MVA as the base) Reactance [0.02940] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: BPC-WTK-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[333] Amps and [63.36] MVA [for summer period] and [406] Amps and [77.36] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.08034] PU (using 100MVA as the base) Reactance [0.31730] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.04437] PU (using 100MVA as the base) Reactance [0.09699] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Transformer Branch: WTK-TF-T23

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	HV [366] Amps and [139.46] MVA [for summer period] and [366] Amps and [139.46] MVA [for winter period] MV [479] Amps and [91.18] MVA [for summer period] and [479] Amps and [91.18] MVA [for winter period] LV [3873] Amps and [73.80] MVA [for summer period] and [3970] Amps and [75.64] MVA [for winter period]
Continuous capacity rating of the interconnection transformer branch	HV [307] Amps and [117.00] MVA MV [479] Amps and [91.18] MVA LV [3149] Amps and [60.00] MVA

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<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt</p>	<p>HV Resistance [0.00048] PU (using 100MVA as the base) HV Reactance [0.04914] PU (using 100MVA as the base) MV Resistance [0.00106] PU (using 100MVA as the base) MV Reactance [-0.00360] PU (using 100MVA as the base) LV Resistance [0.00429] PU (using 100MVA as the base) LV Reactance [0.06907] PU (using 100MVA as the base)</p>
<p>Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series</p>	<p>HV Resistance [0.00048] PU (using 100MVA as the base) HV Reactance [0.04914] PU (using 100MVA as the base) MV Resistance [0.00106] PU (using 100MVA as the base) MV Reactance [-0.00360] PU (using 100MVA as the base) LV Resistance [0.00429] PU (using 100MVA as the base) LV Reactance [0.06907] PU (using 100MVA as the base)</p>
<p>Nominal high voltage rating of the interconnection transformer branch</p>	<p>[220] kV</p>
<p>High voltage range that the interconnection transformer branch can operate over</p>	<p>Maximum: [242] kV Minimum: [198] kV</p>
<p>Tapping steps and ranges WTK-TF-T23B WTK-TF-T23B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T23R WTK-TF-T23R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range: Maximum: [220] kV Minimum: [198] kV Number of tapping steps: [4] Size of each tapping step as a percentage of nominal operating voltage range: [2.5]% On-load/Off-load [Offload] On-load tapping capability [Not Applicable] If on-load tapping capability is automatic, is it auto selected? [Not Applicable] If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges WTK-TF-T23Y</p> <p>WTK-TF-T23Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T23B</p> <p>WTK-TF-T23B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T23R</p> <p>WTK-TF-T23R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges WTK-TF-T23Y</p> <p>WTK-TF-T23Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
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Transformer Branch: WTK-TF-T24

Service Measure	Service Level
Overall 24 hour post contingency capacity rating of the interconnection transformer branch	<p>HV [366] Amps and [139.46] MVA [for summer period] and [366] Amps and [139.46] MVA [for winter period]</p> <p>MV [319] Amps and [60.84] MVA [for summer period] and [319] Amps and [60.84] MVA [for winter period]</p> <p>LV [3873] Amps and [73.80] MVA [for summer period] and [3970] Amps and [75.64] MVA [for winter period]</p>
Continuous capacity rating of the interconnection transformer branch	<p>HV [307] Amps and [117.00] MVA</p> <p>MV [319] Amps and [60.84] MVA</p> <p>LV [3149] Amps and [60.00] MVA</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Shunt	<p>HV Resistance [0.00056] PU (using 100MVA as the base)</p> <p>HV Reactance [0.04749] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00098] PU (using 100MVA as the base)</p> <p>MV Reactance [-0.00508] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00422] PU (using 100MVA as the base)</p> <p>LV Reactance [0.06979] PU (using 100MVA as the base)</p>
Level of Impedance of the interconnection transformer branch Resistive and Reactive - Series	<p>HV Resistance [0.00056] PU (using 100MVA as the base)</p> <p>HV Reactance [0.04749] PU (using 100MVA as the base)</p> <p>MV Resistance [0.00098] PU (using 100MVA as the base)</p> <p>MV Reactance [-0.00508] PU (using 100MVA as the base)</p> <p>LV Resistance [0.00422] PU (using 100MVA as the base)</p> <p>LV Reactance [0.06979] PU (using 100MVA as the base)</p>
Nominal high voltage rating of the interconnection transformer branch	[220] kV
High voltage range that the interconnection transformer branch can operate over	Maximum: [242] kV Minimum: [198] kV

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<p>Tapping steps and ranges WTK-TF-T24B</p> <p>WTK-TF-T24B-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T24R</p> <p>WTK-TF-T24R-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T24Y</p> <p>WTK-TF-T24Y-Tap Changer -- OFFLOAD -- HV</p>	<p>Tap voltage range:</p> <p>Maximum: [220] kV Minimum: [198] kV</p> <p>Number of tapping steps: [4]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [2.5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

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<p>Tapping steps and ranges WTK-TF-T24B</p> <p>WTK-TF-T24B-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T24R</p> <p>WTK-TF-T24R-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>
<p>Tapping steps and ranges WTK-TF-T24Y</p> <p>WTK-TF-T24Y-Tap Changer -- OFFLOAD -- LV</p>	<p>Tap voltage range:</p> <p>Maximum: [11.55] kV Minimum: [10.45] kV</p> <p>Number of tapping steps: [2]</p> <p>Size of each tapping step as a percentage of nominal operating voltage range: [5]%</p> <p>On-load/Off-load [Offload]</p> <p>On-load tapping capability [Not Applicable]</p> <p>If on-load tapping capability is automatic, is it auto selected? [Not Applicable]</p> <p>If on-load tapping capability is manual, what tap step is normally set? (Actual or expected position at winter peak demand) [Not Applicable]</p>

Interconnection Branch Report

As at : 01/07/2009 12:48

Site: Waipara Transmission Tee Point

Circuit Branch: CUT-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: CUT-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.01731] PU (using 100MVA as the base) Reactance [0.08865] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00542] PU (using 100MVA as the base) Reactance [0.03244] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02599] PU (using 100MVA as the base) Reactance [0.13556] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00735] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: ISL-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[911] Amps and [347.16] MVA [for summer period] and [1003] Amps and [382.17] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.02616] PU (using 100MVA as the base) Reactance [0.13520] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00752] PU (using 100MVA as the base) Reactance [0.04801] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-2

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00007] PU (using 100MVA as the base) Reactance [0.00032] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00002] PU (using 100MVA as the base) Reactance [0.00013] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Circuit Branch: WPR-WTT-3

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[913] Amps and [347.90] MVA [for summer period] and [913] Amps and [347.90] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.00009] PU (using 100MVA as the base) Reactance [0.00044] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.00003] PU (using 100MVA as the base) Reactance [0.00017] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[220] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [242] kV Minimum: [198] kV

Interconnection Branch Report

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Site: Waverley

Circuit Branch: HWA-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.10804] PU (using 100MVA as the base) Reactance [0.37257] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.06481] PU (using 100MVA as the base) Reactance [0.13091] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV

Circuit Branch: WGN-WVY-1

Service Measure	Service Level
Overall continuous capacity rating of the interconnection circuit branch	[266] Amps and [50.68] MVA [for summer period] and [325] Amps and [61.92] MVA [for winter period]
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Shunt	Resistance [0.14535] PU (using 100MVA as the base) Reactance [0.52389] PU (using 100MVA as the base)
Level of Impedance of the interconnection circuit branch Resistive and Reactive - Series	Resistance [0.08717] PU (using 100MVA as the base) Reactance [0.17529] PU (using 100MVA as the base)
Nominal high voltage rating of the interconnection circuit branch	[110] kV
High voltage range that the interconnection circuit branch can operate over	Maximum: [121] kV Minimum: [99] kV



Configuration and capacity of HVDC link

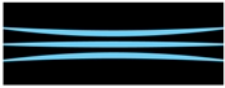
Service measure	Service level
<p>Transfer capacity for each configuration of the HVDC link</p>	<p>North transfer:</p> <p>Pole 1</p> <p>Pole 1 (half pole only) will be available for limited operation, for North transfer only, within its technical capabilities, but will vary according to any limitations that Transpower may from time to time require (including to meet the requirements of its insurers), and recognising that pole 1 is to be dismantled around 2011.</p> <p>Details of Pole 1 capability at any time are published on Transpower's website at http://www.transpower.co.nz/n1330.html</p> <p>Pole 2;</p> <p>Continuously DC sent in MW: [700] AC received in MW: [649]</p> <p>For 5 seconds DC sent in MW: [840] AC received in MW: [763]</p> <p>South Transfer:</p> <p>Pole Two only; DC sent in MW: [666] AC received in MW: [612]</p> <p>For 5 seconds DC sent in MW: [840] AC received in MW: [763]</p> <p>Note: <i>HVDC South transfer is limited to 666 MW due to system stability issues.</i></p>
<p>Shunt asset(s) that directly affect the capacity of the HVDC link (Pole 2 and a half pole)</p>	<p>Pole 2 only Benmore Pole 2 220 kV AC filters, F3 and F4 When both F3 and F4 out, Pole 2 out When either F3 or F4 in, Pole 2 in</p> <p>Haywards Pole 2 220 kV AC filters, F3 and F4 When both F3 and F4 out, Pole 2 out When either F3 or F4 in, Pole 2 in</p> <p>Pole 2 and one half pole Benmore Pole 2 220 kV AC filters, F3 and F4 When both F3 and F4 out, Pole 2 out When either F3 or F4 in, Pole 2 in When F1 out, half pole out When F1 in, half pole in</p>



	<p>Haywards Pole 2 220 kV AC filters, F3 and F4 When both F3 and F4 out, Pole 2 out When either F3 or F4 in, Pole 2 in When F1 and F2 out, half pole out When either F1 or F2 in, half pole in</p>
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Note:

- A. The full dynamic overload capability of the half-pole (which is 356 MW (sent), for 30 seconds) will remain available in response to modulations, but that the maximum steady state dispatch order is to be no more than 200 MW
- B. The plant will only be offered in 12 pulse mode, and NOT be offered in 6 pulse mode. If a valve group tripping occurs during 12 pulse operation, 6 pulse operation (ie just one valve group) may continue until such time as 12 pulse operation is restored. Maximum dispatch order during any such temporary 6 pulse operation is limited to 100 MW.
- C. The half-pole converter overload capability of 356 MW (sent) for 30 seconds is unchanged from the half-pole ratings that have been in effect since recommissioning in 1992.



Service measures and levels for shunt assets

ALB-CAPS-C1

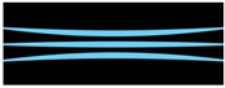
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ALB-CAPS-C2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [100] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ALB-CAPS-C4A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



ALB-CAPS-C4B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BLN-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5.1] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BLN-CAPS-C2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5.1] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



BLN-CAPS-C3

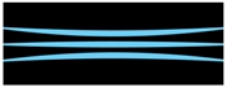
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5.1] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BLN-CAPS-C4

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5.1] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BOB-CAPS-C11

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [60.5] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



BRY-CAPS-C5A

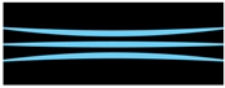
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BRY-CAPS-C6A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BRY-REA-R5

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [30] MVar Provision: [N/A] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



GIS-CAPS-C1

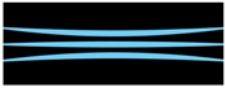
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [12] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

GYM-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [1] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

GYM-CAPS-C2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [2] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



GYM-CAPS-C3

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [4] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY-REA-R1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [40] MVar Provision: [N/A] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY-REA-R5

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [40] MVar Provision: [N/A] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



HAY-SCM-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [30] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [11.55] kV Minimum: [10.45] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]

HAY-SCM-C2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [30] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [11.55] kV Minimum: [10.45] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]

HAY-SCM-C3

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [18] MVar Provision: [35] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [11.55] kV Minimum: [10.45] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]



HAY-SCM-C4

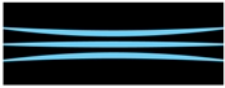
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [18] MVar Provision: [35] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [11.55] kV Minimum: [10.45] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]

HEN-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [75] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HEN-CAPS-C5B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



HEP-CAPS-C11

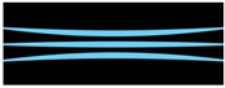
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HEP-CAPS-C12

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HEP-CAPS-C13

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



ISL-CAPS-C14

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [43.2] MVar
Nominal voltage rating of the shunt asset	[66] kV
Voltage range that the shunt asset can operate over	Maximum: [72.6] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-CAPS-C15

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [43.2] MVar
Nominal voltage rating of the shunt asset	[66] kV
Voltage range that the shunt asset can operate over	Maximum: [72.6] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-CAPS-C16

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [43.2] MVar
Nominal voltage rating of the shunt asset	[66] kV
Voltage range that the shunt asset can operate over	Maximum: [72.6] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



ISL-CAPS-C21

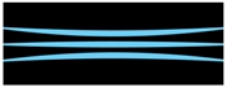
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [70.715] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-CAPS-C22

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-CAPS-C25

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



ISL-CAPS-C26

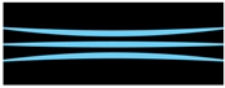
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [70.715] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-CAPS-C27

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [75] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ISL-SCM-C4

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [18] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]



ISL-SCM-C5

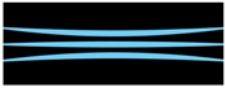
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [18] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]

ISL-SVC-3

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [50] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [SVC]

ALB-SVC-7

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [100] MVar Provision: [100] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [198] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [SVC]



KTA-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [22.4] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

MTM-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30.24] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

ONG-CAPS-C1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [2.5] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



OTA-CAPS-C11

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [64.3] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

OTA-CAPS-C12

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [64.3] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

OTA-CAPS-C29

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [100] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

**OTA-CAPS-C2A**

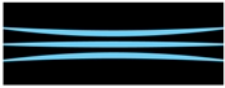
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

OTA-CAPS-C4A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

OTA-CAPS-C4B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [30] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



PEN-CAPS-C1

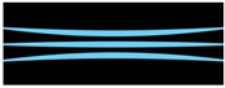
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [95] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

PEN-CAPS-C11

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

PEN-CAPS-C12

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



PEN-CAPS-C13

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

PEN-CAPS-C14

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

SBK-CAPS-C11

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [34.85] MVar
Nominal voltage rating of the shunt asset	[66] kV
Voltage range that the shunt asset can operate over	Maximum: [72.6] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

**STK-CAPS-C31**

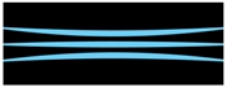
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [11.95] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-CAPS-C32

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [11.95] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-CAPS-C33

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [11.95] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

**STK-CAPS-C34**

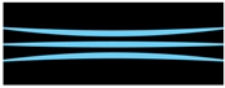
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [11.95] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-CAPS-C7A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-CAPS-C7B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



STK-CAPS-C7C

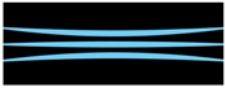
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-CAPS-C7D

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [5] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

STK-REA-R7A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [5] MVar Provision: [N/A] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



STK-REA-R7B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [5] MVar Provision: [N/A] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [12.1] kV Minimum: [9.9] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

TGA-CAPS-C11

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [40.98] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



Service measures and levels for HVDC shunt assets

HAY F1

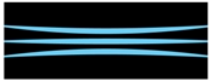
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [47.5] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY F2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [47.5] MVar
Nominal voltage rating of the shunt asset	[110] kV
Voltage range that the shunt asset can operate over	Maximum: [121] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY F3A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [240] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



HAY F3B

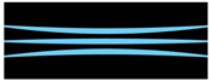
Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [46] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [240] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY F4A

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [60] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [240] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

HAY F4B

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [46] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [240] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



HAY C7 or HAY C8 or HAY C9 or HAY C10

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [40] MVar Provision: [65] MVar
Nominal voltage rating of the shunt asset	[11] kV
Voltage range that the shunt asset can operate over	Maximum: [11.5] kV Minimum: [10.45] kV
Is shunt asset dynamic or static	Dynamic/static: [dynamic] If dynamic: SVC/synchronous compensator: [synchronous condenser]

BEN F1

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50.5] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BEN F2

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [50.5] MVar
Nominal voltage rating of the shunt asset	[33] kV
Voltage range that the shunt asset can operate over	Maximum: [36.3] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



BEN F3

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [80] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]

BEN F4

Service measure	Service level
Overall capacity rating of the shunt asset	Absorption: [N/A] MVar Provision: [80] MVar
Nominal voltage rating of the shunt asset	[220] kV
Voltage range that the shunt asset can operate over	Maximum: [242] kV Minimum: [N/A] kV
Is shunt asset dynamic or static	Dynamic/static: [static] If dynamic: SVC/synchronous compensator: [N/A]



Date for summer and winter periods

Summer and winter period	Date
Dates of the summer and winter periods for information provided under rule 2.4.1 and 2.4.2 and any other periods	[From 20 th Oct – 10 th May] summer period [From 10 th May – 20 th Oct] winter period