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AWFL supports the Electricity Authority (EA) initiative to make improvements the regulations that allow new and up/down graded connections to the Distribution Network (DN). AWFL only has a single connection to a DN. This is as an Embedded Generator. AWFL comments remarks are based on this limited understanding.

The EA should exercise caution when proposing changes to the Electricity Industry Participation Code 2010 (Code)

- The Code is often confusing in the use of terms Distributed Generation (DG) and Embedded Generation (EG).
- The EA's Embedded Generation connection Guidelines are attached.
- The EA should clarify the DG-2 form that applies to new EG Connections and EG capacity changes (ie: same EG plant type – just less/more units).

The EA needs to include both active and reactive power implications together for all new and or up/down graded DN connections.

- Currently there is no mechanism to fairly reward and penalise reactive power flows on distribution networks
- Distributors can charge for reactive power injections that compromise power factor, and this forms part of a distributor's revenue stream.
- These reactive power changes can greatly change the EG available DN export capacity.
- However, there is no corresponding benefit mechanism for participants that strip reactive power to improve power factor (hence line capacity) on DN's

What needs to be done to resolve the reactive power issue

- There needs to be more active instantaneous monitoring of reactive power flows. It is not good enough to measure these over a 30-minute period.
- Meters should not only record instantaneous power flows but also power in/out for active power and reactive power. This will support a more robust regime to attribute cost and benefit to the parties involved in managing power quality.

The Code definition of 'consumer' needs clarification

- The current definition of 'consumer' in the Code should be reviewed to see if it is still appropriate. Currently generators are only 'consumers' if they are supplied electricity for their own consumption. EG can start without consuming power, yet the DN can force them to consume DN power to operate (no black start allowed).
- EG can then be charged as Consumers on the basis that of their export Generator capacity. These costs greatly exceed the pricing principles as outline in Section 6 of the Code.

Distributors should invest in higher quality EG connection equipment.

- The reliability and resilience of networks requires the use of higher quality DN connection equipment. This relates to the tight margin between what voltage the EG has to inject at and the allowable maximum voltage on the DN at the injection point. The EG need to be supplied the quality connection equipment that they and the DN owner have designed the connection on and not something chosen by the DN commercial team.

The Code needs to clarify a Contract connection and a Regulated Terms connection better.

- An EG connection needs the participants to agree on the basic engineering terms for the Connection. These terms should not be allowed to confuse the agreement of such terms with the creation of a pure Contract Connections that precludes the EA regulating that the connection is in accordance with the Code.