FRG – Connection Point Minimum Demand

July 2018

PRESENTED BY HUA MIN SITU

Agenda

1. Objective
2. Overview
3. Further development
4. Completion date

Objective

To update FRG members on the minimum demand connection point methodology development.

Connection point forecast MIN demand

Objective

- Develop a consistent methodology to forecast annual probability of exceedance (POE) level for minimum demand at all transmission connection points (CPs).
- 10-year forecast horizon.
- Assist planners in assessing the voltage quality due to many installations of recent new technologies like PV, batteries, and wind farms
- Oakley Greenwood engaged to provide a proof of concept model/ prototype for five CPs in Victoria.
- AEMO will provide historical data for the five CPs and regional forecast of macro drivers and technologies.

Connection point forecast MIN demand

Methodology Overview

Key steps:

1. Data cleaning to remove atypical events (outages)
2. Selection of multiple day profiles when the minimum could occur, distinguished by;
   - Time of the day (solar photovoltaics/embedded generation is accounted),
   - Day of the week (weekend/public holiday),
   - Time of the year (holiday season/CP with holiday-related patterns),
   - Verify if day profiles are changing over time and quantify this change.
3. Define a launch point ('weather correction')
4. Adjust the day profiles for future drivers of minimum demand at half-hour resolution, creating synthetic day-profiles.
5. Collate the synthetic day profiles into a final forecast.

Connection point forecast MIN demand

Challenges to be overcome

Launch point challenges:

- Developing a generic model/relationship that describes minimum demand.
- Linking the model to the different day profiles.

Input data:

- Deriving and applying customer growth, block loads or transfers, macro drivers (price, energy efficiency, economic condition) and technologies (e.g. batteries) to the launch points.
- Macro drivers to be disaggregated to be CP-specific.

Voltage studies:

- Approach for reactive power is under development.
- Principal task is to define a method that can be applied universally across all CPs. Bespoke studies may not be feasible for every CP.

Reconciliation:

- To produce an estimate of coincident minimum demand using non-coincident minima.

Connection point forecast MIN demand

Next step

- Finish late September-2018
- Take it back to FRG in October-2018

Questions