FCC Exit Methodology – Proof of Concept.

Draft for Comment – 2 March 2021

Model Version: FCC Exit Methodology v8 Ex2.xlsx

This model has been developed in line with the proposed methodology as discussed at the FCC Stakeholder Workshops. This document has been drafted to provide additional information on the model and should be read in conjunction with the model (FCC Exit Methodology v8 Ex2.xlsx).

Please note: the values used in this model are indicative and are used solely for the purpose of reviewing the proof of concept of this revised methodology. The values within this model should not be used for any other purpose.

If you have any Questions or comments, please email box.gsoconsultations@nationalgrid.com
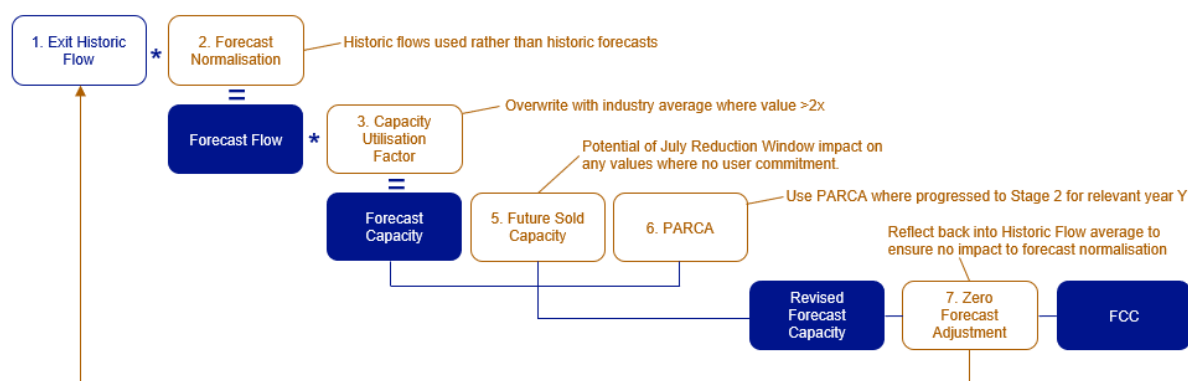
Tab: 1. Exit Historic Flows:

- This tab is used to collate 5 years' worth of historic annual flow data by Exit Point.
  - Actual annual flow data for Y-2 to Y-6 collected for each Exit Point.
  - These five years of flows data is summed for each Exit Point and divided by 5 to provide an average annual flow per Exit Point.
  - The average annual flow value per Exit Point is divided by 365 to provide a kWh/d value per Exit Point.
- These values (column I) are then copied across into the 'Exit FCC Summary' tab under Historic Flows (column C).
- Rows 237 -241 sum these values by Exit Point Type (DC Power Station, DC Industrial, GDN, Interconnector, Storage Site) to provide a total Exit Point Type / Sector value.

Exceptions:

- Where a site has not been active for 5 years, the '5 Yr AVERAGE' is calculated based on the number of years from first flow (these are highlighted in red in column H on the spreadsheet)

Tab: 2. Forecast Normalisation:

- This tab is used to reflect the variance between historic flows and forecast demands for Year Y.
  - The Exit Point Type / Sector % YR Average taken from the 'Exit Historic Flows' tab, (cells H237 – H240), and divided by 1,000,000 to convert to GWh (the same units as the Forecast Demand value)
  - Forecast Flow values per Exit Point Type / Sector for year Y taken from the most recent FES Central Forecast, copied into column D.
  - Forecast flow variance from historic flows calculated for each Exit Point Type / Sector by dividing year Y forecast by Average historic flow.
  - These values (column E) are copied across and applied to the relevant Exit Points (by Exit Point Type / Sector) in 'Exit FCC Summary' under Normalisation Factor (column D).

Exceptions:

- Storage sites defaulted to 1 as storage not classed as a demand.

Tab: 3. Utilisation Factor:

- This tab is used to reflect the levels of capacity purchased above flows for each site.
  - For each month from October 2020 (start of the new charging regime) the actual capacity booked per Exit Point, and the actual flow value per month per Exit Point is captured.
  - These values are summed for each month available to produce a Gas Year to Date actual Capacity Booked and actual flow value for each Exit Point.
  - Correction Factor for Capacity Utilisation calculated for Each Exit Point by dividing Actual Capacity / Actual Flow.

Exceptions:

- Any individual Exit Point with a Correction Factor greater than 2.00 is overwritten with the Exit Point Type / Sector average excluding overwritten sites (these are shown in red in column X of the spreadsheet)
- Any individual Exit Point with no flows to date, has its Correction Factor overwritten with the Exit Point Type / Sector average excluding overwritten sites (these are shown in red in column X of the spreadsheet)
- Bi-Directional Interconnector Points Correction Factor overwritten using the "Entry" Correction Factor calculated (due to minimal Exit flow data available).

  - Rows 237 -241 sum the Actual Capacity and Actual Flow values by Exit Point Type (DC Power Station, DC Industrial, GDN, Interconnector, Storage Site) to provide a total Exit Point Type / Sector correction Factor.
    - Rows 245-248 calculates the Exit Point Type / Sector correction factor to be used to overwrite individual Exit Point values, by calculating the total per Exit Point Type / Sector, excluding values from any sites to be overwritten.
    - This value is then used for the relevant Exit Point Type for each Exit Point where the Correction Factor is to be overwritten.

- o   This Correction Factor (column X) is then coped across for each Exit Point into the 'Exit FCC Summary' under Utilisation Factor (column F).

Tab: 4. GDN Y:

- This tab is used to capture the GDN 1 in 20 Undiversified Peak for Year Y and allocate these LDZ values across the DN Exit Points.
    - o   Capacity Sold (Y-1) by each Offtake captured in Column C
    - o   Rows 246 – 258 sum these individual Offtake values into LDZ totals.
    - o   Colum D calculated the % allocation of LDZ total capacity for each Offtake
    - o   Column E (rows 246-258) captures the LDZ undiversified 1 in 20 PEAK demand values by LDZ from the most recent FES report.
    - o   Column F multiplies the LDZ 1 in 20 value (in GWh) by 1,000,000 to convert into kWh.
    - o   Column G multiplies for each GDN Exit Point, the LDZ PEAK 1 in 20 value by the % allocation value in column D, to calculate the 1 in 20 PEAK capacity value per GND Exit Point (in kWh/d)
    - o   This 1 in 20 PEAK Y allocation value is then copied across into the 'Exit FCC Summary' tab under GDN 1 in 20 PEAK (column H).

Tab: 5. Future Sold:

- This tab is used to capture the known future sold capacity value per Exit Point for Year Y.
    - o   Future sold capacity at a kWh/d value captured for each Exit Point (source LSSR)
    - o   The value is copied across into the 'Exit FCC Summary' tab under Future Sold (column I)

Tab: 6. PARCA:

- This tab is used to capture the Phase 2 PARCA details for Exit Points where the PARCA has progressed to Stage 2 for the relevant year Y.
    - o   Column C captures the kWh/d value under the relevant PARCA
    - o   Column D captures the capacity start date under the PARCA
    - o   Column F calculates the number of days within Gas Year Y that capacity will be allocated.
    - o   Column G calculates the average daily profile of capacity for the site across the Gas Year, based on the capacity / number of days it will be active (kWh/d).
    - o   This 'Capacity in Y' value (column G) is copied across into the 'Exit FCC Summary' tab under PARCA (column J).

Exceptions:

- Storage sites defaulted

Tab: Exit FCC Summary:

- This tab captures all the outputs from the previous 6 tabs and calculates the FCC for each Exit Point.
- All values are in kWh/d.
    - o   Historic Flows:
        - ▪   Column C captures % Year average of Historic Flows per Exit Point.
    - o   Forecast Normalisation:

- - Columns D & E apply the Normalisation Factor calculated for each Exit Point Type / Sector to the respective Exit Point and multiplies the Historic Flow value (Column C) by the Normalisation Factor (Column D) to calculate the Forecast Normalised Flow by Exit Point.
  - Utilisation:
    - Columns F & G apply the utilisation factor calculated for each Exit Point (column F) to the Forecast Normalised Flows for each Exit Point (Column E) to calculate the Forecast Capacity per Exit Point.
  - GDN 1 in 20 PEAK
    - Column H captures in the 1 in 20 PEAK, allocated by GDN Exit Point.
  - Future Sold
    - Column I captures the Future Sold capacity value for year Y.
  - PARCA
    - Column J captures the PARCA values for year Y.
  - Applicable Value / GDN 1 in 20 PEAK
    - Column K calculates the applicable FCC for each Exit Point, based on:
      - For DC Power Stations, DC industrials, Interconnectors and Storage Sites:
        - The Maximum value from:
          - Forecast Capacity per Exit Point (Column G)
          - Future Sold Capacity (Column I)
          - PARCA (Column J)
        - Except – where the Future Sold Capacity value is greater than the Forecast Capacity for an Exit Point, and there is no outstanding User Commitment, the 'Applicable Value' is overwritten with the Forecast Capacity value. This is to reflect the expectation that users will revise any such capacity bookings in the July Reduction window (after the FCC has been set).
        - Except – where a new Exit Point has come on line, but has not flown historically, the 'Applicable Value' is overwritten with the Future Sold Capacity value.
      - For GDN Exit Points
        - The GDN 1 in 20 PEAK
  - Zero Forecast Flow
    - Column L identifies where any site with an 'Applicable Value' calculated (based on historic flows) is forecasted to no longer be operational for year Y, these Exit Points have their 'Historic Flows' value in column C overwritten with a 0, to reflect the site will not be operational, and to ensure the forecast normalisation by Entry Point Type / Sector is reflected into only active Exit Points.
  - FCC
    - This captures the FCC for year Y for each Exit Point.
    - These are summed up by Entry Point Type / Sector, and by the Total for all Exit Points in rows 237 – 243.