

# NOTE FOR PARTICIPANTS ON FNDDS CALCULATION METHODOLOGY

Version 2.0 05/11/2019

## 1 CONTEXT

The SEM Committee Capacity Market detailed design requires the System Operators (SOs) to determine when a Demand Side Unit (DSU) has not delivered on its obligations (see CRM1 decision, SEM-15-103 paragraphs 4.5.15, 4.5.16, and 4.5.20). Based on this, the DSU would be subject to Non-Performance Difference Charges for the amount they have not delivered.

A variable, known as the Demand Side Non-Delivery Percentage ( $FNDDS_{\Omega_V}$ ), has been introduced into the Trading and Settlement Code Part B (F.2.7.1, F.2.7.2, F.18.7.1), with the intention that this variable reflects what the SOs calculate to be the percentage of the obligation the DSU did not deliver. A default value of zero, representing the unit being assumed to have met its obligations, is used unless the SOs determine a different value to apply based on an analysis of the level to which the unit met their obligation.

In accordance with the Trading and Settlement Code, the System Operators submit a value of FNDDS to the MO and this is applied in Settlement. This note is intended to inform participants of the process and methodology that will be applied when determining the values for  $FNDDS_{\Omega_V}$ , as this detail is not set out in the Trading and Settlement Code. Any updates to this methodology shall be communicated through publishing updated versions of this document.

The intention of this approach is to allow DSUs to meet their obligations in the same way that conventional generators can, i.e. by trading in the ex-ante markets to a net level which matches their obligation, or by being dispatched above the net traded level to a position which matches their obligation, or if bound by a constraint considered for System Service Flagging then by being available. The approach is also generalised to allow for Capacity Market Units (CMUs) which represent multiple DSUs, where it is the net of the data for all of the relevant DSUs together that are considered.

Note that based on the RA approved SO methodology for treatment of congested DSUs in scheduling and dispatch, DSUs only declare availability (forecast and real-time) for which the SOs can schedule to, while ensuring Distribution System Operator (DSO) and Distribution Network Operator (DNO) congestion restrictions are still observed. This entails submitting Physical Notifications, forecast availability and declared availability prior to Balancing Market gate closure, and in real-time operation, reflecting DSO / DNO Instruction Sets. SOs schedule and dispatch DSUs up to their declared availability only (DSU availability which reflects for DSO / DNO instruction sets). This affects therefore the value that the Dispatch Quantity ( $QD_{uv}$ ) for a DSU can be.

Version 1 of this process is intended to be operated for Imbalance Settlement Periods (ISPs) from start of day 01/12/2018. For clarity, it is not intended to retroactively apply this methodology to

dates prior to 01/12/2018. Version 2 of this process is intended to be operated for ISPs from start of day 05/11/2019.

From the effective date of modification MOD\_16\_19 to the Trading and Settlement Code, this document "NOTE FOR PARTICIPANTS ON FNDDS CALCULATION METHODOLOGY" will no longer be effective, as the methodology explained in this document will then be under the governance of the Trading and Settlement Code.

Prior to the Initial settlement run (D+4) for each Settlement Day:

- If the Imbalance Settlement Price  $\leq$  Strike Price ( $PIMB_{\gamma} \leq PSTR_m$ ) in all periods in the Settlement Day, then end the process for that Settlement Day. Otherwise, if  $PIMB_{\gamma} > PSTR_m$  in any ISP in the Settlement Day, then continue the process for those ISPs within the Settlement Day;
- The following data is retrieved for the relevant units and ISPs:
  - o Obligated Capacity Quantity ( $QCOB_{u\gamma}$ ) for each CMU associated with a DSU;
  - o Ex-Ante Quantity ( $QEX_{u\gamma}$ ) for each DSU associated with a CMU;
  - o Loss-Adjusted Dispatch Quantity ( $QDLF_{u\gamma}$ ) for each DSU associated with a CMU.
- The  $FNDDS_{\Omega\gamma}$  is calculated for each CMU associated with a DSU for the relevant ISPs based on the following:
  - o If  $QCOB_{\Omega\gamma} = 0$ , then  $FNDDS_{\Omega\gamma} = 0$ , otherwise:

$$FNDDS_{u\gamma} = \frac{Max\left(QCOB_{\Omega\gamma} - \sum_{u \in \Omega} Max\left(QDLF_{u\gamma}, QEX_{u\gamma}, \left(qAA_{u\gamma} \times DISP \times (1 - FSS_{u\gamma})\right)\right), 0\right)}{QCOB_{u\gamma}}$$

- o Where:
  - $QCOB_{\Omega\gamma}$  is the Obligated Capacity Quantity for Capacity Market Unit,  $\Omega$ , in Imbalance Settlement Period,  $\gamma$ ;
  - $QDLF_{u\gamma}$  is the Loss-Adjusted Dispatch Quantity for Generator Unit,  $u$ , in Imbalance Settlement Period,  $\gamma$ ;
  - $QEX_{u\gamma}$  is the Ex-Ante Quantity for Generator Unit,  $u$ , in Imbalance Settlement Period,  $\gamma$ ;
  - $DISP$  is the Imbalance Settlement Period Duration;
  - $FSS_{u\gamma}$  is the System Service Flag for Generator Unit,  $u$ , in Imbalance Settlement Period,  $\gamma$ ; and
  - $\sum_{u \in \Omega}$  is a summation over all Generator Units,  $u$ , which comprise the Capacity Market Unit,  $\Omega$ .
- The results for  $FNDDS_{\Omega\gamma}$  calculated in the previous step are manually entered into the settlement systems for the relevant CMUs and the relevant ISPs;
- This process is intended to be completed before the Initial settlement run (D+4) for the relevant Settlement Day. If these timelines are not met, a Settlement Query for the affected Settlement Day may be raised in accordance with Trading and Settlement Code Part B G.3.2.5 and follow the normal process to determine if the changes to settlement amounts exceed the materiality threshold, and if so, carry out an ad-hoc resettlement for the relevant Settlement Day following the normal ad-hoc resettlement process. If a Settlement Query is not raised, or if the materiality threshold is not met, the values for  $FNDDS_{u\gamma}$  would be included in scheduled resettlements according to the settlement timetable.