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**Distribution LDM, DM and NDM Supply Point Capacity Setting Procedure**

**VERSION 1.0**

**Draft for Approval**

**15<sup>th</sup> January 2007**

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Note: The definitions presented in the Glossary of Terms below are provided solely for ease of understanding and shall have no legal effect. These definitions are not intended to supplant existing or future definitions contained in the Code of Operations to which the within Procedures relate.

## **Glossary of terms**

AWDD<sub>PEAK</sub> is the 1-in-50 Adjusted Weighted Degree Day. The WDD is a measure of one day's temperature used in the regression analysis of demand. The WDD for a day is calculated from a 50:50 weighted average of the degree-day value for the day and the average degree-day for that particular day of the year over the most recent 30 Gas Years.

ALF<sub>RES</sub> is the ratio of the average daily demand to the peak load for the Residential sector

Correction Factor is a factor used to compensate the volumetric measurement by a Flow Meter for line pressure and temperature changes. This is done by using a flow computer or corrector. The algorithm of such a flow computer applies the standard gas equation to the uncorrected volume from the Meter, and calculates a **correction factor** (CF) which is effectively a mathematical factor to be multiplied by the uncorrected volume to produce a Corrected Volume figure.

Corrected Meter Read is the index reading displayed on a conversion device which shows the results of conversion of the uncorrected index to standard reference conditions

Consuming NDM Gas Point is the term used to describe a NDM Gas Point which has a Meter Fitted, at which an End User is assigned and the relevant meter is not locked

Composite Weather Variable is used to model the impact of weather on demand and is derived from a weighted combination of various temperature and wind chill measurements

Large Network Connection is an agreement as outlined in the Connections Policy Document

Meter Head Read is the index reading on the meter head which represents the volume of gas recorded by the meter at local conditions.

Monthly Daily Average is the daily average of the metered consumption over the meter read period adjusted for the deemed number of working days in the week.

Peak Daily Read is the highest daily read at an Offtake Point recorded on the BGT Systems over the Review Period

Peak Monthly Daily Average is the highest Monthly Daily Average calculated during the Review Period

Peak Monthly Calculation is the product of the PMDA and the multiplier used to scale the PMDA to a 5, 6 or 7 day working week.

Review Period is the period between 1st May and the 30th April

SF<sub>CAP</sub> is the ratio of the Top Down NDM SPC to the aggregate initial SPC calculate for Gas Points assuming the SFCAP is 1.

Top-Down NDM SPC is the capacity that would have been required by the NDM sector, if there had been a 1-in-50 peak-day demand during the winter of a Gas Year.

Type III Generalised Extreme Value is a continuous probability distribution which is fitted to a series of maximum daily CWV temperatures for each gas year recorded at Dublin Airport. The 1-in-50 CWV temperature is equal to the 2% quintile of the GEV distribution

Uncorrected Meter Read is the index reading displayed on a conversion device which repeats the gas volume recorded by the meter at local conditions

### **3 Distribution LDM and DM SPC Methodology**

#### **3.1 Purpose/Scope**

This Procedure relates to and should be read in conjunction with Part C, Section 7 of the Code of Operations. The Transporter is required to reappraise and revise the Supply Point Capacity (“SPC”) in respect of each Supply Point annually in advance of the Gas Year. This procedure governs the calculation of SPC for DM and LDM Supply Points

#### **3.2 Related Documentation**

- Code of Operations - Part C, Section 7 (*Supply Point Capacity*)
- “Capacity Reservation Policy”- CER/04/290
- Connections Policy Document – CER/06/032

#### **3.3 SPC Methodology for New DM & LDM Connections**

**3.3.2** Where a Large Network Connection Agreement (cost of connection less contribution exceeds €250k) is in place a level of capacity is set as part of the Agreement and this will set a floor for the SPC calculation in subsequent Gas Years for the period outlined in the Agreement, in accordance with the Connection Policy Document.

**3.3.3** Where no Large Network Connection Agreement is in place a de minimus level of capacity is recorded on the BGT Systems, in accordance with the Connection Policy Document, for the term required to pay back the outstanding cost of connection, this will set a floor for the SPC calculation.

#### **3.4 SPC Methodology for Existing DM and LDM Supply Points**

**3.4.1** If consumption at a DM and/or LDM Supply point commences from the 1st of January onwards of the Review Period, then the SPC shall be calculated using the Peak Daily Read (“PDR”). The PDR shall be set at the highest daily read, recorded on the BGT Systems over the review period, which can be validated by the Transporter, in accordance with section 3.7.

**3.4.2** If consumption at a DM and/or LDM Supply point commences after the 1<sup>st</sup> of January of the Review Period then the SPC shall be set as the higher of that calculated by the PDR methodology and that calculated using the Peak Monthly Calculation (“PMC”).

The PMC methodology may be summarised as follows:

$$\text{PMC} = \text{PMDA} * \text{M}$$

Where:

PMDA: Peak Month Daily Average (“PMDA”)

M: Multiplier based on deemed no. of working days in the week

M = 1.15 for a 7-day week

M = 1.12 for a 6-day week

M = 1.09 for a 5-day week

- 3.4.3 The PMDA will be calculated from the monthly Meter Reads recorded on the BGT Systems as adjusted by the Transporter in accordance with Part G, Section 3.9 of the Code of Operations.
- 3.4.4 The metered consumption between each valid Meter Read and the previous valid Meter Read will be calculated.
- 3.4.5 The number of days between each valid Meter Read and the previous valid Meter Read will be calculated.
- 3.4.6 The Monthly Daily Average (“MDA”) will be calculated as the daily average of the metered consumption over the meter read period, adjusted for the deemed number of working days in the week for the Supply Point.
- 3.4.7 The PMDA will be equal to the highest MDA during the Review Period.
- 3.4.8 The PMC will be equal to the product of the PMDA and the multiplier (“M”), reviewed and approved by the Commission from time to time, for the site.

### **3.5 SPC Methodology for Sites Reclassified from NDM to LDM and/or DM**

- 3.5.1 Transporter Determined SPC for supply points which have been reclassified from NDM to DM in accordance with the Code of Operations shall be set as the higher of that calculated from the PMC methodology and that calculated in accordance with the NDM SPC Setting Procedure.
- 3.5.2 Firstly, a SPC for reclassified sites will be calculated in accordance with the NDM SPC Setting Procedure.
- 3.5.3 Secondly, the PMC method shall be applied as outlined in section 3.4.2 to 3.4.8.
- 3.5.4 The PMDA shall be calculated from the Meter Reads recorded on the BGT Systems as adjusted by the Transporter in accordance with Part G, Section 3.9 of the Code of Operations.
- 3.5.5 When applying the PMC calculation to reclassified sites, all sites shall be deemed to have a 7 day week unless the Transporter is advised otherwise.
- 3.5.6 The SPC derived from both methodologies shall be compared and the Transporter Determined SPC shall be equal to the highest calculated figure.

### **3.6 SPC Methodology for Sites Reclassified from DM to LDM and/or LDM to DM**

- 3.6.1 SPC for Supply Points which have been reclassified from DM to LDM or LDM to DM shall be set in accordance with section 3.4.

### **3.7 Validation Procedure for DM Supply Points**

- 3.7.1 The determined PDR for each Supply Point shall be validated by the Transporter. Where the PDR is found to be invalid the Transporters shall choose the next highest

PDR, which can be validated, as the Proposed SPC. The Transporter shall carry out the following validation checks.

- 3.7.2** To ensure the meter is pulsing correctly the advance in the Meter Head Read and the advance in the Uncorrected Meter Read is compared and a 1% tolerance is allowed.
- 3.7.3** To ensure that the Meter Conversion Device is working correctly the Actual Correction Factor shall be compared with the Expected Correction Factor (on GTMS) and a 5% tolerance is allowed.

The Calculated Conversion Factor is derived by dividing the Corrected Meter Read advance by the Uncorrected Meter Read advance.

- 3.7.4** A check shall be carried out to ensure that all hourly data is received by SCADA.

### **3.8 Consultation/Publication**

- 3.8.1** Transporter Recommended LDM SPC and Transporter Determined DM SPCs shall be produced for consultation with the Registered Shipper on the first Business Day in June of the Gas Year.
- 3.8.2** Shippers shall prior to the first Friday in August contact the Transporter with any queries on the Transporter Recommended SPC for Supply Points at which he/she is the Registered Shipper.

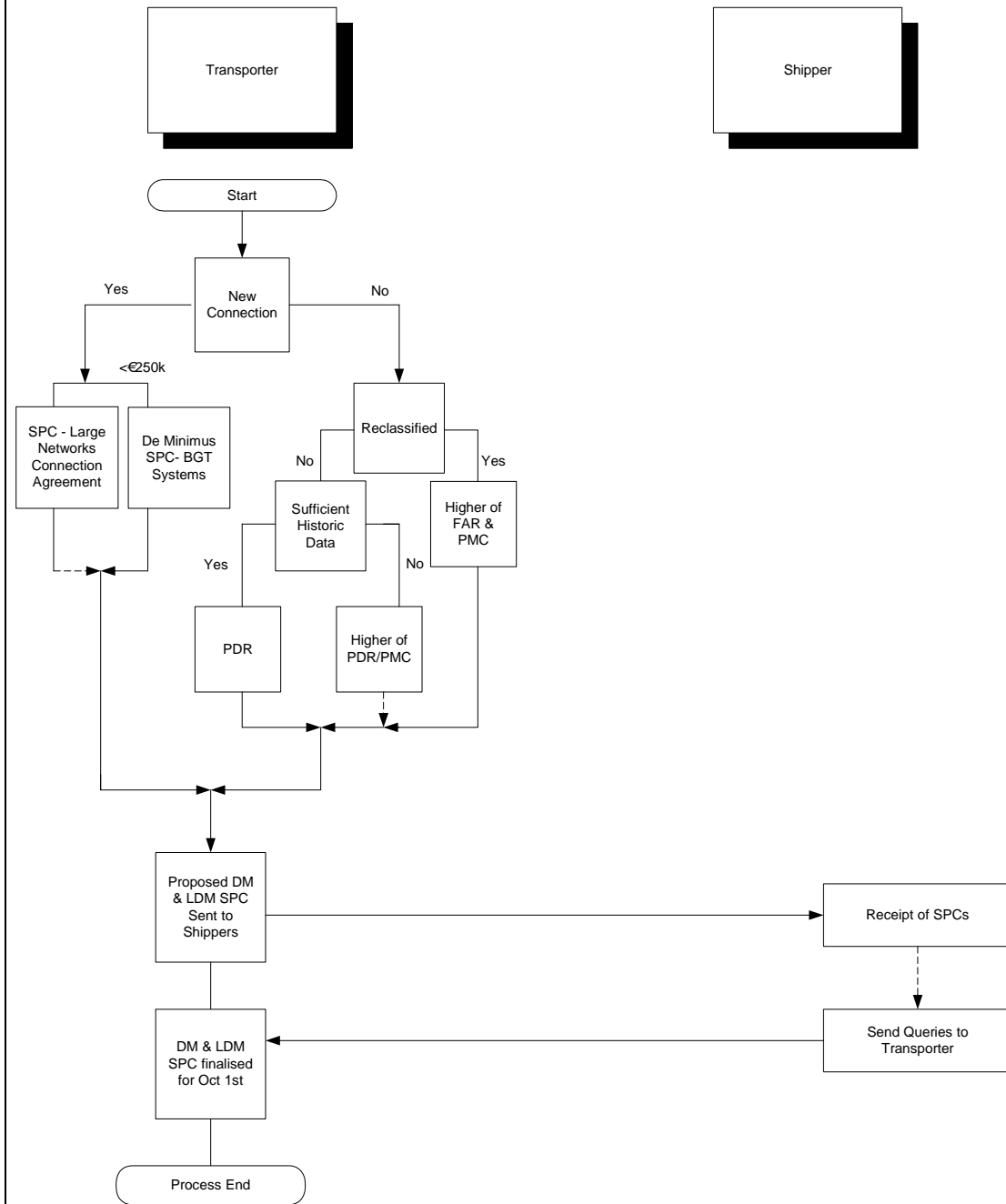
Where a Shipper believes the Transporter may have erroneously calculated the SPC for a Supply Point at which the Shipper is registered or where the Shipper is in receipt of information not held by the Transporter at the time the SPC was calculated, the Shipper may request a change to the Transporter Recommended and/or Transporter Determined SPC. The Shipper shall do so by submitting the reasons for such request in writing to the Transporter.

- 3.8.3** The Transporter shall no later than 10 Business Days respond to the Shipper with respect to the query.
- 3.8.4** Transporter Determined DM Supply point Capacity and Transporter Recommended LDM Supply Point Capacity shall be entered on the Capacity Register and will take effect from the 1st October of the Gas Year.

### **3.9 Procedure Diagrams**

A diagrammatic representation of the Procedure is set out below. This is included for ease of understanding and shall have no legal effect. In the event of a conflict between this section 3.9 and sections 3.3, 3.4, 3.5, 3.6, 3.7 and 3.8 the provisions of sections 3.3, 3.4, 3.5, 3.6, 3.7 and 3.8 shall prevail.

Procedure Title : Distribution DM & LDM SPC Methodology



## 4 Distribution NDM SPC Methodology

### 4.1 Purpose/Scope

This Procedure relates to and should be read in conjunction with Part C, Section 7 of the Code of Operations. The Transporter is required to reappraise and revise the SPC, in respect of each Supply Point annually in advance of the Gas Year. This procedure governs the calculation of the Supply Point Capacities (“SPC”) for NDM Supply Points.

### 4.2 Related Documentation

- Code of Operations - Part C, Section 7 (*Supply Point Capacity*)
- Appendix No.1, “Capacity Reservation Policy”- CER/04/290
- FAR Procedures

### 4.3 NDM SPC Methodology for New Connections

4.3.1 Transporter Determined SPC for new NDM Supply Points shall be set in accordance with the FAR Procedures.

### 4.4 NDM SPC Methodology for NDM Supply Points

4.4.1 The Transporter is required to determine SPC Capacity for a NDM Supply Point based on the greater of:

- (i) the estimated 1 in 50 peak day consumption; or
- (ii) the capacity established pursuant to applicable procedures and/or Connection Agreement.

4.4.2 Capacity will be calculated for each NDM Gas Point. Where there is more than one Gas Point in a Supply Point then Transporter Determined SPC will equal the sum of the capacity set for each Gas Point.

4.4.3 Supply Point Capacity will be based on the following formula for residential Gas Points:

$$SPC_{RES} = \frac{AQ_{SP} * SF_{CAP}}{ALF_{RES} * 365} \quad \text{for } AQ < 73,000 \text{ kwh}$$

Where:

$AQ_{SP}$  = Annual Quantity of the Supply Point as Calculated by FAR

$SF_{CAP}$  = Capacity Scaling Factor

$ALF_{RES}$  = Average Load Factor for Residential

And on the following formula for Industrial and Commercial Gas Points:

$$SPC_{IC} = (A_{GP} + B_{GP} * AWDD_{peak}) * SF_{CAP} \quad \text{for } AQ \geq 73,000 \text{ kwh}$$

Where:

$A_{GP}$  = A Parameter for the Gas Point

$B_{GP}$  = B parameter for the Gas Point

$AWDD_{PEAK}$  = Adjusted Weighted Degree Day on 1-in-50 Peak Day

- 4.4.4** The  $A_{GP}$  and  $B_{GP}$  parameters determine how the demand of the Gas Point varies in response to variations in the AWDD. Each Gas Point will have unique A and B parameters which are set in accordance with the FAR Procedures.
- 4.4.5** The A and B parameters may vary on receipt of an NDM Meter Read. The most recent A and B parameters will be used to set the Transporter Determined SPC
- 4.4.6**  $AWDD_{PEAK}$  will be calculated based on the following formula, refer to section 4.6 for calculation of Top Down NDM SPC:

$$Top\ Down\ NDM\ SPC = \sum A_{GP} + \sum B_{GP} * AWDD_{PEAK}$$

Only the latest A and B factors for NDM Gas Points consuming on the 13<sup>th</sup> of January will be used.

- 4.4.7** The  $ALF_{RES}$  parameter will be derived from the aggregate Top Down SPC demand and AQ of all the residential Consuming NDM Gas Points on the 13th of January, using the following formula:

$$ALF_{RES} = \frac{Aggregate\ AQ_{RES}}{365 * (Aggregate\ Top\ Down\ SPC_{RES})}$$

- 4.4.8** The  $SF_{CAP}$  parameter will be calculated using a two-step iterative process.  $SF_{CAP}$  will initially be set equal to 1 and an initial SPC for all Consuming NDM Gas Points on the 13th January will be calculated and aggregated. The  $SF_{CAP}$  shall then be calculated using the following formula:

$$SF_{CAP} = \frac{Top\ Down\ NDM\ SPC}{Aggregate\ Initial\ SPC_{GP}}$$

## 4.5 Top-Down NDM SPC

The Top-Down NDM SPC represents the estimated 1-in-50 peak day demand of the NDM sector during the current winter. The 1-in-50 peak day demand shall be based on a regression analysis of daily NDM demand versus the Composite Weather Variable (“CWV”) and other variables for a twelve (12) month period from the 1<sup>st</sup> of April to the 31<sup>st</sup> of March, which covers the current winter.

The CWV shall comprise of the following variables:

Variable	Description
LRDD	Rolling 30-year average of historical DD temp
DIFF	Difference between actual DD and LRDD temp
WC	Wind Chill Factor = DD temp * average wind-speed
DIFF1	DIFF if actual DD temperature > ref. temp, otherwise zero
CURL	LRDD * DD
LAG	$DD_t - DD_{t-1}/2 - DD_{t-2}/4$

- 4.5.1** The impact of day of week effects shall also be modelled using dummy regression variables for Saturday, Sunday, Bank Holidays, holiday periods and other factors such as growth and heating seasons.
- 4.5.2** The Top-Down SPC will be derived by replacing the actual CWV in the regression model with the 1-in-50 variables, on the 13<sup>th</sup> of January or the next Business Day where the 13<sup>th</sup> of January falls on a non Business Day.
- 4.5.3** The 1-in-50 variables will be derived from the application of a Type III Generalised Extreme Value distribution to the series of maximum daily CWV for each available year.
- 4.5.4** The Transporter will reserve the right to review and amend the regression model from time to time but shall consult with Shippers on any substantial proposed changes.
- 4.6 NDM SPC Methodology for Sites Reclassified from DM or LDM to NDM**
- 4.6.1** Where Supply Points are reclassified from DM and/or LDM to NDM in accordance with the Code of Operations the Transporter Determined SPC shall be equal, for the reclassified Supply Point, to the Transporter Recommended SPC or Transporter Determined SPC calculated in accordance with the Distribution LDM and DM SPC Methodology.
- 4.7 Validation**
- 4.7.1** The Transporter will ensure that the BGT Systems has implemented the methodology outlined in 4.5 of this procedure correctly by manually performing the SPC calculation for a sample of Supply Points.
- 4.7.2** The Transporter will compare the SPC derived with the SPC derived for the previous Gas Year. Any significant increases or decreases shall be investigated.
- 4.8 Publication/Consultation**
- 4.8.1** Transporter Determined NDM SPC will be produced for consultation with the Registered Shipper on the first Business Day in June of the Gas Year.
- 4.8.2** Shippers will prior to the first Friday in August contact the Transporter with any queries on the Transporter Determined SPC for Supply Points at which he/she is the Registered Shipper.

- 4.8.3** Where a Shipper believes the Transporter may have erroneously calculated the SPC for a Supply Point at which the Shipper is registered or where the Shipper is in receipt of information, not held by the Transporter at the time the SPC, the Shipper may request a change to the Transporter Determined SPC. The Shipper shall do so by submitting the reasons for such request in writing to the Transporter.
- 4.8.4** The Transporter shall no later than 10 Business Days respond to the Shipper with respect to the query.
- 4.8.5** The Transporter shall update the Capacity Register with the Transporter Determined NDM SPC and it shall be effective from the 1st October of the Gas Year.

#### **4.9 Procedure Diagrams**

A diagrammatic representation of the Procedure is set out below. This is included for ease of understanding and shall have no legal effect. In the event of a conflict between this section 4.9 and sections 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8, the provisions of sections 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8 shall prevail.

Process Title: Distribution NDM SPC Methodology

