Gas Networks Ireland

Distribution LDM, DM and NDM Supply Point Capacity (SPC) Setting Procedure

CRU Approved

Version 3.0

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Contents

Glossary of Terms

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.

$AWDD_{PEAK}$: 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_{RES}: the ratio of the average daily demand to the peak load for the Residential sector.

Consuming NDM Gas Point: an NDM Gas Point which has a Meter Fitted, at which an End User is assigned and the relevant meter is not credit or service locked.

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

Existing Connection: the Start Date of the site is before the start of the Review Period.

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

New Connection: the Start Date of the site is after the start of the Review Period.

Peak Daily Read: the highest daily read at an Offtake Point recorded on the Transporter Systems over the Review Period.

Review Period: the period between 1 May and 30 April.

SF_{CAP}: the ratio of the Top-Down NDM SPC to the aggregate initial SPC calculated for Gas Points assuming the SF_{CAP} is 1.

Supply Point Capacity (SPC): the capacity in kilowatt-hours (kWh) at a Supply Point that is deemed to be reserved for the peak day. It is set annually for each Gas Point.

Top-Down NDM SPC: 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 (GEV): 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.

1 Distribution LDM and DM SPC Methodology

1.1 Purpose / Scope

This Procedure relates to and should be read in conjunction with Part C, Section 8 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.

1.2 Related Documentation

- Code of Operations - Part C, Section 8 (*Supply Point Capacity*)
- Capacity Reservation Policy - CER/04/290
- Connections Policy Document - Revision 5.0

1.3 SPC Methodology for New DM & LDM Connections

1.3.1 Where a Large Network Connection Agreement (see Annex 3 of Connections Policy Document – October 2018) 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.

1.3.2 Where no Large Network Connection Agreement is in place a de minimus level of capacity may be applied on the Transporters 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.

1.4 SPC Methodology for Existing DM and LDM Supply Points

1.4.1 If no minimum SPC exists for a DM or LDM Supply Point, 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 Transporter Systems over the Review Period, which can be validated by the Transporter, in accordance with section 1.7.

1.4.2 If a DM or LDM Supply Point has a minimum SPC, then the SPC shall be set as the higher of that calculated by the PDR methodology and the minimum SPC.

1.5 SPC Methodology for Sites Reclassified from NDM to LDM or DM

1.5.1 Transporter Determined SPC for Supply Points which have been reclassified during the Review Period from NDM to LDM/DM, in accordance with the Code of Operations, shall be set as that calculated by the PDR methodology.

1.6 SPC Methodology for Sites Reclassified from DM to LDM or LDM to DM

1.6.1 SPC for Supply Points which have been reclassified from DM to LDM or LDM to DM shall be set in accordance with section 1.4.

1.7 Validation Procedure for DM Supply Points

1.7.1 The determined PDR for each Supply Point shall be validated by the Transporter. Where the PDR is found to be invalid the Transporter shall choose the next highest PDR, which can be validated, as the Proposed SPC. The Transporter shall carry out the following validation checks.

1.7.2 Daily reads are screened for manual and default values, meter data cleansing and withheld overruns to identify a valid PDR.

1.8 Publication / Consultation

1.8.1 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.

1.8.2 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 they are the Registered Shipper.

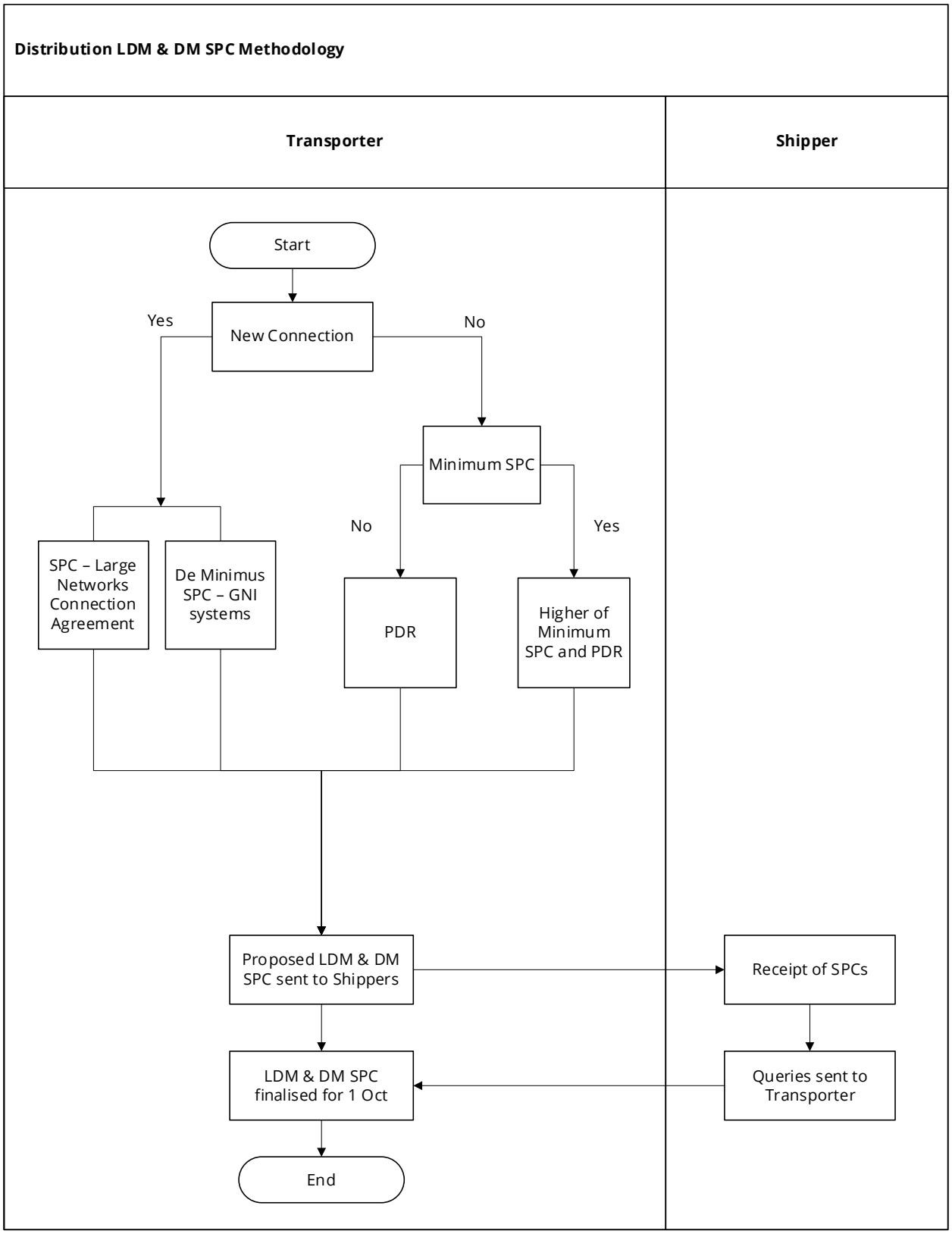
Where a Shipper believes the Transporter may have erroneously calculated the SPC for a Supply Point at which the Shipper is registered or where the Shipper is in receipt of information not held by the Transporter at the time the SPC was calculated, the Shipper may request a change to the Transporter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

1.8.3 The Transporter shall no later than 10 Business Days respond to the Shipper with respect to the query.

1.8.4 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 1 October of the Gas Year.

1.9 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 1.9 and sections 1.3, 1.4, 1.5, 1.6, 1.7 and 1.8, the provisions of sections 1.3, 1.4, 1.5, 1.6, 1.7 and 1.8 shall prevail.


Distribution LDM & DM SPC Methodology
Transporter
Shipper
Start
New Connection
Yes
No
Minimum SPC
No
Yes
SPC – Large Networks Connection Agreement
De Minimus SPC – GNI systems
PDR
Higher of Minimum SPC and PDR
Proposed LDM & DM SPC sent to Shippers
Receipt of SPCs
LDM & DM SPC finalised for 1 Oct
Queries sent to Transporter
End

2 Distribution NDM SPC Methodology

2.1 Purpose / Scope

This Procedure relates to and should be read in conjunction with Part C, Section 8 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.

2.2 Related Documentation

- Code of Operations - Part C, Section 8 (Supply Point Capacity)
- Appendix No.1, Capacity Reservation Policy - CER/04/290
- FAR Procedures

2.3 SPC Methodology for New NDM Connections

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

2.4 SPC Methodology for Existing NDM Supply Points

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

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

2.4.2 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.

2.4.3 Supply Point Capacity will be based on the following formula for residential Gas Points, where AQ < 73,000 kWh:

$$SPC_{RES} = (AQ_{SP} * SF_{CAP}) / (ALF_{RES} * 365)$$

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, where AQ ≥ 73,000 kWh:

$$SPC_{IC} = (A_{GP} + B_{GP} * AWDD_{PEAK}) * SF_{CAP}$$

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

2.4.4 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.

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

2.4.5 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.

2.4.6 $AWDD_{PEAK}$ will be calculated based on the following formula, refer to section 2.5 for calculation of Top-Down NDM SPC:

$AWDD_{PEAK}$ is the 1-in-50 value of AWDD

Only the latest A and B Factors for NDM Gas Points consuming on 13 January will be used.

2.4.7 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 13 January, using the following formula:

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

2.4.8 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 13 January will be calculated and aggregated. The SF_{CAP} shall then be calculated using the following formula:

$$SF_{CAP} = \text{Top-Down NDM SPC} / \text{Aggregate Initial } SPC_{GP}$$

2.5 Top-Down NDM SPC

2.5.1 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 twenty-four (24) month period from 1 April to 31 March, which covers the current winter.

The CWV shall comprise of the following variables:

Variable	Description
SLRDD	Smoothed long run average of DD temp for a day over 20-year period
EffDD	Effective DD: DD_{DAY_D} / 2 + $EffDD_{DAY\_D-1}$ / 2
WC	Wind Chill Factor = SLRDD temp * average wind-speed
DD^2	If DD > minimum threshold then DD^2, else zero

2.5.2 The impact of behavioural effects shall also be modelled using dummy regression variables for Saturday, Sunday, Bank Holidays, Christmas holiday period and heating season.

2.5.3 The Top-Down SPC will be derived by replacing the actual CWV in the regression model with the 1-in-50 CWV, on 13 January or the next Business Day where 13 January falls on a non-Business Day.

2.5.4 The 1-in-50 CWV 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.

2.5.5 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.

2.6 SPC Methodology for Sites Reclassified from DM or LDM to NDM

2.6.1 Where Supply Points are reclassified from DM 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.

2.7 Validation

2.7.1 The Transporter will ensure that the Transporter Systems has implemented the methodology outlined in 2.4 of this procedure correctly by manually performing the SPC calculation for a sample of Supply Points.

2.7.2 The Transporter will compare the SPC derived with the SPC derived for the previous Gas Year. Any significant increases or decreases shall be investigated.

2.8 Publication / Consultation

2.8.1 Transporter Determined NDM SPC will be produced for consultation with the Registered Shipper on the first Business Day in June of the Gas Year.

2.8.2 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 they are the Registered Shipper.

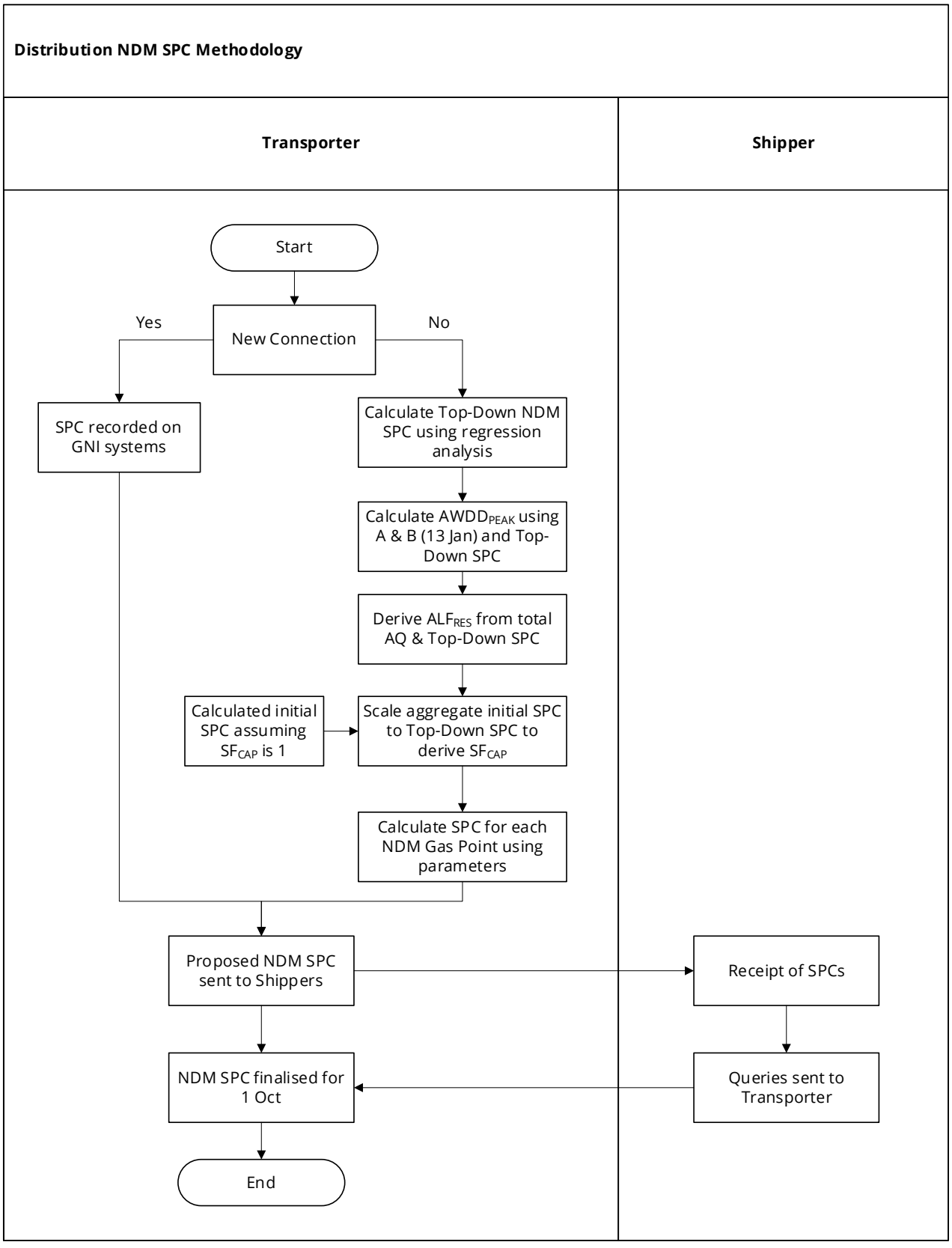
2.8.3 Where a Shipper believes the Transporter may have erroneously calculated the SPC for a Supply Point at which the Shipper is registered or where the Shipper is in receipt of information, not held by the Transporter at the time the SPC, the Shipper may request a change to the Transporter Determined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

2.8.4 The Transporter shall no later than 10 Business Days respond to the Shipper with respect to the query.

2.8.5 The Transporter shall update the Capacity Register with the Transporter Determined NDM SPC and it shall be effective from 1 October of the Gas Year.

2.9 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 2.9 and sections 2.3, 2.4, 2.5, 2.6, 2.7 and 2.8, the provisions of sections 2.3, 2.4, 2.5, 2.6, 2.7 and 2.8 shall prevail.


Distribution NDM SPC Methodology
Transporter
Shipper
Start
New Connection
Yes
No
SPC recorded on GNI systems
Calculate Top-Down NDM SPC using regression analysis
Calculate AWDD$_{PEAK}$ using A & B (13 Jan) and Top-Down SPC
Derive ALF$_{RES}$ from total AQ & Top-Down SPC
Calculated initial SPC assuming SF$_{CAP}$ is 1
Scale aggregate initial SPC to Top-Down SPC to derive SF$_{CAP}$
Calculate SPC for each NDM Gas Point using parameters
Proposed NDM SPC sent to Shippers
Receipt of SPCs
NDM SPC finalised for 1 Oct
Queries sent to Transporter
End