# UNIFORM NETWORK CODE – TRANSPORTATION PRINCIPAL DOCUMENT

# SECTION H – DEMAND ESTIMATION AND DEMAND FORECASTING

## 1 DEMAND MODELS AND END USER CATEGORIES

### 1.1 Introduction

1.1.1 Demand for gas at NDM Supply Point Components is required to be estimated (in accordance with this Section H) for purposes including determining Supply Point Capacity under Section B, establishing nominations under Section C and daily offtakes under Section E, and determining Annual Quantities under Section G1.6.

1.1.2 For the purposes of such demand estimation, each NDM Supply Point Component will belong to an End User Category for which a Demand Model will be established in accordance with this paragraph 1.

1.1.3 In accordance with GT Section C2.6, references in this Section H to demand are:

(a) at the level of any System Exit Point or End User Category, exclusive of shrinkage;

(b) at the level of an LDZ, inclusive of LDZ shrinkage;

(c) at the level of LDZ Aggregate NDM Points, exclusive of shrinkage.

1.1.4 Not used.

1.1.5 For the purposes of the Code "**LDZ Aggregate NDM Points**" are in relation to an LDZ all the NDM Supply Point Components and all relevant Connected System Exit Points in the LDZ.

### 1.2 End User Categories

1.2.1 An "**End User Category**" is a category of NDM Supply Point Components in an LDZ defined by rules established in accordance with paragraph 1.1.1; and where appropriate a reference to an End User Category includes reference to the NDM Supply Point Components for the time being belonging to that category.

1.2.2 End User Categories will be defined:

(a) by reference only to variables values of which:

(i) are maintained in the Supply Point Register; and/or

(ii) can be derived from Meter Readings obtained with the Meter Reading Frequency required (in relation to relevant Supply Meters) under Section M3

in respect of NDM Supply Point Components belonging to the relevant category; and

(b) so that at any time every NDM Supply Point Component belongs to one and

 

only one such category.

1.2.3 The "**Applicable End User Category**" in respect of an NDM Supply Point Component or NDM Supply Meter Point at any time is the End User Category to which the NDM Supply Point Component (or that in which that Supply Meter Point is comprised) belongs at that time.

1.2.4 The "**EUC Sample**" in relation to an End User Category is the Sampled NDM Supply Point Components (in accordance with paragraph 1.6.4) belonging to that category.

**1.3 Demand Models**

1.3.1 For the purposes of this Section H a "**Demand Model**" is a mathematical model which estimates, for an LDZ, an End User Category or LDZ Aggregate NDM Points, by reference to variables determined by the relevant Sub-committee for the purposes of the model, daily demand at the System Exit Points in the LDZ or (as the case may be) the EUC Sample or (as the case may be) LDZ Aggregate NDM Points.

1.3.2 The "**Applicable Demand Model**" in relation to an LDZ, an End User Category or LDZ Aggregate NDM Points is the Demand Model applicable in any Gas Year to such LDZ or End User Category or LDZ Aggregate NDM Points in accordance with this paragraph 1.

1.3.3 Notwithstanding GT Section C3.3.1, a Demand Model may estimate demand (for all relevant System Exit Points) on the basis of the flow weighted average calorific value referred to in GT Section C3.3.1(c)(iii).

**1.4 Composite Weather Variable**

1.4.1 The elements of a Demand Model may (but shall not be required to) include:

(a) a single variable (the "**Composite Weather Variable**") derived from a formula determined by the relevant Sub-committee and estimated to represent for the relevant LDZ the combined effect on demand of the components of weather which affect demand; and

(b) a single coefficient ("**Weather Variable Coefficient**") in respect of the element of demand (in the relevant LDZ or End User Category) which varies with weather as represented by the Composite Weather Variable.

1.4.2 The relevant Sub-committee will, at appropriate frequencies determined by it, after consultation with the Uniform Network Code Committee or any other relevant Sub-committee, review and where appropriate revise (with effect from the start of a Gas Year) the formula by which the Composite Weather Variable for an LDZ will be determined.

1.4.3 Daily values of the Composite Weather Variable for an LDZ, required for the purposes of developing Demand Models, will be determined by the relevant Sub-committee.

1.4.4 The Transporters shall:

(a) provide a copy of the Weather Station Substitution Methodology to any User on request from that User;

(b) adjust, in accordance with the Weather Station Substitution Methodology, the historical data in relation to wind speeds and temperatures at weather stations which have ceased operation and have been replaced, for the purposes of the relevant Composite Weather Variable(s), by other weather stations; and

(c) provide such adjusted data to any User on request.

1.4.5 The Transporters shall provide to any User on request from that User:

(a) a copy of the Climate Change Methodology; and

(b) the data in relation to wind speeds and temperatures at weather stations utilised by the Transporters for the purposes of any Composite Weather Variable as such data is adjusted from time to time pursuant to sub-paragraph 1.4.4(b) and as adjusted in accordance with the Climate Change Methodology.

1.4.6 Nothing in paragraphs 1.4.4 and 1.4.5 shall oblige the Transporters to apply the Weather Station Substitution Methodology or Climate Change Methodology so as to revise any Composite Weather Variable.

## 1.5 Seasonal Normal Demand

1.5.1 For the purposes of this Section H seasonal normal demand ("**SND**") for an LDZ, an EUC Sample or LDZ Aggregate NDM Points for any Day will be determined in accordance with the Applicable Demand Model on the basis of the seasonal normal value of the Composite Weather Variable for the Day in respect of that LDZ.

1.5.2 The "**seasonal normal value**" of the Composite Weather Variable for an LDZ for a Day in any year will be determined by the relevant Sub-committee.

1.5.3 Where the seasonal normal values of the Composite Weather Variable are revised, the relevant Sub-committee will provide to Users the revised values.

1.5.4 The relevant Sub-committee will, at appropriate frequencies determined by it, after consultation with the Uniform Network Code Committee or any other relevant Sub-committee, review and where appropriate revise (with effect from the start of a Gas Year) the seasonal normal value of the Composite Weather Variable for an LDZ.

## 1.6 NDM Sampling

1.6.1 For the purposes of development of End User Categories and Demand Models and where the relevant Sub-committee determines so the Transporter (other than National Grid NTS) will obtain data (which may, subject to paragraph 1.1.1, include estimates of missing data) as to daily offtakes of gas at the Supply Meter Points comprised in a sample of NDM Supply Point Components in each relevant LDZ.

1.6.2 For the purposes of paragraph 1.6.1:

(a) the Transporter shall be entitled at its cost to:

(i) install, operate and read data recorders or Remote Meter Reading Equipment; and

(ii) procure Meter Readings from third parties,

In either case at NDM Supply Meter Points from time to time selected by the Transporter;

(b) the Transporter will designate (as sampled for such purposes) NDM Supply Meter Points at which Remote Meter Reading Equipment is installed, at which it wishes to install Remote Meter Reading Equipment or at which it has, or intends to, procure Meter Readings for;

(c) the sample will be selected by the Transporter by random sampling from NDM Supply Point Components having different Annual Quantities and geographical locations.

1.6.3 For the purposes of paragraph 1.6.2:

(a) a data recorder is a device which captures Meter Readings at the start of each Day, but is capable of being read only at the Supply Point Premises;

(b) the Transporter will not select any NDM Supply Meter Point for installing a data recorder or Remote Meter Reading Equipment without the consent of the consumer.

1.6.4 For each Gas Year an NDM Supply Point Component which is for the time being selected or designated under paragraph 1.6.2 is a "**Sampled**" NDM Supply Point Component.

1.6.5 The aggregate number of Sampled NDM Supply Point Components will be determined by a methodology developed by the relevant Sub-committee.

1.6.6 Not used.

1.6.7 The data obtained by the Transporter in accordance with paragraph 1.6.1 will be subject to validation by the relevant Sub-committee.

1.6.8 Not used.

1.6.9 The Registered User will co-operate with the Transporter:

(a) in enabling access (where required) to Supply Meters for the purposes of establishing the NDM samples of NDM Supply Point Components and in ensuring that such samples are and will continue to fulfil the requirement to obtain the data as described in paragraphs 1.6.1;

(b) in obtaining the consent (where required) of any relevant person including the consumer for the installation, operation and reading of the data recorder or Remote Meter Reading Equipment at a NDM Supply Meter Point.

1.6.10 The Registered User of a NDM Supply Meter Point at which Remote Meter Reading Equipment specified in paragraph 1.6.2 is or is to be installed will, where requested to do so by the Transporter:

(a) procure permission and access for the Transporter or the relevant third party to:

(i) install and make operational Remote Meter Reading Equipment;

(ii) attach the Remote Meter Reading Equipment to the Supply Meter Installation;

(b) facilitate inspection and maintenance and any activity referred to in Sections M4.1.4(a) and (b), in relation to Remote Meter Reading Equipment, by the Transporter or the relevant third party as required for the purposes of keeping such equipment operational (including any requirement for resynchronisation and/or adjustment);

(c) procure that a suitable site including support, protection and security for the Remote Meter Reading Equipment is available at the Supply Point Premises.

1.6.11 The Registered User of a NDM Supply Meter Point at which Remote Meter Reading Equipment specified in paragraph 1.6.1 is installed shall:

(a) where it intends, or becomes aware that the consumer or any other person intends, to undertake works on the Supply Meter Installation (or any part of it) which will or is likely to impact on the ability of the Transporter to obtain accurate and timely Meter Readings, use reasonable endeavours to notify the Transporter at least two Business Days prior to the commencement of such works of the date when disconnection of the Remote Meter Reading Equipment from such Supply Meter Installation will occur and the date on which such works will be complete such that the Remote Meter Reading Equipment may or will be reconnected;

(b) take reasonable steps to secure that the Remote Meter Reading Equipment is not damaged or otherwise mistreated.

## 1.7 Development of Demand Models and End User Categories

1.7.1 For each Gas Year, the relevant Sub-committee will develop or revise for each LDZ:

(a) definitions of a number of End User Categories for the LDZ;

(b) a Demand Model for each such End User Category;

(c) a Demand Model for LDZ Aggregate NDM Points

1.7.2 Where the relevant Sub-committee has developed or revised for each LDZ the Demand Model and/or End User Categories the Transporter will complete the necessary undertakings to implement the Demand Models and/or End User Categories in accordance with the revisions stipulated and determined by the relevant Sub-committee.

1.7.3 Not used.

1.7.4 The definition of an End User Category may be the same for all or several LDZs, and an EUC Sample may include the Supply Point Components in more than one LDZ.

1.7.5 Not used.

## 1.8 Consultation on the relevant Sub-committee proposals

 

1.8.1 The relevant Sub-committee will consult with the Uniform Network Code Committee or any other relevant Sub-committee on proposed End User Category definitions and Demand Models developed under paragraph 1.1.1, and will submit to all Users:

(a) the proposed End User Category definitions and Demand Models developed under paragraph 1.1.1;

(b) values of the Derived Factors (in accordance with paragraph 1.9.3), determined on the basis of such proposals;

(c) any alternative End User Category definitions and Demand Models which the relevant Sub-committee (in undertaking the exercise under paragraph 1.1.1) considers to be not significantly inferior to those proposed; and

(d) a summary of the relevant Sub-committee's analysis of the performance in the Preceding Year of the End User Categories and Demand Models (applicable in the Preceding Year).

1.8.2 Upon the request of any User, the Transporters will provide to that User (by electronic format chosen by the Transporters) the data used in the analysis in a form which does not include the identity of Registered Users, Supply Point Premises, suppliers or consumers, nor details of the individual components of the Composite Weather Variable.

1.8.3 Users and Transporters may submit to the relevant Sub-committee representations in respect of the proposed End User Categories and Demand Models.

1.8.4 The relevant Sub-committee:

(a) will review the representations made by Users and Transporters under paragraph 1.8.3;

(b) will consult, so far as they deem appropriate, with any User or Transporter in respect of such representations made by them;

(c) may convene meetings with any Users or Transporters for the purposes of such consultation.

1.8.5 The relevant Sub-committee will make available to Users and Transporters reasonable details of the representations made to them under paragraph 1.8.4(b) and consultations held under paragraph 1.1.1 (but may do so by oral presentation at a meeting of Users and Transporters convened under paragraph 1.8.4(c)); and shall be free to disclose to any User, Transporter and the Authority any such representation and details of any such consultation.

1.8.6 The Transporters and Users may at any time convene a meeting of the Uniform Network Code Committee or any relevant Sub-committee for the purposes of consulting on any particular issue which may arise in the development or revision under paragraph 1.1.1 of End User Categories and Demand Models.

## 1.9 Finalisation of End User Categories and Demand Models

1.9.1 Not later than 15 August in the Preceding Year, the Transporters will submit to the

 

Authority and all Users the final proposals (in sufficient time to meet Transporter system time constraints) for End User Categories and Demand Models (and corresponding values of the Derived Factors) with such changes as the relevant Sub-committee determine may be appropriate based on Transporter's and Users' representations made under paragraph 1.8.

1.9.2 The End User Categories and Demand Models (and corresponding values of the Derived Factors) applicable to the Gas Year shall be those submitted by the Transporters under paragraph 1.9.1. Where under paragraph 1.7 the relevant Sub-committee is unable to or does not determine in accordance with paragraph 1.11 any changes to the Demand Models and/or the End User Categories for the next Gas Year, the Transporters shall use the End User Category Demand Models applying in the Preceding Year to create corresponding values of the Derived Factors and such End User Categories and Derived Factors shall then apply to the Gas Year.

1.9.3 For the purposes of this Section H the "**Derived Factors**" are:

(a) for each Day of the Gas Year, the Annual Load Profile and Daily Adjustment Factor (in accordance with paragraph 2) for each End User Category; and

(b) the EUC peak load factor for each End User Category and the peak load scaling factor (in accordance with paragraph 4).

**1.10 DNO Users**

1.10.1 In this Section H references to Users exclude DNO Users.

**1.11 Relevant Sub-committee Voting Arrangements**

1.11.1 Where the relevant Sub-committee referred to in this Section H is required to make a determination in relation to paragraphs 1.3.1, 1.4.1, 1.4.2, 1.4.3, 1.5.2, 1.5.4, 1.6.5, 1.7.2, 1.9.1 and 4.3.1, such determination shall be reached by means of a simple majority by a vote conducted on a show of hands or such other affirmation or consent which may be appropriate. On any vote each Voting Member present shall be entitled to exercise one (1) vote.

1.11.2 For the purposes of this paragraph 1.11 a "**Voting Member**" is any Transporters' Representative and any Users' Representative.

1.11.3 The relevant Sub-committee referred to in this section shall be composed of:

(a) up to five (5) Transporter Representatives being Voting Members;

(b) up to five (5) User Representatives being Voting Members.

1.11.4 Where the relevant Sub-committee is unable (for whatever reason) to make a determination in accordance with paragraph 1.11.1 (an "**undetermined matter**"), then the relevant Sub-committee shall refer such undetermined matter to:

(a) any group (which is permitted to exist pursuant to the relevant Sub-committee's terms of reference as provided for under General Terms Section B General part 4.3.4) to obtain any additional information in order to allow a determination to be made (in accordance with paragraph 1.11.1); or

(b) the Uniform Network Code Committee, with a summary of why such determination was not able to be made by the relevant Sub-committee, which shall then make a determination.

1.11.5 The relevant Sub-committee shall continue to refer to any undetermined matter for determination in accordance with paragraph 1.11.4 until such time a determination is made.

**1.12 Trader User**

In this Section H references to Users exclude Trader Users.

**2 DETERMINATION OF SUPPLY METER POINT DEMAND**

**2.1 Supply Meter Point Demand**

2.1.1 For the purposes of this Section H "**NDM Supply Meter Point Demand**" is the quantity of gas estimated or (as the case may be) deemed to be offtaken on a Day at an NDM Supply Meter Point.

2.1.2 Subject to paragraph 2.1.3 NDM Supply Meter Point Demand will be determined (in accordance with paragraph 2.2):

(a) before and (as appropriate) during the Gas Flow Day, for the purpose ("**Nomination Determination**") of establishing Output Nominations for NDM Supply Point Groups, in accordance with Section C;

(b) after the Gas Flow Day, for the purpose ("**Offtake Determination**") of establishing UDQOs for NDM Supply Point Components, in accordance with Section E.

2.1.3 For the purpose only of establishing an assumed metered volume to carry out individual NDM Reconciliation pursuant to Section E6.1.6, NDM Supply Meter Point Demand will be determined in accordance with paragraph 2.2.2.

**2.2 Supply Meter Point Demand Formula**

2.2.1 NDM Supply Meter Point Demand ('SPD') for a Day (Day 't') shall be determined according to the following formula:

$$SPD = \frac{AQ}{365} \times \bar{ALP}t \times (1 + DAF_t \times WCF_t) \times SF_t$$

where AQ is the Annual Quantity (in kWh) in respect of the relevant NDM Supply Meter Point (in accordance with paragraph 3.1.5(a) in the case of a Shared Supply Meter Point);

and where for Day 't':

$ALP_t$ is the value of the Annual Load Profile for the Applicable End User Category;

$DAF_t$ is the value of the Daily Adjustment Factor for the Applicable End User

Category;

$WCF_t$ is the Weather Correction Factor for the relevant LDZ in accordance with paragraph 2.5;

$SF_t$ is the Scaling Factor for the relevant LDZ in accordance with paragraph 2.5.

2.2.2 For the purposes of paragraph 2.1.3 NDM Supply Meter Point Demand ('SPD') for a Day (Day 't') shall be determined according to the following formula:

$$SPD = \frac{AQ}{365} \times ALP_t$$

Where AQ is the Annual Quantity (in kWh) in respect of the relevant NDM Supply Meter Point (in accordance with Paragraph 3.1.5(a) in the case of a Shared Supply Meter Point);

and where for Day 't'

ALPt is the value of the Annual Load Profile for the Applicable End User Category.

**2.3 Annual Load Profile**

2.3.1 The "**Annual Load Profile**" for an End User Category for a Day is a factor representing the Seasonal Normal Demand of the End User Category for that Day as a proportion of the average Seasonal Normal Demand (for all Days of the Gas Year) of the End User Category.

2.3.2 The Annual Load Profile ('$ALP_t$') for an End User Category for Day t shall be determined as:

$$ALPt = \frac{SNDE_t}{\frac{\left(\sum_{t=1}^{N} SNDE_t\right)}{N}}$$

where:

$SNDE_t$ is seasonal normal demand for the End User Category for Day t

N is the number of Days in the Gas Year.

**2.4 Daily Adjustment Factor**

2.4.1 The "**Daily Adjustment Factor**" for an End User Category for a Day is a factor representing the weather sensitivity of demand in that End User Category on that Day relative to the weather sensitivity of demand in the LDZ on that Day.

 

2.4.2 The Daily Adjustment Factor ('$DAF_t$') for an End User Category for a Day shall be determined as:

$$DAFt = \frac{(WVCE_t / SNDE_t)}{(WVCN_t / SNDN_t)}$$

where for Day t:

$WVCN_t$ is the value of the Weather Variable Coefficient (in accordance with paragraph 1.4) in the Demand Model for the LDZ Aggregate NDM Points for the relevant LDZ;

$SNDN_t$ is the value of seasonal normal demand for LDZ Aggregate NDM Points for the relevant LDZ;

$WVCE_t$ is the value of the Weather Variable Coefficient in the Demand Model for the End User Category;

$SNDE_t$ is the value of seasonal normal demand for the End User Category.

**2.5 Weather Correction Factor and Scaling Factor**

2.5.1 For the purposes of paragraph 2.2 the "**Weather Correction Factor**" ('$WCF_t$') and "**Scaling Factor**" ('$SF_t$') in respect of an LDZ are (respectively) the factors determined as follows:

$$SF_t = ASD_t / NDMD_t$$

$$WCF_t = (ASD_t - \sum ((AQ_{EUC}/365)*ALP_t)_{LDZ}) / \sum ((AQ_{EUC}/365)*ALP_t)_{LDZ}$$

$ASD_t$ is:

(a) for the purposes of Nomination Determination, Forecast LDZ Demand (at the relevant time of Nomination Determination) determined in accordance with paragraph 5.2 less the aggregate sum of DM Output Nominations (at the relevant time of Nomination Determination) at all DM Supply Point Components and relevant Connected System Exit Points in the LDZ and adjusted by deducting LDZ shrinkage;

(b) for the purposes of Offtake Determination, that quantity comprised in the LDZ Daily Quantity Offtaken attributable to NDM Supply Point Components and relevant Connected System Exit Points (determined as the LDZ Daily Quantity Offtaken less the aggregate sum for quantities offtaken at all DM Supply Point Components and relevant Connected System Exit Points in the LDZ and adjusted by deducting LDZ shrinkage);

$SNDN_t$ has the meaning in paragraph 2.4.2; and

$NDMD_t$ is the aggregate for all NDM Supply Point Components and for any relevant Connected System Exit Point in the LDZ of the amounts determined by calculating Supply Point Demand for Day t in accordance with paragraph 2.2 with a Scaling Factor equal to one or (as the case may be) calculated in

 

accordance with the relevant provisions of the CSEP Network Exit Provisions.

$AQ_{EUC}$ is the aggregate Annual Quantity for the Applicable End User Category as at 1st October, or as revised from time to time pursuant to paragraph 2.5.3.

2.5.2 In respect of each Gas Year, the Transporters will, on a specific date (the **"designated date"**), within:

(a) the period of 3 calendar months ending on 31 December compare the aggregate NDM Annual Quantity for each LDZ (**"aggregate NDM LDZ AQ"**) with the aggregate NDM LDZ AQ as at 1 October; and

(b) the period of 3 calendar months ending on 31 March and 30 June compare the aggregate NDM LDZ AQ with the aggregate NDM LDZ AQ as at:

(i) the previous designated date at which the comparison resulted in a revision being made pursuant to paragraph 2.5.3(b); or

(ii) where the comparison at the previous designated date does not result in a revision being made pursuant to paragraph 2.5.3(b), 1 October.

2.5.3 Where the comparison made in accordance with paragraph 2.5.2 determines that the aggregate NDM LDZ AQ has increased or decreased by an amount of more than 1%, the Transporters will:

(a) on the first day of the month following the period in which such comparison was performed, publish the revised values that will apply in respect of $\sum ((AQ_{EUC}/365)*ALP_t)$ for each LDZ;

(b) apply such revised values from the date referred to in paragraph (a).

## 3 NDM ANNUAL QUANTITIES

### 3.1 Introduction

3.1.1 Subject to paragraphs 3.1.2 and 3.1.3, the Annual Quantity or the Provisional Annual Quantity of an NDM Supply Meter Point for each Gas Year shall be determined (on the basis of a standard 365 Day year) by seasonal normal adjustment of the metered quantity for a period ending before such Gas Year in accordance with this paragraph 3.

3.1.2 Subject to paragraph 3.4.4, in the circumstances in paragraph 3.2.4 the Annual Quantity or the Provisional Annual Quantity of the NDM Supply Meter Point for a Gas Year shall be that applicable for the Preceding Year.

3.1.3 For the Gas Year in which a New Supply Meter Point is established its Provisional Annual Quantity shall be the quantity specified by the relevant User in accordance with Section G7.3.6.

3.1.4 Upon annual determination thereof in accordance with this paragraph 3, the Annual Quantity of an NDM Supply Meter Point will be notified to the Registered User in accordance with Section G1.6.12.

3.1.5 In the case of a Shared Supply Meter Point which is an NDM Supply Meter Point:

 

(a) the Annual Quantity shall be established for the Supply Meter Point as a whole (disregarding the Shared Supply Meter Notification);

(b) thereafter a separate Annual Quantity shall be established (in accordance with Section G1.7.11) in respect of each Sharing Registered User.

**3.2 Relevant Metered Period**

3.2.1 For the purposes of this paragraph 3.2 the "**Relevant Metered Period**" in respect of a Gas Year is the period from the Day after the starting Meter Read (in accordance with paragraph 3.2.3) to the ending Meter Read (in accordance with paragraph 3.2.2).

3.2.2 The ending Meter Read is the latest Valid Meter Read (in accordance with Section M3) before 10 August in the Preceding Year.

3.2.3 The starting Meter Read shall be:

(a) the latest Valid Meter Read before the target opening date, or if there was no such Meter Read less than three years before the target opening date;

(b) subject to paragraph 3.2.4, the first Valid Meter Read after the target opening date.

Provided always that where the seasonal normal values of the Composite Weather Variable for an LDZ are revised in accordance with paragraph 1.5.3 the starting Meter Read shall be no earlier than four years prior to 1 October in the Gas Year that the revised seasonal normal values of the Composite Weather Variable are first used (the **"Longstop Date"**).

3.2.4 If there was no Valid Meter Read less than three years before the target opening date or more than 6 months before the ending Meter Read, or the first Valid Meter Read after the target opening date was earlier than the Longstop Date, paragraph 3.1.2 shall apply.

3.2.5 For the purposes of this paragraph 3.2 the "**target opening date**" is the date which is:

(a) where the NDM Supply Point Meter is a Monthly Read Meter, 50 weeks; or

(b) where the NDM Supply Point Meter is an Annual Read Meter, 42 weeks

before the ending Meter Read.

**3.3 Relevant Metered Quantity**

The "**Relevant Metered Quantity**" is the Metered Quantity or (if there was one or more intervening Valid Meter Reads in the Relevant Metered Period) the sum of the Metered Quantities for the Relevant Metered Period (in accordance with Section M1.4.4(b)).

**3.4 Annual Quantity**

3.4.1 Subject to paragraph 3.4.3, the Annual Quantity ('AQ') for an NDM Supply Meter Point for a Gas Year shall be determined as follows:

$$AQ = RMQ \times \frac{365}{\sum_{t-1}^{M} \left( ALP_t \times \left( 1 + DAF_t \times EWCF_t \right) \right)}$$

where:

RMQ is the Relevant Metered Quantity;

M is the number of Days in the Relevant Metered Period;

and where for each Day (Day 't') in the Relevant Metered Period:

$ALP_t$ is the value for the year in which Day t falls (the "**relevant year**") of the Annual Load Profile for the Applicable End User Category;

$DAF_t$ is the value for the relevant year of the Daily Adjustment Factor for the Applicable End User Category;

$EWCF_t$ is the value for the relevant year of the Estimated Weather Correction Factor (in accordance with paragraph 3.4.2).

3.4.2 The "**Estimated Weather Correction Factor**" for a Day in respect of an LDZ is the factor determined by calculating the Weather Correction Factor (in accordance with paragraph 2.5) for that Day substituting for the term '$ASD_t$' the value of demand for the LDZ Aggregate NDM Points determined from the Applicable Demand Model for the relevant year (on the basis of the value of the Composite Weather Variable).

3.4.3 Where a review has taken place pursuant to paragraphs 1.4.2 and 1.5.2 (for the purposes of this paragraph 3.4.3 and paragraph 3.4.4, the "**Review"**) the Annual Quantity for an NDM Supply Meter Point applicable from the start of the Gas Year in which the Review took effect will use revised Applicable Demand Models derived from the data used to calculate the Applicable Demand Models for the Gas Year immediately prior to the Gas Year that the Review took effect, together with the revised Composite Weather Variables and seasonal normal values, to calculate the values of ALPt, DAFt and EWCFt.

3.4.4 Notwithstanding paragraph 3.1.2, where a Review has taken place and the provisions of paragraph 3.4.3 apply, the Annual Quantity or the Provisional Annual Quantity of the NDM Supply Meter Point will be calculated as follows:

$$AQ = AQ_1 \times \frac{A}{B}$$

Where:

AQ1 = the Annual Quantity or the Provisional Annual Quantity of the NDM Supply Point applicable for the Preceding Year.

$$A = \sum_{i=1}^{365} SNDE$$

Where the values of SNDEt shall be derived using revised Applicable Demand Models derived from the data used to calculate the Applicable Demand Models for the Gas Year immediately prior to the Gas Year that the Review took effect, together with the revised Composite Weather Variables and seasonal normal values

$$B = \sum_{i=1}^{365} SNDE$$

Where the values of SNDEt shall be derived using the Applicable Demand Models for the Gas Year immediately prior to the Gas Year that the Review took effect.

## 4 NDM CAPACITY

### 4.1 Introduction

The Supply Point Capacity ('SPC') which a User is registered as holding at or (as the case may be) in respect of an NDM Supply Point Component on any Day in the Gas Year will be determined in accordance with the following formula:

$$SPC = AQ / PLF * 365$$

where:

AQ is the Annual Quantity of the NDM Supply Point Component for the Gas Year;

PLF is the EUC peak load factor in accordance with paragraph 4.2.

### 4.2 EUC peak load factor

The "**EUC peak load factor**" is a load factor for the Applicable End User Category determined as follows:

$$PLF = \frac{AAQ}{PDD - 365}$$

where:

AAQ is the sum of the Annual Quantities in respect of the NDM Supply Point Components in the EUC Sample; and

PDD is the 1-in-20 peak day demand of the Applicable End User Category determined under paragraph 4.3.

### 4.3 1-in-20 peak day demand

4.3.1 The relevant Sub-committee will determine 1-in-20 peak day demand in relation to Section H requirements only.

4.3.2 Not used.

## 5 DAILY DEMAND FORECASTING

### 5.1 Weather forecasting

 

5.1.1 Transporters will obtain (from a reputable meteorological services provider) at certain times within each Day:

(a) forecasts of temperatures and wind speeds at a number of weather stations at intervals during the remainder of that Day and the following Day;

(b) details of the temperatures and wind speeds recorded at such weather stations at intervals during that Day and the preceding Day.

5.1.2 The times at which each Transporter will obtain weather data under paragraph 5.1.1 include the following approximate times: 11:30 hours, 15:15 hours and 23:30 hours on the Preceding Day and 07:30 hours, 11:30 hours and 15:15 hours on the Gas Flow Day.

**5.2 LDZ Demand Forecasting**

5.2.1 The Transporter will (during the Preceding Day and the Gas Flow Day in accordance with paragraph 5.2.3) forecast and notify to Users:

(a) in the case of a DN Operator, demand in each relevant LDZ;

(b) in the case of National Grid NTS, demand for the Total System

for the Gas Flow Day, using Short Term Demand Models, on the basis of the weather data most recently obtained in accordance with paragraph 5.1 (in the case of LDZ demand, for the weather station(s) located in or closest to the relevant LDZ).

5.2.2 A "**Short Term Demand Model**" is a mathematical model established by the Transporters on the basis of historic demand and other data, which estimates (at a given time) for an LDZ and the Total System and for any Day demand, by reference to data including:

(a) forecasts of temperature and wind speeds for the Gas Flow Day or the remainder thereof;

(b) recorded temperature and wind speeds for the Preceding Day and (where relevant) the Gas Flow Day up to the time of forecasting; and

(c) actual demand (assessed by reference to gas flows at NTS/LDZ Offtakes adjusted for estimated changes in LDZ stock) for the Preceding Day and (where relevant) the Gas Flow Day up to the time of forecasting.

5.2.3 The Transporter will notify demand under paragraph 5.2.1 after receipt of weather data under paragraph 5.1.1 not later than the following times: 14:00, 18:00 hours, and 02:00 hours on the Preceding Day and 12:00 hours, 15:00 hours, 18:00 hours, 21:30 hours and 02:00 hours on the Gas Flow Day.

5.2.4 The Transporter may in addition and at its discretion notify demand (for a relevant System) at other times for any reason it considers appropriate including, but not limited to, where it appears to the Transporter that the prevailing Forecast LDZ Demand may be substantially inaccurate; and where it does so it will inform Users of the reasons for its view.

5.2.5 Where there is a delay in the provision of forecast and other information to the

 

Transporter as described in paragraph 5.1, the Transporter may defer the time at which it notifies demand under paragraph 5.2.3 by a commensurate period.

5.2.6 For the purposes of the Code:

(a) "**Forecast LDZ Demand**" means aggregate demand for the Gas Flow Day in an LDZ, forecast in accordance with this paragraph 5;

(b) "**Forecast Total System Demand**" means aggregate demand for the Gas Flow Day on the Total System, forecast in accordance with this paragraph 5;

(c) "**Demand Forecast Time**" means any time at which (in accordance with paragraph 5.2.3 or 5.2.4) the Transporter notifies Forecast LDZ Demand under paragraph 5.2.1.

5.2.7 In forecasting demand under this paragraph 5, the Transporter will act in good faith and will exercise reasonable skill and care, but the Transporter will not be liable (as to any loss or liability incurred by a User or otherwise) to any User in respect of or in consequence of anything done or omitted to be done by the Transporter under this paragraph 5.

## 6 CLASS A CONTINGENCIES

### 6.1 Class A Contingencies

6.1.1 During the period of a Class A Contingency, notification of demand for the Gas Flow Day pursuant to paragraph 5.2.3 will be provided in accordance with the relevant Contingency Procedures.