

## **Preliminary Safety Monitor Requirement 2012/13**

**2<sup>nd</sup> July 2012**

### **Introduction**

This document sets out the preliminary 'Safety Monitor' for the 2012/13 winter, pursuant to National Grid's obligations under the Uniform Network Code Section Q.

The preliminary safety monitor provided in this note uses our 2012 demand forecasts and supply analysis produced in June 2012 which incorporates supply and demand information provided to us by our stakeholders through our 2012 Future Energy Scenarios consultation process. We expect to update our safety monitor analysis to include any further feedback that we receive via the winter 2012/13 consultation process.

Our Winter Consultation Report 2012/13 which will be published in July will present an initial view of gas demand and supplies for the coming winter. It will highlight continuing uncertainty with regard to potential non-storage supply levels, notably for imports. We request that market participants respond to our winter 2012/13 consultation process to assist us in developing our final monitor determinations in September.

It is our responsibility to keep the above monitor under review (both ahead of and throughout the winter) and to make adjustments, if it is appropriate to do so, on the basis of the latest information available to it. We will continue to provide within winter feedback to industry regarding supply assumptions and any resulting changes to safety monitors by means of monthly updates via Operational Forum meetings and information on our web site. In doing so, we must recognise that the purpose of the safety monitor is to ensure an adequate pressure can be maintained in the system at all times and thereby protect public safety.

### **Removal of obligation to publish Firm Gas Monitor**

The firm gas monitor represents the storage level required to support Uniform Network Code defined firm demand in a severe winter. It is published for information only. With the implementation of Modification 0090, 'Revised DN Interruption Arrangements', and Modification 0195AV, 'Introduction of Enduring NTS Exit Capacity', demand that has previously been interruptible will now be treated as firm and therefore included within the firm monitor calculation process. There is therefore a risk that the final firm gas monitor for winter 2012/13 will be set at greater than 100% of storage capacity, resulting in an immediate and continued breach. There is no clear value in continuing to publish the firm gas monitor and potential for confusion and concern if a breach is published when no market response is required or expected.

Modification 0411S, 'Removal of the Obligation to Publish Firm Gas Monitor from the UNC' was accepted by the Modification Panel on 21 June 2012 and will be implemented on 13 July 2012. Hence the final Firm Monitor requirement will not be published.

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## **Background**

The Uniform Network Code (UNC) (inter alia) requires us to publish the safety monitor and to provide regular reporting of actual storage stock levels for comparison with the monitor. As the name suggests, the focus of the safety monitor is public safety rather than security of supply. It provides a trigger mechanism for taking direct action to avoid a potential gas supply emergency (as defined in the Gas Safety (Management) Regulations).

## **Methodology**

There continues to be two main steps in the assessment of the safety monitor:

- The calculation of the total storage requirement at the start of the winter
- The assessment of the way in which this initial requirement decays as the winter progresses, known as the winter profile. This second step also includes an assessment of how the total storage deliverability requirement decays as the winter progresses.

This note only covers the first step, by providing a preliminary assessment of the safety monitor space requirement. The safety monitor requirement is highly dependent on the assumptions made regarding the aggregate non storage supply (NSS) level. In July we will be consulting on the likely non storage supplies we may see this coming winter. Once the winter consultation process is complete, we will publish the final safety monitor in September, including the monitor storage space requirement winter profile and the deliverability requirement.

## **NTS Exit Reform**

Modification Proposal 0195AV: Enduring NTS Exit Capacity Arrangements (Mod 0195) was directed for implementation on April 2009. From October 2012 this will have an impact on the 2012/13 safety monitor in that additional NTS demand will be considered as “firm”.

## **Safety Monitor Calculation Process**

The concept behind the safety monitor is to ensure that sufficient gas is held in storage to support those gas consumers whose premises cannot be physically and verifiably isolated from the gas network within a reasonable time period. To achieve this all gas consumers are categorised into one of two groups:

- Protected by Monitor - Gas is held in storage to facilitate continuity of supply to these consumers even in a 1 in 50 winter
- Protected by Isolation – Network safety would be maintained if necessary by physically isolating these customers from the network

The categorisation into these groups is summarised in the table below:

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**Table 1: End Consumer Categorisation for Safety Monitors**

| <b>Protected by Isolation</b> - Sites which can be safely isolated from the network | <b>Protected by Monitor</b> - Sites which require protection under the safety monitor |
|---|---|
| NTS Power   | Priority <sup>1</sup> DM  |
| NTS Industrial  | Exports to Ireland  |
| DM (excluding priority customers)   | NDM   |

The safety monitor storage requirements comprise two elements:

- **Supply-demand:** Storage required to support ‘protected by monitor’ loads, assessed using a severe (1 in 50) winter load duration curve and assumed supply levels;
- **Isolation:** Storage required during the process of demand reduction, effectively to support ‘protected by isolation’ loads during the period in which these loads would be isolated from the system.

Mod 0195AV has no impact on the supply-demand element as none of the additional “firm” load is classified within the ‘protected by monitor’ category. However it does have an impact on the isolation requirement as additional gas (assumed to come from storage) is required to isolate this additional “firm” load.

### **Supply**

There continues to be considerable uncertainty regarding the aggregate level of non storage supplies, and the individual supply components, most notably LNG. In winter 2010/11 the level of NSS reached record levels in excess of 400mcm/d as the headroom of import capacity was utilized to a greater extent than in previous winters. Winter 2011/12 saw much lower demands with significantly lower NSS levels. Our final view of supplies for next winter will be detailed in our Winter Outlook Report document to be published in October.

The focus of the safety monitors is public safety and hence it is prudent to ensure that the assumed level of NSS will be available throughout the winter, notably at times of high demand. Our NSS assumptions can be summarized as follows:

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<sup>1</sup> Currently, priority daily metered (DM) loads represent less than 2% of protected by monitor demands.

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- Rather than use our forecasts for NSS for winter 2012/13, our NSS assumption is based upon an NSS versus Demand relationship based upon a weighted rolling average of the last five years of historic data.
- As the NSS for winter 2011/12 was lower than in 2010/11, the basis for NSS in setting the 2012/13 safety monitors is also lower.
- Analysis of previous winters' data shows that assuming an availability of 95% captures typically 95% of all data points, with those that are still below often the result of short term supply losses.

Table 2 shows the anticipated availability of storage capacity in winter 2012/13.

**Table 2 - Storage**

|                           | <b>Space (GWh)</b>       | <b>Deliverability (GWh/d)</b> | <b>Space (mcm)</b> | <b>Deliverability (mcm/d)</b> |
|---------------------------|--------------------------|-------------------------------|--------------------|-------------------------------|
| Short (LNG)               | 677                      | 143                           | 62                 | 13                            |
| Medium (MRS) <sup>2</sup> | 10181                    | 558                           | 926                | 51                            |
| Long (Rough) <sup>3</sup> | 40000                    | 485                           | 3636               | 44                            |
| <b>Total</b>              | <b>50858<sup>4</sup></b> | <b>1186</b>                   | <b>4623</b>        | <b>108</b>                    |

### Demand

The demand background used for the analysis in this section uses our demand forecasts for 2012/13 that were produced in June 2012. Our NSS assumptions can be summarized as follows:

- Total demand for 2012/13 is slightly lower than our 2011/12 forecasts produced in May 2011, primarily due to lower gas demand for power generation.
- However, domestic demand for cold conditions (as used in the safety monitor assessment) is slightly higher. This is based on observed demand levels on cold days in the last few winters.

### Preliminary Safety Monitor Space Requirement

Table 3 shows the total safety monitor space requirement on the basis of the supply and demand assumptions outlined above. The 2012/13 space requirement of 2684 GWh compares with 731 GWh in 2011/12.

Although the safety monitor space requirement has nearly quadrupled compared to last year, it is still a very small proportion of overall storage, at roughly 5%. The combination of slightly lower NSS and higher levels of domestic demand (for cold

<sup>2</sup> Includes Hornsea, Hole House Farm, Hatfield Moor, Humbly Grove, Aldbrough and Holford but excludes Hill Top Farm: numbers may be revised as new information becomes available

<sup>3</sup> Reflects latest information from Centrica Storage Limited

<sup>4</sup> Operating Margins space bookings are included

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conditions) are the primary drivers for the increase in the safety monitor requirement for next winter.

**Table 3 – Total Preliminary Safety Monitor Space Requirement**

|              | <b>Total storage capacity (GWh)</b> | <b>Space requirement (GWh)</b> | <b>Space requirement %</b> |
|--------------|-------------------------------------|--------------------------------|----------------------------|
| <b>Total</b> | <b>50858</b>                        | <b>2684</b>                    | <b>5.3%</b>                |

### Preliminary Storage Safety Deliverability Requirement

Table 4 gives a high level indication of the potential supply demand balance on the highest demand day of a 1 in 50 severe winter.

It shows the demand supported under the safety monitor on day 1 of the 1 in 50 winter. It also shows total supplies available for the same day. It should be noted that there is additional deliverability over and above that required to meet NDM and DECC defined Priority load demand on the day.

**Table 4 – Preliminary Peak NDM & Priority Demand and Peak Day Supply**

| <b>Demand</b>                               | <b>GWh/d</b> |
|---|--------------|
| Peak <sup>5</sup> NDM & Priority Demand (A) | 4261         |
|   |              |
| <b>Peak Supplies</b>                        |              |
| NSS <sup>6</sup>                            | 3878         |
| Storage                                     | 1186         |
| Total Supplies (B)                          | 5064         |
|   |              |
| <b>Supply Surplus (B) – (A)</b>             | <b>803</b>   |

<sup>5</sup> Note that in this instance peak refers to Day 1 of the Severe (1 in 50) diversified load duration curve, as this represents the highest level of NDM and priority demand that would be supported during a severe (1 in 50) winter

<sup>6</sup> The level of NSS is derived from 95% of the weighted rolling average of the last 5 years of actual NSS

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### **Preliminary Firm Monitor Calculation Process**

As stated previously, Modification 0411S, 'Removal of the Obligation to Publish Firm Gas Monitor from the UNC' was accepted by the Modification Panel on 21 June 2012 and will be implemented on 13 July 2012. Hence the final Firm Monitor requirement, previously published in September, will not be published.

The firm monitor illustrates the indicative level of gas that would need to be held in storage to supply all "firm" demand in a 1 in 50 winter. The analysis uses the same demand and similar supply assumptions as used for the calculation of the safety monitor.

### **Preliminary Firm Monitor Space Requirement**

Table 5 shows the indicative total level of storage required for the firm monitor in a 1 in 50 winter. The total space requirement to support all firm load is 40487 GWh, i.e. approximately 80% of total storage capacity of 50878 GWh (compared to approximately 94% last winter: the reduction is due to slightly lower forecast demands for 2012/13).

**Table 5 – Preliminary Firm Monitor Storage Space Analysis**

|              | <b>Total storage capacity</b> | <b>Space requirement (GWh)</b> | <b>Space requirement %</b> |
|--------------|-------------------------------|--------------------------------|----------------------------|
| <b>Total</b> | <b>50858</b>                  | <b>40487</b>                   | <b>79.6%</b>               |

### **Preliminary Storage Firm Gas Deliverability Requirement**

Table 6 shows that there is sufficient deliverability to meet all firm demand on a 1 in 20 peak day. In addition a 1 in 20 peak day would be expected to result in higher NSS levels and some degree of demand side response.

**Table 6 – Preliminary Peak Firm Demand<sup>7</sup> and Peak Day Supply**

| <b>Firm Demand</b>                    | <b>GWh/d</b> |
|---------------------------------------|--------------|
| Diversified 1 in 20 Cold Peak Day (C) | <b>5259</b>  |
|                                       |              |
| <b>Peak Supplies</b>                  |              |
| NSS <sup>8</sup>                      | 4083         |
| Storage                               | 1186         |
| Total Supplies (D)                    | 5269         |
|                                       |              |
| <b>Supply Surplus (D) – (C)</b>       | <b>10</b>    |

<sup>7</sup> Diversified firm demand for a 1 in 20 cold peak day

<sup>8</sup> The level of NSS is derived from 100% of the weighted rolling average of the last 5 years of actual NSS