Safety Monitor and Firm Gas Monitor Requirements Update

December 2005

Introduction & Summary

This document sets out an update to the 'Safety Monitors' and the 'Firm Gas Monitors' for the 2005/06 winter, pursuant to National Grid's obligations under the Uniform Network Code (UNC), Section Q.

It is a requirement of our safety case that we operate the system of safety monitors and that we take action to ensure that storage stocks do not fall below the defined levels. When we published the initial safety monitors on 14 September 2005, we noted that we would continue to review the safety monitor levels throughout the winter and, if necessary, revise them to reflect material changes to the supply / demand balance.

On the basis of our observations of supply and demand so far this winter, we have concluded that a reallocation of the safety monitor levels between the three types of storage facility is appropriate. The amount being reallocated is that which we had included in the long duration safety monitor as a risk allowance to cater for supply-side uncertainty. This reallocation will therefore have the effect of reducing the long duration storage monitor level slightly, with a compensating increase in the medium duration storage and short duration storage monitor levels.

This note explains the basis for this conclusion and sets out the revised 2005/06 safety monitor levels. A detailed explanation of the safety monitor methodology is provided in a separate document on our website[1]. We will continue to review the safety monitor levels as the winter progresses, and make any further adjustments if it is appropriate to do so.

The firm gas monitors represent the storage levels required to support firm demand in a severe winter. They are published for information only.

Supply Update

Beach Supplies

When we set the safety monitor levels in September, we used a maximum beach gas forecast of 327 mcm/d, and an average beach availability rate of 92.5%. This resulted in an assumed average beach delivery rate in prolonged cold conditions of 303 mcm/d.

This winter, despite some production outages and delays to the commissioning of certain new developments, beach gas supplies have peaked at 309 mcm/d. The average flow for the highest 10 days of beach supply has been 301 mcm/d, and the average for the highest 20 days has been 297 mcm/d.

Given this background, we believe that an assumed beach delivery rate under prolonged cold conditions of 303 mcm/d remains robust, with the possibility of some

[1] http://www.nationalgrid.com/NR/rdonlyres/3EEBD2E6-76BE-41E1-B693-5112F044B279/4524/20056SafetyFirmGasMonitorMethodology.pdf

upside if and when production outages are resolved and the new fields commence production.

Grain LNG

Our initial assumption for imports through Grain was for an average delivery of 13 mcm/d, with access to higher delivery of up to 17 mcm/d at peak demands.

Despite a relatively low utilisation of Grain at the start of the winter, a number of factors suggest that our initial assumption remains reasonable for the remaining part of the winter. First, the UK NBP forward price is now higher than the US Henry Hub forward price for each of the next three months; second, we are now observing regular LNG shipments into Grain and BP/Sonatrach have indicated an intention to utilise their capacity throughout the winter; and, third, supplies have recently attained our forecast level of 13 mcm/d.

Interconnector

The initial safety monitor levels were based on an assumption of an average delivery of 42 mcm/d through the Interconnector (compared with an enhanced physical import capacity of 48 mcm/d). This reflected feedback provided to us in our consultation on the 2005/06 winter, which informed our Winter Outlook Report.

So far this winter, despite historically very high UK gas prices, Interconnector import flows have not reached this assumed level. The highest flow seen to date has been 34 mcm/d, whilst the average flow over the highest 10 days of Interconnector supply has been 30 mcm/d. The average flow over the highest 20 days has been 28 mcm/d.

On the basis of this experience, we believe that a revised average Interconnector flow assumption of around 30 mcm/d would be more appropriate.

Revised Supply Position

In summary, the starting point for our initial safety monitor calculation was an aggregate non-storage supply level of 358 mcm/d (303 mcm/d beach, 13 mcm/d Grain and 42 mcm/d Interconnector). We recognised, however, that there was a significant level of uncertainty associated with the supply-side position. To cater for this uncertainty, we incorporated an additional volume into the long duration storage safety monitor, equivalent to that required assuming a loss of supply of 10 mcm/d across the winter period.

Given the position across the three categories of supply outlined above, we believe that an appropriate aggregate non-storage supply level for the remainder of the winter is now 348 mcm/d – equivalent to the net position assumed when the initial monitors were set, taking account of the 10 mcm/d supply risk allowance.

Subject to any demand-side changes (see below), this implies that the aggregate level of the safety monitors remains appropriate. However, it is now necessary to re-allocate some of the long duration storage safety monitor to the other two monitors to

ensure that sufficient deliverability is available across the three types of storage under severe winter conditions.

Revised Demand Position

We have seen clear evidence of demand-side response so far this winter, principally in relation to directly-connected NTS loads. To reflect this, we have assumed an ongoing reduction in demand of 25 mcm/d for the purpose of the safety monitor requirements calculation. While this is a material reduction in demand, it has a relatively minor impact on the safety monitors since it is assumed that these loads would cease to take gas if required to preserve sufficient gas supplies for domestic, other NDM and priority loads.

Stored Safety Gas Requirement

Table 1 details the resultant safety monitor space requirement on the basis of the revised assumptions outlined above.

Table 1 – Space Analysis

Storage type	**Assumed storage space (GWh)[2]**	Sept Safety Monitor Requirement (GWh)	**Dec Safety Monitor Requirement (GWh)**	**Dec Safety Monitor Requirement**
Long duration storage (Rough)	34126	7806	6987	20.5%
Medium duration storage (MRS)	7322	933	1202	16.4%
Short duration storage (LNG)	1741	459	700	40.2%
Total	**43189**	9198	**8889**	**20.6%**

[2] Excludes Operating Margins and Scottish Independent Undertakings. Also incorporates 75% of new/enhanced storage capacity

Storage Safety Deliverability Requirement

Table 2 details the resultant safety monitor deliverability requirement.

Table 2 – Peak NDM & Priority Demand and Peak Day Supply

Demand	Sept GWh/d	**Dec GWh/d**
Peak[3] NDM & Priority Demand (A)	4481	4481
Peak Supplies		
Non Storage Supplies	3901	3799[4]
Storage	1201	1201
Supply Side Risk	-108	
Total Supplies (B)	4994	5000
Supply Surplus (B) – (A)	513	**519**

Stored Firm Gas Requirement

Table 3 details the resultant firm gas monitor space requirement on the basis of the revised assumptions outlined above.

Table 3 – Space Analysis (GWh)

Storage type	**Assumed storage space (GWh)**	Sept Firm Stored Gas Requirement (GWh	**Dec Firm Stored Gas Requirement (GWh)**	**Dec Firm Stored Gas Requirement**
Long duration storage (Rough)	34126	24623	27636	81.0%
Medium duration storage (MRS)	7322	7241	8757	119.6%
Short duration storage (LNG)	1741	7099	9463	543.6%
Total	**43189**	38963	**45856**	**106.2%**

[3] Day 1 of the Severe (1 in 50) diversified load duration curve
[4] Assumes a supply CV of 39.30 MJ/m³

Storage Firm Deliverability Requirement

Table 4 details the resultant firm gas monitor deliverability requirement.

Table 4 – Peak Firm Demand[5] and Peak Day Supply

Firm Demand	Sept GWh/d	**Dec GWh/d**
Diversified 1 in 20 Peak Day (C)	5354	5354
Peak Supplies		
Non Storage Supplies	3901	3799[4]
Storage	1201	1201
Total Supplies (D)	5102	5000
Firm Demand Response Required (C) – (D)	252	**354**

Storage Monitor Profiles

This note has explained the revisions that we have made to the initial safety monitor and firm gas monitor levels. Each of these storage monitors also has a profile across the winter; the revised profiles will be published later this week.

The objective of the safety monitor profiles is to ensure that at any point in time sufficient gas will remain in store to underpin the safe operation of the gas transportation system for what remains of the winter period. They allow for the possibility of late winter cold weather patterns, based on analysis of historical temperatures. However, in the event of cold weather earlier in the winter, the monitor levels may be reduced at that time. This methodology is explained in more detail in our Safety & Firm Gas Monitor Methodology document[1].

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[5] Diversified firm demand for a 1 in 20 peak day
[4] Assumes a supply CV of 39.3 MJ/m3
[1] http://www.nationalgrid.com/NR/rdonlyres/3EEBD2E6-76BE-41E1-B693-5112F044B279/4524/20056SafetyFirmGasMonitorMethodology.pdf