



Update on UK Natural Gas Supplies and Storage

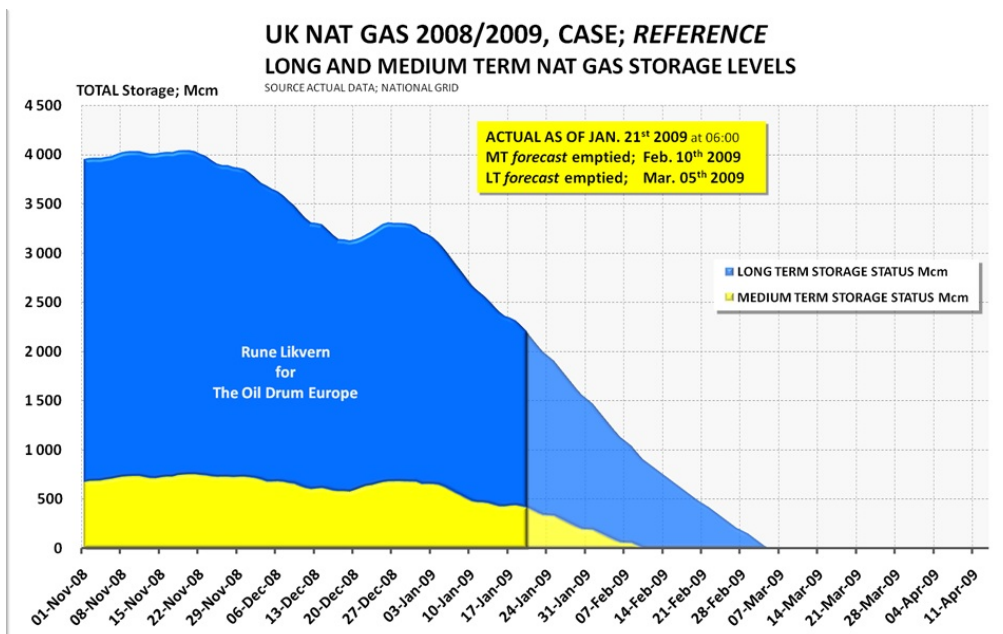
Posted by [Rune Likvern](#) on January 22, 2009 - 1:03pm in [The Oil Drum: Europe](#)

Topic: [Demand/Consumption](#)

Tags: [france](#), [germany](#), [interconnector](#), [lng](#), [national grid](#), [natural gas storage facilities](#), [original](#), [russia](#), [uk natural gas imports](#), [uk natural gas prices](#), [uk natural gas production](#) [list all tags]

This is an update on my series about U.K. natural gas. In the **second part** of this series, I presented the results from several simulations of the U.K. natural gas supplies situation for this winter which had identified the potential that U.K. might run short of natural gas in storage before the end of this winter.

In this post, I will present status as of now and an update of the simulations of the U.K. natural gas supply and demand for the remainder of this heating season. The present status and the results from the simulations are quite troubling: it appears that there is a significant chance that the U.K. will run short of natural gas in storage before the end of winter.



Unseasonal warm weather in the days leading up to Christmas reduced consumption and allowed for some refilling of the storage facilities.

Status for the storage facilities are now as follows:

- Short Range Storage (SRS) is now down to approximately 34 % of total working gas capacities. See also [Revision to GBA Trigger Level and Review of Safety Monitor Levels](#)
- Medium Range Storage (MRS) is down to approximately 53 % of total working gas capacities.
- Long Range Storage (LRS) is down to approximately 54 % of total working gas capacities.

INTRODUCTION

NOTE: All diagrams are clickable and open in a larger version.

In this post, I will briefly give an update on the status of the storage facilities and the simulations of the UK nat gas supplies system. There are several factors that may change the actual outcome from the simulations like weather (most important), changes in the supplies; domestic and imports by pipeline and LNG, remaining flexibility and duration of current natural gas contracts, economic activity, fuel switching and prices to name a few.

STORAGE STATUS AS OF WEDNESDAY 21ST JANUARY 2009

TOTAL STORAGE

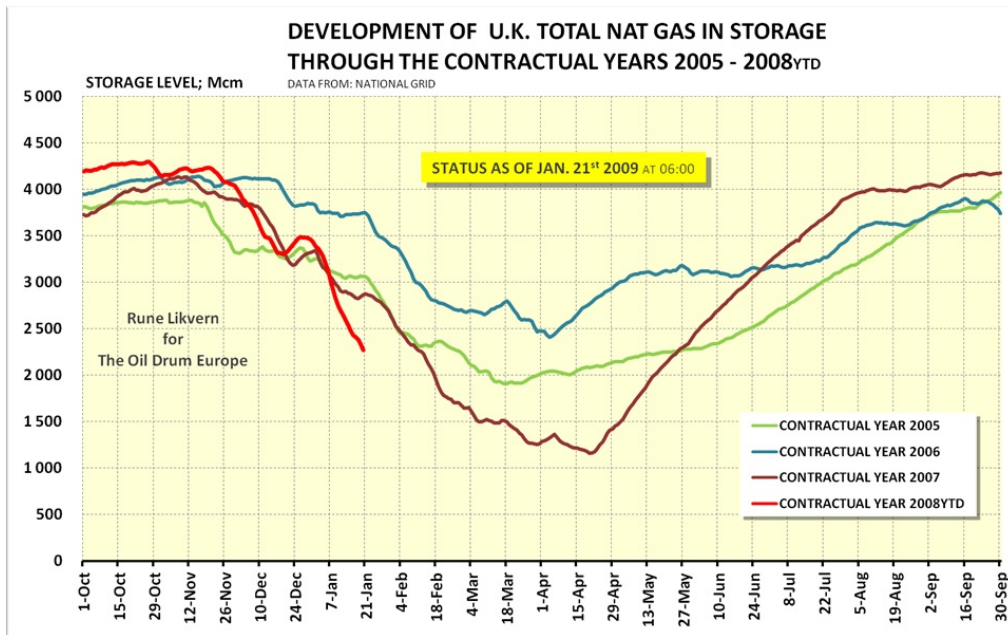


FIGURE 01 The diagram above shows the development of total natural gas in storage for the contractual years 2005 - 2008 YTD (Year To Date). A contractual year starts on October 1st one year and lasts until September 30th the following year. Presently total storage levels are close to 600 Mcm lower than at the same time of 2007.

LONG RANGE STORAGE (LRS)

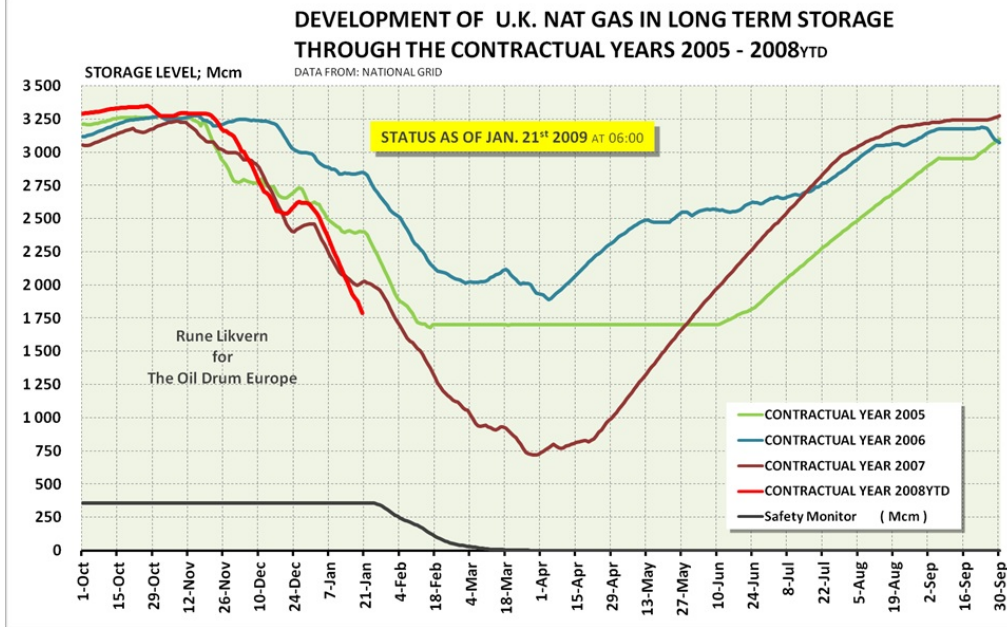


FIGURE 02 The diagram above shows the development of total natural gas in Long Range Storage (LRS) for the contractual years 2005 - 2008 YTD. Presently long range storage levels are more than 200 Mcm lower than at the same time of 2007.

MEDIUM RANGE STORAGE (MRS)

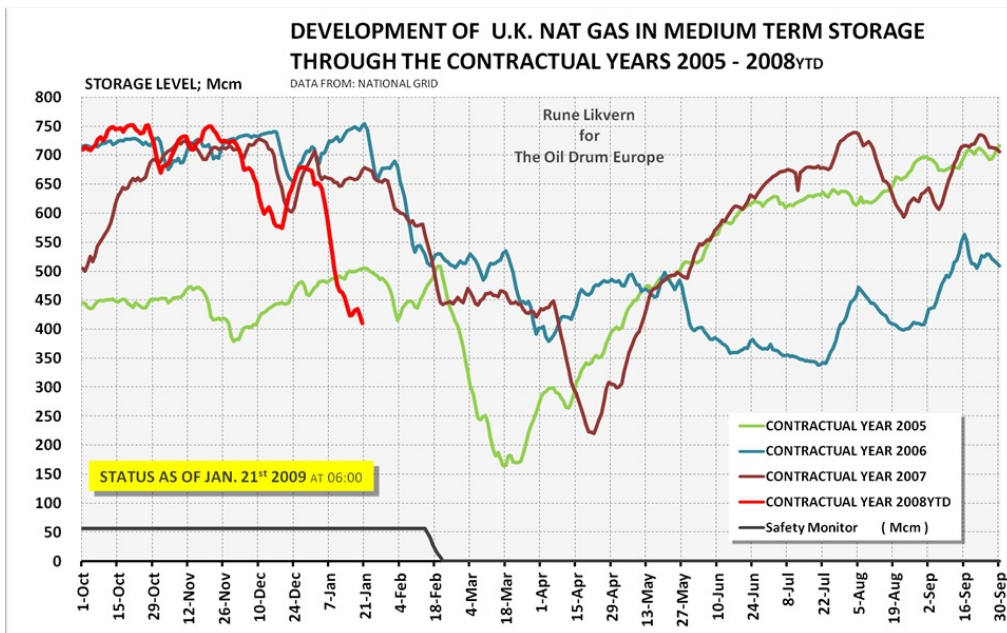


FIGURE 03 The diagram above shows the development of total natural gas in Medium Range Storage (MRS) for the contractual years 2005 - 2008 YTD. Presently medium range storage levels are close to 300 Mcm lower than at the same time of 2007.

SHORT RANGE STORAGE (SRS)

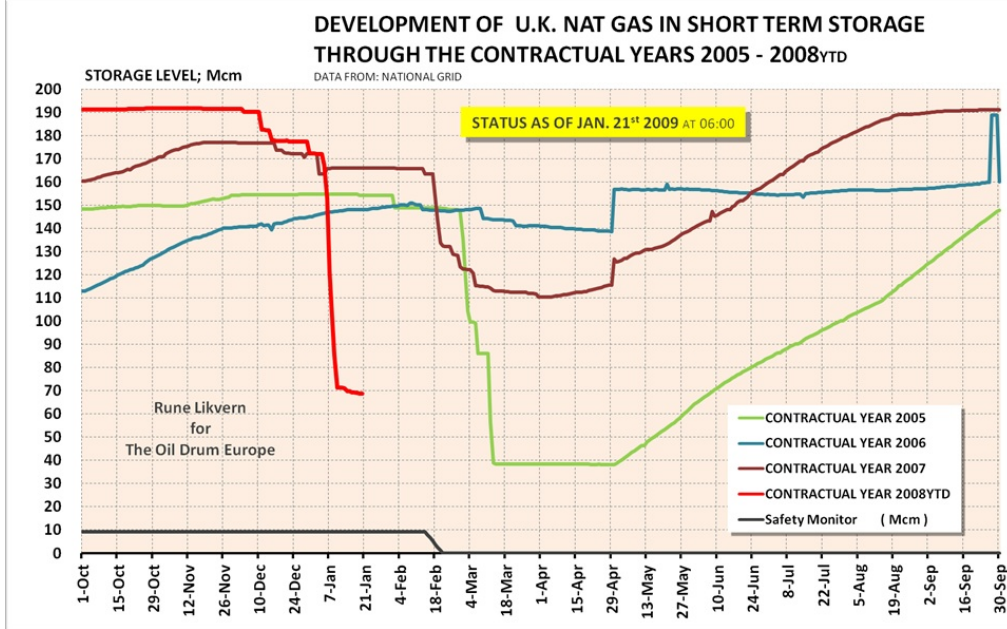


FIGURE 04 The diagram above shows the development of total natural gas in Short Range Storage (SRS) for the contractual years 2005 - 2008 YTD. Presently short range storage levels are close to 100 Mcm lower than at the same time of 2007.

VOLUMES AND DIRECTION OF FLOWS IN THE INTERCONNECTOR

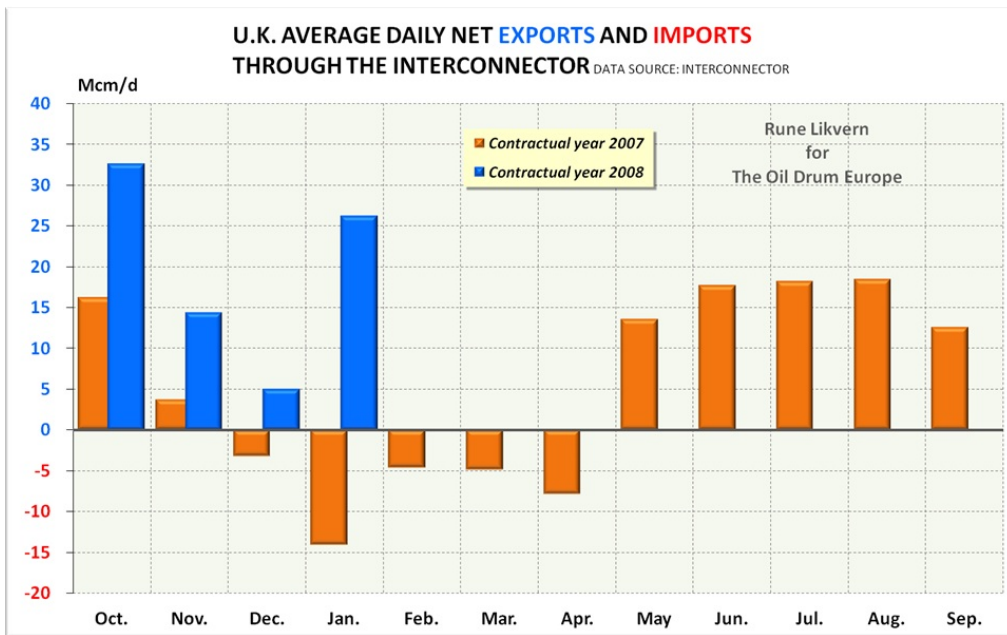


FIGURE 05 The diagram above shows the average daily flow and direction through the Interconnector between Bacton (U.K.) and Zeebrugge (Belgium) for the contractual years 2007 and 2008. January 2009 is average daily flow as of January 20th.

STATUS OF STORAGE IN FRANCE

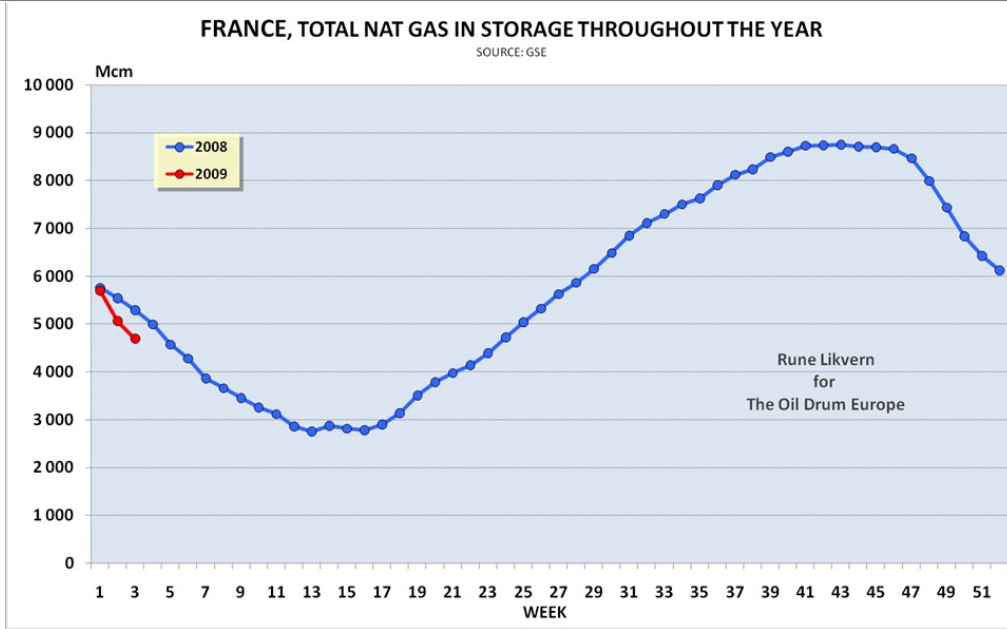


FIGURE 06 The diagram above shows the development of total natural gas in storage for France for the calendar years 2008 and 2009 YTD.

STATUS OF STORAGE IN GERMANY

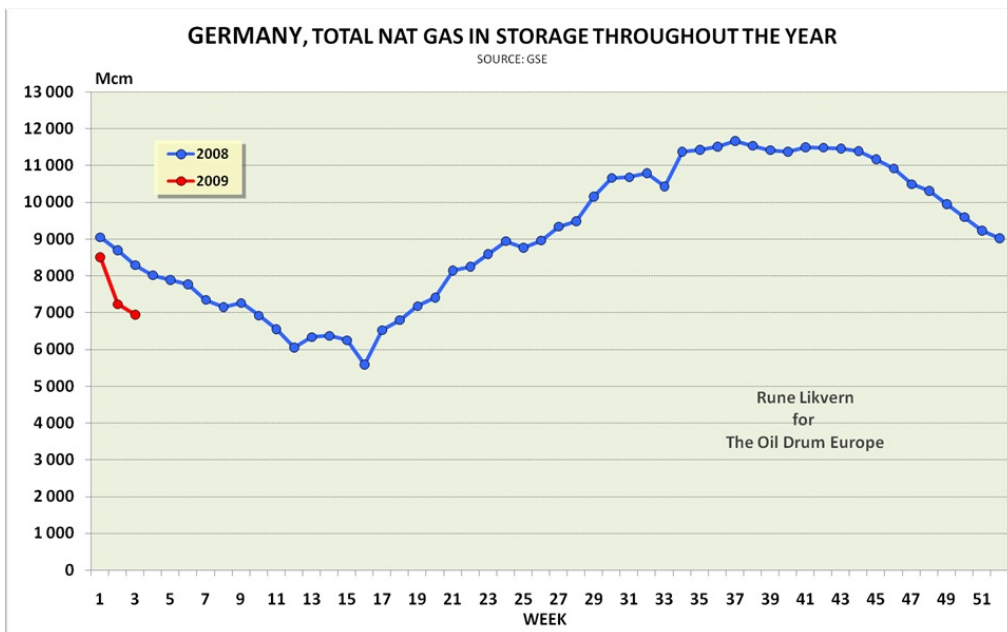


FIGURE 07 The diagram above shows the development of total natural gas in storage for Germany for the calendar years 2008 and 2009 YTD.

The diagrams for France and Germany illustrates that the storage levels for both countries presently now are lower than at the same time last year. The increased withdrawals this year is mostly believed to be due to the recent shutdown of supplies from Russia through Ukraine.

SIMULATION RESULTS

In the simplest form, the results of my simulations show how quickly the storage facilities are likely to deplete, given the estimates the National Grid has made with respect to demand and

The Oil Drum: Europe | Update on UK Natural Gas Supplies and Storage <http://europe.theoil Drum.com/node/5001> with respect to supply from U. K. production, and estimates I have made with respect to imports. These indications can be summarized in the graph I showed at the top of the post, and shows again as Figure o8.

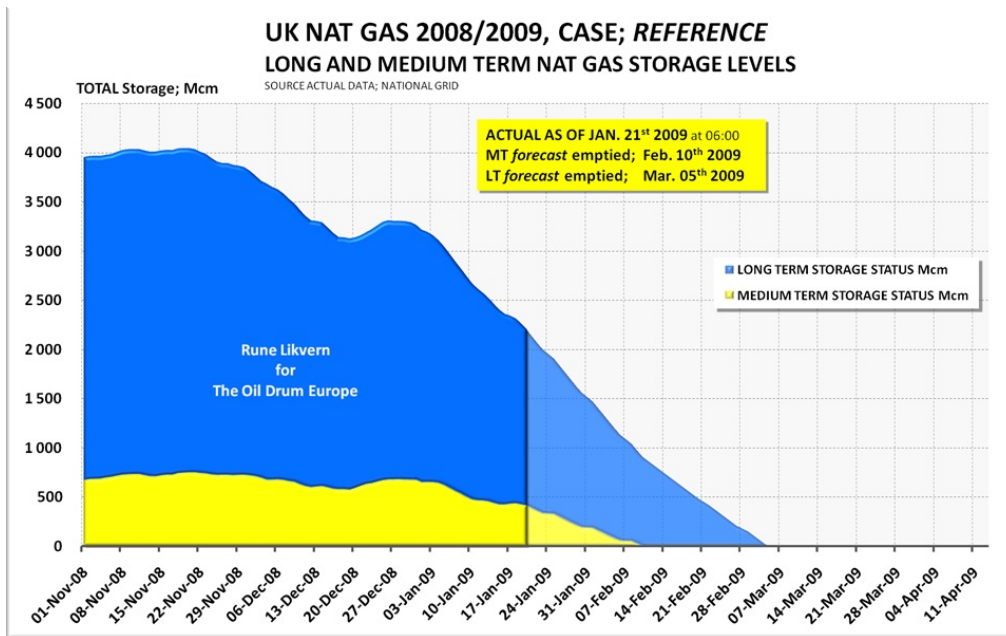


FIGURE o8 Expected depletion of U.K. long term (blue area) stacked on medium term (yellow area) nat gas storage levels based on simulation analysis.

Figure o8 indicates that based on my simulations, **medium term storage (yellow) is forecast to be emptied by mid February, and that long-term storage (blue) is forecast to be emptied by early March.** The amounts shown on Figure o8 are a combination of actual and forecast amounts. The darker shades represent development to date; the lighter shades represent the forecast period.

Figure o8 is only a summary exhibit. To understand better what is happening, it is helpful to view how the parts of the model work together, as illustrated in Figure o9. I start with the demand forecast by the National Grid, and fill in the portion underneath it with expected supply from various sources. During time-periods when the sum of production plus net imports are expected to be less than what is required to meet supply, I draw down nat gas from storage. If there are periods with excess supply, I use the excess to refill storage. In this way, I simulate how the storage facilities are expected to deplete, and can estimate the extent of the shortfall.

It should be noted that even if Figure o9 shows a gap between demand and supplies, this should not be taken to mean that homeowners or electric power plants will experience a nat gas shortfall. The operator of the grid uses models that identify potential shortfalls, and can minimise the effects by **reducing flows to or cutting off low priority customers on interruptible contracts.** If this is not enough to balance the system, additional customers can be cut off according to priority and/or criticality.

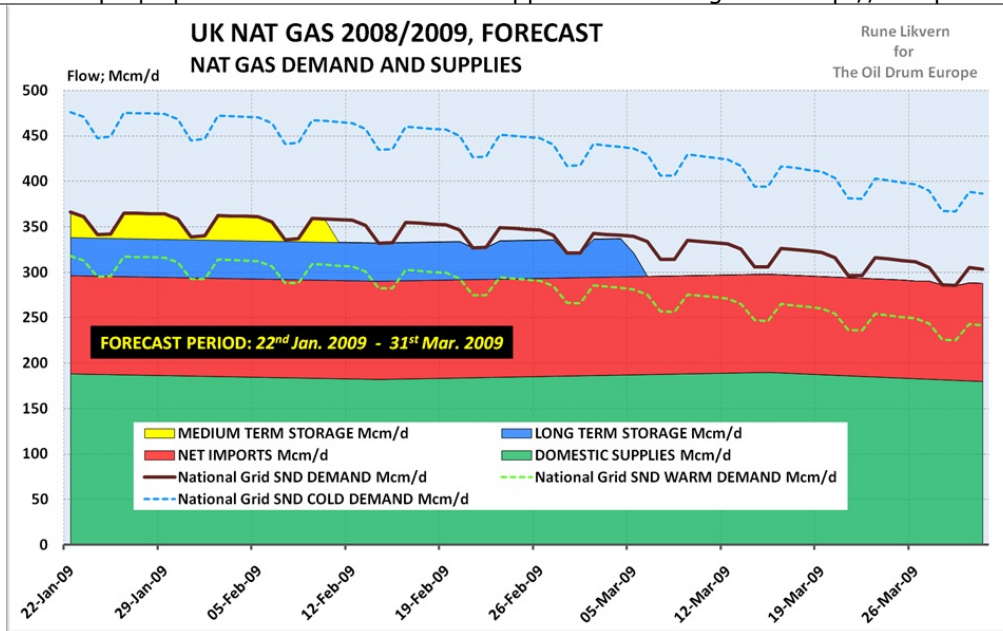


FIGURE 09 How demand can be expected to be filled, based on simulation results.

In Figure 09, the thick dark wavy line shows the forecast seasonal normal demand (SND) by National Grid, and the amount filled in under this line represents the way this demand is expected to be filled from various sources (indigenous production, imports--pipelines or LNG, or storage withdrawals). The green area represents UK's own production; the red area represents net imports (pipeline and LNG combined); the blue area represents withdrawals from long-term storage; and the yellow area withdrawals from medium term storage.

The dotted blue line (maximum demand) and the light green line (minimum demand) give an estimate of expected day to day variability in demand, reflecting changing weather conditions, based on National Grid forecasts. If total supply on any day runs higher than demand, the surplus will enter storage.

Based on storage levels in short term storage facilities and lowered expectations on imports National Grid revised down the GBA (Gas Balancing Alert) to presently 414 Mcm/d. As the storage facilities are further depleted, it could be expected that the GBA levels might be subject to further downward revisions.

In the recent years, maximum demand has reached 410 - 420 Mcm/d during February, 360 - 390 Mcm/d during March and 320 - 350 Mcm/d during April.

More posts on U.K. nat gas supplies;

[Will UK face a nat gas crisis during this winter \(Part 1 of 2\)](#)

[Will UK face a nat gas crisis during this winter \(Part 2 of 2\)](#)

[Why UK Natural Gas Prices Will Move North of 100p/Therm This Winter](#)



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