

## Consultation; UK Gas Security of Supply Arrangements

StagEnergy is a private company based in Edinburgh. We are currently in the process of developing the “Gateway” offshore salt cavern storage project in the East Irish Sea. Gateway is designed to both store gas from the NTS via an offshore pipeline, and imports directly from LNG tankers into storage. Two phases are envisaged, giving a total storage capacity of 1140 MCM.

We attach our comments on the consultation. These are in the form of responses to each of the 30 direct questions specifically set out in the consultation document. Please do hesitate to contact us if you have any questions.

### Measuring and Valuing

*1. What factors should be taken into account in assessing the level of gas security of supply?*

We agree with the factors listed on page 9 of the consultation.

*2. Which quantitative indicators or metrics should be used to measure security of supply?*

The capacity margin approach has worked well in the power sector.

We prefer the concept of a gas margin to a probabilistic analysis. This is because rare probabilities cannot be predicted accurately and history is not necessarily a guide to future events. Moreover the probabilistic approach may distract attention from the need for future planning against potentially catastrophic events. (The NASA space shuttle experience of predicting a 1 in 145 chance of failure compared with an actual 1 in 60 is often quoted in the literature.)

The gas supply points which meet peak gas demand are fewer in number than power. Therefore failure in a gas supply terminal such as Easington is likely to have a greater impact than a single power station failure. This suggests that the gas capacity margin should be greater than the power capacity margin to produce the same level of security.

We note that the analysis provided by ILEX considered a failure in the Rough storage facility for a whole winter (approx. 2700 MCM in total). However a “worst case” could be a two month outage of the Langed/Vesterled pipelines (approx. 6000 MCM in total). Both these sources of supply rely on the Easington terminal.

Estimating the gas capacity margin is also more complex than power because of the role of storage. So with gas we recommend that the supply demand balance is computed on a summer/winter rather than annual basis. In general there is a difficulty in achieving focus when multiple scenarios are applied to each variable, so we recommend scenarios should concentrate on those areas where there is significant volume uncertainty.

Regarding the supply side we agree with the points raised by the National Grid in their published response, dated April 2006 to the Energy Review. In particular we note their paragraph 10 where they raise questions over gas infrastructure utilization rates. Supply sources must be weighted by conservative “availability factors” which are transparent. (A parallel can be drawn here with NGG’s 26% wind power assumption.). In particular it is necessary to identify those supply sources that will flow at a market clearing price and those which are market insensitive because of contractual arrangements. This is a particular problem in the assessment of pipe availability. Therefore we agree with both the data transparency recommendations contained in Energywatch’s open letter to the National Grid of 9<sup>th</sup> June 2006, and the Grid’s similar comments contained in paragraph 12 of their Energy Review response.

Regarding demand estimation we think the major uncertainty lies with power sector consumption, so scenarios should focus on this element.

### ***3. How should cost-benefit analysis of security of supply policies be quantified?***

We are not convinced that a methodology that attempts to compute a “top down” value of lost load, in order to form a basis for significant market interventions, is helpful.

The current arrangement is that broadly domestic customers and special cases such as hospitals should have absolute security of supply (this should not require “gold plated” expenditure because they total somewhere between 60% and 72% of final demand). So we agree with the DTI’s comments in their Consultation dated March 2006 concerning EU Directive 2004/67/EC regarding Article 4.1 on page 7 that adequate measures to ensure security of supply to these customers are already in place in principle, and the presumption of absolute security should remain. However we do make some comments regarding interruption compensation to this type of customer in our answers to questions 6 and 7.

So the cost benefit aspect only applies to the industrial and commercial (“I&C”) sectors. We are unable to comment meaningfully on the ILEX calculations but no doubt proper representative bodies such the Energy Intensive Users Group (“EIUG”) will do so.

However, rather than attempt to quantify value of lost load we strongly prefer a market based approach where the value of lost load is reflected in the price of differential between firm and interruptible contracts.

*4. How should qualitative aspects be taken into account?*

We do not understand this question.

**Current market arrangements and performance**

*5. Do the current arrangements offer adequate and cost-effective levels of security of supply to gas customers?*

The supply problems experienced over the last winter, coupled with the concerns raised by the Grid for the future, suggest the answer is “no.” We explain why security may be a long term problem in our answers to questions 14 and 15 below.

*6. If not, for which segments of customers do you feel the arrangements should be improved and how?*

The current difficulty is that there is no mechanism for proper compensation to firm contract customers for Grid directed interruption under emergency conditions, as the EIUG has already pointed out in their Position Paper of 3<sup>rd</sup> January 2006. While the consultation states on Page 15 that large customers have the option to recoup damages from Suppliers, the EIUG statement suggests that current arrangements do not deliver this in practice.

Nor do we believe it is clear whether the responsibility for compensation rests with the supplier or the SO (System Operator).

In the case of the domestic consumer compensation levels are fixed, but very low.

We believe that rectifying this compensation situation would provide a market solution that avoids the need for cost benefit analysis, particularly when combined with changes to the balancing mechanism, as set out in our answer to questions 14 and 15 below.

In this context it should be noted that a significant proportion of UK gas is still sourced under long term contracts (more than one year) from Producers, by either Suppliers or large final customers. This proportion is diminishing, but the latest figures we have seen suggest that the volume of gas in the spot (NBP) market is approximately 50% of total supply, but that this gas “churns” (re-trades) a number of times, implying that the long term contract proportion is still as high as 70%.

We think these long term contracts typically tend to include “force majeure” clauses which release Producers (who also may be Suppliers) from compensation obligations. Traded contracts at the NBP under the industry master contract have no such force majeure clauses. It should be possible to make changes to the trading rules to remove this force majeure protection from the Producer/Supplier. This could be achieved by deeming all gas is delivered (ownership transferred) to the final customer at the NBP, where no force majeure applies. Delivery from the NBP to the final customer is then considered to be separate unbundled transportation activity.

## **Ongoing efforts to strengthen the current framework**

### ***7. In addition to the efforts outlined above, what further action should the Government take to facilitate the UK market in providing security of supply?***

Our comments on the suggested policies below are based on the strong preference, where possible, to seek solutions based on the commercial impact of appropriate market signals, as opposed to direct market intervention by a non-commercial body.

## **Suggested policies for consideration**

***Measure 1: Increase supplier obligations to cover industrial and commercial users as well as domestic users.***

### ***8. Are the current supplier obligations an effective mechanism for enhancing or ensuring security of supply?***

The consultation points out that Suppliers have an obligation to protect domestic customers against a 1 in 50 winter and the SO has an obligation to hold sufficient gas in storage for system safety purposes.

These obligations have had an impact. Contracting for Transco LNG facilities and Hornsea storage appear to have been greater in the past than purely commercial conditions would warrant. However we are not clear how such obligations are actually measured or policed.

The SO activities for “top-up” gas have been transparent, albeit the volumes are not of sufficient size to be market price significance.

So they have probably both been effective, but had a marginal impact on supply security.

### ***9. If extended, what costs, benefits, risks and consequences might materialize, additional to those identified above?***

This policy could be extended to the level where security of supply would be guaranteed. But it would be very difficult to assess the “correct level” of obligation. It is possible that considerable additional costs will be imposed on customers without delivering supply security or that security will be delivered, but at excessive cost. Too much would rest on arbitrary judgments from policy framers regarding uncertainties, such as possible weather patterns, future gas demand for CCGTs and the value of lost load.

There is also growing customer switching between Suppliers. If the obligation were extended then there would have to be extensive measuring and monitoring by the Regulator to ensure that all Suppliers were competing on a level playing field. The rules would be difficult to compile and apply in a dynamic market place. For example, one supplier may begin the year with less customers and so less storage than another. However the market price of gas may weaken in a mild winter and the smaller supplier may then gain market share from the larger supplier by buying the larger supplier’s now excess “distress” storage gas in the spot market.

***10. How could such obligations be enforced more efficiently and effectively, to ensure they deliver the desired outcome?***

See answer to question 9.

***11. How can the benefits and costs of the potential measure be quantified, and would this support considering it further?***

See answer to question 9.

***12. On balance, should the Government investigate and consider this measure further?***

No. If direct intervention is considered preferable to our proposals to strengthen market signals (see our answers to Question 6 above and Question 13 below) then we would argue for some form of strategic storage, because this is less market distortive than Measure 1. This view is shared by Professor Newberry in his “Response to the Energy Review” April 3<sup>rd</sup> 2006. He states on page 10 that “***increased mandated storage will destroy the commercial market for storage unless it is held off the market for certain well defined conditions (like the US Strategic Petroleum Reserve.)***”

***Measure 2: Sharpen incentives provided by cash-out arrangements.***

***13. Do the existing cash-out arrangements already provide sufficient incentives for the market to provide appropriate security of supply?***

We do not believe that they do. This is a generic issue which applies to both electricity and gas.

Both of these UK energy markets have market rules resulting in the spot (short term) traded price being struck in the “shallow Pool” balancing market. However this spot price then strongly influences forward traded prices.

***14. If not, in what ways do the expected cash-out prices or other commercial incentives not reflect the full value of security of supply?***

The shallow Pool structure tends to depress price when the market is “long”, which definitionally it will be most of the time. But “price spikes” should also occur when the market is balanced to short, in order to provide the correct investment signals.

However the UK regulatory authorities have in the past been understandably concerned to suppress such spikes by changes to the balancing mechanism. This is because of their primary regulatory concern to price protect customers.

In the case of gas in particular the price spike signals are also dampened by the contract structure described in our answer to Question 6.

Thus it is only when the system is under severe stress (such as last winter) that the price spikes are of sufficient size and duration to affect the shape of the forward price curve and so begin to send re-investment signals.

The recent increase in the number of new UK gas storage projects are a direct response to the forward gas price differential between summer and winter sent out last winter. However, should the forward gas price differential narrow because of the absence of further spikes, then it is probable that these projects will be postponed/cancelled

This sustainability of signals problem is discussed in a 2006 paper by Codognet and Glachant (Universite Paris Sud), “Weak investment signals in new gas storage in the UK?”

***15. How can the benefits and costs of the potential policy be quantified, and would this support considering it further?***

The consultation raises concern on the impact on small Suppliers if the balancing mechanism rules are tightened. Again this is a generic problem for both gas and electricity. For example the former electricity “deep pool” concept with effectively free credit favoured small suppliers and indeed made a major contribution to competition through new entrants. However truly independent small Suppliers are no longer a major factor in either market because of;

1. The costs of complexity arising from operations in the balancing markets
2. The costs of credit cover and transportation deposits imposed by the system operators

3. The cost of credit cover required to transact with the Vertically Integrated companies and Financial Institutions/Exchanges who dominate the traded markets

We would therefore recommend a progressive tightening of balancing rules while monitoring the market response. Codognet and Glanchart have considered different levels of storage which may be appropriate in the UK as gas imports rise. However we would not advocate setting an initial prescriptive target set of say 8% or 15% of total UK demand.

It could be argued that the gas price spikes in Winter 05 have initiated a process of storage investment that will provide security, but we have questioned the sustainability of this effect in our answer to Question 14. This is because we believe current market structures could now produce a period of low price volatility in an environment of increased Norwegian imports and mild winters, in which case many of these projects may not actually proceed. So progressive tightening of the balancing mechanism and continuous monitoring will provide the most cost-effective and least risk response.

***16. On balance, should the Government investigate and consider this measure further?***

Yes, for the reasons set out in our answer to Question 15.

***Measure 3: Regulate the use of gas storage for security of supply***

***17. Are existing market mechanisms (e.g. price signals) effective in ensuring optimal use of existing gas storage capacity?***

Yes, for the reasons set out in the consultation paragraphs 5.19 to 5.21

***18. Are there regulatory barriers that prevent or hinder the “optimal” use of storage capacity in the UK market?***

We do not believe there any at present. However the need for TPA needs to be balanced with the incentives for new investment. The current diversity in the ownership of new storage projects allows further TPA exemptions to be granted, but this situation needs to be kept under regulatory review.

***19. How can the benefits and costs of the potential policy be quantified, and would this support considering it further?***

We do not support this proposal. It is significantly market distortive and likely to detract from the use of storage because it will reduce the possibility of extrinsic returns. We also question its practicality because it would require extensive policing.

***20. On balance, should the Government investigate and consider this measure further?***

No, for the reasons set out in our answer to question 19.

***Measure 4: Capacity mechanisms in the gas market***

***21. In the absence of such a policy, why would the market not deliver an appropriate level of security of supply?***

There are four variants set out in the Consultation;

- A. Capacity Tenders
- B. Capacity Payments
- C. Reliability Option
- D. Capacity Obligation

We interpret them as follows:

All four options require a market interventionist body which will act ***across the various possible sources of security of supply*** (i.e. the demand side and imports, as well as storage).

- Capacity Tenders or Capacity Payments, when applied to storage, are the equivalent of strategic storage, but without restrictive or transparent conditions regarding release.
- The Reliability Option is purely financial unless exercised i.e. it is not tied to a particular facility or indeed source of physical supply security, but, if exercised, is also without restrictive or transparent conditions regarding release.
- The Capacity Obligation, when applied to storage, is the same as Measure 1.

We have already argued in our answers to question 6, 14 and 15 that the market should provide security if price signals (including obligations on Suppliers to commercial compensate) are right and so conclude that all the four variants require a high level of market distortive intervention.

***22. If the policy was implemented, what costs, benefits, risks or consequences might materialize, additional to those identified above?***

Regarding storage only:

- Strategic storage is likely to severely undermine the market for commercial storage *unless the rules for release are transparent and highly restrictive*. These controlling conditions are not present under Variants A and B.
- The DTI rejected strategic storage in principle in March 2006 in their response to an EU Directive “*The Implementation in Great Britain of Directive 2004/67/EC Concerning Measures to Safeguard Security of National Gas Supply.*” This rejection was re-iterated in the main *2006 Energy Review* document, paragraph 4.41, page 89. We agree with the reasons set out by the DTI which led them to reach this conclusion.
- We have already commented critically on Variant D in our answer to question 9.
- We think Variant C is the least market distortive of the measures. This is because the onus is transferred from the interventionist body to the option provider as to how security is actually sourced.

However two problems remain with Variant C;

- The interventionist body does not have a profit driver, so would inevitably deliver security at excessive cost compared with market solutions.
- The current options market is very illiquid. This reflects both the difficulty in pricing such options and the small number of companies in a position to provide such options. The interventionist body runs the risk of being “picked off” in such an environment because its activities would be both infrequent and transparent.

***23. How can the benefits and costs of the potential policy be quantified, and would this support considering it further?***

The methodology suggested by ILEX would need to be used to determine the appropriate size of strategic storage. We have raised concerns over this approach in our answer to Question 2.

***24. On balance, should the Government investigate and consider this measure further?***

We think Variant C should be assessed further regarding practicality and cost, but that the other variants should not be proceeded with further.

***Measure 5: Measures to encourage demand-side response from I&C customers***

***25. In addition to actions already in place, what additional measures should the Government consider to enhance demand-side response?***

We do not have an opinion in this area and would defer to I&C customer representatives advice.

***Measure 6: Encouraging the installation of fuel back-up capability at new CCGT power stations and industrial facilities.***

***26. Are there reasons why investors might not install distillate back-up in CCGTs anyway, given the risks identified for gas supplies?***

Investors should wish to install distillate back-up if they believe there is a risk of supply failure. However we think CCGT operators are a priority gas user if contracted for firm gas, so they do consider supply failure as a reason to install distillate back-up which would have the effect of removing this protection.

They might not wish to install distillate back-up to take advantage of potential electricity/gas arbitrage in times of system stress for two reasons:

- Distillate firing is unreliable with certain burner designs and may be limited under warranties or cause damage.
- The costs of EUTS credits are unpredictable.

***27. If the policy was implemented, what costs, benefits, risks or consequences might materialize, additional to those identified above?***

The consultation is correct in stating that this policy would raise the cost of new CCGT plant at the expense of the consumer and so possibly impact on the generating plant margin. It also requires a pipe connection because the distillate lorry fleet is not sufficient to keep the tanks recycled with distillate on a regular basis. Moreover the consultation assumes that the facilities, having been built, will actually be used.

However, if this requirement is applied to all new build, then it is equivalent to a non-discriminatory development fee. The cost of keeping the tanks full even when not used (distillate degrades), the higher price of equipment warranties and reduced life associated with distillate and EUTS price uncertainty, may lead CCGT operators to simply install facilities that they have no intention of actually using.

So the policy may only make sense if powers are taken to compel CCGT operators to switch to distillate for prolonged periods. This may lead to legitimate claims for compensation against unforeseen costs and damages.

***28. How can the benefits and costs of the potential policy be quantified, and would this support considering it further?***

There needs to be a high level calculation done of the trade-off in costs between distillate and gas storage. We suspect that if such a calculation were made than the costs of intervention in gas storage would be lower than intervention in distillate.

***29. On balance, should the Government investigate and consider this measure further?***

We think not, unless the high level calculation shows there are significant cost advantages for distillate over storage.

***Measure7: Smart gas metering and increased efforts on fuel efficiency.***

***30. In addition to actions already in place, are there areas in smart gas metering, that require further Government attention and are not currently being taken forward?***

We do have any expertise in this area to enable comment.