

<b>Title:</b> <b>Gas Supply Emergency Arrangements</b> <b>Lead department or agency:</b> DECC <b>Other departments or agencies:</b>	<b>Impact Assessment (IA)</b>
	<b>IA No:</b> DECC0018
	<b>Date:</b> 09/12/2010
	<b>Stage:</b> Final
	<b>Source of intervention:</b> Domestic
	<b>Type of measure:</b> Primary legislation
<b>Contact for enquiries:</b> alexander.whitmarsh@decc.gsi.gov.uk	

## Summary: Intervention and Options

### What is the problem under consideration? Why is government intervention necessary?

Ensuring the security of Great Britain's gas supplies are maintained in an efficient and fair way depends on, amongst other things, a well functioning gas market and a set of emergency arrangements that i) provide sufficient incentives on market participants to acquire sufficient volumes of gas in an emergency and the market to put in place appropriate infrastructure, contracting arrangements or other means of preventing an emergency arising, and ii) to allow for appropriate compensation for any interrupted customers.

At present, both Ofgem and DECC have concerns that the present set of emergency arrangements do not meet these goals. DECC is legislating to ensure that Ofgem can implement any necessary changes rapidly and in time for the winter of 2011/12.

### What are the policy objectives and the intended effects?

The policy objectives are, firstly, to increase the security of gas supply and, secondly, to ensure there are appropriate customer compensation arrangements in the case of any involuntary interruption. The intended effects are to ensure i) that gas supplies are not unnecessarily constrained by the emergency arrangements ii) to improve the responsiveness of demand in the face of an emergency iii) to provide sufficient incentives for market participants to undertake appropriate investments or contracting arrangements to prevent an emergency occurring iv) to ensure that those that bear the risks and costs of an emergency are those that can most influence it.

### What policy options have been considered? Please justify preferred option (further details in Evidence Base)

Two options have been considered:

- i) Do Nothing
- ii) Legislate to grant Ofgem enabling powers to review the current emergency arrangements.

DECC judges that the second option could help to ensure that emergency arrangements are implemented in an efficient and timely manner. It should be noted that Ofgem will be the body that will be responsible for designing and implementing any changes, including undertaking any requisite impact assessment. Therefore, DECC has not attempted to define itself a set a range of implementation options. The costs and benefits of changes given in this document are only illustrative and any alterations to the emergency arrangements could differ from those assumed here.

<b>When will the policy be reviewed to establish its impact and the extent to which the policy objectives have been achieved?</b>	It will not be reviewed
<b>Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?</b>	No

**Ministerial Sign-off** For final proposal stage Impact Assessments:

*I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) the benefits justify the costs.*



**Signed by the responsible Minister:**

**Date:** 09/12/2010

# Summary: Analysis and Evidence

# Policy Option 1

## Description:

Enabling Legislation in order to review and implement any necessary changes to the Gas Emergency Arrangements.

Price Base Year 2007	PV Base Year 2011	Time Period Years 1	Net Benefit (Present Value (PV)) (£m)		
			Low: 37	High: 66	Best Estimate: 46

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low			
High			
Best Estimate			

### Description and scale of key monetised costs by 'main affected groups'

### Other key non-monetised costs by 'main affected groups'

Changes could lead to: i) a transferring of risk from (mainly business) customers to shippers. It may be that this is reflected in a higher costs of capital or other costs for shippers. Some or all of this may get passed back to consumers in the form of higher prices, and ii) potentially higher costs to some groups of customers or industry participants in the event of a Gas Deficit Emergency that would have benefited from a lower frozen cash-out price.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	37		37
High	66		66
Best Estimate	46		46

### Description and scale of key monetised benefits by 'main affected groups'

In the event of a Gas Deficit Emergency, there could be savings perhaps in the order of £250m - £300m per day if the market reduces demand in a more efficient way than a command-and-control approach to demand reduction (although the exact savings would depend on the nature of the emergency). Weighting this by the low probability of an emergency gives an illustrative expected saving that could be in the range of £37m and £66m for the winter of 2011/12.

### Other key non-monetised benefits by 'main affected groups'

Greater security of supply and fairer compensation arrangements for (mainly business) consumers. Higher revenues for some producers or other market participants.

It is expected that the arrangements would lead to a net reduction in the costs to businesses.

### Key assumptions/sensitivities/risks

Discount rate (%)

3.5

There is a risk that the market might be more easily manipulated or that large transfers from consumers / shippers to other market participants in the event of price rises could harm consumers' interests. These risks may be considered by Ofgem when designing the changes and measures to mitigate these risks implemented where appropriate.

The monetised benefits are sensitive to the assumed ability of the market (compared to the command-and-control measures) to reduce demand in an emergency in a more efficient way and to assumptions about the the probability and nature of any future emergency. Given there has never been a Gas Deficit Emergency there is a large degree of uncertainty as to the true magnitude of these benefits.

Impact on admin burden (AB) (£m): New AB: 0	AB savings: 0	Net: 0	Impact on policy cost savings (£m): Policy cost savings:	In scope No
--	---------------	--------	---	----------------

## Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?	Great Britain				
From what date will the policy be implemented?	Royal Assent				
Which organisation(s) will enforce the policy?	Ofgem				
What is the annual change in enforcement cost (£m)?	0				
Does enforcement comply with Hampton principles?	Yes				
Does implementation go beyond minimum EU requirements?	N/A				
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)	<b>Traded:</b>		<b>Non-traded:</b>		
Does the proposal have an impact on competition?	Yes				
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?	<b>Costs:</b>		<b>Benefits:</b>		
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	<b>Micro</b>	<b>&lt; 20</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
Are any of these organisations exempt?	No	No	No	No	No

## Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on...?	Impact	Page ref within IA
<b>Statutory equality duties</b> <sup>1</sup> <a href="#">Statutory Equality Duties Impact Test guidance</a>	No	
<b>Economic impacts</b>		
Competition <a href="#">Competition Assessment Impact Test guidance</a>	Yes	12
Small firms <a href="#">Small Firms Impact Test guidance</a>	No	
<b>Environmental impacts</b>		
Greenhouse gas assessment <a href="#">Greenhouse Gas Assessment Impact Test guidance</a>	No	
Wider environmental issues <a href="#">Wider Environmental Issues Impact Test guidance</a>	No	
<b>Social impacts</b>		
Health and well-being <a href="#">Health and Well-being Impact Test guidance</a>	No	
Human rights <a href="#">Human Rights Impact Test guidance</a>	No	
Justice system <a href="#">Justice Impact Test guidance</a>	No	
Rural proofing <a href="#">Rural Proofing Impact Test guidance</a>	No	
<b>Sustainable development</b> <a href="#">Sustainable Development Impact Test guidance</a>	No	

<sup>1</sup> Race, disability and gender Impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded 2011, once the Equality Bill comes into force. Statutory equality duties part of the Equality Bill apply to GB only. The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

## Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

### References

Include the links to relevant legislation and publications, such as public impact assessment of earlier stages (e.g. Consultation, Final, Enactment).

No.	Legislation or publication
1	<a href="http://www.gasgovernance.co.uk">www.gasgovernance.co.uk</a>
2	<a href="http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/markets/gas_markets/gas_markets.aspx">http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/markets/gas_markets/gas_markets.aspx</a>
3	<a href="http://www.ofgem.gov.uk/MARKETS/WHLMKTS/DISCOVERY/Documents1/Discovery_Scenarios_Con Doc_FINAL.pdf">http://www.ofgem.gov.uk/MARKETS/WHLMKTS/DISCOVERY/Documents1/Discovery_Scenarios_Con Doc_FINAL.pdf</a>

### Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

#### Annual profile of monetised costs and benefits\* - (£m) constant prices

	Y <sub>0</sub>	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	Y <sub>4</sub>	Y <sub>5</sub>	Y <sub>6</sub>	Y <sub>7</sub>	Y <sub>8</sub>	Y <sub>9</sub>
<b>Transition costs</b>										
<b>Annual recurring cost</b>										
<b>Total annual costs</b>										
<b>Transition benefits</b>		46								
<b>Annual recurring benefits</b>		+	+	+	+	+	+	+	+	+
<b>Total annual benefits</b>		46								

\* For non-monetised benefits please see summary pages and main evidence base section

# Evidence Base (for summary sheets)

## Background and Policy Objective

1. Gas is an essential part of the UK's energy mix and provides 50% of our primary energy (excluding transport). It is used to heat our homes and businesses; to cook our food; to generate electricity; and it is utilised as both an energy source and raw material within industry. In 2004 the UK returned to being a net importer of natural gas. Over the coming years it is likely that the UK's import dependency will increase further as production from the UK continental shelf declines. The change to becoming a net importer of gas has raised issues around the UK's security of gas supplies.

## Cash-out Prices

2. One area of the market rules which needs urgent review regards the emergency arrangements. A key aspect of the current the emergency arrangements is that the cash-out prices (explained in more detail in Annex A) effectively become frozen at pre-emergency levels and therefore sets a cap on wholesale gas prices. On the face of it, these arrangements were more suitable when GB's gas market was overwhelmingly supplied from indigenous sources. Then it was possible to argue that the cash-out price should be frozen in an overall gas supply shortage, so that GB gas producers (who had nowhere else to sell their gas and could be ordered by Ministers under emergency powers) could not exploit a shortage by raising wholesale prices to make "excessive" profits.
3. However, such a price-cap prevents free price formation, preventing prices from reflecting market fundamentals, disincentives the market from introducing measures to prevent an emergency and, because supply is likely to be tighter during an emergency than preceding it, risks creating a break between the amount of supply being provided by the market and that demanded by the market. Such an imbalance would require 'involuntary interruptions' to be made by the Network Emergency Coordinator (the body that would have command-and-control powers in an emergency) to ensure that actual supply and demand balances. *Ex ante* one would expect that allowing the market to continue, even in an emergency, to balance supply and demand balancing would lead to a more economically efficient allocation of gas than the NEC alone.
4. Moreover, allowing wholesale prices to continue to operate in an emergency could also mean that:
  - i) gas supplies are not unnecessarily constrained by the emergency arrangements (unless the NEC decides that some other customers need to be cut off from the system for safety reasons);
  - ii) the responsiveness of demand is improved in the face of an emergency ;
  - iii) there are sufficient incentives for market participants to undertake appropriate investments or contracting arrangements to prevent an emergency occurring; and
  - iv) those that bear the risks and costs of an emergency are those that can most influence it.
5. As the UK's import requirements have increased the dangers of a price-cap mechanism have likewise increased since it risks the capped price being below an import price, meaning GB could fail to attract the amounts of imports it would need. There is also a danger that the market is not structured optimally to mitigate the risks of an emergency - for example by having enough long-term contracts or building sufficient storage capacity. At the same time, the risks of gaming and price manipulation may have fallen as GB has access to an increasingly liquid European and international gas market.
6. Legislation is therefore required in order for Ofgem to have the power to rapidly review and implement any necessary changes to the UK's gas market arrangements as soon as possible. These are expected to enter into force ahead of the winter of 2011/12.

## Customer Compensation Arrangements

7. Another area which needs urgent review is the customer compensation arrangements. Under the current rules, if National Grid are required to interrupt some customers in an emergency then National Grid needs to compensate the appropriate shipper. Market participants 'should' have put in place arrangements such that the shipper, in turn, pays any customer to compensate them for the interruption to their gas supplies. However, the emergency arrangements are highly complex and both Ofgem and DECC are concerned that customers may not have negotiated for appropriate compensation in the event of interruption by the transporter. If indeed such customer compensation arrangements were not in place then not only could this be harmful to these customers, but it would also significantly and inefficiently reduce the incentives on shippers to balance their portfolio. The end result would be that the security of gas supply is inefficiently reduced.

## Rationale for intervention

8. Analysis undertaken for DECC by Pöyry Energy Consulting (reference 2 above) showed that whilst GB's gas market is robust to a range of shocks and the risk of involuntary interruptions is low, the risks to our security of supply are not negligible. For example, the analysis shows that:
  - i) Involuntary interruptions can be expected, on average, once in every 19 years (albeit the magnitude of interruptions would be very small);
  - ii) The most extreme interruptions (once every 5000 years on average) could be as much as 0.47 bcm of gas (equivalent to around 1/2% of UK gas demand) and come at a total economic cost of over £3.5bn; and
  - iii) The current expected value (i.e. accounting for the low probabilities of interruption) of unserved energy is estimated to be around £7.8m p.a.
9. However, this analysis did not factor in the fact that emergency arrangements could limit the ability to import gas or that market compensation arrangements might weaken the incentive on shippers to balance their portfolios. Therefore, the risks and impact of an emergency could be significantly higher than the estimates above.
10. The emergency arrangements are set out as part of the industry's network code (see reference 1 for more information) and are subject to the code review modification process. The review process is industry led and requires a modification proposal to be raised by the industry and also agreed by the majority of the industry. The emergency arrangements have been successfully improved over recent years - for example, by allowing the Over-the-Counter Market (OCM) to stay open in an emergency, and improving post-emergency compensation arrangements. However, to date, the unfreezing of cash-out prices and changes to compensation arrangements has not been agreed with industry.
11. Ofgem will soon be able to undertake Significant Code Reviews, which will allow Ofgem greater powers to review certain areas (such as gas emergency arrangements). However, even with these new powers it isn't certain that Ofgem will be able to make the necessary changes in time for the winter of 2011/12.
12. The government believes that legislation is required in to enable Ofgem to urgently review the emergency arrangements.

## Options considered

13. Two options have been considered:

**i) Option 1: Do nothing**

**ii) Option 2: Introduce enabling legislation**

This option would enable Ofgem to make urgent code amendments.

[Option 1: Do Nothing](#)

14. In this scenario the government would not legislate. It is assumed that Ofgem would consider the gas emergency arrangements in a Strategic Code Review which is assumed to be able to deliver any necessary changes in time for the winter of 2012/13. This scenario is the baseline scenario and therefore all impacts in option 2 are considered relative to this scenario.

[Option 2: Introduce Enabling Legislation](#)

**OVERVIEW OF IMPACTS**

15. The measures considered here are intended to allow Ofgem to review and introduce any necessary changes several months earlier and in time for winter 2011/12. It should be stressed that the review, design and implementation of any changes to the emergency arrangements would be a matter for Ofgem. However, for the purposes of illustrating the urgent need for such a review the scenario in this section assumes a certain set of changes that would be introduced by Ofgem.
16. Whilst key benefits in this scenario would arise in the winter of 2011/12, benefits might also be felt in following years if market participants initiate changes that will take time to implement (such as additional infrastructure development or changes in contractual arrangements) earlier than they would have done in the 'Do Nothing' scenario.

**UNFREEZING OF CASH-OUT PRICES: SECURITY OF SUPPLY, PRICE AND RELATED IMPACTS**

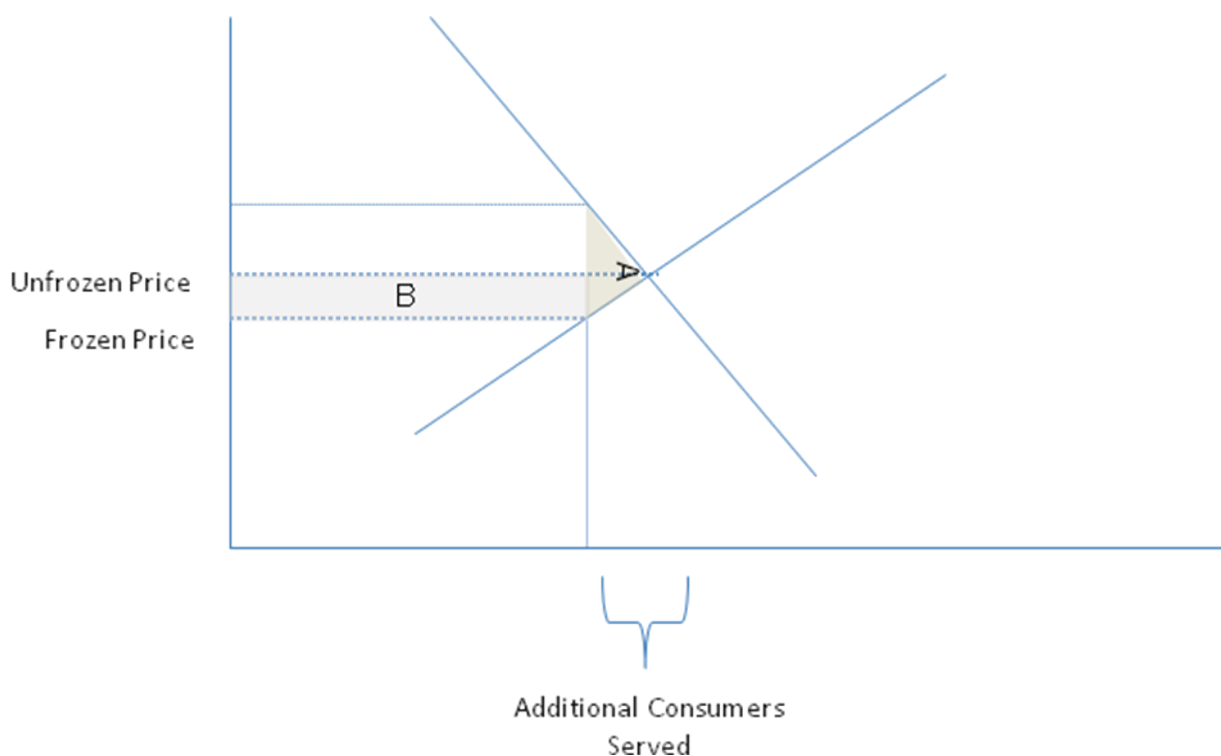
17. GB has never had a gas emergency and therefore it is impossible to look at historical precedent. The highest the system average prices (SAP) has been was 180p/therm on the 14<sup>th</sup> March 2006. This compares with 'typical' wholesale gas prices which have tended to be in the range of 30p/therm to 50p/therm.
18. **Price Impacts:** If cash-out prices were unfrozen such that they could better reflect the value of customers' lost load (VOLL), then prices in an emergency could, theoretically, rise to much higher levels. Table 1 shows an example of the potential value of lost load categories used recently in Ofgem's Project Discovery (which themselves were informed by DTI numbers produced in 2006). Ofgem will be undertaking work to more closely estimate the VOLL.

**Figure 1: Value of Lost Load Assumptions; Ofgem, Project Discovery p. 98.**

TYPE OF CUSTOMER	% OF PEAK DEMAND	PRICE (P/THERM)
Large Interruptible I&C	0.74	125
Other Interruptible I&C 1	2.45	150
Other Interruptible I&C 2	3.68	300
Large firm I&C	2.4	750
Irish Exports - non-firm	-	500
Irish Exports - firm	-	2500
Other firm I&C	2.45	2000
Priority Customers	0.02	2800
Non-Daily Metered	88.21	6000

19. **Demand-side response:** The increase in the incentive for shippers to balance their portfolios could therefore be very great. On a 'typical' winter day, gas demand is around 330-350 mcm, and the highest ever recorded demand on a winter day was 465 mcm. If in the unlikely event of cash-out prices reaching 6,000 p/therm then shippers should be willing to pay up to around £22m per mcm of gas to balance their position. Figure 1 also shows the level of demand-side response that could be expected at different price levels if all customers were exposed to spot prices.
20. **Supply response:** Allowing free price formation will also allow additional gas to be attracted to the GB gas market; figure 2 illustrates this outcome. There is also a transfer payment as some customers, suppliers or shippers that would have received gas anyway and benefited from the lower, frozen price, would now have to pay a higher price. This transfer payment would be in favour of producers.
21. **Allocative Efficiency Impact 1:** Higher prices allow additional customers to be supplied and gas demand to fall, increasing security of supply. The figure also shows an increase in net welfare (area A), by reducing dead-weight loss, which will be shared between purchasers and producers.

**Figure 2: Illustration of Impact Unfreezing of Cash-out prices in an Emergency**



22. *Ex ante*, attempting to quantify the full impacts of unfreezing cash-out prices is highly problematic, since it will depend on the following factors:

[i\) The Scenario](#)

23. More than half of peak winter demand is now met by imports. If an emergency arose partly or wholly due to supply problems in the international gas market such that, say, LNG prices and European gas prices rose above the frozen GB NBP price, then the impact on supply would be very great. Depending on the import price, small increases in GB gas prices might be sufficient to attract large additional volumes of imported gas. Given such an elastic supply curve, the transfer payments could be small, and the benefits to consumers (and producers) in terms of security of supply very great.
24. If an emergency arose due to a loss of import infrastructure and frozen prices would be enough to attract large volumes of imported and indigenous gas, then unfreezing prices might lead to relatively small changes in supply or demand. Given such an inelastic supply (and demand) curve, the



transfer payments impacts (area B) could be great and the benefits to consumers in terms of security of supply would be small.

#### ii) The Contractual Arrangements in the Market

25. Calculating transfer payments is further complicated by the, unknown, contractual arrangements in the market. For example, until Smart Meters are introduced, household consumes effectively face a fixed retail price of gas in the very short term, and therefore the impact of wholesale price rises would fall on the supplier, shipper or some other party. The impact on industrial customers is unclear, but some industrial customers would be affected by higher wholesale spot prices, depending on their hedging strategy.
26. The same factors also affect the responsiveness of demand, since customers who have fixed price gas contracts will be unresponsive to changes in wholesale prices.

#### iii) The Scope for Gaming

27. The impact will also depend on whether market players can profitably restrict their supply in order to push prices higher. The likelihood of this be determined by the degree of competition at the time to supply the marginal unit of gas, and how any new arrangements compare to existing ones. Competition Law should help mitigate these risks.

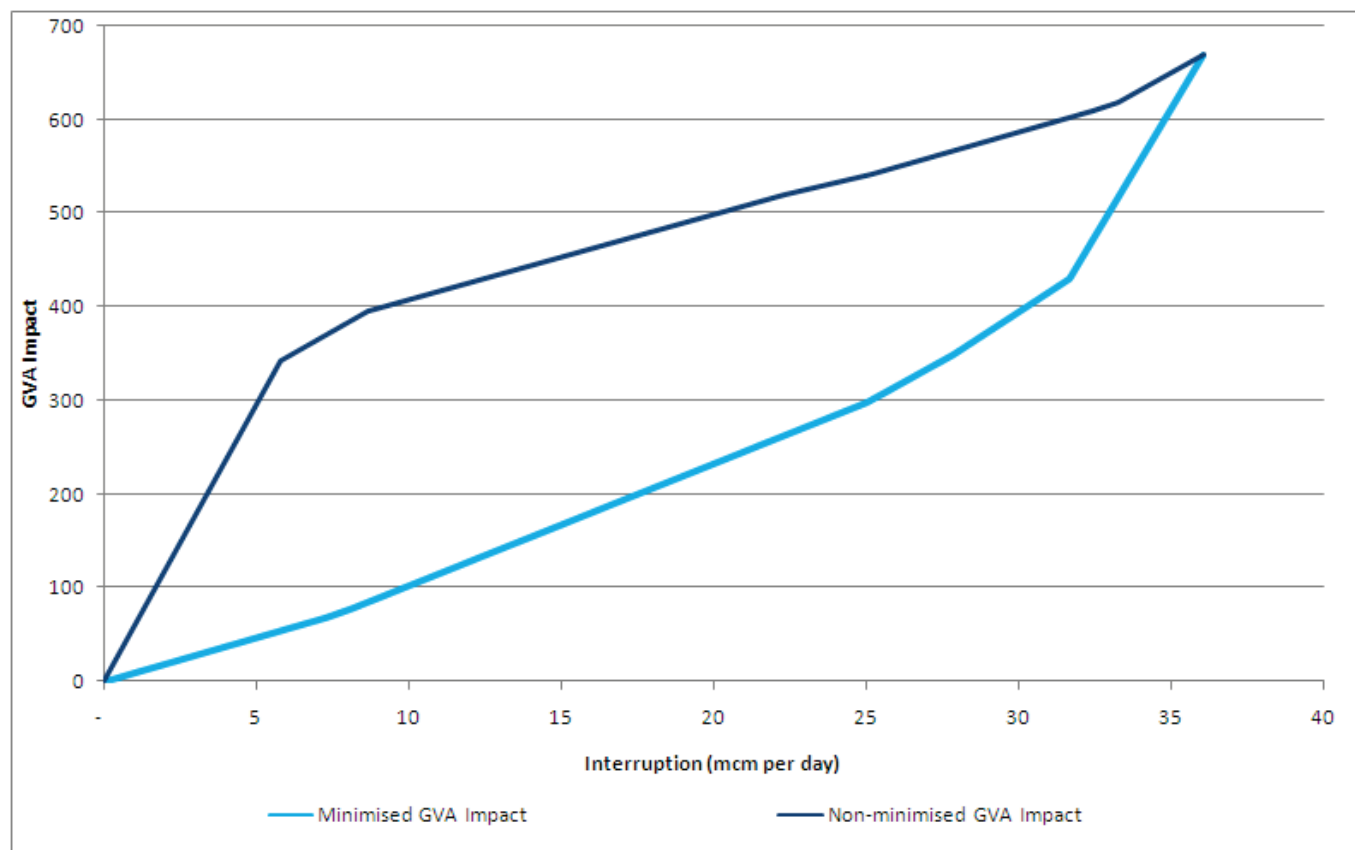
#### iv) Short-run vs. Long-run

28. Whilst in the short-run some factors which influence security of supply - such as the contractual arrangements, import infrastructure or other factors - are largely fixed, in the long-run they are not. So for example, customers, shippers and suppliers that would be exposed to potentially large losses in the event of an emergency will have greater incentives to reduce these costs, for example by:
  - i) developing more infrastructure, such as import storage or terminals;
  - ii) signing contracts that expose more customers to changes in wholesale prices; and
  - iii) signing long-term gas purchase agreements to ensure enough gas arrives in an emergency and at an economical price.

#### **UNFREEZING CASHOUT PRICES: FURTHER ALLOCATIVE EFFICIENCY BENEFITS**

29. A key benefit of a market based approach could be to ensure that the customers that reduce their demand for gas are those with the lowest willingness to pay for it. Pöyry's assessment is that the expected annual energy unserved cost is around £7.8m, but this assumes that the customers that are disconnected in a Gas Deficit Emergency are done so in a relatively efficient way with consequently relatively low Gross Value Added (GVA) impacts. Figure 3 shows the cumulative GVA impacts under two scenarios; firstly where (industrial) customers are switched off in order to minimise the impact on GVA and, secondly, where customers are switched off in order of which customers would be most directly affected by the a gas interruption (i.e. not taking into account the knock-on impact across the supply chain).

**Figure 3: Illustrative GVA Impact per day vs. value of lost load per day**



Source: Poyry, DECC calculations

30. Figure 4 shows the different GVA costs per day from figure 3 evaluated where there was unserved energy of 5 mcm or 10 mcm per day of gas. The costs have been evaluated at 5 mcm and 10 mcm per day as this is a likely size of daily interruptions that might occur in the majority of cases. It shows that the costs of an interruption are sensitive to the order in which customers are switched off.

**Figure 4: Evaluated Costs (£m) per day and different degrees of daily unserved energy**

Cumulative Costs	Minimised Costs	GVA	Non-minimised GVA Costs	Difference (i.e. savings per day)
5 mcm per day	47		297	250
10 mcm per day	103		407	304

Source: Poyry data, DECC calculations

31. *Ex ante*, it is hard to judge how able the NEC would be able to minimise the impacts on GVA. However, it is likely that a market-based demand-side response will be better able to minimise the costs to the economy. Therefore, by way of example, DECC has estimated the improvement in allocative efficiency that could occur if it were *assumed* that the market could switch customers off in order to minimise the impact on GVA rather than the NEC switching off customers in a sub-optimal way (i.e. in order of the direct costs). An expected (probability weighted) estimate of the change in allocative efficiency is estimated by:

- i) taking Poyry Energy Consulting's estimate of the expected (i.e. probability adjusted) energy unserved in 2010 (i.e. £7.8m) and rebasing this, using a weighted average scaling factor based on figure 4, in order to make it consistent with the minimised GVA impact in figure 3 (giving £12.3m p.a.)

ii) comparing the difference between the minimised and non-minimised GVA impacts by using scaling factors based on figure 4 (e.g. £297m/47m x £12.3m) as well as using a weighted average scaling factor.

32. This approach gives a range of potential discounted cost savings; these are shown in figure 5. Again, given the uncertainties in estimating this it should be noted that this approach is only illustrative of the magnitude of any expected benefits.

**Figure 5: Estimated Additional Security of Supply Costs (£m) in the winter of 2011/12 under different costs rankings, discounted**

Degree of Interruption Assumed	NPV of Expected Savings
5 mcm per day	66
10 mcm per day	37
Weighted Average	46

Source: Poyry data, DECC calculations

## CHANGES TO EMERGENCY COMPENSATION ARRANGEMENTS

33. In this policy option scenario, it is assumed that legislation could allow changes to the compensation arrangements to be introduced by the winter of 2011/12 (although, as above, subject to review by Ofgem). These could ensure that customers would be appropriately compensated for any involuntary interruption by the transporter. The impact could be:

- i) Better financial protection for the customers who are interrupted by the transporter;
- ii) A more equitable distribution of the costs of an emergency across customers and gas market participants;
- iii) Shippers being potentially more exposed to the costs on an interruptions; and
- iv) Greater incentives on shippers to balance their positions in order to avoid a Gas Deficit Emergency. This would have a short-run and long-run set of impacts similar to those described earlier.

## OTHER IMPACTS TO THE MEASURES

### Administrative Costs

34. This option is unlikely to have significantly different administrative costs than in the baseline.

### Long-term Price Impacts

35. The major impact of these reforms would be the passing back of risk from customers to shippers. The market could either bear the risk or attempt to mitigate it (e.g. building additional infrastructure), but the consequence could be higher average wholesale gas prices.

### Net Cost to Businesses

36. There are no direct costs to businesses from these primary power.
37. Security of supply will largely benefit businesses and in the event of a Gas Deficit Emergency households are prioritised and large users of gas are likely to be disconnected first. Transfer payments (either arising from price impacts or changes to compensation arrangements) are also likely to flow from one business to another (as mentioned earlier, households effectively face fixed retail gas prices in the short-term). Therefore, if Ofgem makes changes to the emergency arrangements in the ways described above then the overall there is expected to be a net reduction in the costs to businesses.

### Specific Impact Test: Competition Impacts

38. Below is an initial competition impact test. As with the rest of this Impact Assessment, it is included in order to inform decision makers but ultimately the design and implementation of measures is for Ofgem who would consider the impacts on competition as appropriate in any Impact Assessment they produce.

**Figure 6: Competition Assessment Key Questions**

Do the measures directly limit the Number of Suppliers?	No
Do the measures indirectly limit the number of suppliers?	Potentially – for Ofgem to consider
Do the measures limit the ability of suppliers to complete?	No
Do the measures reduce the incentive on suppliers to compete vigorously?	No

39. The impact on competition is unclear. However, as these measures are intended to push back risk (and therefore potentially costs) from consumers to market players it could create barriers to entry particularly for smaller shippers who may find it more difficult to balance their portfolio. Any reduced degree of competition could impact on liquidity and market functioning and ultimately have knock-on impacts to consumers. Also in the event of an emergency, very large imbalance charges could lead to an increased risk of the bankruptcy of some shippers.
40. It is not clear whether or by what degree competition-related impacts would arise and it should be noted that:
- i) there is currently a large number of licensed shippers
  - ii) the probability of entering a gas deficit emergency is low, and
  - iii) in the event of shipper default there are a range of emergency measures that would help to mitigate any impact on security of supply. For example, in the event of a shipper default other participants (e.g. National Grid) could step in as a temporary shipper. Also, the command-and-control powers which are permitted during a gas deficit emergency could allow a continued flow of gas supply from domestic sources even when market mechanisms have broken down.
- NB. The risks to market power leading to gaming / restricting supply have discussed earlier. But to summarise, the risks to this will depend on the amount of competition for the marginal unit of gas occurring at the time. Due to access to increasingly liquid European and international LNG gas markets the range of sources and potential suppliers has increased significantly compared to previous years.

## Wider Impacts

41. These measures could increase the costs of shipping or supplying gas if they were implemented. Some or all of any cost rises could be passed on to consumers

## Risks

42. The potential risks are:

i) that market players might be able to abuse their market power, withholding gas and pushing prices higher, worsening the emergency (albeit the risk of this may have fallen significantly as European and LNG markets become increasing competitive and liquid);

ii) that for some consumers the harm from the transfer payments to shippers or others could outweigh the benefits arising from greater security of supply; and

iii) large imbalance charges may impact on the degree of competition in the market or even lead to shipper bankruptcy in extreme instances.

43. Ofgem acknowledges the possibility of these risks, and has powers to address them. In designing measures that will protect the interests of consumers, Ofgem will have regard to these risks.

## Assumptions and Uncertainties

44. The monetised benefits in this IA are sensitive to the assumed ability of the market compared to the command-and-control measures to reduce demand in an emergency in a more efficient way and assumptions about the probability and nature of any future emergency. Given there has never been a Gas Deficit Emergency there is a large degree of uncertainty as to the true magnitude of these benefits.

## Annex A: Background

45. To facilitate an effective gas market, National Grid is required to establish gas transportation arrangements that provide reasonable economic incentives for shippers and suppliers to meet domestic customer supply security standards. National Grid meets this obligation through the establishment of the 'On-the-day Commodity Market' (OCM) and 'cash-out' prices. Shippers must balance the amount of gas that they put on to and take off the system.
46. Shippers must pay if they deliver less gas to the system than is taken off by their customers on any day. If a supplier is short of gas, it will pay the higher of the following prices:
  - the most expensive (marginal) price paid by National Grid for purchasing gas on the OCM to match supply and demand that day; or
  - the volume weighted average of prices traded on the OCM, plus an offset established in 2002. The offset is intended to act as a proxy for the value of flexibility on the NTS on days when no National Grid actions are taken.
47. Where a supplier is long of gas on the day, it will receive the lower of the following prices:
  - the lowest price received by National Grid for selling gas on the OCM that day; or
  - the volume weighted average of prices traded on the OCM, minus an offset established in 2002. This offset is intended to act as a proxy for the value of flexibility on the NTS on days when no National Grid actions are taken.
48. There are two situations in which the prevailing market price does not determine payments. Firstly, when there are no balancing actions by National Grid on the particular day, default cash-out prices are used. The default price will be the System Average Price plus or minus a fixed offset, as described above.
49. Secondly, average prices are used during a gas supply disruption, and the market remains available to gas shippers. However, National Grid itself buys gas from shippers at a market neutral price. This price is based on the average price of National Grid's balancing actions at the commencement of the disruption. Under certain circumstances a shipper may apply for additional compensation over and above the market neutral price offered by National Grid. But the uncertainty of such an application process may inhibit supplies being delivered to the system when they are most needed.
50. In both of these instances somewhat arbitrary reference prices that are neutral and muted in nature are used for shipper imbalances. This has the effect of dampening incentives on shippers significantly.