

# Gas Security of Supply Significant Code Review – Demand-Side Response Tender Consultation

## Consultation

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### Overview:

The aim of the Gas Security of Supply Significant Code Review (Gas SCR) is to reduce the likelihood, severity and duration of a gas supply emergency. We are aiming to do this by ensuring the market arrangements provide appropriate incentives on gas shippers to balance supply and demand.

Our updated proposed final decision is set out in a letter we have published alongside this document. The letter sets out our proposed reforms to the market rules that would apply if an emergency occurred. A key part of the proposed reforms is that the Authority is committed to exploring incorporating a System Operator (SO) led demand-side response (DSR) tender into the reforms. This would provide a mechanism for large consumers to reveal the true cost of interruptions to their gas supplies. These costs could then be incorporated into the imbalance price, which should ensure that the costs of balancing supply and demand is borne by those responsible for creating any imbalance. The tender should also provide a way for large consumers to contract to provide DSR services in a centralised way, thus further boosting security of supply.

This document sets out three high level approaches to designing the tender for consultation. We are keen to get stakeholder views on these approaches to the design of the tender, as well as on a range of additional design issues. The responses will help the Authority make a decision on whether and how to incorporate a SO-run DSR tender into the reforms.

## Context

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We began our significant code review (SCR) into gas security of supply in January 2011. In November 2011 we published a draft decision to reform the commercial arrangements that would apply in an emergency. In July 2012 we published our 'Proposed Final Decision'. This reaffirmed the Authority's draft decision. At the same time we provided Government with our Gas Security of Supply (SoS) report assessing the risks and resilience of the gas market and considering some further measures that could enhance security of supply. Government has welcomed Ofgem's report and is considering whether further interventions measures are necessary to support gas security of supply. Government and Ofgem both agree that efficient price signals are necessary to enhance security of supply and any further measures would be in addition to cash-out.

Since the publication of our proposed final decision, we have received a significant amount of feedback from stakeholders, via consultation responses and stakeholder meetings. In response to these developments, we engaged extensively with industry stakeholders to understand their concerns. Following this, we have made a number of changes to our intended reforms to the cash-out arrangements. Details of our updated proposed final decision and a discussion of stakeholder responses are published alongside this document.

## Associated documents

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Updated Proposed Final Decision – Gas Security of Supply Significant Code Review, July 2013 (ref 128/13):

[http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723\\_GasSCR\\_upfd.pdf](http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723_GasSCR_upfd.pdf)

Updated Proposed Final Decision – Responses Document – Gas SCR, July 2013 (ref 128/13):

[http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723\\_GasSCR\\_responses.pdf](http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723_GasSCR_responses.pdf)

Gas Demand Side Response Auctions – Report by ESP Consulting, July 2013:

[http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723\\_GasSCR\\_ESPfinalreport.pdf](http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Documents1/130723_GasSCR_ESPfinalreport.pdf)

Gas Security of Supply Report, November 2012:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=3&refer=Markets/WhIMkts/monitoring-energy-security/gas-security-of-supply-report>

Proposed Final Decision – Gas SCR, July 2012 (ref 111/12):

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=85&refer=Markets/WhIMkts/CompandEff/GasSCR>

Impact Assessment for the Proposed Final Decision – Gas SCR, July 2012 (ref 112/12):

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=91&refer=Markets/WhlMkts/CompandEff/GasSCR>

Draft Policy Decision - Gas SCR, November 2011 (ref 145/11):

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=46&refer=Markets/WhlMkts/CompandEff/GasSCR>

Initial Consultation - Gas SCR, January 2011 (ref 02/11):

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=1&refer=Markets/WhlMkts/CompandEff/GasSCR>

Launch Statement – Gas SCR, January 2011:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=2&refer=Markets/WhlMkts/CompandEff/GasSCR>

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# Executive Summary

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## Rationale

The aim of the Gas Significant Code Review (Gas SCR) is to reduce the likelihood, severity and duration of a gas emergency. We are seeking to do this through reform of the market rules, “cash-out”, that would apply if an emergency occurred. This is to ensure appropriate incentives are put in place for gas market participants to provide secure supplies, and mitigate the risks of an emergency occurring.

Gas shippers who do not balance their supply and demand are subject to cash-out charges. Under current arrangements, cash-out prices are frozen if a Gas Deficit Emergency (GDE) occurs.

## The DSR tender

Our updated proposed final decision unfreezes cash-out prices during an emergency, takes steps to factor in the cost of firm consumer interruptions and addresses feedback that we have received from stakeholders.

Central to our proposed reforms is being able to attach a price to consumer interruptions that reflects the value that consumers place on maintaining their gas supplies. In our proposed final decision we proposed to price in all consumers at an estimate of the value that domestic consumers put on avoiding interruptions (ie at their Value of Lost Load, or VoLL).

This was intended to ensure the cost of interrupting domestic consumers would be appropriately incorporated into emergency cash-out prices. It was also thought that this would provide incentives for shippers and large consumers to agree commercial interruptible contracts. This is because many large consumers are likely to have lower interruption costs than domestic consumers, and so both shippers and large consumers could benefit from agreeing interruptible contracts that accounted for these differences in costs. However, stakeholders questioned whether applying the same price to both small and large consumers was appropriate. They also argued that it would distort interruptible contract negotiation and expressed doubts that much interruptible contract negotiation would actually occur.

Uniform Network Code Modification 435 (UNC435) ‘Arrangements to better secure firm gas supplies for GB consumers’ was raised in October 2012 with the aim of looking into setting up a centralised tender for procuring demand side response. This was also one of the measures considered in Ofgem’s report on Gas Security of Supply to Government.

Following the UNC 435 proposal we have held numerous workshops to explore whether key elements of that proposal could be incorporated into the Gas SCR reforms. During these workshops a consensus emerged that if possible, revealing the

cost of interruption through market experience is preferable to using an estimated value. Unfreezing cash-out, removing the cap on cash-out price at domestic VoLL and a centralised SO-run demand-side response (DSR) tender, if established, could offer a more market-oriented way of discovering the value that larger consumers place on maintaining their gas supplies. This is possible for larger consumers because they have their consumption measured on a daily basis and so can react to daily movements in the wholesale price. The prices revealed by the tender would then be used to ensure the cost of interrupting larger consumers was reflected in the emergency cash-out arrangements.

Ofgem and industry agree that NDM consumers cannot currently participate in the market to identify their VoLL. Ofgem therefore remains committed to pricing NDM consumers into cash-out at our estimate of NDM VoLL.

In addition to the benefits mentioned above, interrupting consumers with low interruption costs first will provide additional protection to those who value their gas supplies most. A centralised tender run by National Grid should also overcome the consumer trust issues raised by stakeholders.

When deciding on the implementation of a SO-run DSR tender, the benefits must be weighed against the potential costs. Furthermore, we have always maintained that contracts agreed directly between shippers and consumers would likely result in more efficient outcomes than a centralised approach, and so we are keen to ensure the tender does not inhibit bilateral contracting.

The Authority is committed to exploring a DSR tender as part of the cash-out arrangements. It notes that the design of the tender is key to its effectiveness, and wishes to undertake further analysis before reaching a decision.

Ofgem would like to better understand the appetite for such a tender, and whether stakeholders see it as an appropriate addition to the Gas SCR. Further, we are keen to get stakeholder feedback on three DSR tender design packages – henceforth referred to as ‘straw men’ – we have formulated. These straw men are similar to those presented at previous workshops. We would stress that these straw men should be considered in the round as complete packages. This is due to the interactions between many of the different design aspects of a tender.

The table on the next page summarises the key high level components of each of these approaches to the DSR tender. Our lead option is straw man 2.

<b>Design issue</b>	<b>Straw man 1</b>	<b>Straw man 2</b>	<b>Straw man 3</b>
Format	Sealed-bid single round tender	Sealed-bid single round tender	Sealed-bid single round tender
Payment regime	Pay-as-clear	Pay-as-clear	Pay-as-bid
Pricing regime	Exercise fee only	Exercise fee only	Exercise and fixed option fee
Decision criteria	Price cap at £14/therm	Volume cap	Set budget or volume cap
Product duration	One year product	One year product	One year product

Finally, we would also welcome input on a number of other additional design issues that are discussed in this consultation. In particular, we would like to get the views of larger industrial and commercial consumers on a number of the more detailed design issues as they will be the ones participating most directly in the tender.

## **Next Steps**

Subject to responses to this consultation and further analysis, should The Authority confirm its decision to proceed with a DSR tender we intend to publish the high level tender principles in early 2014. We will set out draft licence conditions which will put an obligation on National Grid to develop the detailed methodology and rules for the DSR tender with support from the industry. This will include proposals for the governance and approval of the DSR methodology. Once completed, the detailed methodology and rules will be submitted to Ofgem for approval. We intend to implement the DSR tender in time for winter 2015/16.

# 1. Introduction

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## Rationale

1.1. The aim of the Gas Significant Code Review (Gas SCR) is to reduce the likelihood, severity and duration of a gas emergency. We are seeking to do this through reform of the market rules, “cash-out”, that would apply if an emergency occurred. This is to ensure appropriate incentives are put in place for gas market participants to provide secure supplies, and mitigate the risks of an emergency occurring.

1.2. Gas shippers who do not balance their supply and demand are subject to cash-out charges. Under current arrangements, cash-out prices are frozen if a gas deficit emergency (GDE) occurs. The emergency would be managed by instructing domestic gas supplies to maximise flows and, where necessary, interrupting supplies to consumers.

1.3. The decline in domestic UK gas production has resulted in increased reliance on international gas markets to deliver security of supply to Great Britain (GB) consumers. This exposes GB to a range of additional risks. Events which could lead to physical disruption of gas supplies to domestic consumers are highly unlikely, though their impacts would be severe. We consider that our current cash-out arrangements need to be amended to reflect GB’s increased dependence on imports.

1.4. In 2010 Ofgem published Project Discovery, which noted that the consequence of freezing the cash-out price is that the incentive to bring gas to GB could be weakened at precisely the time when it should be sharpest. Given increasing reliance on imports, managing an emergency by instructing domestic supplies to flow may mean that the severity or duration of an emergency may not be minimised should one occur.

1.5. Under current arrangements shippers would not face the true costs of an emergency if one occurred. The cost of interrupting firm consumers is not factored into the cash-out price that would be paid by shippers who do not provide sufficient supplies. This means that the risks of an emergency currently sit with consumers, and shippers do not factor the potential cost of interruption into their decisions.

## Updated proposed final decision

1.6. Our updated proposed final decision unfreezes cash-out prices during an emergency, takes steps to factor in the cost of firm consumer interruptions and addresses feedback that we have received from stakeholders.

1.7. The principal intent of these changes is to provide the appropriate incentives for shippers to match supply and demand. This should ensure they take efficient



actions that reduce the likelihood, duration and severity of a GDE. These changes should also mean that any consumers that are interrupted are properly paid for the service they provide in helping balance the system during an emergency. Transferring the burden of risk from consumers to shippers in this manner should better ensure that shippers face the costs of a GDE.

1.8. Central to our proposed reforms is being able to attach a price to consumer interruptions that reflects the value that consumers place on maintaining their gas supplies. This value is commonly referred to the Value of Lost Load (or VoLL).

1.9. Smaller consumers such as domestic households cannot interact with the wholesale market. This is because their gas supplies are not metered on a daily basis (ie they are non-daily metered, or NDM). When trying to apply a cost to any interruptions of these NDM consumers we have opted for a proxy estimate of the value that domestic consumers place on their gas supplies. We propose to set this at £14/therm which is an estimate of NDM VoLL based on a study we commissioned from London Economics<sup>1</sup>.

1.10. We have held workshops to explore whether a SO-run demand side response (DSR) tender could be incorporated into the Gas SCR reforms<sup>2</sup>. A general consensus emerged that where possible, revealing the cost of interruption through market experience is preferable to using an estimated value. A centralised DSR tender could offer a more market-derived way of discovering the value that larger consumers place on maintaining their gas supplies. This is in part possible because these larger consumers have their gas supplies metered on a daily basis (ie they are daily-metered, or DM). This allows them to react to daily movements in wholesale prices and provide an individual reduction in demand that can be more easily measured. The prices revealed by the tender could then be used to ensure the costs of interrupting DM consumers (ie DM VoLLs) are reflected in the emergency cash-out arrangements.

## UNC 435

1.11. Uniform Network Code Modification 435 (UNC435)<sup>3</sup> 'Arrangements to better secure firm gas supplies for GB consumers' was raised by Centrica in October 2012. The modification proposes to set up a process whereby National Grid Gas (NGG) would identify and procure DSR in order to protect high priority consumers.

1.12. The modification has explored an auction or tender for procuring that DSR. The initial modification proposal envisaged allowing DM consumers to bid both an

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<sup>1</sup> Available at:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=46&refer=Markets/WhIMkts/CompandEff/GasSCR>

<sup>2</sup> The phrases 'DSR tender' and 'SO-run DSR tender' are used interchangeably in this document and should be taken as having the same meaning for the purposes of this consultation.

<sup>3</sup> <http://www.gasgovernance.co.uk/0435>

option and an exercise fee. Any exercise fees would be recovered from short shippers by pricing exercised DSR into cash-out. Once NGG exhausts the supply of voluntary DSR and begins involuntary disconnections, the cash-out price would be frozen at the level prevailing at that point.

1.13. We note that the modification is still under development. The raising of the modification, and the debate that has taken place at UNC435 working groups, has been very useful in informing this consultation.

## **DECC further measures**

1.14. In 2012 we provided Government with our Gas Security of Supply (SoS) report assessing the risks and resilience of the gas market and considering some further measures that could enhance SoS. Government welcomed Ofgem's report has shortlisted three options that merit further consideration to enhance security of supply. Government and Ofgem both agree that efficient price signals are necessary to ensure security of supply and any further measures would be in addition to cash-out reform.

## **Purpose of this consultation**

1.15. A diverse range of views on several aspects of tender design has emerged at working groups held for both the Gas SCR and UNC435. This consultation seeks stakeholder views on a range of questions relating to establishing a DSR tender.

1.16. The Authority is committed to exploring an SO-run DSR tender as part of the cash-out arrangements. It notes that the design of the tender is key to its effectiveness, and wishes to explore design issues and undertake further analysis.

1.17. Ofgem would like to better understand the appetite for such a tender, and whether stakeholders see it as an appropriate addition to the Gas SCR.

1.18. Further, we are keen to get stakeholder feedback on three DSR tender design packages – henceforth referred to as 'straw men' – we have formulated. These straw men are similar to those presented at previous workshops. We would stress that these straw men should be considered in the round as complete packages. This is due to the interactions between many of the different design aspects of a tender.

1.19. Finally, we would also welcome input on a number of other additional design issues that are discussed in this consultation. In particular, we would like to get the views of larger industrial and commercial consumers on a number of the more detailed design issues as they will be the ones participating most directly in the tender.

## Structure of the document

1.20. The rest of the document is organised as follows:

- Chapter 2 sets out the rationale for the tender. It reiterates our view of the purpose of the tender. It then discusses the potential benefits and costs of the tender. There are also some comments on the interactions between the tender and investment in back-up facilities.
- Chapter 3 summarises the key high level design issues to be addressed in this consultation. These include: tender format, pricing regime, payment regime, decision criteria, product duration and eligibility. There are also a number of additional design issues that will need to be addressed once the high level components of the tender design are in place. A brief summary of some of these is given at the end of this chapter. We welcome any views on these, particularly from demand-side stakeholders, but would place priority on getting the high level design aspects right first.
- Chapter 4 summarises the three tender design packages, or straw men, that we have formulated. It then goes through each of the straw men in detail, before moving on to an assessment of some of the key pros and cons that we have considered in weighing up the three different packages. The chapter concludes with our rationale for our lead option.
- Chapter 5 addresses implementation. It discusses the process for putting the tender in place once we have assimilated the responses we receive to this consultation. It also sets out how we envisage gauging the success of the tender, as well as any contingencies if the tender fails to produce a fair and efficient outcome.

1.21. There are also a number of appendices that respondents may wish to refer to:

- Appendix 2 explains in detail the variant of pay-as-clear referred to throughout this document. It also sets out how pay-as-clear can have an impact on the issue of shortfalls.
- Appendix 3 explains the DSR tender diagram that is used to provide a visual representation of how each of the straw men could work in practice.
- Appendix 4 presents some data on potential DSR volumes.

## 2. Rationale for the tender

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### Chapter Summary

This chapter sets out views on the purpose, benefits and costs of a potential DSR tender, and seeks feedback on these.

### Question box

**Question 1:** What are your views on a SO-run DSR tender? Do you think it is an appropriate addition to the Gas SCR?

**Question 2:** What do you think the purpose of the tender should be?

**Question 3:** What benefits do you see a DSR tender providing?

**Question 4:** What costs do you see arising from a DSR tender?

**Question 5:** Do you think a DSR tender should have a role subsidising investment in back-up facilities? If so, why?

### Purpose

2.1. Revealing the cost of demand interruptions is key to achieving the aims of the Gas SCR as it allows for the appropriate price signals to be sent to the market, and ensures shippers face the full costs of an emergency.

2.2. Our proposed final decision sought to apply the NDM VoLL proxy price to all firm consumers. We considered that applying this price to both NDM and DM consumers would provide incentives for shippers and DM consumers to agree commercial interruptible contracts. This is because many DM consumers are likely to have lower interruption costs than domestic consumers, and so both shippers and DM consumers could benefit from agreeing interruptible contracts that accounted for these differences in costs.

2.3. Stakeholders questioned whether it was appropriate to apply a single VoLL to DM consumers and argued that it distorted interruptible contract negotiation. Instead a clear preference emerged for the market to reveal VoLL, where possible. Demand-side stakeholders also expressed doubts that a market for interruptible contracts would emerge. Those doubts stemmed from a lack of familiarity with providing demand side response and a lack of trust between consumers and shippers. Consumers have expressed a preference for interruption arrangements that can only be applied in the approach to an emergency, rather than for purely commercial reasons.

2.4. Our updated proposed final decision is published alongside this consultation. It stipulates that we intend for demand interruptions to be treated as a balancing action and priced into cash-out appropriately if they occur. The DSR tender, if established, would be used to price in the cost of interruptions to DM consumers. We

therefore consider that the principal purpose of the tender should be to elicit market revealed VoLLs for DM consumers and provide a route to market for them to offer DSR. This will allow interruptions to DM consumers to be properly priced, and for those DM consumers to be properly paid, using market revealed estimates of their VoLLs.

## Benefits of the tender

2.5. A DSR tender that allows demand interruptions to be incorporated into cash-out in this manner would likely result in numerous benefits for consumers:

- Sends the correct price signals to the market. This price signal should reflect the value that consumers place on their gas supplies. This should attract more gas into GB when the gas system is tight, reducing the likelihood, severity and duration of any interruptions that may occur.
- Ensures that short shippers face the appropriate cost of demand interruptions. Shippers will be incentivised to take measures to mitigate these risks and avoid an emergency occurring in the first place.
- Helps facilitate more economic interruption of demand. The current 'largest first' approach to firm-load shedding places unnecessary risks on certain consumers. A DSR tender will allow consumers who incur relatively low costs if they lose their gas supplies to move forwards in the disconnection order, and be paid appropriately for this service. It will also allow larger consumers to indicate which parts of their load are relatively dispensable. This means that if absolutely necessary these can still be shed first. Altering disconnections in this manner will provide crucial additional protection to consumers who face significant costs if they (or certain parts of their load) are curtailed.
- Ensures consumers receive proper payment if they are interrupted. Pricing demand interruptions using a DSR tender such as this will mean that if consumers do have to be interrupted they will at least be appropriately paid for the service they have provided in balancing the system. At present, they receive no payment if they are interrupted in a GDE, despite providing balancing services to the system.
- Overcomes consumer trust issues. One of the key reasons that was offered for why the negotiation of commercial interruptible contracts was unlikely was that there is a lack of trust between consumers and shippers. A centralised approach to contracting for demand interruption, likely run by NGG and only utilised under emergency circumstances, should deal with these concerns.
- Could kick-start commercial interruption. We have always maintained that we think shippers and consumers are best placed to agree the terms of demand interruptions on a bilateral basis. This was the rationale that underpinned our previous approach as set out in the proposed final decision. As such, we see the tender as potentially providing a longer-term benefit in terms of familiarising consumers with providing DSR. Once they have participated in

the simple centralised tender, they may realise the benefits of seeking more bespoke arrangements on a bilateral basis with their shipper(s).

## Costs of the tender

2.6. If established, a SO-run DSR tender would incur some costs and these costs must be weighed against the above benefits to gauge the merits of the tender:

- There will be costs incurred when DSR is utilised during a GDE. Our intention is to recoup these costs by treating DSR as a balancing action and pricing exercise fees into cash-out. However, there may also be costs associated with credit or collateral requirements for exercising bids.
- There will also be costs incurred irrespective of a GDE occurring. On a basic level these would be the administrative costs of establishing and running the tender. These should hopefully be relatively minor if a simple format is chosen. Demand-side participants may also incur costs when working out their VoLL and formulating their bids. Besides administrative and bid formulation costs, there may be additional upfront costs if the tender includes option fees. These costs may be fixed if a set budget is agreed, but equally they could vary significantly if there is no fixed budget. Depending on the volumes procured and the prices accepted, the upfront cost of the tender could actually become very substantial. Whilst we have a clear view of where exercise costs will be recouped from, it is less clear how any option costs should be funded.
- A centralised approach is not necessarily the most efficient. Our proposed final decision sought to allow the commercial market to take charge of agreeing new interruptible contracts. We maintain that providing the incentives for contracts to be agreed directly between shippers and consumers would likely result in more efficient outcomes and avoid the problem of picking winners. This inherent potential inefficiency of a centralised approach could therefore be considered as a cost of pursuing a DSR tender such as that being proposed.
- There may be unintended consequences. It may be the case that the tender could distort market operation and lead to inefficient outcomes. This risk needs to be acknowledged as a potential cost of establishing a DSR tender.

## Investment in back-up

2.7. We are mindful that a number of stakeholders have indicated that they believe the DSR tender should have a role subsidising investment in back-up facilities. Demand-side stakeholders have also sometimes made the point that unless they are able to invest in back-up facilities, consumers may be unable or unwilling to submit a competitive bid to bring themselves forwards in the disconnection order.

2.8. We acknowledge that investing in back-up facilities is an important step that consumers can take to mitigate the risks they face if their gas supplies are interrupted. However, we are not convinced that the purpose of the tender should be to subsidise such investment in back-up facilities. We are also not convinced that consumers will need to invest in back-up before they can submit an efficient and compliant bid.

2.9. The key point is that we see the purpose of the tender as being to elicit a market-revealed VoLL and provide a route to market for DSR. The tender is primarily concerned with pricing in interruptions should they happen. Therefore when bidding an estimate of their VoLL, a consumer should be asking themselves “what costs would I incur if my gas supplies were interrupted?”

2.10. We accept that investing in back-up fuel facilities could reduce the exercise prices associated with demand interruptions. However, we are of the view that investment decisions such as this should be made based on a consumer’s estimate of their VoLL and the risks they perceive to their gas supplies. If consumers deem the risks to their gas supplies to be significant enough they could invest in back-up facilities. The DSR tender as set out here is not intended to subsidise that investment.

## 3. Key design issues

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### Chapter Summary

This chapter sets out a number of key issues that need to be considered in designing a DSR tender, and provides a brief summary of further more detailed issues for development. We are seeking views, particularly on the key design issues.

### Question box

**Question 1:** What do you see as the key design issues for the high level design of a DSR tender? Are there any we have not included here?

**Question 2:** What are your views on having variable option fees in the tender? Do you have any concerns about the costs that these could impose irrespective of a GDE actually occurring? How should these be funded?

**Question 3:** What are your views on the eligibility of gas-fired power stations? How should the interactions with the electricity market be managed?

**Question 4:** Could participation of gas-fired power stations have a negative impact on the tender, or on the gas market as whole? If so, can you suggest any steps that could be taken, or an alternative mechanism that could be created, that would help mitigate these concerns?

**Question 5:** Do you have any views on what consumers whose bids were unsuccessful should be paid if they are firm-load shed?

**Question 6:** What are your views on the response type the tender should contract for?

**Question 7:** What are your views on a minimum volume threshold? Do you have any ideas on how this could be set? Should there be a limit on the number or size of tranches that consumers can bid?

**Question 8:** What is your preferred length of time and/or frequency with which NGG may exercise a DSR contract? Do you have a preferred minimum response time if a DSR contract were to include one?

**Question 9:** Do you have any views on any other tender design issues?

3.1. Thus far the discussion on DSR tender design has generally focussed on a number of individual design issues, such as those mentioned in this chapter. That discussion has highlighted the sheer number of different overall design packages that could be formulated, as well as the interdependence between different facets of the tender. As such we would like to place the emphasis of this consultation on the straw men presented later. This chapter is largely intended to ensure respondents are familiar with the key design issues that each of the straw men addresses.

3.2. This document will assume that NGG will be in charge of running the tender and exercising bids. In our view NGG is best placed for this task as they are in charge of managing the system and consumers trust that NGG will not utilise DSR



contracts for non-emergency reasons. The successful bids from a SO-run DSR tender will sit alongside any other actions NGG has open to it to balance the network both before and during an emergency.

## Tender format

3.3. An auction generally involves bidders participating in a process whereby they submit their bids, often during a series of rounds, and can then modify their positions as they discover their competitors' willingness to pay. A tender, on the other hand, is a special kind of auction that involves bidders submitting a single bid to the seller and then the seller determines which bids to accept.

3.4. An open process involves the participants being made aware of the content of their competitors' bids. A closed process involves the participants submitting sealed bids such that they are not aware of the preferences and actions of their competitors. Auctions are generally speaking open and tenders are generally speaking closed.

3.5. Our preference is for a sealed-bid tender. This ensures the process is simple which should enhance participation. Stakeholders have also expressed a desire for simplicity.

3.6. Generally speaking dynamic auctions help promote price transparency and price discovery. They also facilitate the auctioning of multiple products simultaneously. This is why they are often used in energy markets to encourage competition over a range of products, particularly in the presence of market power and information asymmetries between smaller players and a dominant incumbent.

3.7. ESP Consulting noted that the above features do not apply to the procuring of DSR and so these perceived benefits of a dynamic auction were unlikely to arise. Instead we are dealing with a single product whose final demand is uncertain. As such the goal is for NGG to construct a DSR supply curve from the bids it receives. Bearing this in mind, they saw a sealed-bid tender as producing very similar outcomes to a dynamic auction, but with the added benefit of significantly reduced complexity.

## Decision criteria

3.8. Virtually no tender can simply accept every bid it receives. It is therefore almost always necessary to set some parameters whereby some bids will be accepted and some bids will not. We refer to those parameters as the decision criteria for the tender.

3.9. There are a range of possible decision criteria that could be used to decide which bids are accepted in the tender. Below is a list of some possible options:

- Volume cap: This entails accepting bids up to some limit on volumes. That volume could either be fixed, or determined as a percentage of the bids received.
- Price cap: This entails accepting bids up to a set price. This would ensure bids above a certain price level were not accepted.
- Volume + Price cap: This would be some combination of the two options above (ie NGG contracts for its required volume subject to it only accepting bids below a certain price).
- Budget: This would involve NGG having a predetermined budget over which to maximise volumes. That budget would likely be for option fees.
- Demand curve: This involves trying to make a judgement about acceptable costs ex ante by developing a demand curve for NGG. The demand curve would be made known to the bidders in advance and would map out the prices and corresponding volumes NGG would be willing to contract at based on the value placed on security of supply. This kind of approach is used for a number of US electricity Capacity Markets.

## Product duration

3.10. The tender could procure on a single year-ahead basis, or on a longer-term basis. If investment is the goal then the DSR contract duration should be multi-year to allow the option fees to cover the investment costs of the plant. There would also need to be long lead times to give time for new plant to be built off the back of any option fees provided for investment.

3.11. However, procuring over multi-year time scales may be challenging due to the difficulties of forecasting requirements further into the future. Also, bidders may be less likely to demand such products because consumption plans are difficult to know for such long lead times. As such a single year-ahead contract may be more appropriate if we wish to set something up that is simple, practical and easy to implement.

3.12. Perhaps more importantly though, if the purpose of the tender is simply to reveal the cost of demand interruptions (as set out in Chapter 2) then a multi-year investment oriented contract may not be appropriate. Instead a single year-ahead contract duration would better fit this goal.

## Payment Regime

3.13. There are two different approaches to paying bids the tender could use:

- Pay-as-bid means paying bids at the price submitted in the bid.

- Pay-as-clear means paying bids a clearing price set by the highest exercised bid<sup>4</sup>.

3.14. Pay-as-bid is intuitively easier to understand and fits better with the current approach to pricing actions on the on-the-day commodity market (OCM). Assuming bidding is at or near marginal cost, pay-as-bid will also help reduce the risk of alternative emergency shortfall arrangements being required. It is likely that the most expensive exercised DSR bid will set the short cash-out price near or during a GDE. If this is the case, pay-as-bid reduces the aggregate level of payments and so reduces the risks of these alternative arrangements being required. However, assuming bidding at marginal cost for pay-as-bid is highly questionable. Rather than bidding at true cost, the optimal strategy for pay-as-bid is to guess the price of the highest exercised bid. This can lead to bids being inflated (potentially quite significantly) above true costs.

3.15. Pay-as-clear has one crucial advantage over pay-as-bid – it ensures that bidders' optimal strategy is to bid at the true marginal cost (ie at true VoLL). This is because even if a more expensive bid than yours is exercised, that bid will become the clearing bid and you will receive that as a payment, instead of your own bid price. Admittedly, paying consumers more than the price submitted in their bid may seem counterintuitive. Relative to pay-as-bid, pay-as-clear also potentially increases the risk of utilising any alternative emergency shortfall arrangements that may apply<sup>5</sup>. However, this paying of consumers more than the price they submitted in their bid is the key reason why pay-as-clear ensures bidding at true marginal cost. Achieving efficient bidding at true marginal cost in this manner is vital for the tender to be a success.

## Pricing Regime

3.16. When structuring the pricing requirements for bids there are two kinds of bid parameters that could be included:

- Exercise fees are payments made when the contract is actually utilised and the bidder provides DSR. These are generally intended to reflect any costs actually incurred when the consumer is interrupted.
- Option fees are payments made on a regular basis to the bidder for the right (or option) to call on them to provide DSR. These are generally intended to reflect the cost of continually being available to provide a demand reduction (ie the cost of providing the service). However, many also view option fees as having a role in funding longer-term investments in providing the service (eg

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<sup>4</sup> Pure pay-as-clear would actually set the clearing price using the highest accepted bid. Where pay-as-clear is referred to in this consultation we are referring to an approach that sets the clearing price using the highest exercised bid on each day. For a more detailed explanation of this variant of pay-as-clear respondents should refer to Appendix 2.

<sup>5</sup> An explanation of what is meant by emergency shortfall arrangements and of the impact of pay-as-clear on the risk of these being used is discussed in more detail in Appendix 2.

back-up facilities). There is also a case for option fees acting to incentivise participation and competition.

3.17. Given the purpose of the tender is to reveal the cost of demand interruptions, we are of the view that the tender should include exercise fees. These exercise fees should reflect the cost to a consumer of having their gas supplies interrupted (ie they should reflect a consumer's VoLL). This means that pricing them into cash-out as interruptions occur will ensure that prices reflect the value consumers place on their gas supplies<sup>6</sup>.

3.18. It is less clear whether the DSR tender should include option fees. As mentioned above, option fees are generally intended to reflect the cost of continually being available to provide the service. From the perspective of a DSR tender, the service being provided is an agreement to reduce gas consumption. However, it is important to recognise that all gas consumers already provide an involuntary DSR service at present because NGG already has the right to disconnect them through firm-load shedding or network isolation. They receive no regular option fee from NGG for providing this service now. It is not clear how the costs to a DM consumer of continually being able to provide a demand reduction are materially changed by their participation in the DSR tender. The only certain change is an increase in the probability of interruption caused by moving the point at which NGG can curtail them from Stage 2 to the issuing of a Gas Deficit Warning (GDW). We are of the view that any option cost associated with this change in probability should be small. More importantly, we consider that consumers are already adequately remunerated for moving forwards in the disconnection order because the payments from the tender are preferable to the payments they receive if they remain in firm-load shedding.

3.19. As for option fees having a role in funding longer-term investments in back-up facilities, it was set out in Chapter 2 why we do not consider that variable option fees intended to subsidise investment are likely to be consistent with the primary purpose of the tender. Such investments in back-up facilities also only benefit certain DM consumers; they have almost no material impact on security of supply for domestic consumers.

3.20. Whether intended to cover the cost of continually providing the service, or to fund longer-term investments in back-up, option fees also have a role in incentivising participation and competitive bidding. This is because option fees provide consumers with upfront payments that are not contingent on a GDE actually occurring. This should mean more bidders are likely to bid, and may bid aggressively, in order to be accepted and receive option fees.

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<sup>6</sup> It should be noted that in pricing DSR bids into cash-out, these would likely only be priced into the marginal prices (ie,  $SMP_{buy}$  and, up to Stage 2,  $SMP_{sell}$ ). As set out in the letter published alongside this document, we have concerns with feeding DSR bids into the calculation of SAP. This is largely due to the difficulties of getting measurements of the volumes of DSR being provided that are sufficiently accurate that they can then be used to update SAP in real time.

3.21. Whatever the stated purpose for their inclusion, if option fees are to be included we have concerns that they will impose costs on the industry irrespective of the likelihood of a GDE occurring. Those costs could potentially be substantial and would ultimately be passed on to all consumers in the form of bill increases.

3.22. Finally, we are mindful that allowing bidders to submit option fees will complicate the process of comparing and accepting bids. Also, recovering option fees paid upfront may be difficult, and this would likely have to occur if a consumer failed to meet the terms of their DSR contract. Given a key goal is to start by establishing something simple, we are wary of the additional complexity that including option fees could create.

### Gas-fired electricity generation

3.23. The inclusion of gas-fired power stations in the tender is a complex issue that merits special consideration for the following reasons:

<b>For</b>	<ul style="list-style-type: none"> <li>Increases DSR volumes which should increase competition. This makes tender success more likely.</li> <li>Helps generators mitigate the risks of gas supply interruptions.</li> <li>It could be difficult to decide how to separate large-scale gas fired generation from small on-site generation for an I&amp;C.</li> </ul>
<b>Against</b>	<ul style="list-style-type: none"> <li>Trading gas is a core part of their business so these consumers already have a viable route to market.</li> <li>Potential conflicts with electricity security of supply objectives, in particular via the Capacity Mechanism (CM) and the cash-out reforms being considered by the Electricity Balancing SCR (EBSCR).</li> <li>Potential to distort the DSR tender.</li> </ul>

3.24. As a general rule we would like to price in the true cost of demand interruptions such that prices reflect each consumer’s full VoLL. We are therefore keen to allow gas-fired power stations to participate in the tender if it helps them reveal their individual VoLLs. However, our desire to price in a consumer’s full VoLL is subject to this placing proportionate risk on shippers<sup>7</sup>. It is therefore important to

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<sup>7</sup> In the case of pricing in NDMs, we opted for a proxy estimate of their VoLL (£14/therm), but that estimate limits the pricing in of NDM network isolation to one day. The true cost of isolation is likely a multiple of this because reconnecting consumers that have been isolated likely takes a number of weeks (eg, £196/therm, assuming network isolations last two weeks). We considered setting a cash-out price this high would impose excessive risks on shippers and have severe impacts on credit and liquidity.

note that the VoLL of a gas fired power station is highly variable, as shown by the table below<sup>8</sup>:

<b>Low VoLL (£0/therm)<sup>9</sup></b>		<b>High VoLL (&gt;£180/therm)<sup>10</sup></b>	
<b>Situation</b>	<b>Impact</b>	<b>Situation</b>	<b>Impact</b>
Electricity market well-supplied	Low opportunity cost of not producing and charges for non-delivery are also low	Electricity market under stress at the same time as the gas market	High opportunity cost of not producing and charges for non-delivery are also high
No position in the electricity market or can unwind position quickly	Exposure to electricity cash-out charges is low/zero	Large position in the electricity market that is difficult to unwind	Exposure to electricity cash-out charges is high.
No CM contract or instruction to run	No exposure to CM penalties	CM contract and instruction to run	Exposure to CM penalties
Any gas outage is long relative to any period of exposure to electricity non-delivery charges	Electricity charges recouped over a long period of DSR payments, lowering the required £/therm price	Any gas outage is short relative to any period of exposure to electricity non-delivery charges	Electricity charges recouped over a short period of DSR payments, increasing the required £/therm price
Unhedged, so exposed to high spot gas prices	Reduces opportunity cost of not producing	Hedged, so not exposed to high spot gas prices	Increases opportunity cost of not producing

3.25. The above estimates of potential gas VoLL for gas-fired power stations are based on electricity non-delivery charges. For illustrative purposes an electricity non-delivery charge of £10,000/MWh equates to an equivalent gas VoLL of approximately £150/therm. The higher VoLL in the electricity market reflects the fact that consumers value electricity over gas. This is due to the respective utility that consumers get from different sources of energy.

<sup>8</sup> VoLL for a generator without back-up facilities = electricity non-delivery charges incurred + foregone spark spread. Electricity non-delivery charges may result from electricity cash-out charges or penalties for failing to deliver as part of the Capacity Mechanism. The length of time that a generator is exposed to electricity cash-out charges depends on how much they have contracted ahead in the market and their ability to unwind their position. The foregone spark spread is the opportunity cost of not producing.

<sup>9</sup> Assumes negative spark spread and no forward nominations.

<sup>10</sup> Assumes illustrative electricity non-delivery charge of £10,000/MWh, thermal efficiency of 50% and 1MWh = 34.12 therms. This yields an equivalent gas VoLL of £150/therm. Also, high spark spread due to high electricity prices and some insulation from high spot gas prices is assumed to result in >£32/therm of foregone profits.

3.26. However, we are also mindful that compared to electricity gas does not fail safe and takes longer to be restored. We would therefore take this opportunity to stress that in terms of system safety gas will always be placed above electricity. This is the case irrespective of the size of any penalties or payments at VoLL in either market. This is because NGG will always load-shed gas-fired power stations before it interrupts NDM consumers to avoid network isolation.

3.27. Bearing the above in mind, we have concerns that there are a number of ways that the inclusion of gas-fired power stations may result in an inefficient outcome for both the tender and the gas market as a whole:

- a) Actual bidding may diverge significantly from a reasonable estimate of their average VoLL. As shown above, a gas-fired power station's VoLL is highly variable. Because of the uncertainty around the factors that will ultimately determine their VoLL and the sheer variability of potential losses/gains, it is reasonable to think that generators will bid conservatively. For example, they may seek to cover their "worst case scenario" in the tender, instead of bidding their best estimate of their average VoLL. The fact that they already have a route to market also mitigates the risks of placing a conservative bid such as this. Strictly speaking these problems apply to all large consumers who have highly uncertain interruption costs. However, our particular concern with gas-fired power stations arises for three reasons:
- i. We know they have potentially very high VoLLs; in particular, their "worst case scenario" is likely based on electricity market non-delivery charges. As such it would set a very high cash-out price in the gas market if exercised. This could have severe impacts on credit and liquidity, most notably because the gas market is balanced daily, where as electricity is balanced half-hourly<sup>11</sup>.
  - ii. NGG will accept all material volumes on the cusp of a GDE, almost irrespective of price, in order to meet its safety case. As such it will likely exercise a very expensive bid from a generator if it has been accepted in the tender. We note that these risks already exist in the current arrangements when NGG is trading on the OCM. However, bids in the tender are different from bids on the OCM as they continue to be exercised and priced in on all days of an emergency until the relevant consumer is reconnected.

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<sup>11</sup> Electricity non-delivery charges at £10,000/MWh (illustrative) in the electricity market would likely only persist for a few half-hour settlement periods. As such, the market would likely be able to deal with such high prices as they would be spread over a small proportion of the day's total imbalanced volumes. The gas market is balanced daily, and so feeding the equivalent gas price (ie, £150/therm) straight through to the gas market would likely lead to gas cash-out prices persisting at that level for a longer period of time. Furthermore, because exercised DSR bids continue to feed in to the cash-out price throughout subsequent days of an emergency until the consumer in question is reconnected, that high gas cash-out price has the potential to persist for a number of days if the emergency is prolonged. This would be irrespective of the state of the electricity market.

- iii. There is a high probability of these extreme priced bids being accepted in a tender with no price cap, due to the large volumes of DSR that generators represent.
- b) Potentially large DSR volumes may facilitate targeted bidding. This is because other non-power consumers may assume some power stations will be accepted and therefore base their exercise prices on their expectations of power station bidding.
- c) Potentially large DSR volumes may crowd out non-power DSR. The tender is in part intended to give a route to market for DM consumers who do not currently have a direct one. If large volumes of generators are accepted this may crowd out other consumers, particularly if the tender contains option fees.

3.28. We are keen to get stakeholder views on whether these potential distortions to the tender are something we should be concerned about, and if they are, what steps we could take to mitigate them. We will also continue to engage extensively with those working on reforms to the electricity market in order to ensure our treatment of the interactions between the two markets is consistent.

### **Payments to firm-load shed consumers**

3.29. A decision needs to be made about what to pay consumers who are firm-load shed and who did not possess an accepted DSR tender contract. These potentially fall into three categories:

- a) Consumers whose bid is unsuccessful.
- b) Consumers who are ineligible to participate.
- c) Consumers who are eligible but choose not to participate.

3.30. We are of the view that those who choose not to participate should receive no payments. This will incentivise participation.

3.31. If some consumers are deemed ineligible for the tender – perhaps because they fail to meet a minimum volume threshold (discussed in 3.55) – we are minded to price them at the volume-weighted average of accepted DSR bids. This should provide a proxy estimate of the average DM VoLL. However, it may be appropriate to pay these consumers at the clearing price instead in a pay-as-clear tender.

3.32. Lastly, there are those consumers who were unsuccessful (ie their bid was compliant but was rejected, perhaps because it was too expensive and therefore fell above a volume cap on bids). When pricing these consumers into the cash-out arrangements during firm-load shedding, a balance needs to be struck between incentivising participation whilst ensuring competitive bidding.



3.33. On the one hand, it seems appropriate that unsuccessful bidders should still receive some payment in order to incentivise participation. This should be less than the price they expect to get from the tender though, and so we think the average price from the tender (ie the volume-weighted average of accepted DSR bids) is potentially an appropriate price.

3.34. On the other hand, some stakeholders have voiced concerns that paying unsuccessful bids anything could distort bidding behaviour. For example, this means a bidder who submits a minimally compliant sleeper bid (ie a bid of £9999/therm) would be guaranteed to still receive some payments when firm-load shed. If this is a concern then not paying unsuccessful bids may be justified in order to discourage this kind of behaviour.

3.35. Our initial view has been to opt for the former approach and pay unsuccessful bids the average price from the tender. This consultation is written based on the above assumptions about payments to firm-load shed consumers who were not accepted in the tender, but we are keen to hear stakeholder views on this subject.

### **Additional design issues**

3.36. The straw men set out in this consultation focus on the high level design components as set out above. Nevertheless, there are still a number of other design issues that will need to be addressed before the tender can be fully implemented. Many of these will be resolved at a later date once NGG has begun working up the detailed elements of the tender in partnership with industry stakeholders. Whilst we would appreciate stakeholder feedback on these additional design issues, we would once again reiterate that the emphasis of this consultation is on the high level straw men.

### **Supply Side**

3.37. At present the intention is for the tender to be limited to bids to provide demand turn-down. During workshops on the subject of tender design, the issue of allowing bids to provide supply turn-up (eg from storage) was discussed. Several participants thought that these were not necessary because:

- a) Storage already has an established route to market and responds to prices.
- b) Unlike demand turn-down, balancing services provided by the supply-side do not suffer from having no cost attributed to it.
- c) Holding back gas in storage to avert a GDE may distort normal market operation and actually increase the chance of the tender having to be utilised.
- d) Including the supply-side would increase complexity and starting with a simple tender was a key element of the feedback received from stakeholders.

3.38. Nevertheless, it may be deemed appropriate to include the supply-side in the tender at a later date once the basic tender is up and running.

### **Eligibility**

3.39. Those eligible to bid in the tender will need to be consumers with at least daily metering capacity (ie DM and those sites directly connected to the National Transmission System or NTS, etc.). NDMs are not able to participate at present. We are open to the possibility of aggregators bidding subject to them being able to meet the same requirements as a bid from a single site (ie able to ensure their total demand portfolio meets any minimum response time or minimum volume threshold).

### **The product**

3.40. We view the product being sold in the tender as a contract that gives NGG the right to instruct a consumer to reduce their gas demand before firm-load shedding is reached. That instruction will be valid for each day until the consumer is instructed to resume consuming as normal. This instruction could include continued interruption during a GDE.

3.41. The consumer's reduction in gas consumption will be measured in order to provide an estimate of the DSR they have provided in order to help balance the system. This DSR estimate will then be multiplied by the price relevant to that consumer for the given interruption day in order to get the payments due to that consumer.

### **Response type**

3.42. It has yet to be decided if the consumption reduction will be a specified change in consumption, or if it will be an agreement to consume no more than some specific consumption level.

3.43. The former would mean any bid would bind the consumer to providing a given response (eg x therms/day reduction in consumption) when called on by NGG. That response would likely be measured against some baseline level of consumption in order to determine if it had been provided.

3.44. The latter would mean consumers specifying in their bids a level of consumption that, when called on, they would reduce their consumption to (eg reduce consumption such that consumption is no more than x therms/day).

### **Trigger point**

3.45. The trigger point is the point at which NGG is allowed to begin exercising DSR. Our current position is that this should be the declaration of a Gas Deficit Warning (GDW)<sup>12</sup>. Only allowing DSR to be exercised after this point should provide comfort to bidders that they will only have their gas supplies interrupted when an emergency is imminent. At the same time it should ensure that NGG has time to utilise the voluntary DSR it has available to try and avert a GDE.

3.46. We are open to considering modifications that may improve the fairness and efficiency of the outcomes from the tender. One such modification may be to introduce a later trigger point in order to ensure there is as much space as possible for a market for commercial interruptible contracts to develop.

### **Response time**

3.47. NGG may wish to specify a minimum response time. This would indicate the time that a consumer would have between NGG calling them to exercise their bid, and them providing DSR.

### **Interruption length/frequency**

3.48. Consumers bidding in the tender may wish to place some limits on the length of time any given DSR bid can be exercised and the number of times that it can be exercised in any given period. This would reflect the fact that some consumers may incur additional costs if interrupted for more than a given period, or if interrupted too many times in a given period.

3.49. However, a balance must be struck between tailoring contracts to the requirements of consumers, and keeping a simple and homogenous design that can be easily implemented. Given the desire for the tender to specify a simple homogenous DSR product, it is likely that any flexibility that consumers may want will be better met through bespoke bilateral contracting with their shipper(s).

### **Tranche bidding**

3.50. There has been strong support from stakeholders for tranche bidding. This would allow a consumer to enter multiple bids and different prices for different parts of their load. This reflects the fact that many consumers have a portion of their gas consumption that is relatively dispensable, but would need to maintain some fraction of their gas supplies to avoid critical damage to parts of their business.

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<sup>12</sup> A Gas Deficit Warning is a warning given at the discretion of National Grid Gas based on expectations of the impact of a significant supply or demand event. It supersedes any Margins Notice that may be in place.

3.51. We are keen to ensure tranche bidding is incorporated into the DSR tender as it could significantly increase the amount of DSR that bidders are willing to offer. This would increase competition and potentially unlock large quantities of relatively cheap DSR which might otherwise have remained unavailable. As such the main point of consideration is how best to implement this. For example, should there be a limit on the number of tranches each consumer can bid, or a minimum volume required for each tranche?

### **Measuring response/compliance**

3.52. When a bid has been exercised, it is crucial that NGG can measure or estimate the amount of DSR that a consumer has provided. This is generally done using some kind of baseline where what the consumer would have consumed is based on their consumption at some previous point(s) in time.

### **Consequences of non-compliance**

3.53. A strict regime must be in place to ensure that when NGG calls a consumer to exercise their DSR bid, that consumer does actually provide the agreed response (ie that they do not wilfully continue to consume gas). For example, any consumer that fails to provide the contracted DSR in this manner could be obliged to pay the exercise price in their contract instead of receiving it because this was the marginal cost of balancing the system at that time. Alternatively they could be treated in a similar manner to a short shipper and charged at short cash-out for the gas that they have continued to consume on that day.

3.54. However, if NGG calls a consumer to exercise their DSR bid and they have already self-interrupted, we are of the view that this does not constitute non-compliance. We are mindful that we do not want to disincentivise self-interruption, as this is still helping balance the system. As such a consumer who self-interrupted would simply not receive exercise payments as they would not be able to provide a DSR service to NGG.

### **Minimum volume threshold**

3.55. If there is a lot of interest in the tender, and consumers can bid in tranches, NGG may well end up accepting a large number of DSR bids. This could present a challenge in terms of calling bids in a timely manner.

3.56. Generally speaking, the aim should be to accept as much DSR as possible with as much granularity in prices and volumes as possible. However, assuming that the number of bids needs to be limited for practical reasons, it may be appropriate for there to be a minimum volume threshold for bids. This would apply equally to any tranche bids. Introducing such a threshold would limit the number of calls NGG has to make and ensure that the bids it does exercise actually represent material volumes. Appendix 4 provides some data on potential DSR volumes and numbers of sites that is relevant for this point.

### **Tender timing**

3.57. We consider that it would be preferable for the tender to be run as close as possible to winter. This is because winter is the period when DSR is most likely to be needed and so holding the tender just before this period will ensure bidders' estimates of their VoLLs are as up-to-date as possible. Initial stakeholder feedback supports this view. Moreover, if the tender can be designed such that bids may be updated over the course of the year, this would provide additional assurance that bidders' estimates of their VoLLs remain as up-to-date as possible.

### **Post-tender assessment**

3.58. It may be appropriate to publish some information about the tender after it has been concluded and NGG has decided which bids to accept. This would be analogous to the 'OM Tender Information Reports' that NGG publishes for its Operating Margins tender. Such a post-tender assessment could publish information on the volume and number of bids submitted, prices, and so on. Such information would help inform future bidding processes and help foster trust in the tender.

3.59. However, we are mindful that revealing certain pieces of information about the tender could have a distorting effect. The existence of known prices to the market has been repeatedly raised by stakeholders as a concern throughout the Gas SCR process because it is thought that these could act as a target price. We are mindful that publishing prices may distort bidding behaviour in the next tender. This would lead to bids not reflecting true costs and could ultimately result in the tender being deemed unsuccessful.

## 4. The straw men

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### Chapter Summary

This chapter describes three 'straw men' options for DSR tender design, discusses their relative merits and sets out our current lead option.

### Question box

**Question 1:** What are your views on the three straw men?

**Question 2:** Do you think a price cap is necessary to limit shipper liabilities?

**Question 3:** Do you have any suggestions for how the volume cap in straw man 2 or 3 should be set?

**Question 4:** Do you think the volume cap in straw man 2 or 3 is sufficient to prevent inefficiently high DSR bids from being accepted?

**Question 5:** Do you have any views on whether or not straw man 2 should be paid-as-bid?

**Question 6:** Do you have any ideas for how a fixed budget for straw man 3 could be set?

**Question 7:** Should any volume cap or fixed budget be known to the market ex ante?

**Question 8:** What do you think of the rationale for having fixed option fees in straw man 3? Why might they be necessary to ensure sufficient participation and competitive bidding?

**Question 9:** How could the fixed option fees could be determined?

**Question 10:** Do you have an alternative design package that you think better meets the aims of the DSR tender than the three set out here?

4.1. In the context of the rationale set out in Chapter 2, we have formulated three DSR tender design packages which we are seeking stakeholder views on. These straw men are similar to those presented at previous workshops. We would stress that these straw men should be considered in the round as complete packages. This is due to the interactions between many of the different design aspects of a tender. They should also be considered within the context of the broader cash-out reforms proposed by the Gas SCR, as set out in the letter published alongside this document. If stakeholders wish to suggest modifications or alternatives to the options presented here, our preference is that these should also form viable packages that address all of the necessary high level design issues.

4.2. Should we implement a SO-run DSR tender, we may then consider modification proposals in future if a case can be made for this. This may be due to stakeholders recommending improvements to the initial design once they have become familiar with the tender. We are also keen to avoid the implementation of a centralised DSR tender dis-incentivising the development of a commercial market for

interruptible contracts, and so would consider proposals that would mitigate these concerns. Therefore, our intention is to start off with a relatively simple design that could be tested first, before deciding whether additional rules or design options could be added to improve the efficiency and fairness of the outcomes.

4.3. The table below summarises the key high level components of the three approaches to the DSR tender that we have formulated. Our lead option is straw man 2 and we set out why at the end of this chapter.

Design issue	Straw man 1	Straw man 2	Straw man 3
Format	Sealed-bid single round tender	Sealed-bid single round tender	Sealed-bid single round tender
Payment regime	Pay-as-clear	Pay-as-clear	Pay-as-bid
Pricing regime	Exercise fee only	Exercise fee only	Exercise and fixed option fee
Decision criteria	Price cap at £14/therm	Volume cap	Set budget or volume cap
Product duration	One year product	One year product	One year product

4.4. Respondents may find it helpful to refer to the appendices when looking through each of the straw men in detail:

- To help illustrate how each of the straw men might work, a diagram is included in each of the following three sections. An explanation of this diagram can be found in Appendix 3.
- Appendix 4 provides an indication of potential DSR volumes.

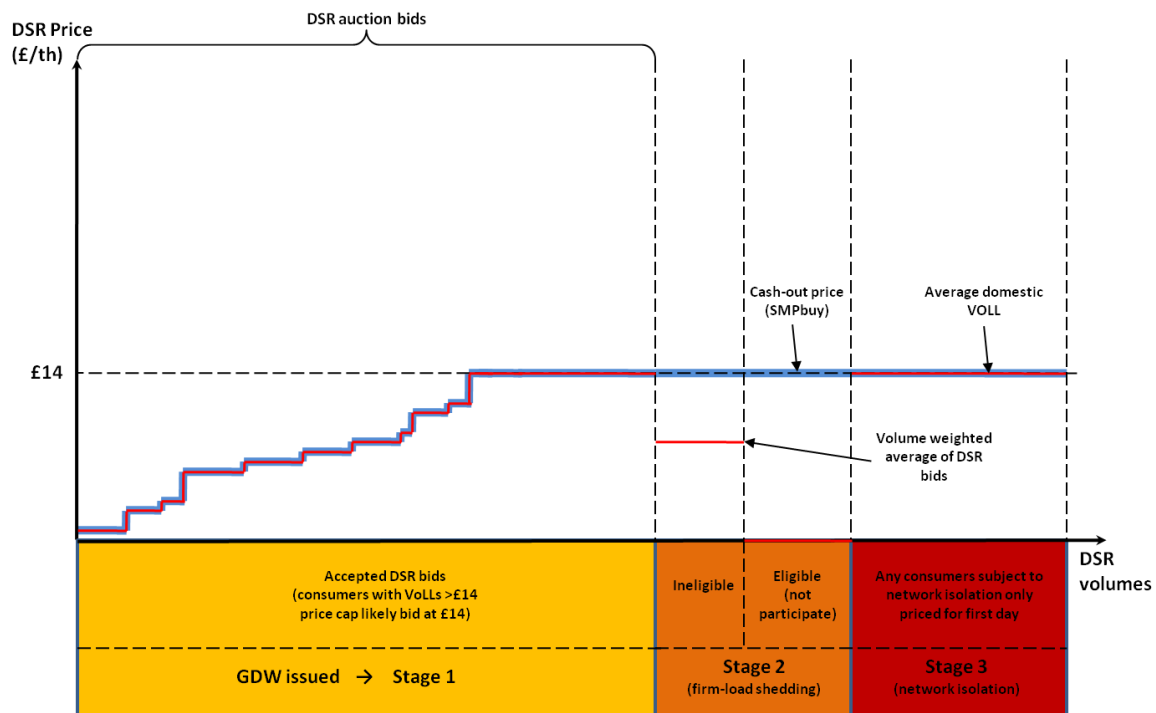
## Straw man 1

### How it would work

4.5. Straw man 1 is based on the lead option recommended to us by ESP Consulting. This approach contains a price cap at £14/therm, so all bids up to this level would be accepted. Exercised DSR would be paid-as-clear. This would mean that consumers with VoLLs below the £14/therm price cap would be incentivised to bid their true marginal cost.

4.6. The diagram below highlights a number of key points about how the tender would work in practice. Firstly, if NGG were to utilise any of the DSR following the

declaration of a GDW, it would exercise the bids in price order. Any exercised bids would feed into cash-out (as reflected by the escalating red and blue lines). Secondly, if the emergency is not averted by exercising the bids from the tender and NGG begins involuntary disconnections, the diagram highlights how the cash-out price will not fall. This is because the prices from the tender will continue to feed into the cash-out price, alongside the prices for any involuntary interruptions during firm-load shedding or network isolation. Lastly, we anticipate that consumers with VoLLs above £14/therm would probably cluster their bids at £14/therm (as reflected in the diagram).



### Why a price cap?

4.7. A price cap is included in this straw man in order to place a limit on the price of DSR actions that may feed into cash-out. This limits the liabilities the tender could impose on shippers and the use of £14/therm is consistent with the decision to limit liabilities in the event of a network isolation. Whilst other decision criteria, such as a volume cap, also have the potential to limit liabilities by rejecting the most expensive bids, they cannot provide the same complete certainty as an explicit price cap when attempting to ensure inefficiently expensive bids will not be accepted.

4.8. Deciding which bids to accept or reject solely on the basis of a price cap also means that the tender will be able to accommodate revisions to exercise prices during the intervening period between tenders. Those revisions would simply have to be to a price that remained below the £14/therm price cap. This could allow consumers to provide the most up-to-date estimates of their VoLL. This is not feasible for the other two straw men because there is a limit on the volume of bids



accepted, but no price cap. As such allowing a consumer to revise their price upwards after they had been accepted would encourage them to bid low in order to be accepted, and then revise their exercise price upwards after being accepted.

4.9. Despite these arguments in favour of a price cap, we are still mindful of the previous concerns expressed about the tender containing a price cap. These concerns relate to the cap acting as a target price. A fuller explanation of our views on these target price concerns can be found in the responses document published alongside this consultation. Stakeholders have expressed concerns that the cap might distort bidding behaviour, with participants in the DSR tender simply bidding just below the price cap. Respondents have also argued that the cap might cause traders in the market alter their trading behaviour in the run-up to an emergency<sup>13</sup>.

4.10. We have decided to include a straw man with a price cap as we believe limiting liabilities is potentially very important, especially as the inclusion of gas-fired power stations may have a significant effect on the clearing price. As noted in the responses document, we consider there are clear potential reasons why a cap would not necessarily act as a target for the market.

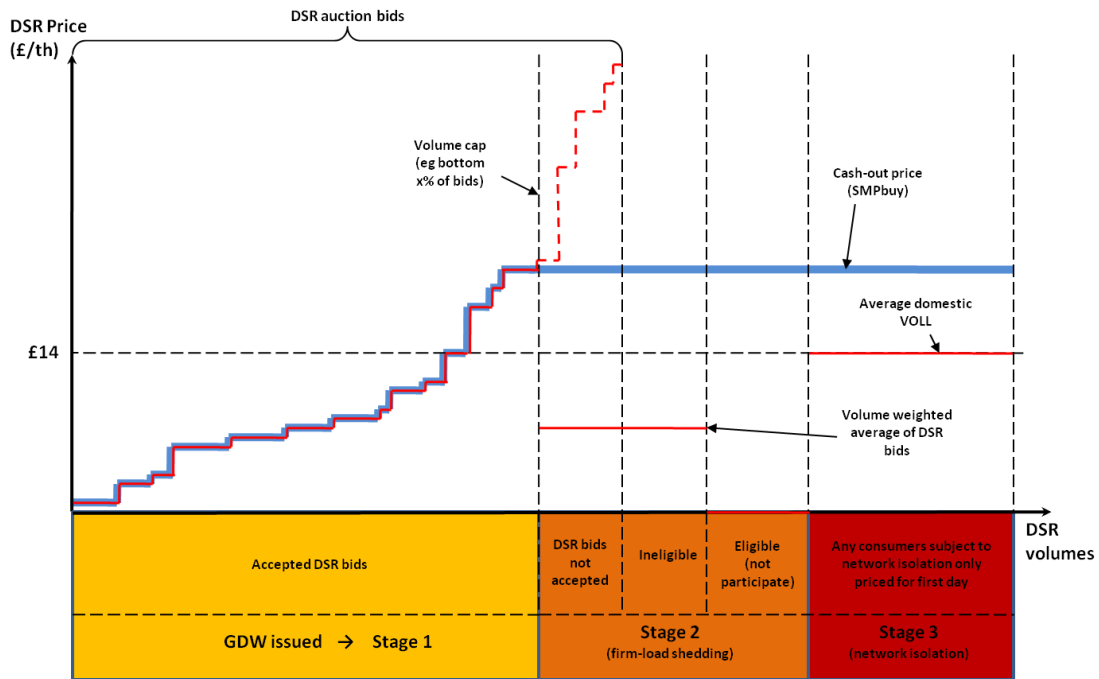
## Straw man 2

### How it would work

4.11. The main difference between straw man 2 and straw man 1 is that straw man 2 removes the £14/therm price cap. Instead it uses a volume cap to decide which bids to accept/reject. As can be seen from the diagram below, the cheapest bids are accepted until the volume cap is reached. Any bids above this are not accepted and remain in firm-load shedding.

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<sup>13</sup> This is because to have reached Stage 2 firm-load shedding all DSR from the tender will have to have been exercised (or deemed to be exercised). As such the highest priced DSR bid accepted in the tender will definitely be priced into cash-out by this point. Due to the £14/therm price cap, traders will know that this highest priced DSR bid will be at £14/therm and so the short cash-out price will almost certainly be at least £14/therm going into Stage 2.



### Setting the volume cap

4.12. The aim of introducing a volume cap would be to create competition amongst bidders. It would also help deal with possible target price concerns and allow bids above £14/therm to be fully priced into cash-out. In order to maximise the incentives for competitive bidding, it may be appropriate not to reveal this volume cap to the market.

4.13. Our initial thinking on setting the volume cap is to accept some percentage of bids (for example, NGG decides ex ante that it will procure the cheapest x% of bids)<sup>14</sup>. Depending on the bids received, this could result in the most expensive accepted bid being either above or below the £14/therm price cap in straw man 1. The main alternative to using a percentage would be to set a target volume, but given participation is uncertain, deciding what this volume should be would be difficult. Also, if less than the stated volume actually bids, every bid would be accepted, irrespective of their exercise price. This could result in an inefficiently high bid ultimately setting the cash-out price.

<sup>14</sup> This would have to be the cheapest x% by volume.

## Straw man 3

### How it would work

4.14. Straw man 3 has two key differences from straw man 2. The first is that it is pay-as-bid instead of pay-as-clear. The second is that it includes fixed option fees.

4.15. With fixed option fees included, there are now two ways that NGG could set the volume cap that decides which bids to accept or reject:

- Giving NGG a fixed budget would effectively create an implicit volume cap (volume cap = budget / fixed option fee). NGG would probably initially fix option fees fairly high, resulting in a low volume cap. Over time NGG could lower option fees in order to procure larger and larger volumes. This means NGG could maintain a constant budget, yet manage to procure the most DSR possible for its money<sup>15</sup>.
- Similar volume cap approach to straw man 2 where a percentage of bids is accepted. This would mean NGG's budget would vary depending on the option fees it set. We would expect the budget to decline over time as NGG discovered the amount of available DSR and consequently lowered the option fees in line with competition in the tender, although this would likely have to be subject some pre-defined methodology.

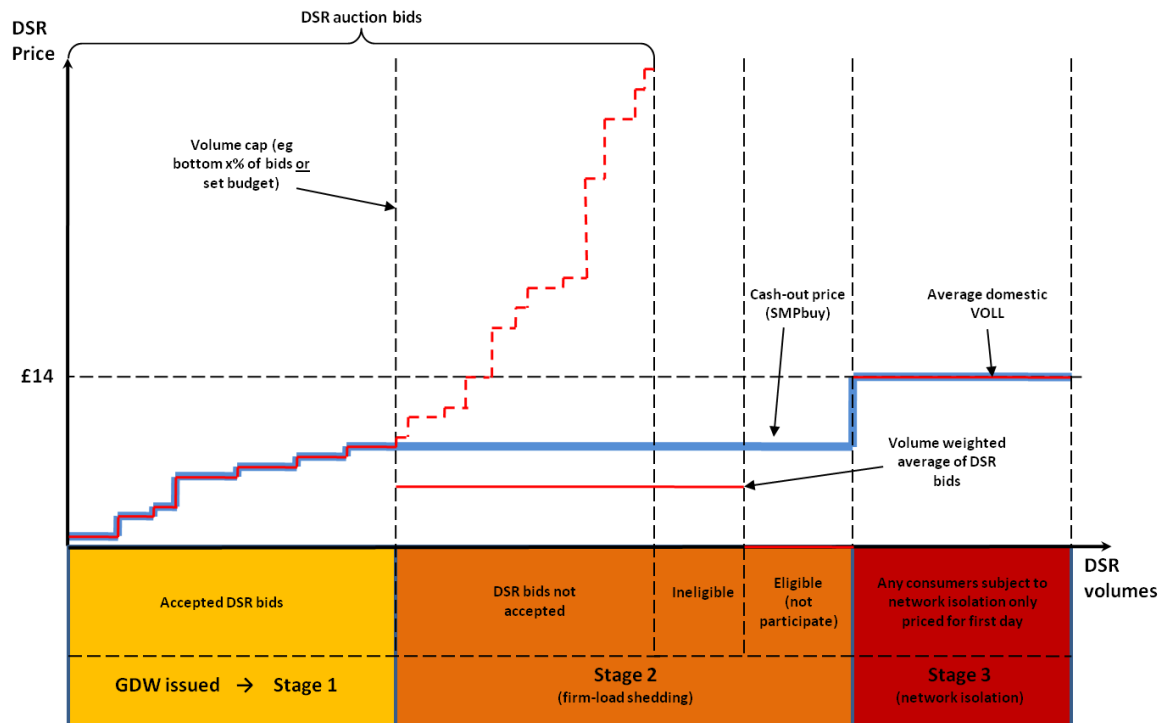
4.16. The diagram below illustrates how this approach might work. In a similar fashion to straw man 2, the cheapest bids are accepted until the volume cap is reached. These bids receive the option fees. Any bids above this are not accepted and remain in firm-load shedding. If disconnected these unsuccessful bidders would receive the average price of the bids accepted in the tender.

4.17. The volume cap in this example is lower than in the diagram for straw man 2. This is simply to illustrate the effect of having a lower volume cap and to highlight that the level of this cap is not fixed. Also, note that the fixed option fees are not reflected on the diagram. The diagram is only concerned with the exercise fees which will feed into cash-out charges during an emergency.

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<sup>15</sup> For example, NGG could have a budget of £3m. In the first year it sets option fees at £0.80/therm resulting in it procuring 10mcm. However, due to high competition for the option fees there was 30mcm of bids. As such NGG lowers option fees next year to £0.40/therm and procures 20mcm. Evidence from the post tender assessments for Operating Margins (OM) has shown option fees of ~£0.40/therm are very plausible. Whilst the terms in OM and a DSR tender such as that being proposed will differ, in general it seems the terms for OM contracts would be more stringent, and the contract more likely to be utilised. As such, it seems reasonable to assume that the option prices associated with a DSR tender would be similar to, if not below, those seen in OM.

## Gas Security of Supply Significant Code Review – Demand-Side Response Tender Consultation



### Why fixed option fees?

4.18. As set out earlier in this document, option fees are payments made on a regular basis to the bidder for the right (or option) to call on them to provide DSR. These are generally intended to reflect the cost of continually being available to provide a demand reduction (ie the cost of providing the service).

4.19. It was also noted earlier in this document that several stakeholders view option fees as having a role in funding longer-term investments in providing the service (eg back-up facilities). Chapter 2 set out in detail why we disagree with this approach for the DSR tender being designed here.

4.20. Bearing the above view of option fees in mind, the fixed option fees are included in this model for two reasons:

- They further incentivise participation. Bidders will now have an added incentive to participate in order to get the fixed option fees available if they are accepted. These option fees provide an upfront financial gain for successful bidders that is not contingent on their DSR bids actually being exercised.
- They incentivise bidding at true VoLL. The fixed option fees should provide a strong incentive for bidders to bid aggressively at their true VoLL. This is crucial for the tender to produce an efficient outcome. This also means that the tender can be paid-as-bid. Straw men 1 and 2 are paid-as-clear to ensure

the incentives are there for bidders to bid at true VoLL. This is no longer necessary for straw man 3 because the fixed option fees are now providing the required incentives for bidding at true VoLL.

4.21. Including fixed option fees in this manner means that allowing them to vary over time gives added flexibility to the tender design. If competition is high it shows consumers are keen to move themselves forward in the disconnection order and receive the fixed option fee associated with this. In this case the fixed option fee could be reduced and NGG could procure a higher volume with the same amount of money. Eventually a balance will be struck between the market participant's willingness to move forward in the disconnection order and the fixed option price that NGG pays for that right.

## Pros and cons

4.22. There are a number of issues that we see as being key to judging the relative merits of the three straw men:

- Bidding at marginal cost (ie at true VoLL). Pay-as-clear means every exercised bidder receives the clearing price. As such there is no benefit to bidding above your true cost. This is because even if a more expensive bid than yours is exercised, that bid will become the clearing bid and you will receive that as a payment, instead of your own bid price. For pay-as-bid the optimal strategy is not to bid at marginal cost. Instead the incentive is to shade bids above true costs in an attempt to guess the price of the highest accepted bid. However, there is scope for option fees incentivising bidding at true VoLL, as in straw man 3.
- No costs incurred if there is no GDE. This means that a cost burden is not imposed on the industry (and ultimately consumers) irrespective the likelihood of a GDE occurring.
- Limit on potential shipper liabilities from cash-out. Because DSR bids that are accepted and exercised will feed into cash-out, they have the potential to impose very high cash-out charges on shippers. Whilst this may be strictly speaking an efficient reflection of the value some consumers place on their gas supplies, there is a risk that such high cash-out prices may impose excessive risks on market participants. For example, it is noteworthy that we chose to cap the price attached to network isolations at one day on the grounds that fully pricing this action could impose excessive risks on shippers.
- Avoids potential target price concerns. As mentioned earlier, the concern is that a known price cap in the tender will create a target for both bidders in the tender and traders in the market as a whole.
- Efficient disconnections. This means that the cheapest DSR (ie the consumers or tranches of demand with the lowest VoLLs) are exercised first. If bidding is at true marginal cost this will happen. However, because pay-as-bid means some consumers may try to 'guess' the clearing price, those that inflate their

bids too much may find themselves at the wrong point in the disconnection order, or even out of merit all together.

- Reduced risk of alternative emergency shortfall arrangements being utilised. It is highly likely that the most expensive exercised DSR bid is what will set the short cash-out price near or during a GDE. If this is the case, there is a higher risk of any alternative emergency shortfall arrangements being utilised for a pay-as-clear tender than for a pay-as-bid one. A full explanation of this is given in Appendix 2.
- Mitigates market power concerns. A price cap is important here because it limits the ability of large players to inflate the clearing price. It also means small consumers won't be crowded out because acceptance is based on a limit on prices, not a limit on volumes. Pay-as-clear also mitigates market power concerns because it allows small consumers to 'free ride' on attempts by large consumers to bid up the clearing price. Pay-as-bid, on the other hand, means larger players can better afford the forecasting needed to correctly 'guess' the clearing price.
- Allows bid prices to be revised. This would mean successful bidders could submit revised exercise fees throughout the period for which their DSR contract was valid. This would ensure the most up-to-date VoLL estimates (eg reflect the changing cost of fuel oil).

4.23. The table below sets out our initial view on these issues for each of the three straw men:

Issue	Straw man 1	Straw man 2	Straw man 3
Bidding at marginal cost (ie at true VoLL)	Yes. Pay-as-clear provides correct incentives for this. However, bidders with VoLLs above £14/therm cannot bid at true VoLL.	Yes. Pay-as-clear provides correct incentives for this.	Likely yes. Option fees should incentivise competitive bidding. Pay-as-bid means these are necessary.
No costs incurred if there is no GDE	Yes. No option fees.	Yes. No option fees.	No. Fixed option fees mean costs incurred irrespective of a GDE occurring.
Limit on potential shipper liabilities from cash-out	Yes. £14/therm price cap places certain limit on these.	No. Volume cap should prevent inefficiently expensive bids being accepted. Still risk of potentially unlimited liabilities though.	No. Volume cap should prevent inefficiently expensive bids being accepted. Still risk of potentially unlimited liabilities though.

Avoids potential target price concerns	No. Concerns that £14/therm price cap may act as a target.	Yes. No set price for bidders/traders to target.	Yes. No set price for bidders/traders to target.
Efficient disconnection	Yes for bids below £14/therm. No for bidders with VoLLs above £14/therm as they will cluster their bids at £14/therm.	Yes for bids below the volume cap. Rejected bids remain in 'largest first' firm-load shedding.	Maybe. For bids below the volume cap it depends on bidding behaviour due to pay-as-bid. Rejected bids remain in 'largest first' firm-load shedding.
Reduced risk of emergency shortfall arrangements being utilised	No. Pay-as-clear means cash-out charges in will likely equal payments out to exercised DSR bids.	No. Pay-as-clear means cash-out charges in will likely equal payments out to exercised DSR bids.	Maybe. Pay-as-bid has the <u>potential</u> to reduce the risk of shortfalls. However, this is dependent on bidding behaviour.
Mitigates market power concerns	Yes. Pay-as-clear and has price cap at £14/therm.	To some extent. Pay-as-clear, but no price cap.	No. Pay-as-bid and no price cap.
Allows bid prices to be revised	Yes.	No.	No.

4.24. Our lead option is straw man 2. We think it provides a simple, easy to understand approach that achieves the main aim of the tender: to elicit a market revealed VoLL for DM consumers and provide a route to market for DSR.

4.25. A key part of achieving this aim is ensuring bidding at true marginal cost, which the use of pay-as-clear does. Unlike straw man 3 though, this bidding at marginal cost is achieved without the need for option fees. As such, straw man 2 avoids placing a cost burden on the industry, and ultimately consumers, irrespective of the likelihood of a GDE occurring. Furthermore, the lack of option fees means the tender is less likely to inhibit a market for commercial interruptible contracts emerging.

4.26. On both of the above points, straw man 2 is fairly similar to straw man 1. However, we are also mindful that one of the key stakeholder concerns raised with respect to the proposed final decision and at previous workshops has been that any explicit price cap may act as a target price for bidders and/or traders. Straw man 2 has no such price cap so avoids these concerns.

4.27. We do have some concerns about straw man 2 not having any explicit limit on liabilities (ie not having a price cap such as that in straw man 1). However, we are

mindful that stakeholders have thus far made it clear to us that dealing with target price concerns is preferable to having a limit on liabilities. We would re-emphasise here that NGG will take all material volumes when clearing out the market on the cusp of an emergency, and so stakeholders should be mindful that this could entail a very high-priced DSR bid feeding into cash-out. As such our preference for this approach is likely dependent on a suitable volume cap being devised, particularly if gas-fired generation is allowed to participate in the tender.

4.28. On the subject of shortfalls, the use of pay-as-clear does mean straw man 2 is potentially at greater risk than straw man 3 of causing the emergency shortfall arrangements to be utilised. However, this issue appears comparatively minor, particularly when weighed against the benefits of pay-as-clear mentioned above. Furthermore, because cash-out is marginally priced, there is no inherent reason why there would be a shortfall when netting off the funds needed to pay DSR in a GDE<sup>16</sup>.

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<sup>16</sup> This is particularly the case because NGG will likely take a range of other balancing actions that are not paid-as-clear and long shippers will be paid at an amount that is less than short cash-out.



## 5. Tender implementation

### Process and Governance

5.1. Subject to responses to this consultation and further analysis the Authority will make a final decision on whether or not to proceed with the DSR tender. Government is currently considering options for further measures to enhance security of supply. If interactions arise between Government's decision and the DSR tender, we will take these into account in reaching our decision.

5.2. If the Authority chooses to proceed we will publish the high level tender principles in early 2014. This will be accompanied by draft business rules, code and licence conditions. Our intention is to place a licence obligation on NGG to run the DSR tender based on those high level principles. As part of that licence obligation they would lead the development of the detailed methodology and rules for the DSR tender, working closely with other industry stakeholders. This will include proposals for the governance and approval of the DSR methodology. Once completed, the detailed methodology and rules will be submitted to Ofgem for approval.

5.3. The Authority intends to implement the necessary code and licence changes by directing changes to the UNC pursuant to section 36C Gas Act 1986 and by making modifications to licence conditions pursuant to section 23 Gas Act 1986.

5.4. Our aim is to implement the DSR tender in time for winter 2015/16. The flow chart below gives an indication of the likely timeline for implementing the DSR tender, although this is subject to responses to the DSR tender consultation, any further consultation on the detailed rules, and to the Authority approving the tender methodology submitted by NGG.



## Measuring success

5.5. Once established, it will be important to monitor the tender to ensure it produces a fair and efficient outcome. There are a number of circumstances in which it might be appropriate to deem the tender to have failed to produce a fair and efficient outcome. Some examples of circumstances that may imply the tender has been unsuccessful are given below:

Problem	Causes	Consequences
Insufficient volume of bids and/or number of bidders.	<ul style="list-style-type: none"> <li>Consumers have already agreed interruptible contracts with their shippers.</li> <li>Consumers perceive the costs incurred during gas interruption to be so high that they see no benefit in moving forward in the disconnection order. As such choose not to bid and ensure they remain in firm-load shedding.</li> <li>Consumers deem the effort associated with formulating and submitting a bid to be too great.</li> </ul>	<ul style="list-style-type: none"> <li>Bidding for the tender may not have been subject to sufficient levels of competition to produce reliable prices.</li> <li>NGG may not procure a meaningful volume of DSR to respond to the declaration of a GDW.</li> </ul>
The prices of the bids accepted do not reflect a reliable view of true costs.	<ul style="list-style-type: none"> <li>Consumers deem the effort of calculating their VoLL to be too great and therefore submit an arbitrary figure (for example by submitting a sleeper bid of £9999/therm).</li> <li>Consumers perceive an incentive in submitting a bid above their true costs. This is a particular concern for a pay-as-bid tender because the optimal strategy is to inflate your bid price above your true costs in an attempt to guess the price of the highest accepted bid (for example all bids could end up being targeted at the £14/therm price cap in straw man 1 if it was pay-as-bid).</li> </ul>	<ul style="list-style-type: none"> <li>Bidding fails to produce a cost-reflective escalation of prices from which to generate a bid stack. Instead bids have all been clustered around a particular price.</li> <li>NGG ends up accepting, exercising and pricing into cash-out an inefficiently expensive bid.</li> </ul>

## Contingencies

5.6. The exact details of any criteria for measuring the success of the tender will need to be worked out, as does the question of who decides whether that criteria have been met.

5.7. Whatever the eventual arrangements, if the tender is unsuccessful or is not implemented there will need to be a contingency in place in terms of how cash-out will be set. Our updated proposed final decision sets out our intention to unfreeze cash-out throughout an emergency. If the DSR tender is unsuccessful or it is not implemented, we suggest setting payments to consumers subject to firm load shedding at the prevailing SAP for the day in question.

5.8. We are also minded to introduce these contingency arrangements in the event that the tender is not implemented in time for winter 2015/16.

## Appendices

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## Appendix 1 - Consultation Response and Questions

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1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document. In particular, we would like to hear from demand-side stakeholders as it is large industrial and commercial consumers that will be eligible to participate in the tender.

1.2. We would especially welcome responses to the specific questions which we have set out at the beginning of each chapter heading and which are replicated below.

1.3. Responses should be received by 17 September 2013 and should be sent to:

- Anjali Mehta
- Wholesale Markets
- Ofgem, 9 Millbank, London SW1P 3GE
- 020 7901 1859
- [gb.markets@ofgem.gov.uk](mailto:gb.markets@ofgem.gov.uk)

1.4. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website [www.ofgem.gov.uk](http://www.ofgem.gov.uk). Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.5. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

1.6. Next steps: Having considered the responses to this consultation, Ofgem intends to publish the high level tender principles in autumn 2013 and invite National Grid to develop the detailed methodology and rules for the DSR tender with support from the industry. This will include proposals for the governance and approval of the DSR methodology. Once completed, the detailed methodology and rules will be submitted to Ofgem for approval. Our aim is to implement the DSR tender in time for winter 2015/16. Any questions on this document should, in the first instance, be directed to:

- Stephen Jarvis
- Wholesale Markets
- Ofgem, 3rd Floor, 107 West Regent Street, Glasgow G2 2BA
- 0141 341 3990
- [gb.markets@ofgem.gov.uk](mailto:gb.markets@ofgem.gov.uk)

## **CHAPTER: Two**

**Question 1:** What are your views on a SO-run DSR tender? Do you think it is an appropriate addition to the Gas SCR?

**Question 2:** What do you think the purpose of the tender should be?

**Question 3:** What benefits do you see a DSR tender providing?

**Question 4:** What costs do you see arising from a DSR tender?

**Question 5:** Do you think a DSR tender should have a role subsidising investment in back-up facilities? If so, why?

## **CHAPTER: Three**

**Question 1:** What do you see as the key design issues for the high level design of a DSR tender? Are there any we have not included here?

**Question 2:** What are your views on having variable option fees in the tender? Do you have any concerns about the costs that these could impose irrespective of a GDE actually occurring? How should these be funded?

**Question 3:** What are your views on the eligibility of gas-fired power stations? How should the interactions with the electricity market be managed?

**Question 4:** Could participation of gas-fired power stations have a negative impact on the tender, or on the gas market as whole? If so, can you suggest any steps that could be taken, or an alternative mechanism that could be created, that would help mitigate these concerns?

**Question 5:** Do you have any views on what consumers whose bids were unsuccessful should be paid if they are firm-load shed?

**Question 6:** What are your views on the response type the tender should contract for?

**Question 7:** What are your views on a minimum volume threshold? Do you have any ideas on how this could be set? Should there be a limit on the number or size of tranches that consumers can bid?

**Question 8:** What is your preferred length of time and/or frequency with which NGG may exercise a DSR contract? Do you have a preferred minimum response time if a DSR contract were to include one?

**Question 9:** Do you have any views on any other tender design issues?

**CHAPTER: Four**

**Question 1:** What are your views on the three straw men?

**Question 2:** Do you think a price cap is necessary to limit shipper liabilities?

**Question 3:** Do you have any suggestions for how the volume cap in straw man 2 or 3 should be set?

**Question 4:** Do you think the volume cap in straw man 2 or 3 is sufficient to prevent inefficiently high DSR bids from being accepted?

**Question 5:** Do you have any views on whether or not straw man 2 should be paid-as-bid?

**Question 6:** Do you have any ideas for how a fixed budget for straw man 3 could be set?

**Question 7:** Should any volume cap or fixed budget be known to the market ex ante?

**Question 8:** What do you think of the rationale for having fixed option fees in straw man 3? Why might they be necessary to ensure sufficient participation and competitive bidding?

**Question 9:** How could the fixed option fees could be determined?

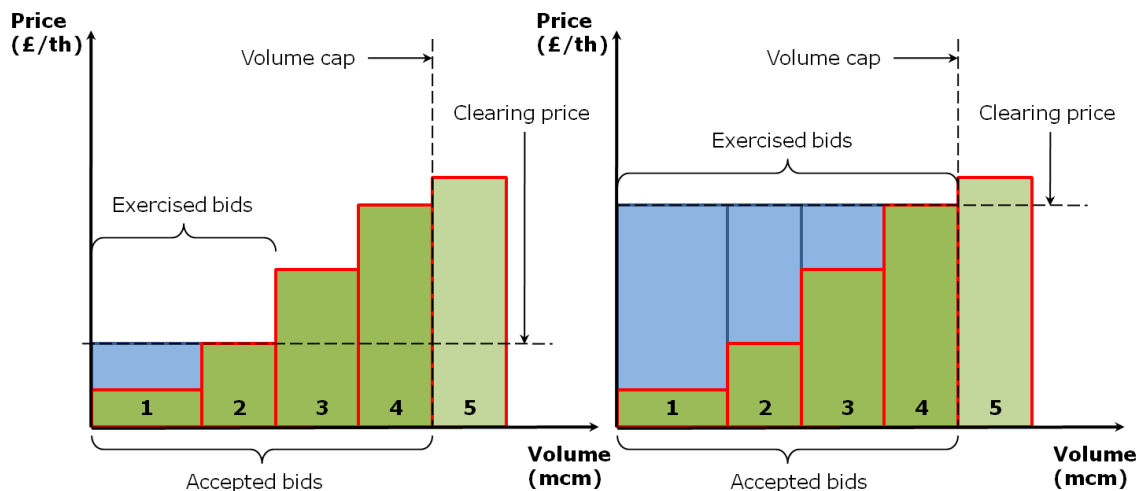
**Question 10:** Do you have an alternative design package that you think better meets the aims of the DSR tender than the three set out here?

## Appendix 2 – Pay-as-clear

### Pay-as-clear variant

1.1. Throughout this consultation when pay-as-clear is referred to, we are not actually referring to a pure pay-as-clear approach. The pure pay-as-clear approach stipulates that ‘all exercised DSR bids will be paid the price of the highest accepted bid’. Instead, we are referring to a variant of pay-as-clear recommended to us by ESP Consulting. This approach to pay-as-clear stipulates that ‘all exercised DSR bids will be paid the price of the highest exercised bid’.

1.2. The charts below set out how this variant would work. Both show a tender where four out of the five bidders are accepted due to a volume cap on bids. For pure pay-as-clear, any exercised DSR would be paid the clearing price set by the highest accepted bid – the exercise price of consumer 4. This alternative approach bases the clearing price on the highest exercised bid and so has a unique clearing price for each scarcity event where DSR from the tender is utilised.



1.3. In the left hand chart a GDW is called and the first two consumers have their bids exercised. However, this is sufficient to avert the emergency and no further disconnections occur. As such consumer 2 sets the clearing price and both consumers 1 and 2 are paid this price.

1.4. In the right hand chart the scarcity event on that particular day is more severe. In this case all four of the accepted bids are utilised and so the highest exercised bid is that of consumer 4. As such all four accepted and exercised bids receive the clearing price set by consumer 4. If the emergency continues to worsen consumer 5 may then be interrupted, along with other consumers not accepted in the tender, as part of firm-load shedding. However, because consumer 5’s bid was rejected, it would not receive its exercise price and would not alter the clearing price paid to



consumers 1 to 4. Instead it would likely receive the average price from the tender – the average of the bids made by consumers 1 to 4.

1.5. This approach is an improvement on pure pay-as-clear because it means prices can increase as more and more disconnections occur. There will also be different prices feeding into cash-out depending on the severity of the scarcity event. Pure pay-as-clear would only ever have one uniform clearing price being applied to all bids when they are exercised.

1.6. There is one potential downside to this approach though – bidding at marginal cost is now not theoretically guaranteed. The optimal strategy for this variant is to guess the price of the next highest bidder. However, the gains from doing this are relatively small and are only realised if the consumer is the marginal disconnected bid. Furthermore, guessing the exercise price of the next highest bidder is likely very difficult, particularly if there is no price cap in the tender. As such it is likely that bidding will be at true marginal cost.

### **Pay-as-clear and shortfalls**

1.7. Cash-out charges are intended to reflect the cost to NGG of balancing the system. Generally speaking, the funds received from short shippers for a given day should tend to exceed the costs incurred by NGG for that day. This is largely because cash-out charges are set by the most expensive action taken by NGG. As such money in is charged at the margin, whereas money out is mostly paid below the margin.

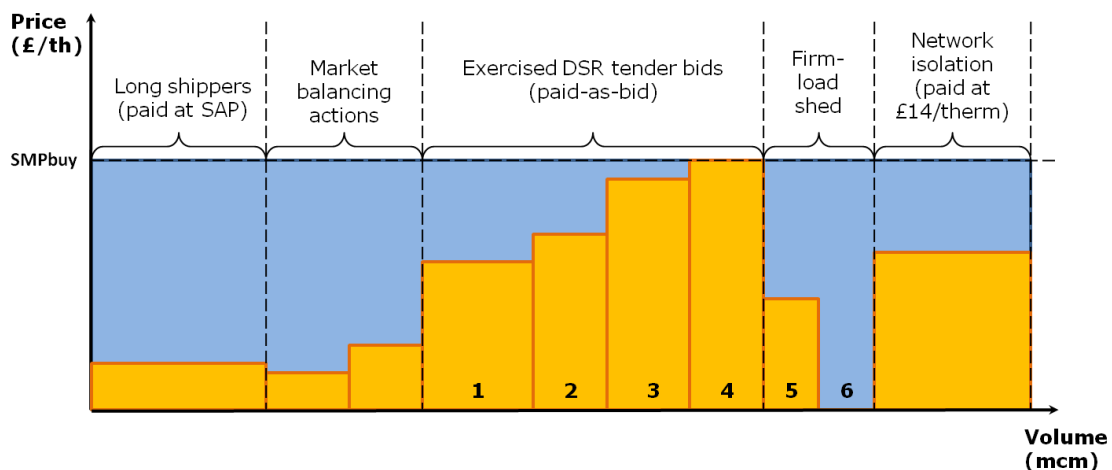
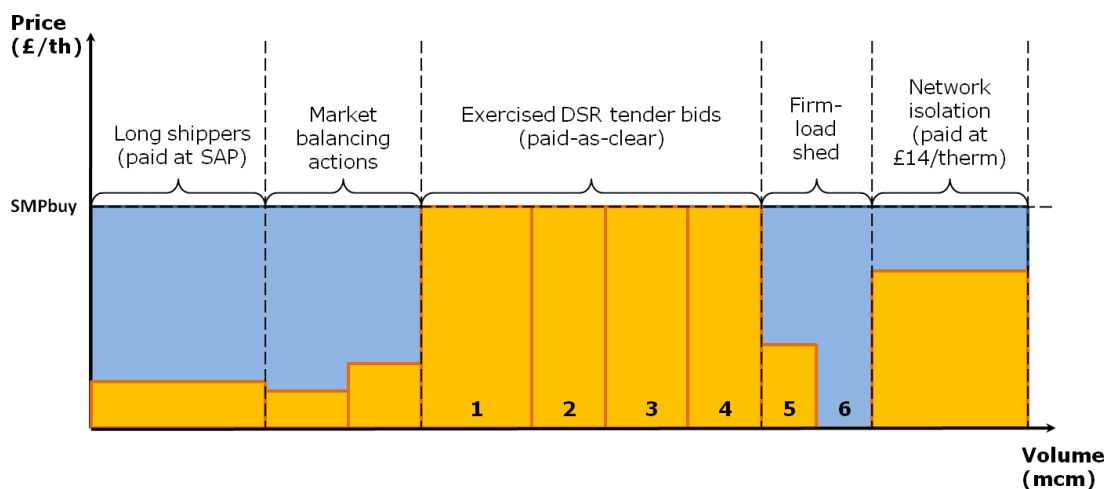
1.8. However, it is possible that a situation could arise where the funds received from short shippers may be less than the costs of any balancing actions and payments due to long shippers. This might be due to short shippers recovering their positions before the end of the day, or a short shipper defaulting on its obligations. This difference would constitute what is referred to here as a shortfall, or more specifically a net neutrality shortfall.

1.9. Because of the way these various payments are netted off under current arrangements, any difference between money in and money out would automatically be smeared through neutrality based on that day's throughput. We are minded to maintain these arrangements as long as NGG is still active in the market (ie prior to Stage 2 of a GDE) in order to ensure DSR from the tender is paid in much the same manner as any other market balancing action.

1.10. However, stakeholders have expressed concerns with maintaining these arrangements throughout a GDE. This is because smearing any shortfall through neutrality based on throughput for the gas day in question could act as a disincentive to increase flows in a GDE, as higher throughput means a shipper bears a greater share of neutrality charges. We have listened to stakeholders and are committed to mitigating the impact of a shortfall on industry. Any alternative options will need to balance the interests of consumers with the possible disincentive on shippers to flow gas during a GDE.

1.11. Irrespective of the eventual arrangements, the size of any shortfall is to a certain extent linked to the choice of either pay-as-bid or pay-as-clear. For pay-as-bid, exercised consumers get their own exercise price. This means most consumers are paid *less than* the most expensive exercised bid. For pay-as-clear, all exercised consumers are paid a clearing price that is *the same as* the most expensive exercised bid.

1.12. This is demonstrated in the diagrams below. The diagram assumes the volume of short shippers is equal to the volume of any market balancing actions, long shippers, voluntary and involuntary DSR. The yellow areas are payments due out. The surplus of money in from short shippers over money out is the blue area. The blue area for the pay-as-bid tender clearly exceeds that for the pay-as-clear tender.



1.13. It is important to note that this does not necessarily mean that pay-as-clear is more *costly* than pay-as-bid. That is dependent on bidding behaviour. In fact the diagrams above reflect the fact that inflated bidding in the pay-as-bid tender has actually resulted in a higher cash-out price overall. The key point is that there is a difference in the likelihood of those costs not always being fully covered by money in

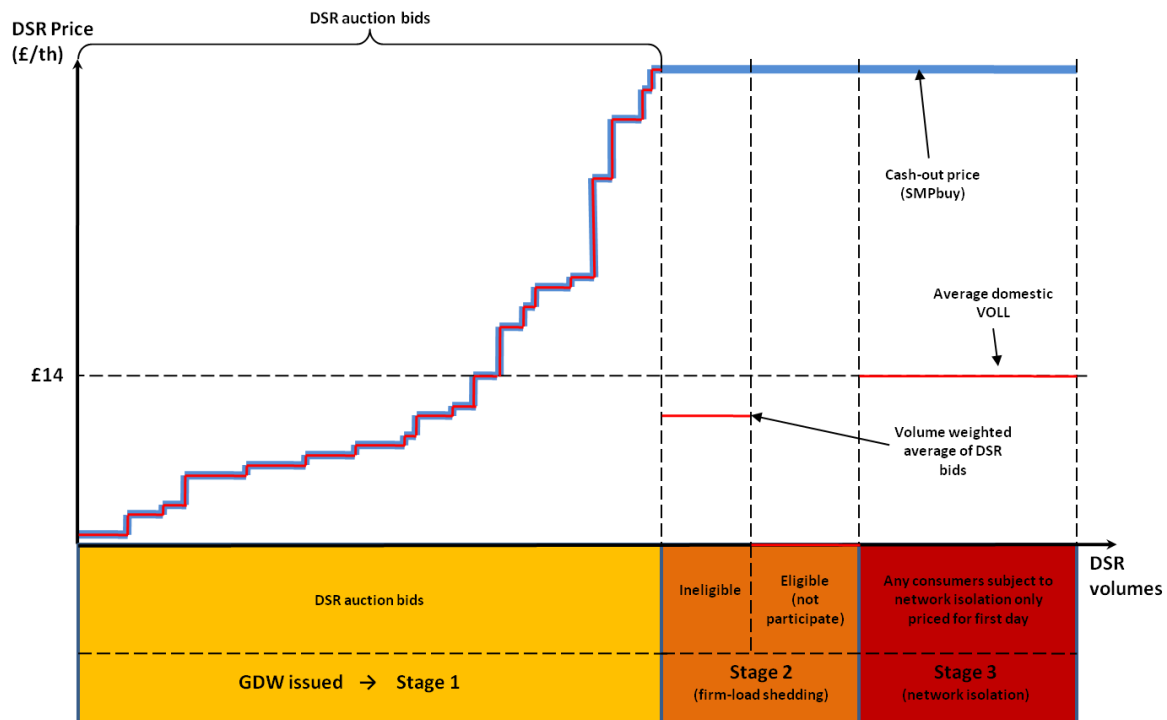


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from short shippers. If sufficient monies cannot be recovered from short shippers, those costs must be dealt with using any alternative emergency shortfall arrangements that may apply following the declaration of a Stage 2 emergency.

## Appendix 3 – DSR tender diagram

1.1. The diagram below is used throughout to help illustrate how each of the straw men might work. It shows the prices to be attached to a range of possible interruptions (ie DSR balancing actions) that could happen during an emergency.



1.2. The solid red lines represent the price that will feed into cash-out when that particular consumer type is interrupted. On any given day, the most expensive of these DSR actions could be the marginal balancing action. As such they could set the short cash-out price if no OCM actions are taken by NGG at a higher price. The thick blue lines therefore represent the corresponding cash-out price when different consumers are interrupted. This is based on the assumption that DSR actions always form the marginal action (ie are more expensive than any market balancing actions NGG might take) and that balancing actions set the cash-out price (ie cash-out is not based on SAP).

1.3. The DSR volumes in the GDW to Stage 1 section (yellow) are those exercised as part of the tender. We intend to use the declaration of a GDW as the trigger point that will mean NGG is allowed to begin exercising DSR from the tender. Achieving the above ideal outcome where all DSR bids are accepted at true VoLL is clearly very challenging. Subsequent diagrams contain red dashed lines to indicate consumers that have not been accepted in the tender and have therefore been moved to firm-load shedding.

1.4. Volumes interrupted in Stage 2 (orange) are involuntarily disconnected by NGG (ie firm-load shed). On the one hand these could be consumers who were eligible to participate in the tender but chose not to. These consumers are priced at zero and receive no payments. On the other hand these could be consumers that were ineligible to participate, or who were eligible but bid too high to be accepted. These consumers are priced in at the volume weighted average of the DSR bids that were accepted.

1.5. Finally, Stage 3 consumers (NDMs) cannot participate in the tender and are therefore priced in at NDM VoLL for the first day of any network isolation (red).

1.6. As the severity of the emergency increases, more and more volumes of DSR (both voluntary and involuntary) will be utilised. This is equivalent to moving further and further to the right on the diagram, from GDW, to stages 1, 2 and 3. It is possible that some of the prices that feed into cash-out from new disconnection in the later stages (ie stages 2 and 3) will be lower than those feeding in from the tender (ie from GDW to stage 1). This can be seen in the diagram above where some of the DSR tender bids are much higher than the £14/therm NDM VoLL used for stage 3 NDM disconnections. We would like to stress that this means the cash-out price will not fall as the emergency worsens. Cash-out will always be set by the marginal action on any given day and if the emergency has progressed to stage 2 or 3, all the prices from the DSR tender will continue to feed into cash-out for the duration of the emergency (ie until those consumers are reconnected). This is reflected by the fact that the thick blue line in the diagram does not fall as the emergency worsens.

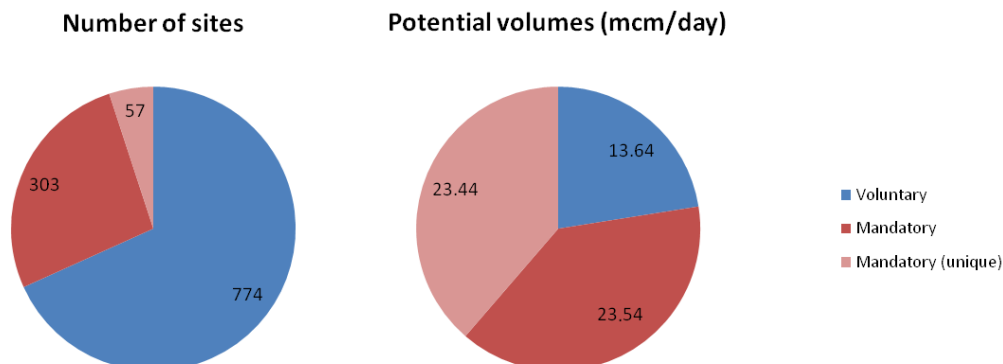
## Appendix 4 – Potential DSR volumes

### Gas-fired power generation

1.1. There is significant uncertainty over the potential volumes that could be offered into a DSR tender. Although heavily dependent on electricity demand and the status of different parts of the generation mix, gas demand in the region of 70mcm/day might plausibly be expected from the 30 to 50 gas-fired power stations on the network<sup>17</sup>. Up to 25mcm/day of this could come from power stations with distillate back-up facilities<sup>18</sup>. Whilst the amount we would expect to bid into a DSR tender would be less than this, it is still clear that gas-fired power stations represent a sizeable portion of total available DSR.

### DM demand

1.2. With respect to non-power sources, the following data shows a simple breakdown of DM demand<sup>19</sup>. The data is based on peak demand (SOQ) from each site so the actual volume of DM DSR is likely to be much lower than this<sup>20</sup>.



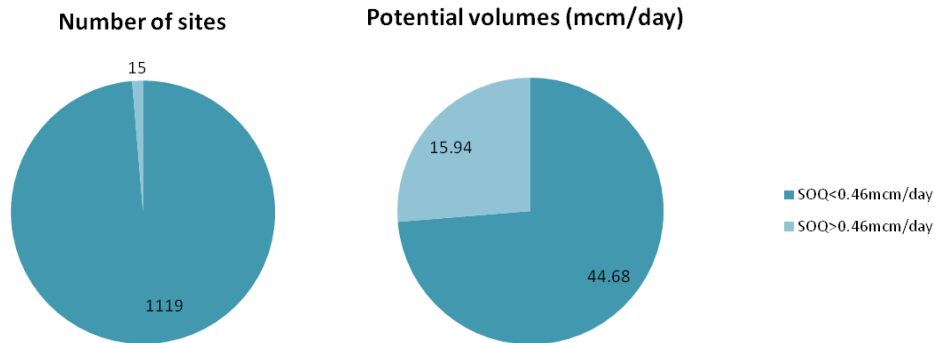
1.3. As can be seen from the charts above, a large proportion of demand is concentrated in a small number of sites (roughly one third of sites comprise almost four fifths of potential DSR). This point is further highlighted by the charts below which show a division of volumes and sites at a 0.46mcm/day split:

<sup>17</sup> Source: NGG, NGG Ten Year Statement 2012, Ofgem analysis

<sup>18</sup> Sources: Ofgem internal analysis; Pöyry GB gas security of supply report to DECC (2010)

<sup>19</sup> Source: NGG

<sup>20</sup> A very small number of NDM sites have been captured by this data. This has a negligible impact on volumes but it is not entirely clear how this might affect the number of sites count. Likely the effect is also negligible. Mandatory sites are those with an annual consumption greater than 58 million KWh (approximately two million therms). This equates to an average daily consumption of ~0.015mcm/day. Unique sites are a subset of mandatory sites and are generally very large users.



1.4. The above data suggests peak DM demand of over 60mcm/day. This clearly overstates potential DM DSR by a significant margin. An average consumption of 25-30mcm/day gives a better indication of likely volumes<sup>21</sup>.

### NTS Industrial demand

1.5. On top of DM sites, there are also NTS direct connect sites to account for. Potential NTS Industrial demand is roughly 7mcm/day for 15 to 20 sites giving an average amount of DSR available per site of 0.3-0.5mcm/day<sup>22</sup>.

### Total DSR

1.6. The table summarises the potential DSR and number of sites for the consumer types discussed above<sup>23</sup>. Whether the tender is able to realise these kinds of volumes is dependent on the final design and level of participation.

Consumer type	Estimated DSR (mcm/day)	Number of sites
DMs	25 to 30	>1000
NTS Industrials	6 to 7	15 to 20
Gas-fired power stations	50 to 70	30 to 50

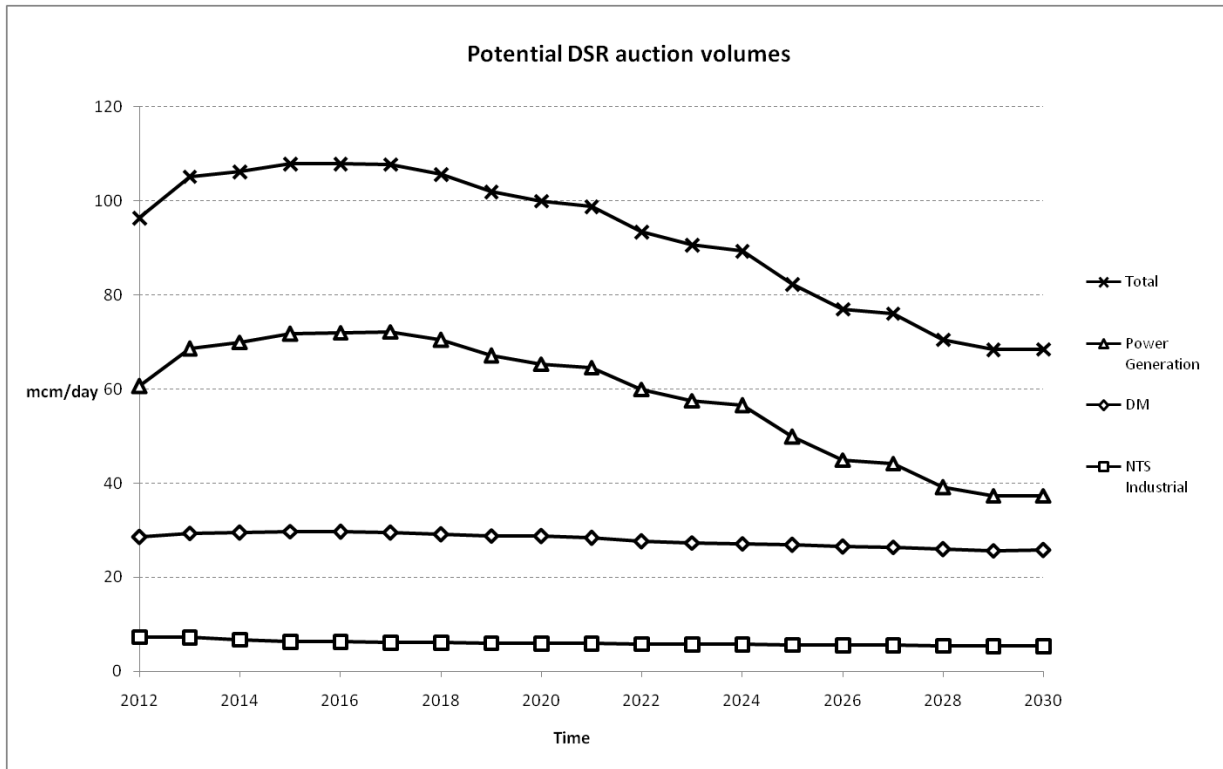
1.7. This chart shows a similar breakdown of the different sources of DSR that would be able to bid into the DSR tender<sup>24</sup>.

<sup>21</sup> Source: NGG Ten Year Statement 2012

<sup>22</sup> Source: NGG

<sup>23</sup> Source: NGG, NGG Ten Year Statement 2012, Ofgem analysis

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<sup>24</sup> Source: NGG Ten Year Statement 2012 (figures are an average of the Gone Green and Slow Progression scenarios)



## Appendix 5 – Glossary

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### A

#### Authority (The)

The Authority is the Gas and Electricity Markets Authority (GEMA). GEMA is the governing body of Ofgem and consists of non-executive and executive members and a non-executive chair.

### C

#### Cash-out

National Grid Gas is responsible for residual balancing of the gas system. The prices paid for these balancing actions are then passed onto long and short shippers. That is, long shippers are paid at one rate for their positive imbalance and short shippers have to pay at a different rate for their negative imbalance. These charges are known as cash-out prices.

#### Cash-out (unfrozen)

Unfrozen cash-out means that the level of the cash-out continues to change in response to circumstances upon declaration of stage 2 of an emergency.

#### Cash-out (frozen)

Under current gas emergency arrangements the cash-out price is frozen when stage 2 of an emergency is declared. That is, the cash-out price remains at the level it was at this time for the duration of the emergency.

### D

#### Daily-metered (DM) consumer

This is a gas consumer with a meter which allows their consumption to be measured on a daily basis.

#### Demand Side Response (DSR)

A demand side response is a short-term change in the use of, in this case, gas by consumers following a change in the balance between supply and demand.

### E

#### Emergency curtailment arrangements

The emergency curtailment arrangements provide for payments to be made to shippers in the event that transporters instruct, under the direction of the Network Emergency Coordinator, the curtailment of gas off-takes at any relevant supply

point. Shippers are still required to pay cash-out on their imbalances but curtailed quantities are subject to a trade between the shipper and the residual balancer at the Emergency Curtailment Trade Price.

#### Emergency Curtailment Trade Price

This is the price at which a shipper's emergency curtailment quantity is paid. This is determined as the 30 day average System Average Price.

#### European Gas Security of Supply Regulation

Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC. This regulation aims to improve European gas security of supply, and places a number of requirements on member states.

#### Exit Reform

The Reform of the NTS Exit Capacity arrangements also known as Exit Reform began in 2005 following the Authority's decision to approve National Grid Gas's sale of four of its distribution network businesses. The process concluded in January 2009 with the implementation of code modification UNC195AV known as the Introduction of Enduring NTS Exit Capacity Arrangements.

The reform was necessary to ensure NGG received efficient investment signals in respect of NTS users' capacity needs under the new arrangements. This reforms process has also resulted in changes being made to the stages of a national gas deficit emergency.

## F

#### Firm consumer

This is a consumer with a non-interruptible gas supply contract. These consumers cannot be instructed to reduce their demand or have their demand curtailed except for following the announcement of stage 2 or greater of an emergency.

#### Firm load shedding

Upon declaration of stage 2 of an emergency, the Network Emergency Coordinator may instruct transporters of gas to instruct consumers stop using gas. This is known as firm load shedding. Firm load shedding starts with the largest consumers – who are typically large industrial users or power generators.

#### Force majeure

Force majeure is a way in which parties to a contract can agree on specific circumstances when a failure to perform an obligation will be excused (ie when the breaching party will not face liability for its breach).

## **G**

### [The Gas Act \(1986\)](#)

The Gas Act is a piece of primary legislation that prohibits persons from engaging in specified activities unless authorised to do so by a licence granted by the Authority. The Gas Act also sets out the powers of the Authority in carrying out its functions under Part I of the Gas Act.

### [Gas Deficit Emergency \(GDE\)](#)

A Gas Deficit Emergency is a type of Gas Supply Emergency arising as a result of insufficient deliveries of gas being available to meet required demand on the gas system or as a result of a potential or actual breach of a safety monitor.

### [The Gas Safety \(Management\) Regulations 1996 \(GS\(M\)R\)](#)

The GS(M)R set out the requirement for a Network Emergency Coordinator (NEC) for any network which includes more than one gas transporter. They also require each gas transporter, as well as the NEC, to prepare a safety case which must be approved by the Health and Safety Executive.

### [Gas Supply Emergency](#)

A Gas Supply Emergency is defined in the Uniform Network Code as the occurrence of an event or series of events that results in, or gives rise to a significant risk of, a loss of pressure in the gas system which may lead to a supply emergency.

## **H**

### [Health and Safety Executive \(HSE\)](#)

The Health and Safety Executive (HSE) is the national independent watchdog for work-related health, safety and illness. The safety case produced by the Network Emergency Coordinator must be submitted to the HSE for their approval.

## **I**

### [Interconnector \(Gas\)](#)

The gas pipelines and associated terminals which connect the European and UK gas transmission networks.

### [Interruptible contract](#)

An interruptible contract may be signed by gas consumers where the relevant transporter and/or supplier have the ability to ask a consumer to reduce its off-takes (generally daily metered consumers). These contracts allow the transporter and/or supplier to disconnect the consumer (in or out of an emergency) in order to manage demand on the system. Consumers may sign these contracts in return for reduced rates on their gas supply.

## L

### Licensee (Gas)

The Gas Act requires parties involved in the gas industry to be licensed by the Authority. As licence holders, these parties are required to comply with a number of licence conditions.

### Licence condition

All parties licensed by the Authority to partake in gas industry activities are required to meet certain licence conditions. The licence conditions for the gas industry are categorised into transporter, shipper, supplier and interconnector licence conditions. The licence conditions are separated into standard licence conditions which apply to all licensees of one type (eg transporters) and special licence conditions which apply only to a specific party (eg National Grid Gas).

### Liquefied Natural Gas (LNG)

Liquefied Natural Gas is natural gas (predominantly methane, CH<sub>4</sub>) that has been converted temporarily to liquid form for ease of storage or transport.

### Liquidity

Liquidity is a measure of the number of times a given commodity is traded. A low liquidity can mean that it is difficult for new entrants to enter into and grow in a market.

### Local Distribution Zone (LDZ)

Local Distribution Zones (LDZs) are low pressure pipeline systems which deliver gas to final users and Independent Gas Transporters. There are twelve LDZs which take gas from the high pressure transmission system for onward distribution at lower pressures.

## M

### Market Balancing Action (MBA)

An action taken by National Grid Gas to balance the system in which it enters into a transaction with a party so that that party will agree to make an acquiring or disposing trade nomination. The prices at which these trades are made set cash-out prices.

### Modification (Code)

The Uniform Network Code (UNC) is the framework which sets out the gas transportation arrangements for those parties licensed under the Gas Act 1986. This code has developed through modifications raised by signatories to the UNC. It is still possible for modifications to be made through this industry led process. However, the introduction of the Significant Code Review process now allows for Ofgem to lead on the development of modifications before directing them to be raised.

## **N**

### [National Grid Gas \(NGG\)](#)

National Grid Gas (NGG) is the Gas Transportation licence holder for the North West, West Midlands, East England and London Gas Distribution Networks. NGG also hold the Gas Transportation licence for the gas National Transmission System (NTS). Prior to 10 October 2005, NGG was known as Transco.

### [National Transmission System \(NTS\)](#)

This is National Grid Gas' high pressure gas transmission system. It consists of more than 6,400 km of pipe carrying gas at pressures of up to 85 bar (85 times normal atmospheric pressure).

### [Network Emergency Coordinator \(NEC\)](#)

The Network Emergency Coordinator is responsible under safety legislation for the coordination of a gas supply emergency.

### [Non-daily metered gas consumer \(NDM\)](#)

This is a gas consumer who does not have a meter which can be read on a daily basis. This includes small consumers, including domestic consumers.

### [Neutrality](#)

This refers to the system of Balancing Neutrality Charges which are used under the Uniform Network Code (UNC) to ensure that National Grid neither benefits nor loses financially from the balancing actions it is required to undertake. The charges reflect the difference between all amounts received and paid by National Grid for gas used to balance the system and are spread across all signatories of the UNC on the basis of their usage of the transportation system.

## **O**

### [On-the-day Commodity Market \(OCM\)](#)

This is the market on which trading takes place to allow NGG to balance the system. Shippers may also trade with each other on the OCM.

## **P**

### [Post Emergency Claim \(PEC\)](#)

The post emergency claims arrangements are used to recompense parties for flowing additional gas onto the system in an emergency if opportunity costs for shippers to do so exceed the cash-out price they received for being long.

### Project Discovery

Project Discovery is Ofgem’s investigation published in 2010 into whether or not future security of supply could be delivered by the existing market arrangements over the coming decade. A copy of the report and associated documents can be accessed on our website.

### Public Appeal

An appeal made by National Grid Gas to consumers in the event of a Gas Supply Emergency to reduce gas use.

## S

### Safety case

The Gas Safety (Management) Regulations 1996 set out the requirement for each transporter of gas to publish a safety case which must be approved by the Health and Safety Executive. These safety cases must demonstrate the method by which the holder will ensure the safe operation of its network. In the case of the Network Emergency Coordinator (NEC), the safety case includes details of the procedures that the NEC has established to monitor the situation throughout a supply emergency and for co-coordinating actions across affected parts of the gas network.

### Safety and Firm Gas Monitor Methodology (Safety Monitor)

The Safety Monitor provides a requirement for sufficient gas to be held in storage to meet a number of criteria. This requirement remains valid in the event of a GDE.

### Significant Code Review (SCR)

The SCR is a new modifications process introduced through the Code Governance Review. This process allows Ofgem to develop modifications proposals before directing them to be raised.

### Shippers

Gas shippers buy gas from producers and sell the gas onto suppliers, and are defined as anybody which introduces, conveys and takes out gas from the gas pipeline.

### Smeared/shared cost

This is a cost that is spread across all relevant parties. For example, the costs to National Grid of a certain activity may be spread across all shippers involved in the Great Britain gas market.

### System Average Price

This is the average price of all trades on a given day.

### System Marginal Buy Price

The System Marginal Buy Price is the greater of the system average price plus the default system marginal price, and; the price of the highest balancing action offer price in relation to a Market Balancing Action taken by National Grid Gas for that day.

### System Marginal Sell Price

The System Marginal Sell Price is the lesser of the system average price minus the default system marginal price, and the price of the lowest balancing action offer price in relation to a Market Balancing Action taken by National Grid Gas for that day.

### System Operator

This is the entity responsible for operating the Great Britain transmission system and for entering into contracts with those who want to connect to and/or use the transmission system. National Grid is the GB system operator.

## T

### Therm

A unit of heating value equivalent to 100,000 British thermal units (Btu).

### The Third Package

The Third Package is a key step in implementation of the internal European energy market. It recognises the need for better co-ordination between European network operators and continuing co-ordination between regulators at that level.

When discussing the 'Third Package' in this document we are referring to Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and to Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators.

### Transporter (Gas)

The holder of a Gas Transporter's licence in accordance with the provisions of the Gas Act 1986.

## U

### Uniform Network Code (UNC)

The UNC defines the rights and responsibilities for all users of gas transportation systems in Great Britain. The UNC is, in effect, a contract between the gas transporter and the users of its pipeline system.

### Uniform Network Code (UNC) – Section Q

Section Q of the UNC is the main framework which sets out the arrangements that will be in place in the event of declaration of a gas emergency.

#### **V**

### Value of Lost Load (VoLL)

This is the theoretical price at which a consumer would rather have their gas supply disconnected than continue to pay for a firm supply.



## List of Acronyms

DECC	Department of Energy and Climate Change
DM	Daily Metered (gas consumer)
DN	Distribution Networks
DR	Daily Read
DSR	Demand Side Response
EBI	Energy Balancing Invoice
ECQ	Emergency Curtailment Quantity
EMR	Electricity Market Reform
FM	force majeure
GBA	Gas Balancing Alert
GDE	Gas Deficit Emergency
GDW	Gas Deficit Warning
GS(M)R	Gas Safety (Management) Regulations 1996
HSE	Health and Safety Executive
I&C	Industrial and Commercial
IA	Impact Assessment
LDZ	Local Distribution Zone
LNG	Liquefied Natural Gas
MBA	Market Balancing Action
NDM	Non-Daily Metered (gas consumer)
NDR	Non-Daily Read
NEC	Network Emergency Coordinator
NGG	National Grid Gas
NGSE	Network Gas Supply Emergency
NTS	National Transmission System
OCM	On-the-day Commodity Market
OPN	Offtake Profile Notices
PEC	Post Emergency Claims
PSOs	Public Service Obligations
SAP	System Average Price
SCR	Significant Code Review
SO	System Operator
SMP	System Marginal Price
SOQ	Supply-point Offtake Quantity
SWCQ	Storage Withdrawal Curtailment Quantity Arrangements
UDQO	User Daily Quantity Output
UNC	Uniform Network Code
VoLL	Value of Lost Load

## Appendix 6 - Feedback Questionnaire

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1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Please add any further comments?

1.2. Please send your comments to:

**Andrew MacFaul**  
Consultation Co-ordinator  
Ofgem  
9 Millbank  
London  
SW1P 3GE  
[andrew.macfaul@ofgem.gov.uk](mailto:andrew.macfaul@ofgem.gov.uk)