

## 2010 Operating Margins Tender Information Report

### Introduction

This market report is for the 2010 Operating Margins (OM) tender for the storage year 2010/11. It is produced after the tender and is designed to give existing and potential OM participants an overall view of the tendered utilisation and availability prices; together with further detail on the type, size and characteristics of the tendered offers.

This report is structured into five sections recognising the complexity this year of the potential for the regulated pricing for Operating Margins services from NGLNG Storage to be suspended for each Operating Margins requirement type. The following provides an overview of each section.

#### **Section 1: The Operating Margins Requirement**

This section gives details of the Operating Margins requirement.

#### **Section 2: Tender Details – Number, Type & Volume**

This section gives details of the tender offers received and compares them to the requirement and National Grid's view of Industry capability to provide Operating Margins.

#### **Section 3: All Regulated Prices Lifted – Tendered Prices & Acceptances**

In this section, the assessment assumes that all providers are able to price freely. This section shows which offers we would have accepted in this scenario.

#### **Section 4: Regulated Prices in place – Tendered Prices & Acceptances**

In this section, the assessment assumes that National Grid LNG Storage is under a regulated price structure for Operating Margins services for all requirement types.

#### **Section 5: Partial Regulated Pricing in place – Tendered Prices & Acceptances**

In this section, the assessment assumes that National Grid LNG Storage is under a regulated price structure for Operating Margins services for some requirement types. This section is representative of the current codes, licences and Safety

Case and therefore reflects the offers we have accepted to meet the Operating Margins requirement.

For further information regarding this product or for how and when to tender, please consult the following OM section on National Grid's information website:

<http://www.nationalgrid.com/uk/Gas/OperationalInfo/GasOperatingMargins/>

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## Section 1: The Operating Margins Requirement

The Operating Margins Requirements for the 2010/11 storage year are as follows:

NTS Zone	Volume (GWh)	Deliverability (GWh/d)
North	10	10
Scotland	73	92
Wales	0	0
West	117	88
South	93	186
Supply Loss	337	674
Orderly Rundown	480	515
Non-locational	98	98
<b>Total Requirement</b>	<b>1208</b>	

Table 1: Operating Margins Requirement for the 2010/11 Storage Year

The Operating Margins Requirement is made up of different components, each of which must be able to be delivered within a short timescale. As the requirements are unlikely to be concurrent, though they could be consecutive, this can lead to bookings equivalent to over 24 hours of deliverability at a given facility in the lowest cost solution where a facility can deliver more than one component of the Operating Margins Requirement.

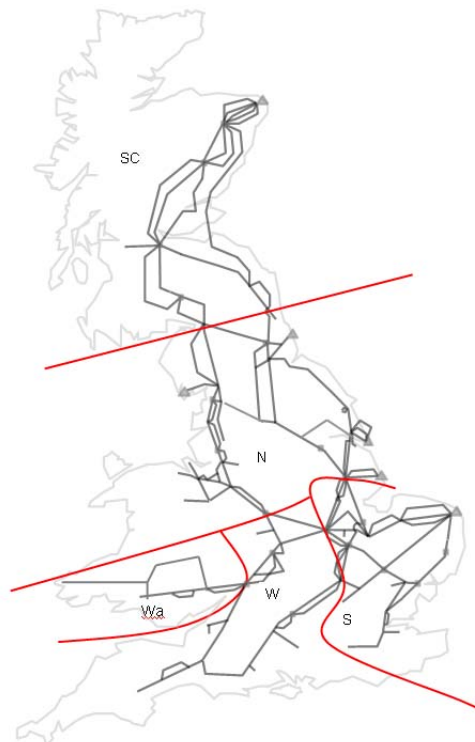


Figure 1: Map of Operating Margins Locational Zones

**Section 2: Tender Details – Number, Type & Volume**

National Grid received 14 offers for 2302GWh of Operating Margins services for the storage year 2010/11.

For gas delivery arrangements, the tendered volume of OM gas is assumed to be equal to the maximum volume of OM that could be provided. This volume is calculated from the aggregate of the requirements that the tender offer can meet, subject to any tendered restrictions on the number or volume of utilisations.

Volume of Offers Received

The number of offers submitted for 2010/11 is illustrated below in Table 2. National Grid received 2302GWh of offers for the Operating Margins services for the storage year 2010/11 against a total requirement of 1208GWh. The volume of offers is shown below compared to the requirement volume, such that positive values show a surplus of offers compared to the requirement and negative values show a deficit of offers compared to the Operating Margins Requirement.

Requirement Type	Surplus / deficit to requirement of tender offers (GWh) (a)	Number of offers submitted (b)	Number of facilities where offers submitted (c)	Surplus / deficit to requirement of non-duplicated tender offers (GWh) (d)	Surplus / deficit to requirement of non-duplicated tender offers excluding NGLNG Storage (GWh) (e)
North	109	5	4	89.4	89.4
Scotland	0.5	1	1	0.5	-73
South	-43	1	1	-43	-43
West	79.5	5	3	77.1	-113
Supply Loss	60.7	12	9	-41.6	-159.4
Orderly Rundown	571.8	8	7	552.6	317
Non-locational	1,030.6	14	11	993.4	757.8
<b>Total Surplus or Deficit to Requirement</b>	<b>1,094</b>	<b>14</b>	<b>11</b>	<b>1058</b>	<b>735</b>

Table 2: Surplus & deficit of tender offers submitted relative to the 2010/11 OM Requirement by type

Column (a) shows the surplus (or deficit) of the total volume of tender offers compared to the total requirement for each operating margins requirement type. The only requirement type that shows a deficit of offers on this basis is the South Locational requirement.

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Column (b) shows the number of offers submitted that could potentially be used for each Operating Margins requirement type.

Column (c) shows the number of facilities where Operating Margins offers were submitted. Where the number of offers exceeds the number of facilities, more than one offer was received at a given facility.

The maximum volume of offers that can be accepted for OM at a facility is governed by the characteristics of the facility concerned, independent of the number of tendering parties at the facility. Column (d) shows the surplus (or deficit) of the volume of tender offers restricted to the facility maxima for each Operating Margins requirement type. The South Locational and Supply Loss requirements show a deficit of offers on this basis as shown in figure 2 below:

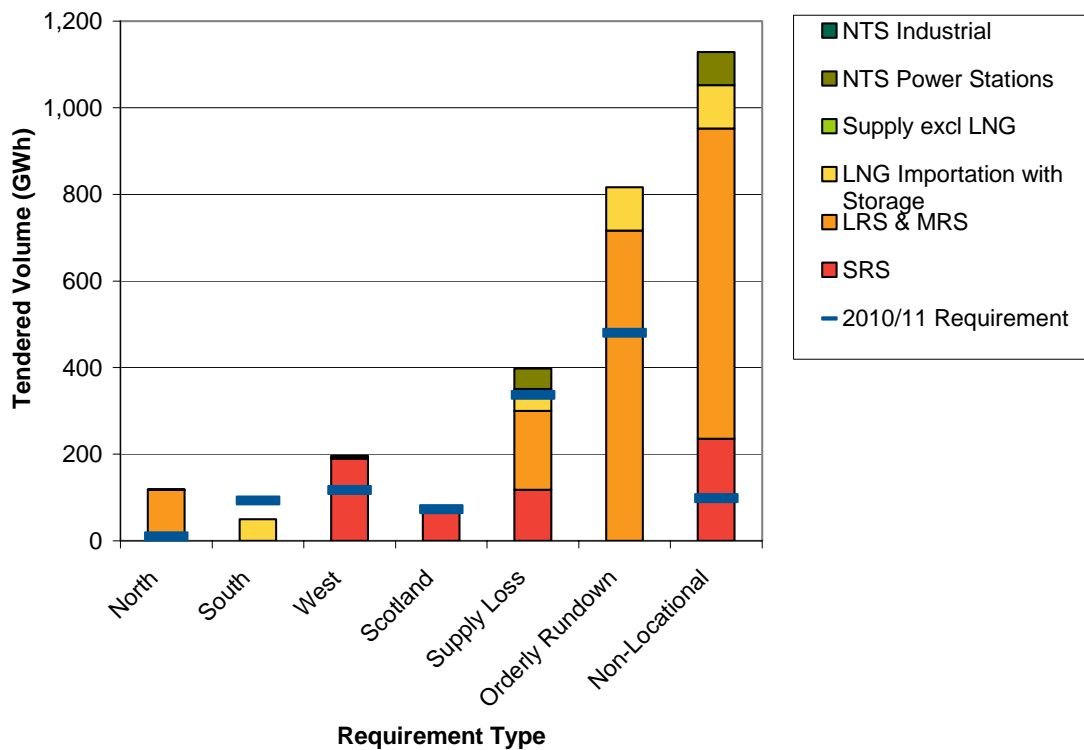


Figure 2: Requirement and tendered volume by requirement type for storage year 2010/11

Column (e) shows the surplus (or deficit) of the total volume of tender offers for each Operating Margins Requirement type excluding offers from NGLNG Storage. This is calculated on the basis of using facility maxima as in Column (d). The requirement type that

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shows a deficit of offers on this basis are the Scotland, South and West Locational and Supply Loss requirements.

The volume of offers calculated above is in line with the latest industry code and safety case, which enable gas held in storage, supply increase and offtake reduction as sources of Operating Margins services. Previously, only gas held in storage was a valid source of Operating Margins whether at a Storage Facility or LNG importation Facility with Storage.

Through work to develop the Operating Margins service, UNC code modification proposal 0240 was approved and is in effect, which has amended UNC Section K (Operating Margins) to classify supply increase & offtake reduction as valid sources of OM. In addition, at the 2009 Operating Margins tender two offers for supply increase & offtake reduction were accepted to enable testing of the potential service types. These provision types were tested over summer 2009 in order demonstrate their suitability to the HSE. Subsequently, National Grid submitted a Safety Case Change demonstration the HSE that has been approved.

Types of Offers Received

As shown below in Figure 3, there has been a slight reduction in the volume of tender offers received through the Operating Margins service tender process when compared to last year, though the volume is relatively high for recent years. In particular, there has been an increase in the number and volume of gas delivery arrangement offers.

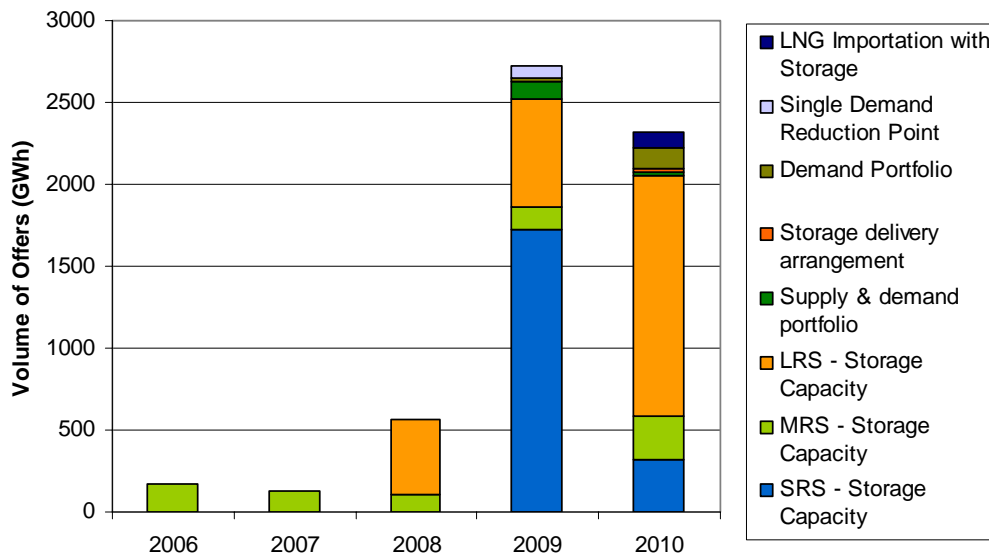


Figure 3: Volume of tender offers at annual tenders from each provider type for storage years 2006-2010

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This year, for the first time more delivery arrangement offers were received than capacity arrangement offers. The split between the different types of providers is shown below in Figures 4a and 4b.

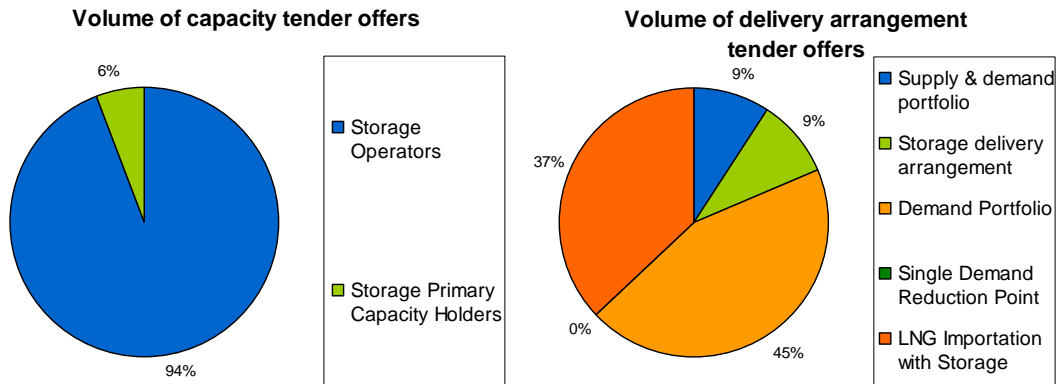


Fig 4a: Volume of capacity tender offers by type

Fig 4b: Volume of delivery tender offers by type

Potential for Service Provision compared to offers received

Both the requirement and market for Operating Margins provision is not homogeneous as a result of facility, network, and supply and demand characteristics. As a result, the provision of Operating Margins is subject to a number of constraints and a varied level of competition for each requirement type, as shown in Table 2 and in more detail below.

The Operating Margins capability of a facility is dependent on the facility characteristics (such as the response time, volume of gas and deliverability<sup>1</sup> available) and the type of facility.

The type of facility is a factor in the volume of OM that can be provided. For example, in an emergency, when Orderly Rundown Operating Margins would be required, it is assumed supplies would already be at maximum capacity and demands would be reducing their offtake, therefore these service provision types cannot provide the Orderly Rundown part of the requirement.

Similarly, supply sources, including storage, may also be limited in their ability to provide OM to cover the supply loss requirement depending on supply assumptions for the site (e.g. if a storage site is forecast to predominately flow at its full rate then no capability would be considered against OM supply loss). Demand reduction sources are limited to being able to provide OM when the facility is offtaking demand from the NTS.

<sup>1</sup> The rate at which gas can be delivered to the NTS is the potential deliverability of the site.

For each Operating Margins requirement type, there is a chart showing the tendered volume of Operating Margins by facility type for the past two storage years. There is also a chart of the Potential Service Provision<sup>3</sup> and tendered volume of Operating Margins for 2010/11.

The tendered quantity in each of the following charts is the minimum of the tendered volume (space for storage or number & volume of utilisations for delivery contracts) and capability of the facility. If a facility can fulfil more than one type of requirement (as is often the case), the total quantity that could be accepted may be constrained by the tendered volume.

Of the facilities that provide OM, only National Grid LNG Storage facilities are subject to pre-emption rights such that Operating Margins bookings have priority over other commercial bookings of capacity. The remaining storage facilities have tendered 77.5% of their capability to provide Operating Margins in 2010/11.

Where OM services do not have priority for capacity bookings, the facilities may not be offering the maximum theoretical OM capability because it is just one service of many that a facility can provide to customers within a larger market. For example, storage services are used by other customers for a range of reasons from trading (within day and seasonal) to securing supplies.

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<sup>3</sup> Potential Service Provision is a National Grid assumed theoretical maximum capability. The data used to produce these charts includes assumptions of the demands and supplies forecast to flow on the NTS. The OM capability of a facility is calculated to be the volume of OM that National Grid assumes a facility could provide. For new service providers, deliverability is only considered to be available, once a sustained period of actual deliverability is demonstrated.

Group 1: Supply Loss & Demand Forecasting

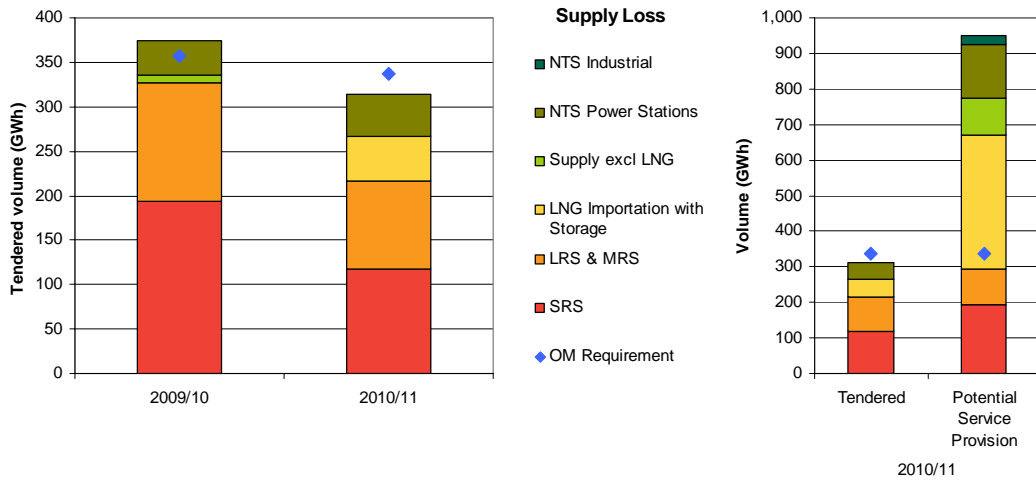


Figure 5.1: Group 1 capability of potential OM facilities by type including a comparison to tendered volumes in 2010/11

The graph shows that the current market of providers have enough capability to provide the Group 1 requirement, however there was a shortfall in the volume tendered to National Grid, despite tenders from some new provider types (in green).

Group 2: Locational – North

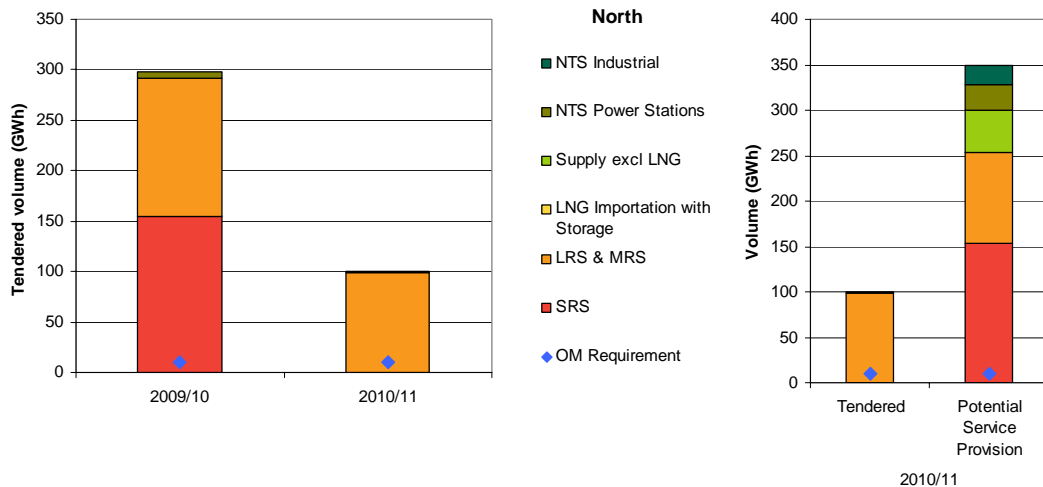


Figure 5.2: Group 2: Locational - North zone capability of potential OM facilities by type including a comparison to tendered volumes in 2010/11

There are a large number of facilities in the North zone that can fulfil the small North locational requirement. The tendered volume from Storage and NTS Power Stations far exceeds the requirement for OM in this zone.

Group 2: Locational – Scotland

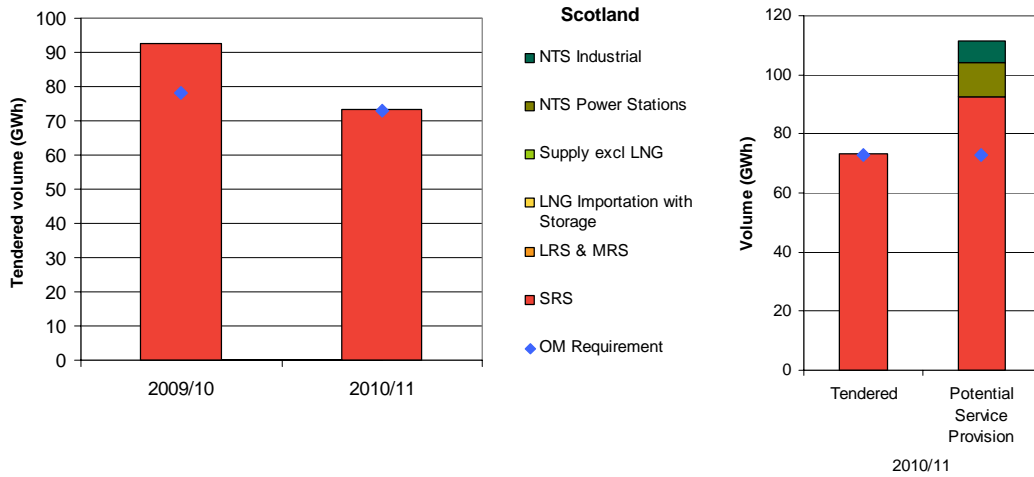


Figure 5.3: Group 2: Locational - Scotland zone capability of potential OM facilities by type including a comparison to tendered volumes

There is only one short range storage facility (in red) that is able to provide Operating Margins in the Scotland zone. Following a safety case change for 2010/11, other providers (in green) can also offer OM services, but alone cannot fulfil the requirement.

Group 2: Locational – South

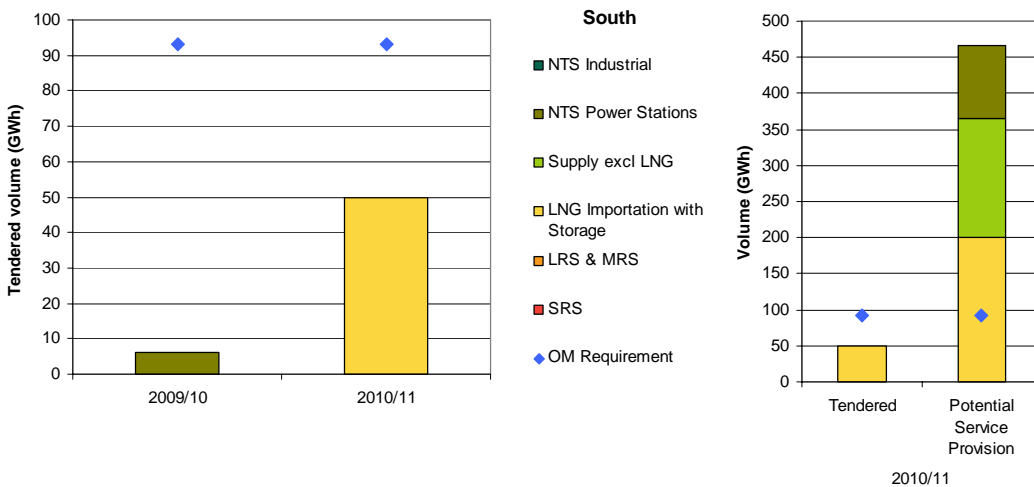


Figure 5.4: Group 2: Locational - South zone capability of potential OM facilities by type including a comparison to tendered volumes

Currently, only one LNG Importation terminal is able to provide Operating Margins in the South zone with the OM capability dropping in 2010/11. The capability in the zone is

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expected to grow following the expansion of the terminal. Following the safety case change, other providers (in green) could also provide Operating Margins in the South zone.

Group 2: Locational – West

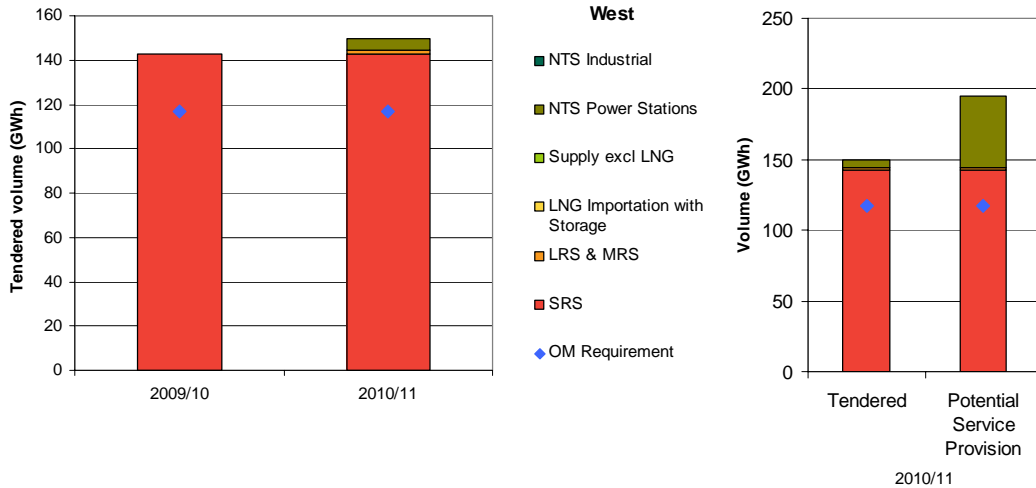


Figure 5.5: Group 2: Locational - West zone capability of potential OM facilities by type including a comparison to tendered volumes

The West locational zone has a short range storage facility and a medium range storage facility that are able to provide Operating Margins. From 2010/11, other providers (in green) could also provide Operating Margins in the West zone.

Group 2: Non-locational

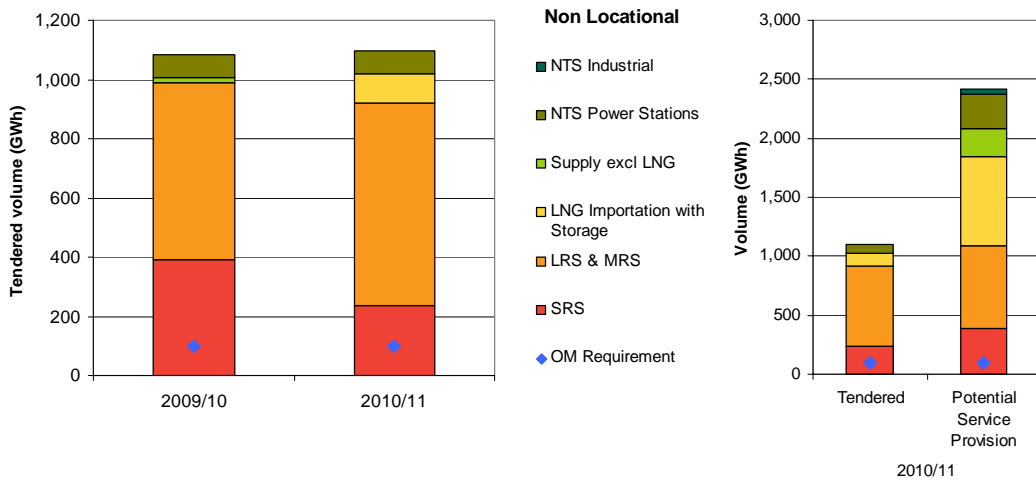


Figure 5.6: Group 2: Non-locational capability of potential OM facilities by type including a comparison to tendered volumes

There is a wide range of tendering providers of non-locational OM to fulfil the requirement.

Group 3: Orderly Rundown

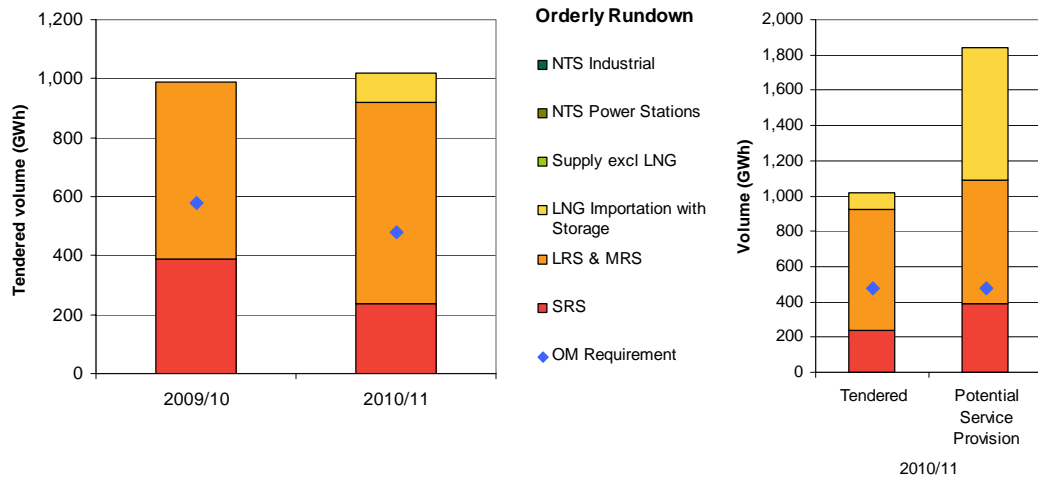


Figure 5.7: Group 3 capability of potential OM facilities by type including a comparison to tendered volumes

For the Orderly Rundown requirement, there is a range of tendering providers that are able to provide this service. The volume tendered was sufficient to fulfil the requirement. NTS Demand reduction and Supply increase providers are not able to fulfil this requirement as discussed earlier in this section.

**Section 3: All Regulated Prices Lifted – Tendered Prices & Acceptances**

In this section, the assessment assumes that all providers are able to price freely. In this scenario, 1073GWh of offers have been accepted through the tender, such that it has not been possible to fulfil the OM requirement for 2010/11. This is due to an insufficient volume of deliverability being tendered to meet the supply loss requirement.

The assessment of the tender offers through the tender was designed to find the lowest cost solution. The costs assessed include the holdings contract costs (e.g. space or deliverability contracts as tendered) as well as the estimated re-profiling, standby and utilisation costs.

Capacity Arrangements	Weighted Average Offer Price per unit of space (p/kWh)	1.75
	Minimum Offer Price per unit of space (p/kWh)	0.00
	Maximum Offer Price per unit of space (p/kWh)	200.00
Gas Delivery Arrangements	Weighted Average Offer Price per Unit of OM Gas available (p/kWh)	2.25
	Minimum Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Offer Price per Unit of OM Gas available (p/kWh)	3.80
	Weighted Average Offer Price per unit of deliverability offered (p/kWh/day)	3.02
	Minimum Offer Price per Unit of deliverability offered (p/kWh/day)	1.50
	Maximum Offer Price per Unit of deliverability offered (p/kWh/day)	7.60

Table 4: Prices offered through the OM tender for 2010/11 Storage Year

Capacity Arrangements	Weighted Average Accepted Offer Price per unit of space (p/kWh)	3.17
	Minimum Accepted Offer Price per unit of space (p/kWh)	0.00
	Maximum Accepted Offer Price per unit of space (p/kWh)	200.00
Gas Delivery Arrangements	Weighted Average Accepted Offer Price per Unit of OM Gas available (p/kWh)	2.14
	Minimum Accepted Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Accepted Offer Price per Unit of OM Gas available (p/kWh)	3.59
	Weighted Average Offer Price accepted per unit of deliverability (p/kWh/day)	2.73
	Minimum Offer Price accepted per Unit of deliverability offered (p/kWh/day)	1.50
	Maximum Offer Price accepted per Unit of deliverability offered (p/kWh/day)	5.75

Table 5: Prices that would have been accepted through the OM tender in this scenario

For gas delivery arrangements, the price has been calculated using the assumption that the volume of OM Gas available is equal to the maximum volume that could be provided within the offered parameters. The offers under 5p/kWh have been plotted separately in Figure 7 to enable the lower priced offers to be seen.

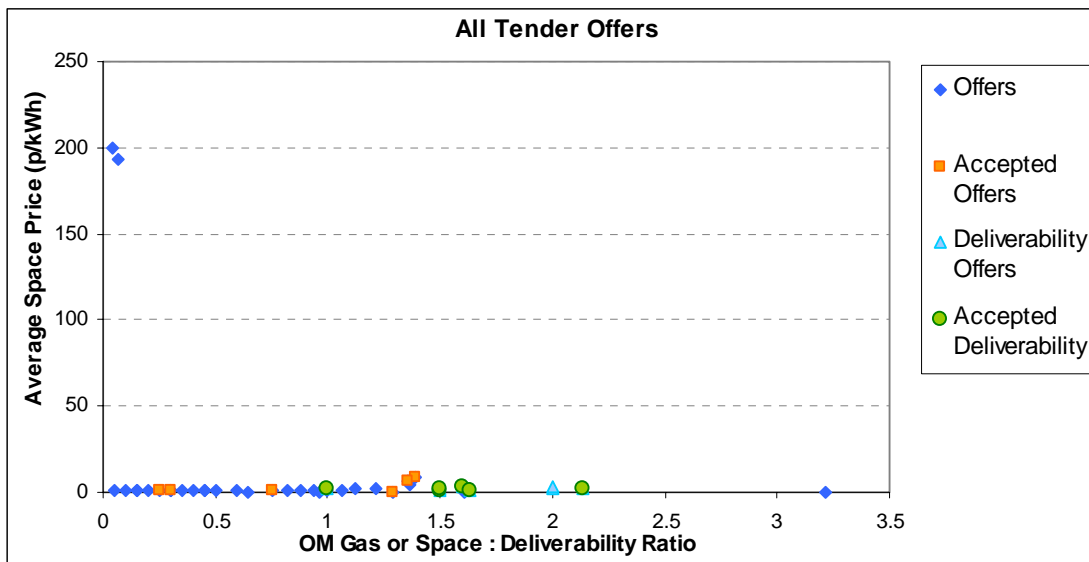


Figure 6: Prices offered through the OM tender

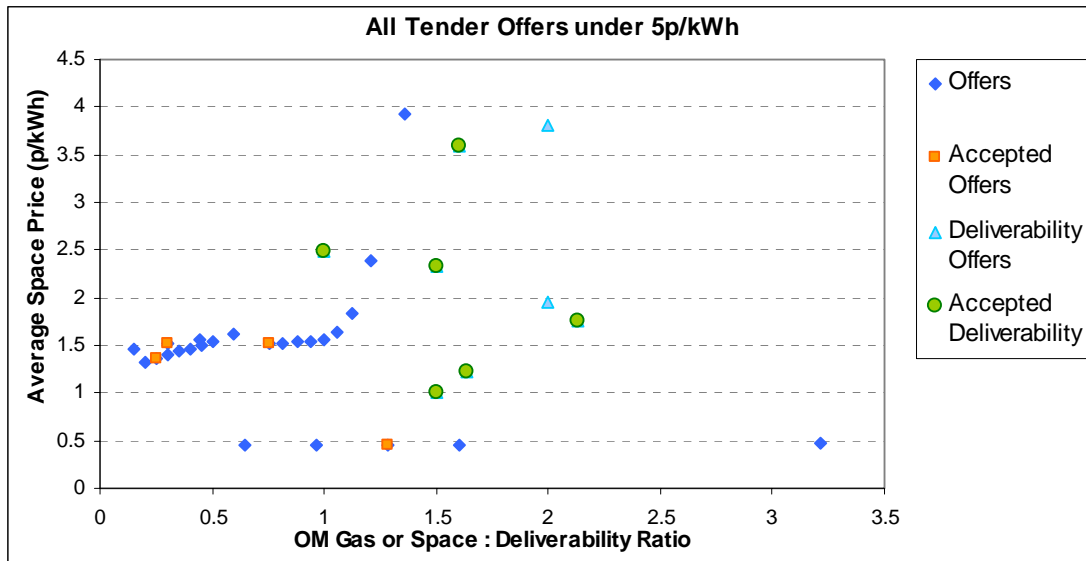


Figure 7: Prices under 5p/kWh offered through the OM tender

For the avoidance of doubt, this section represents an assessment based on a scenario where the provision of Operating Margins services from NGLNG Storage is not subject to regulated pricing. Bookings have not been made on the basis of this assessment.

**Section 4: Regulated Prices in place – Tendered Prices & Acceptances**

In this section, the assessment assumes that National Grid LNG Storage is under a regulated price structure for the provision of all Operating Margins services at the prices set out in C3 of the Gas Transporter Licence in respect of the NTS. In this scenario, 733GWh of offers have been accepted through the tender for the Storage Year 2010/11 in addition to bookings through pre-emption rights at NG LNG Storage enabling the requirement to be met.

The assessment of the tender offers through the tender was designed to find the lowest cost solution. The costs assessed include the holdings contract costs (e.g. space or deliverability contracts as tendered) as well as the estimated re-profiling, standby and utilisation costs. The pricing of a tender offer affects its place in the stack of offers and therefore the volumes and prices accepted at other facilities are influenced by the pricing of services at NGLNG Storage's facilities. Tables 6 and 7 show the offers tendered and accepted under the tender, not including OM services from NGLNG Storage booked through the UNC process at regulated prices.

Capacity Arrangements	Weighted Average Offer Price per unit of space (p/kWh)	0.71
	Minimum Offer Price per unit of space (p/kWh)	0.45
	Maximum Offer Price per unit of space (p/kWh)	16.17
Gas Delivery Arrangements	Weighted Average Offer Price per Unit of OM Gas available (p/kWh)	2.25
	Minimum Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Offer Price per Unit of OM Gas available (p/kWh)	3.80
	Weighted Average Offer Price per unit of deliverability offered (p/kWh/day)	3.02
	Minimum Offer Price per Unit of deliverability offered (p/kWh/day)	1.50
	Maximum Offer Price per Unit of deliverability offered (p/kWh/day)	7.60

Table 6: Prices offered through the OM tender not including NGLNGS at regulated prices

Capacity Arrangements	Weighted Average Accepted Offer Price per unit of space (p/kWh)	0.62
	Minimum Accepted Offer Price per unit of space (p/kWh)	0.45
	Maximum Accepted Offer Price per unit of space (p/kWh)	1.55
Gas Delivery Arrangements	Weighted Average Offer Price per Unit of OM Gas available (p/kWh)	1.80
	Minimum Accepted Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Accepted Offer Price per Unit of OM Gas available (p/kWh)	2.49
	Weighted Average Offer Price Accepted per unit of deliverability (p/kWh/day)	2.20
	Minimum Offer Price Accepted per Unit of deliverability (p/kWh/day)	1.50
	Maximum Offer Price Accepted per Unit of deliverability (p/kWh/day)	2.49

Table 7: Prices accepted through the OM tender not including NGLNGS at regulated prices

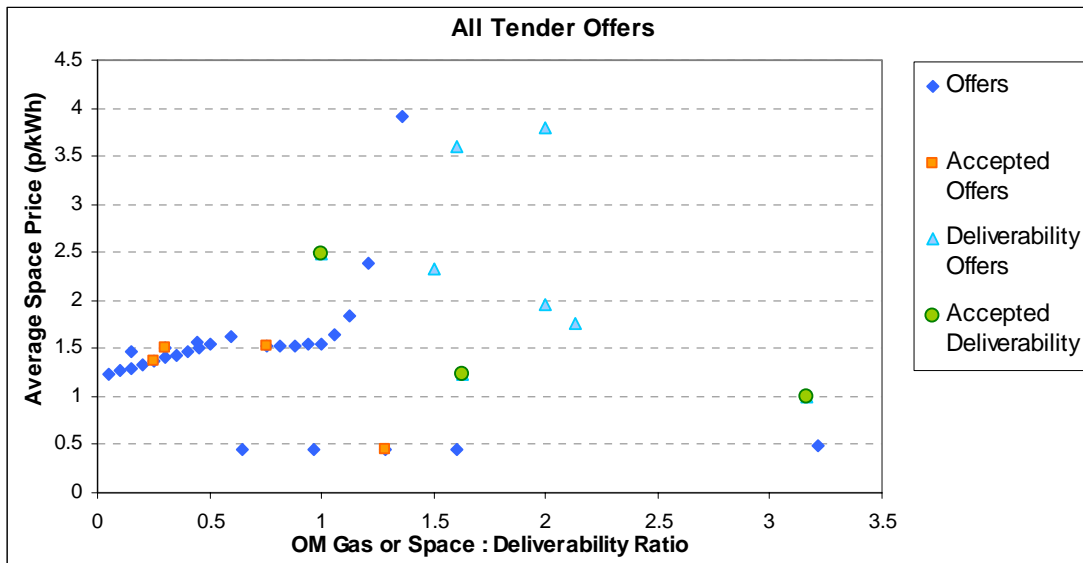


Figure 8: Prices offered through the OM tender

The volume of OM services that has been accepted through the tender is less than the requirement. Some Operating Margins services were also booked under regulated prices to satisfy the lowest cost solution.

**Section 5: Partial Regulated Pricing in place – Tendered Prices & Acceptances**

In this section, the assessment assumes that National Grid LNG Storage is under a regulated price structure for the provision of Operating Margins services at the prices set out in C3 of the Gas Transporter Licence in respect of the NTS for some requirement types. In this scenario, 733GWh of offers have been accepted for the Storage Year 2010/11. This section is representative of the current codes, licences and Safety Case and therefore reflects the offers we have accepted to meet the Operating Margins requirement.

The assessment of the tender offers through the tender was designed to find the lowest cost solution. The costs assessed include the holdings contract costs (e.g. space or deliverability contracts as tendered) as well as the estimated re-profiling, standby and utilisation costs. The pricing of a tender offer affects its place in the stack of offers and therefore the volumes and prices accepted at other facilities are influenced by the pricing of services at NGLNG Storage's facilities. Tables 8 and 9 show the offers tendered and accepted under the tender, not including OM services from NGLNG Storage booked through the UNC process at regulated prices.

Prior to the tender, Ofgem was minded to suspend the C3 prices for the 2010/11 storage year if it judged competition to have been effective. The key criterion for assessing the effectiveness of the competition was whether National Grid could fulfil each OM requirement from providers other than NGLNG Storage.<sup>4</sup>

When the offers from NGLNG Storage were excluded from the tender, the Locational North, Orderly rundown and Non-Locational OM requirements could still be fulfilled. Therefore, competition was deemed effective and C3 prices were suspended for these requirement types. Competition was not deemed effective in the provision of the Supply Loss, Locational South, West and Scotland requirements, therefore C3 prices for these requirements will continue.

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<sup>4</sup>[http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Special%20Condition%20C3\(1\)\(b\)%20Direction%20170210\(3\)%20\(sig\).pdf&refer=Networks/Trans/GasTransPolicy/Ingpc](http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?file=Special%20Condition%20C3(1)(b)%20Direction%20170210(3)%20(sig).pdf&refer=Networks/Trans/GasTransPolicy/Ingpc)

Capacity Arrangements	Weighted Average Offer Price per unit of space (p/kWh)	1.75
	Minimum Offer Price per unit of space (p/kWh)	0.00
	Maximum Offer Price per unit of space (p/kWh)	200.00
Gas Delivery Arrangements	Weighted Average Offer Price per Unit of OM Gas available (p/kWh)	2.25
	Minimum Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Offer Price per Unit of OM Gas available (p/kWh)	3.80
	Weighted Average Offer Price per unit of deliverability offered (p/kWh/day)	3.02
	Minimum Offer Price per Unit of deliverability offered (p/kWh/day)	1.50
	Maximum Offer Price per Unit of deliverability offered (p/kWh/day)	7.60

Table 8: Prices offered through the OM tender not including NGLNGS at regulated prices

Capacity Arrangements	Weighted Average Accepted Offer Price per unit of space (p/kWh)	0.62
	Minimum Accepted Offer Price per unit of space (p/kWh)	0.45
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	Minimum Accepted Offer Price per Unit of OM Gas available (p/kWh)	1.00
	Maximum Accepted Offer Price per Unit of OM Gas available (p/kWh)	2.49
	Weighted Average Offer Price Accepted per unit of deliverability (p/kWh/day)	2.20
	Minimum Offer Price Accepted per Unit of deliverability (p/kWh/day)	1.50
	Maximum Offer Price Accepted per Unit of deliverability (p/kWh/day)	2.49

Table 9: Prices accepted through the OM tender not including NGLNGS at regulated prices

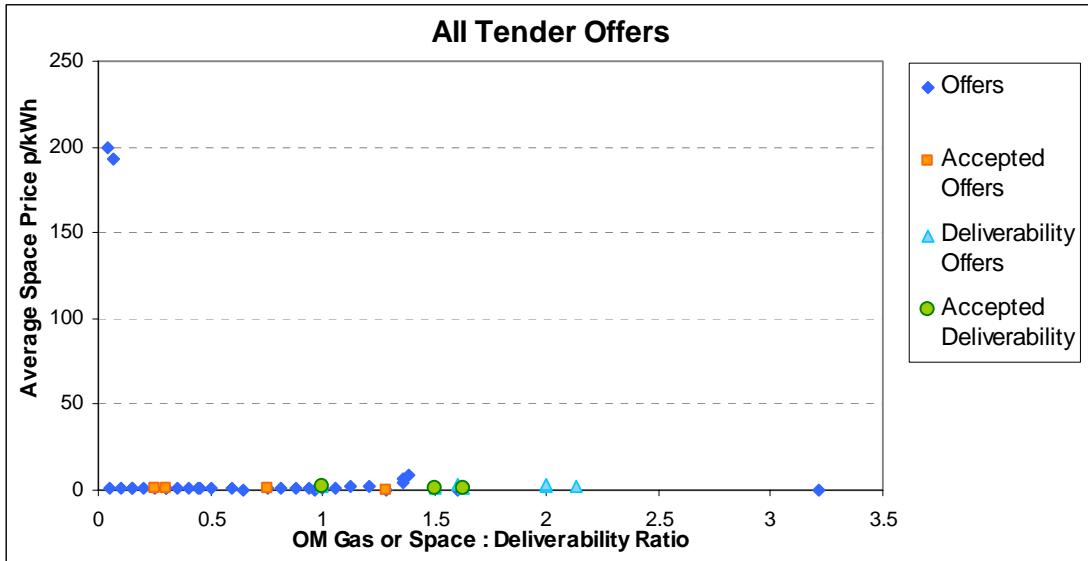


Figure 9: Prices offered through the OM tender

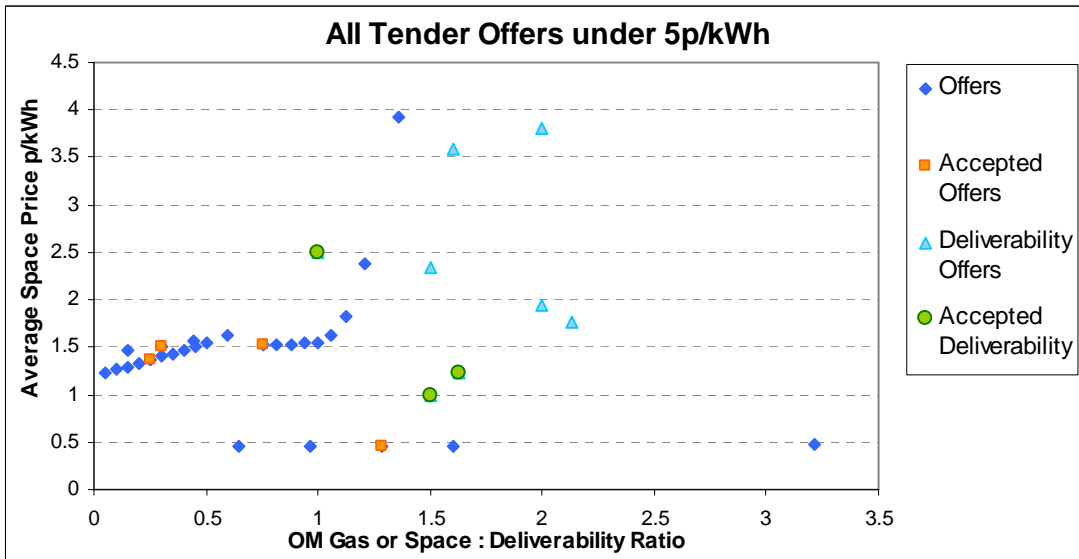


Figure 10: Prices under 5p/kWh offered through the OM tender

The volume of OM services that has been accepted through the tender for 2010/11 is less than the requirement, such that services were booked under regulated prices.

**Appendix Terminology**

<b>Term</b>	<b>Definition</b>
C3	Special Condition C3 "Restriction of Prices for LNG Storage Services" is a licence condition in National Grid Gas' Gas Transporter Licence in respect of the NTS
GWh	Gigawatt hour – equivalent to one million kilowatt hours (kWh)
HSE	Health and Safety Executive
kWh	kilowatt hour
OM	Operating Margins. Operating Margins gas is used to maintain National Transmission System (NTS) pressures in the immediate period following operational stresses and before market balancing measures become effective.
NTS	National Transmission System
Storage Year	1 May to 30 April
UNC	Uniform Network Code