

# SO Incentives from April 2010

---

**John Perkins / Malcolm Arthur**

**nationalgrid**

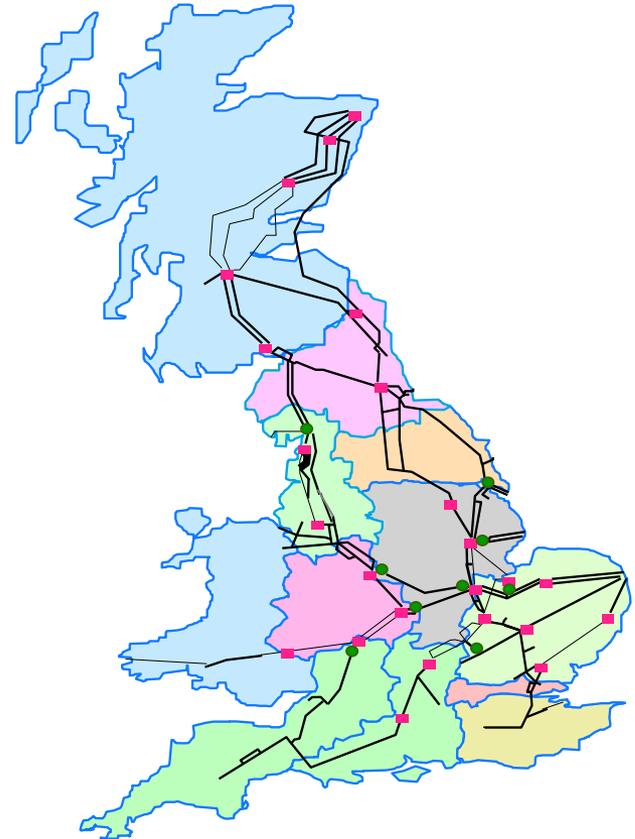
The power of action.™

# Gas System Operator (SO) Incentives

**National Grid operates the high pressure Gas Transmission System in Great Britain.**

**The System Operation function has financial incentives that encourage us to:**

- ◆ Minimise System Operation costs to consumers
- ◆ Consider our impact on the environment
- ◆ Support efficient operation of the wholesale gas market



**This year's consultation covers incentives on activities involving over £100m of gas industry revenues**

# Electricity System Operator (SO) Incentives

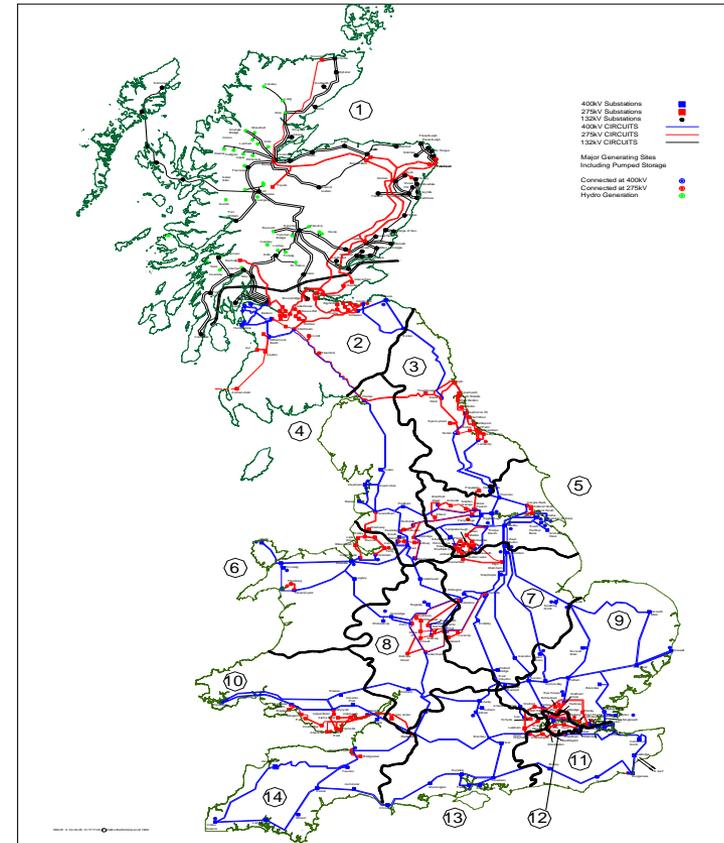
## GBSO from April 2005

- ◆ Recent changes now include offshore role  
NETSO – National Electricity Transmission  
System Operator

Manage the security and quality of  
electricity supply in specific timescales

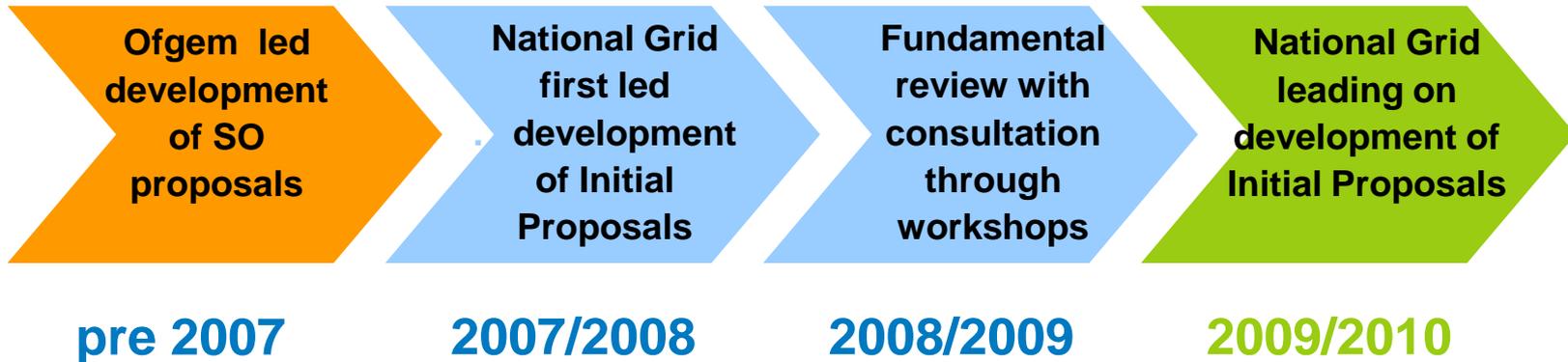
Balance generation and demand  
economically & efficiently

Incentive reinforces National Grid's  
licence objectives and aims to reward  
innovation and investment



**Incentive covers approximately £600m of industry costs**

# Development of SO Incentives



**This consultation is your opportunity to voice your opinions on the incentive schemes from April 2010**

# Engagement this year

**We are keen to hear the views from the widest possible range of interested parties**

**Presentations have been arranged at a several industry meetings, including**

- ◆ Major Energy Users' Council, Small Suppliers Forum, Transmission Workstream, Demand Side Working Group, Association of Electricity Producers, Gas Ops Forum

**We have offered to meet bilaterally with all parties who responded to last years initial proposals consultation**

**If you would like us to present at another industry meeting or would like to meet bilaterally then please contact us**

# Key challenges for this year

## Bundled vs unbundled schemes

### Longer term schemes

#### Gas

- ◆ Explore options for new incentives around maintenance and environmental performance
- ◆ Explore possible options to re-incentivise Operating Margins
- ◆ Ensuring information on incentive performance is provided in an accessible, transparent manner

#### Electricity

- ◆ Develop indexation
- ◆ Handling of differential in risk profiles of the BSIS components
- ◆ Differentiating incentive periods of the BSIS components
- ◆ Implementation of Transmission Access and the SO / TO incentives
- ◆ Increased information provision

# Timetable

<b>June/July 2009</b>	<b>Initial industry consultation/ engagement</b>
<b>July/August 2009</b>	<b>Publication of mini consultation documents</b>
<b>October 2009</b>	<b>Publication of initial proposals</b>
<b>November 2009</b>	<b>Industry event</b>
<b>November 2009</b>	<b>Ofgem to provide initial comments</b>
<b>December 2009</b>	<b>Initial Proposals consultation period closes</b>
<b>Early 2010</b>	<b>Ofgem consultation on final proposals</b>
<b>April 2010</b>	<b>Scheme go live</b>

**National Grid can be contacted at any time to discuss SO Incentives**

# How do I find out more?

## Register to receive e-mail notifications

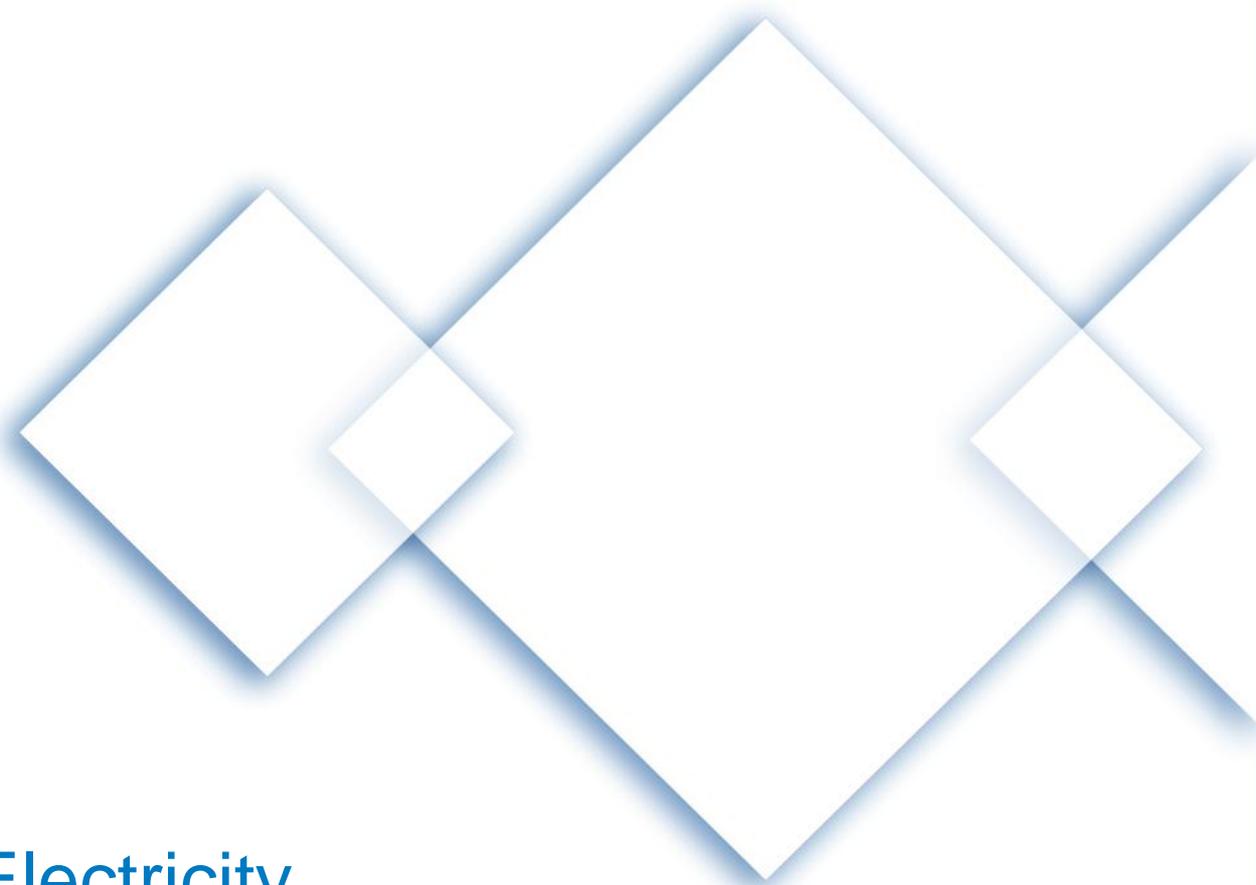
- ◆ [soincentives@uk.ngrid.com](mailto:soincentives@uk.ngrid.com)

## SO Incentives area of the National Grid website

- ◆ [www.nationalgrid.com/uk/Gas/soincentives/](http://www.nationalgrid.com/uk/Gas/soincentives/)
- ◆ [www.nationalgrid.com/uk/electricity/soincentives/](http://www.nationalgrid.com/uk/electricity/soincentives/)

## Talk to us

- ◆ [john.perkins@uk.ngrid.com](mailto:john.perkins@uk.ngrid.com) 01926 656337
- ◆ [malcolm.arthur@uk.ngrid.com](mailto:malcolm.arthur@uk.ngrid.com) 01926 654909

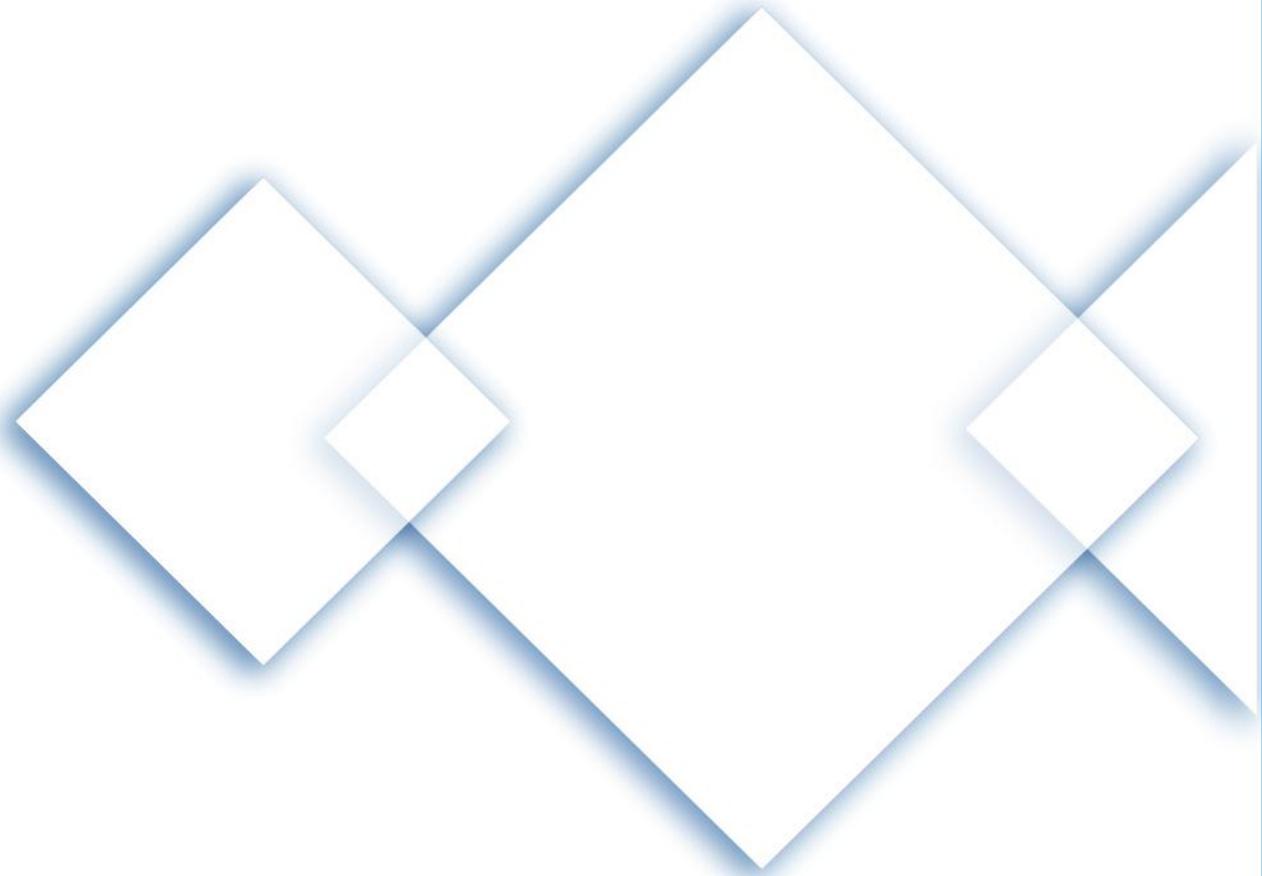


# National Grid Electricity Incentive Development

---

**nationalgrid**

The power of action.™



## A Brief History of SO Incentives (Electricity)

---

**nationalgrid**

The power of action.™

# Incentive history

**SO incentives developed in 1994 due to increasing operational costs**

**Scheme revised for NETA implementation**

**Aimed at controlling costs and encouraging innovation and investment**

**Current scheme sets target costs on an annual basis**

# Incentive Overview

## Electricity

- ◆ Single scheme covering all 'external' balancing costs
  - Bundled scheme with all cost components included such as constraints and reserve
- ◆ One year incentive

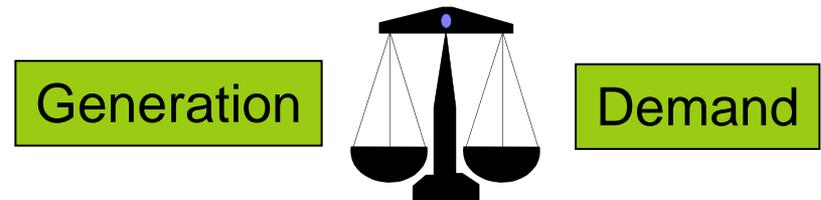
# National Grid's System Operator Role

## System security

- ◆ Securing the network against faults
- ◆ Resolve Transmission Constraints

## Balancing

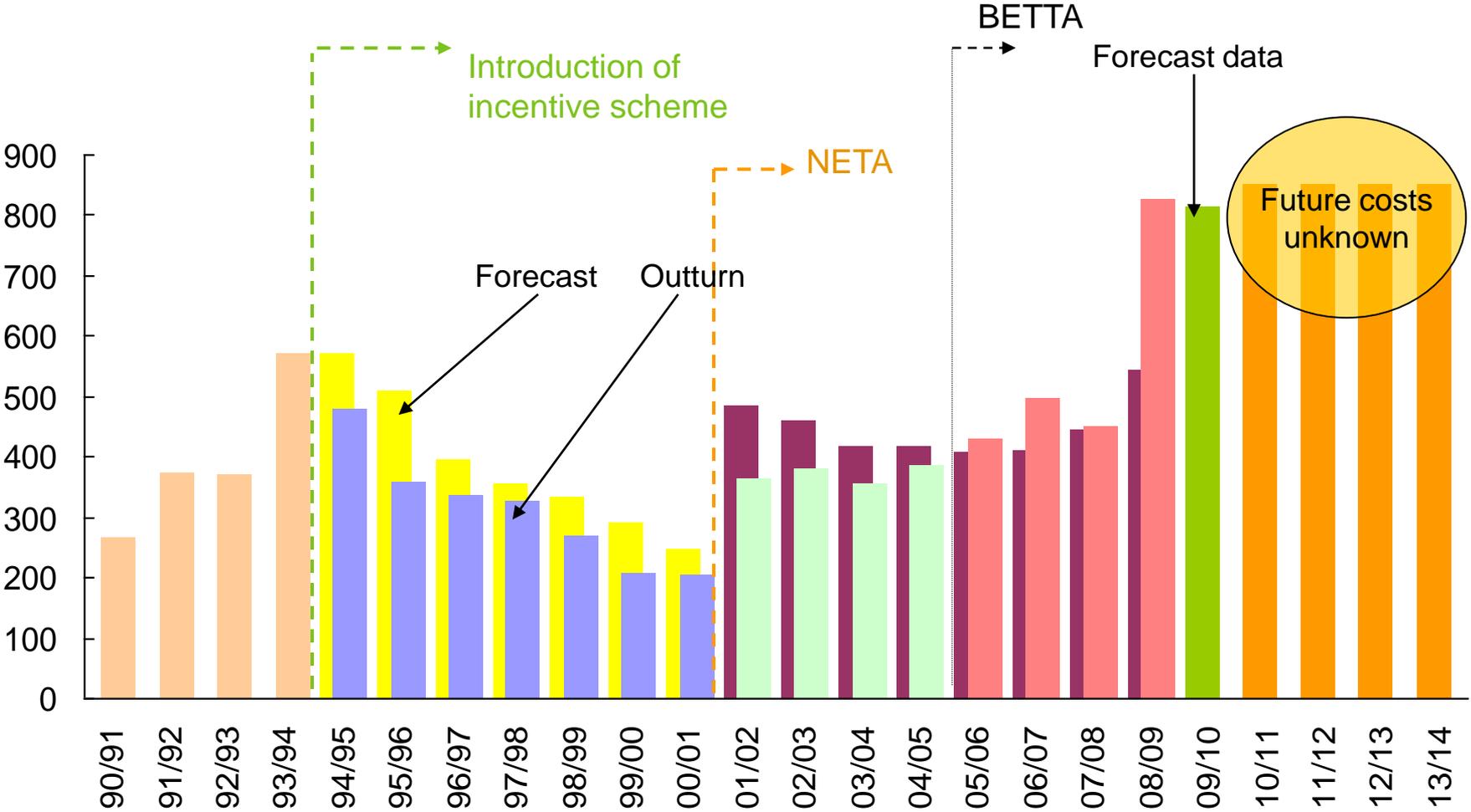
- ◆ Forecasting Demand
- ◆ Match generation and demand in real time
  - Procure 'Reserve' and Frequency Response
  - Accept BOAs

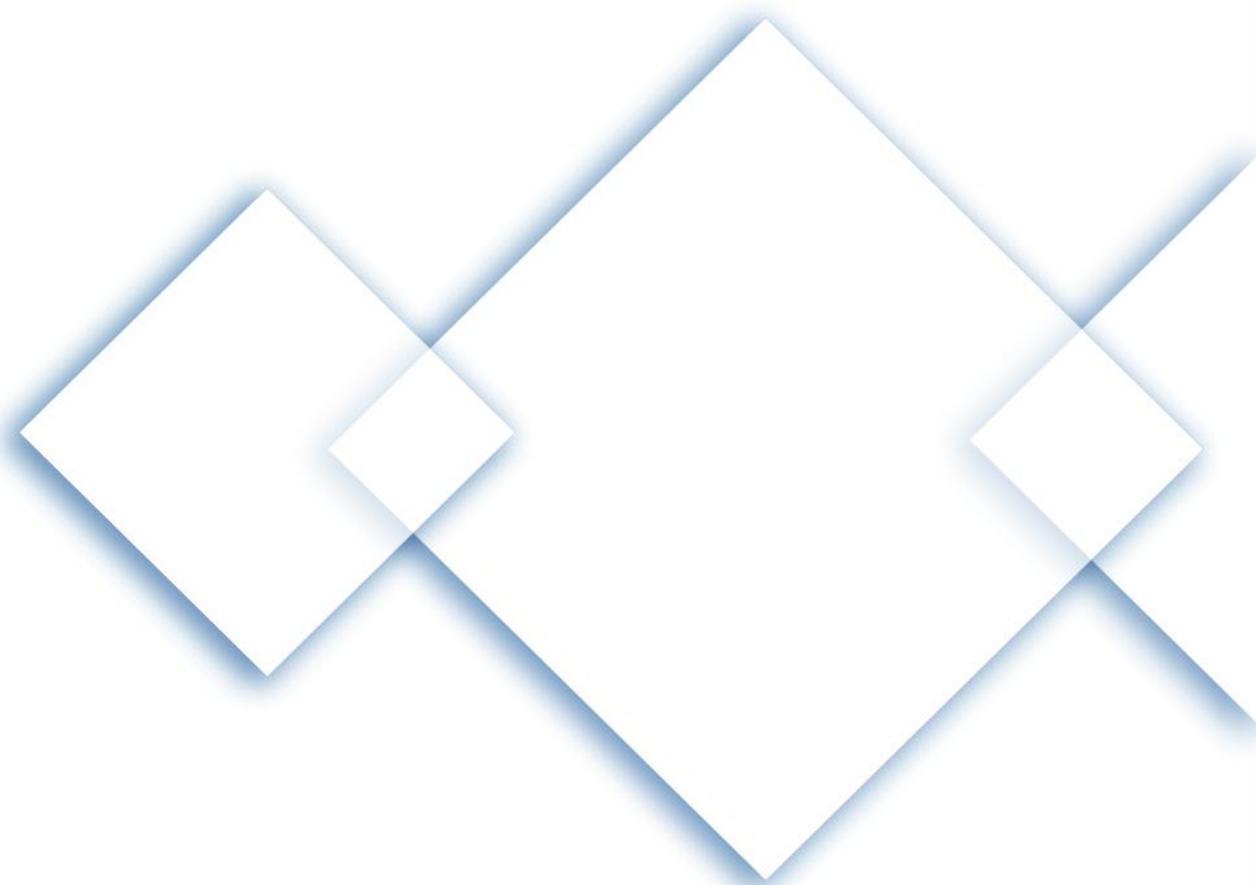


## Quality of supply

- ◆ Frequency
- ◆ Voltage
- ◆ Harmonics

# Electricity SO External Incentive Scheme





## Aims for incentive development

---

**nationalgrid**

The power of action.™

# Key challenges for this year

## Bundled vs unbundled schemes

### Longer term schemes

#### Gas

- ◆ Explore options for new incentives around maintenance and environmental performance
- ◆ Explore possible options to re-incentivise Operating Margins
- ◆ Ensuring information on incentive performance is provided in an accessible, transparent manner

#### Electricity

- ◆ Develop indexation
- ◆ Handling of differential in risk profiles of the BSIS components
- ◆ Differentiating incentive periods of the BSIS components
- ◆ Implementation of Transmission Access and the SO / TO incentives
- ◆ Increased information provision

# Key challenges for this year

## Bundled vs unbundled schemes

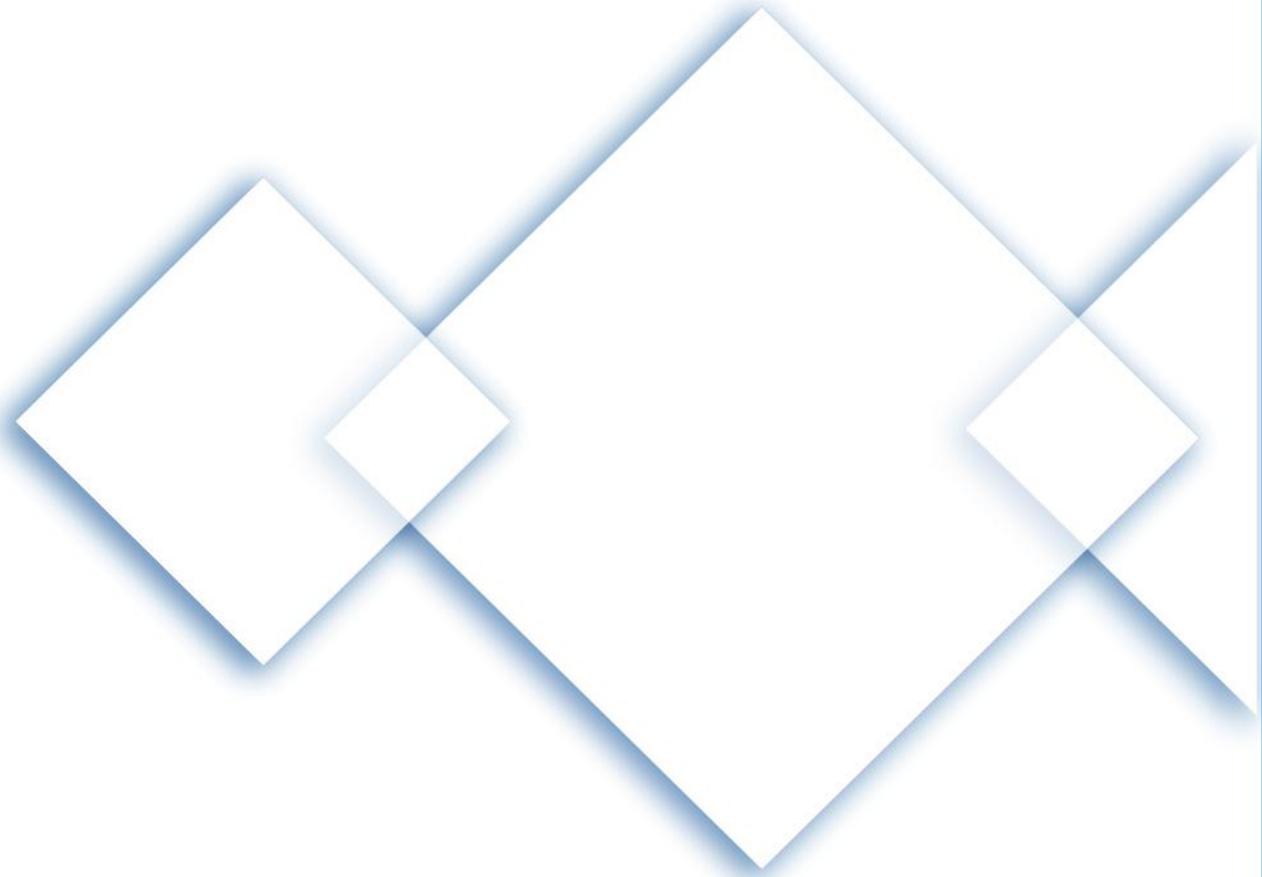
### Longer term schemes

#### Gas

- ◆ Explore options for new incentives around maintenance and environmental performance
- ◆ Explore possible options to re-incentivise Operating Margins
- ◆ Ensuring information on incentive performance is provided in an accessible, transparent manner

#### Electricity

- ◆ Develop indexation
- ◆ Handling of differential in risk profiles of the BSIS components
- ◆ Differentiating incentive periods of the BSIS components
- ◆ Implementation of Transmission Access and the SO / TO incentives
- ◆ Increased information provision



Longer term scheme

---

**nationalgrid**

The power of action.™

# Development of a longer term scheme

## Benefits outlined in Ofgem's letter are:

- ◆ Consider actions that would have longer pay back time
- ◆ Further development of strategic operating view
- ◆ Better information transparency
- ◆ More targeted incentive
- ◆ Reduction in administration burden

# Industry / consumer benefit

## Aim to minimise costs to the consumer

- ◆ Greater transparency of longer term costs
- ◆ Stability of incentive
- ◆ Should reduce costs longer term



# Development of a longer term scheme

## Some things to consider:

- ◆ Addressing externalities
  - Power price
  - Market length
- ◆ Market changes
  - Introduction of modifications such as Transmission Access
- ◆ Can all components be unbundled
  - Constraints
  - Transmission Losses

# Unbundling components

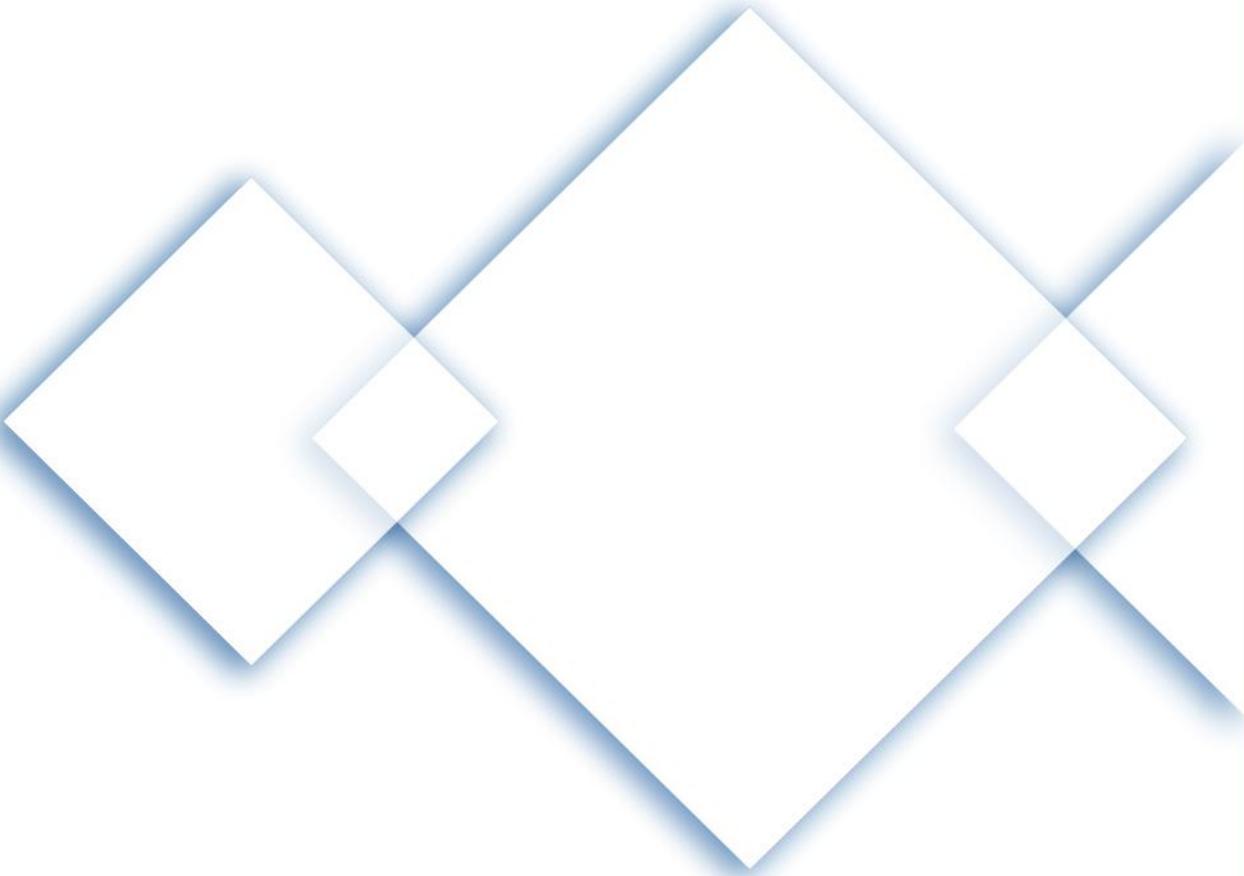
## Some things to consider:

- ◆ Interaction of component costs
  - E.g. reserve and constraints
- ◆ Different risk profiles of the various components e.g. constraints and black start
- ◆ How do you allocate costs across components?
- ◆ Does unbundling provide any perverse incentives?
- ◆ What are the benefits?

# Additional incentives

## Development of additional incentives

- ◆ Where can the SO provide additional value to the industry?
- ◆ Are there any additional activities where the SO can be incentivised?
  - e.g. wind forecasting; information provision



## Fixed price BSUoS

---

**nationalgrid**

The power of action.™

# Develop fixed price BSUoS

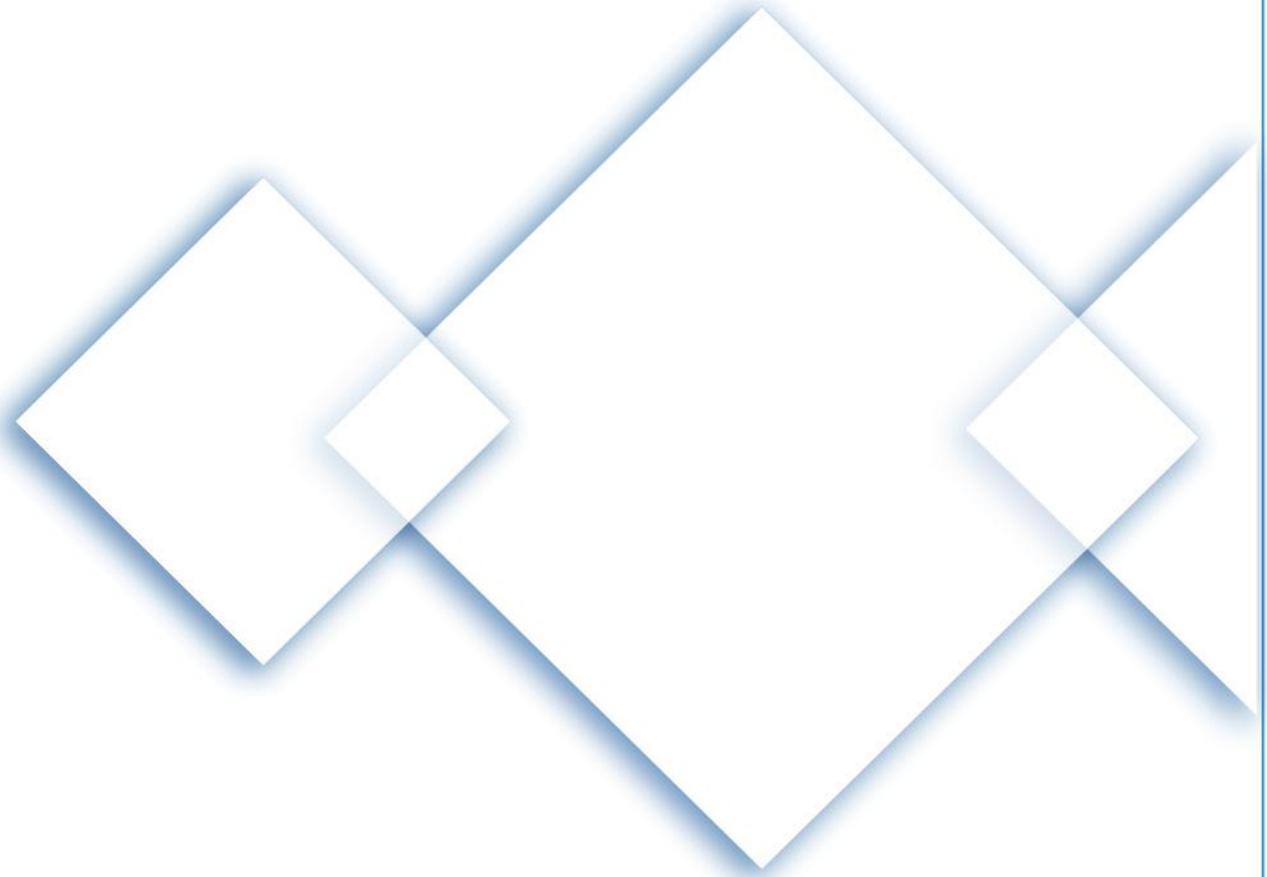
**Industry requested that we consider the development of a methodology to reduce the volatility of BSUoS costs**

**Preliminary work showed potential issues**

- ◆ Presents a risk to National Grid - significant under (and over) recovery
- ◆ Whether it would better meet licence objectives

**Additional suggestions made by industry to overcome these issues**

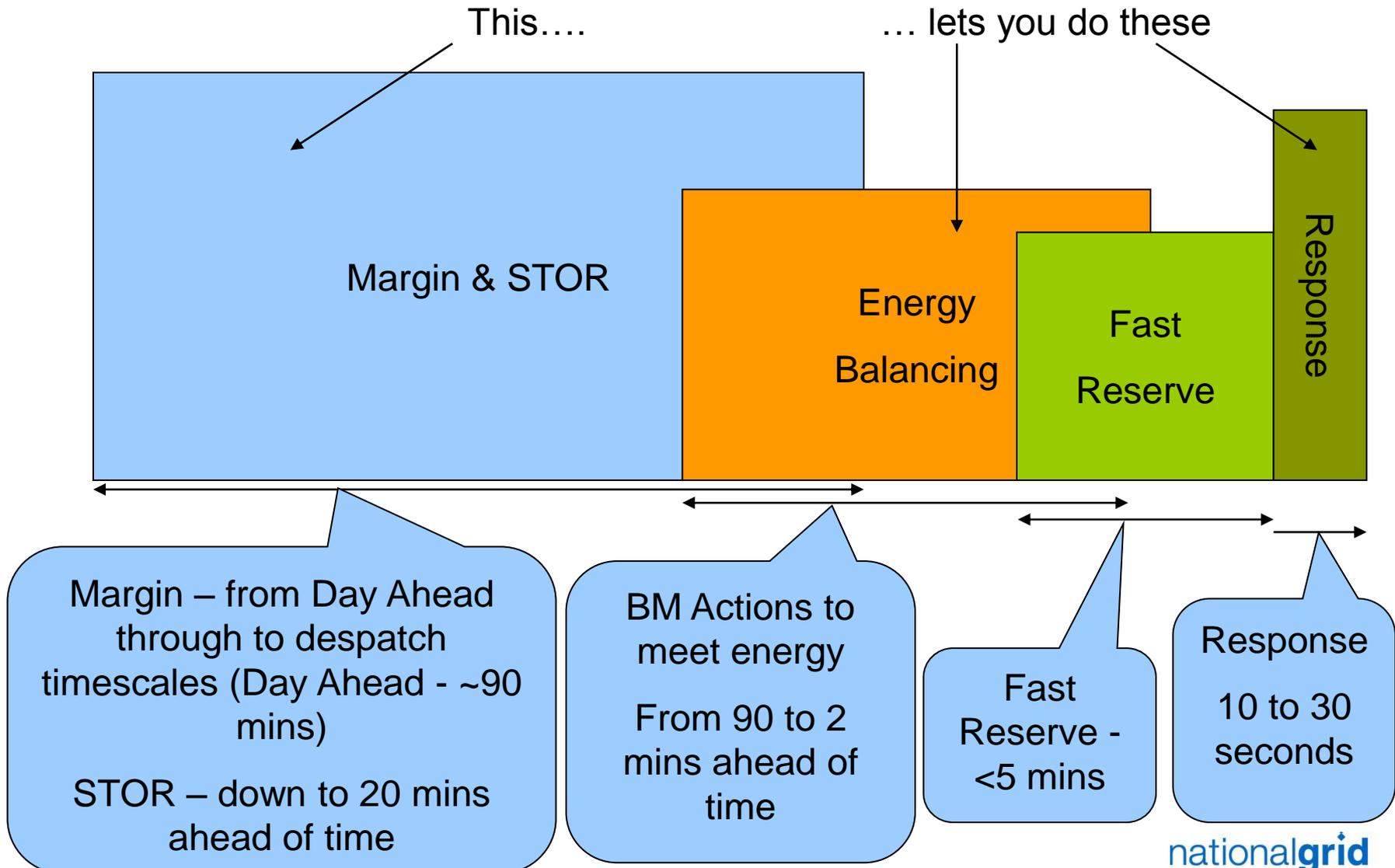
**Potential alternatives such as a BSUoS price forecast incentive**



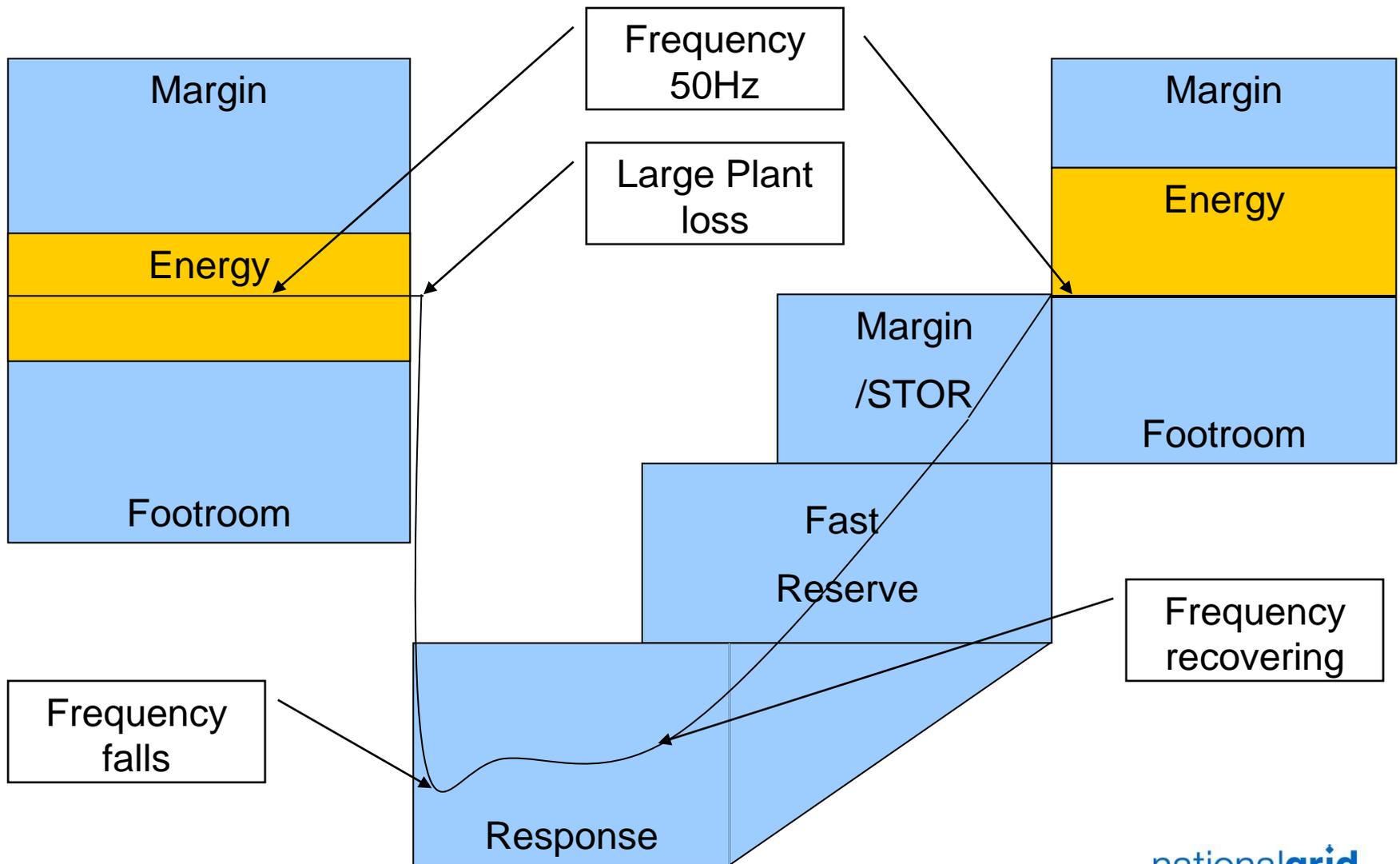
# Balancing Services

---

# Balancing Energy – Time Line



# Balancing Energy – When are services used?

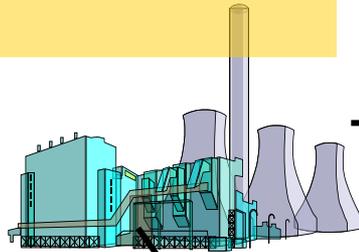


# Balancing Services – System balancing

**Generator 1 - 150 MWh**

**Offer £25 MWh**

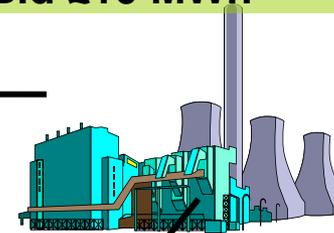
**Bid £15**



**Generator 2 - 50 MWh**

**Offer £50 MWh**

**Bid £10 MWh**



Line capacity

**50 MW**

Line capacity

**100 MW**



Demand

**100 MWh**



Line capacity

**100 MW**

**Additional cost of sterilised headroom of 50MWh from Gen 1**

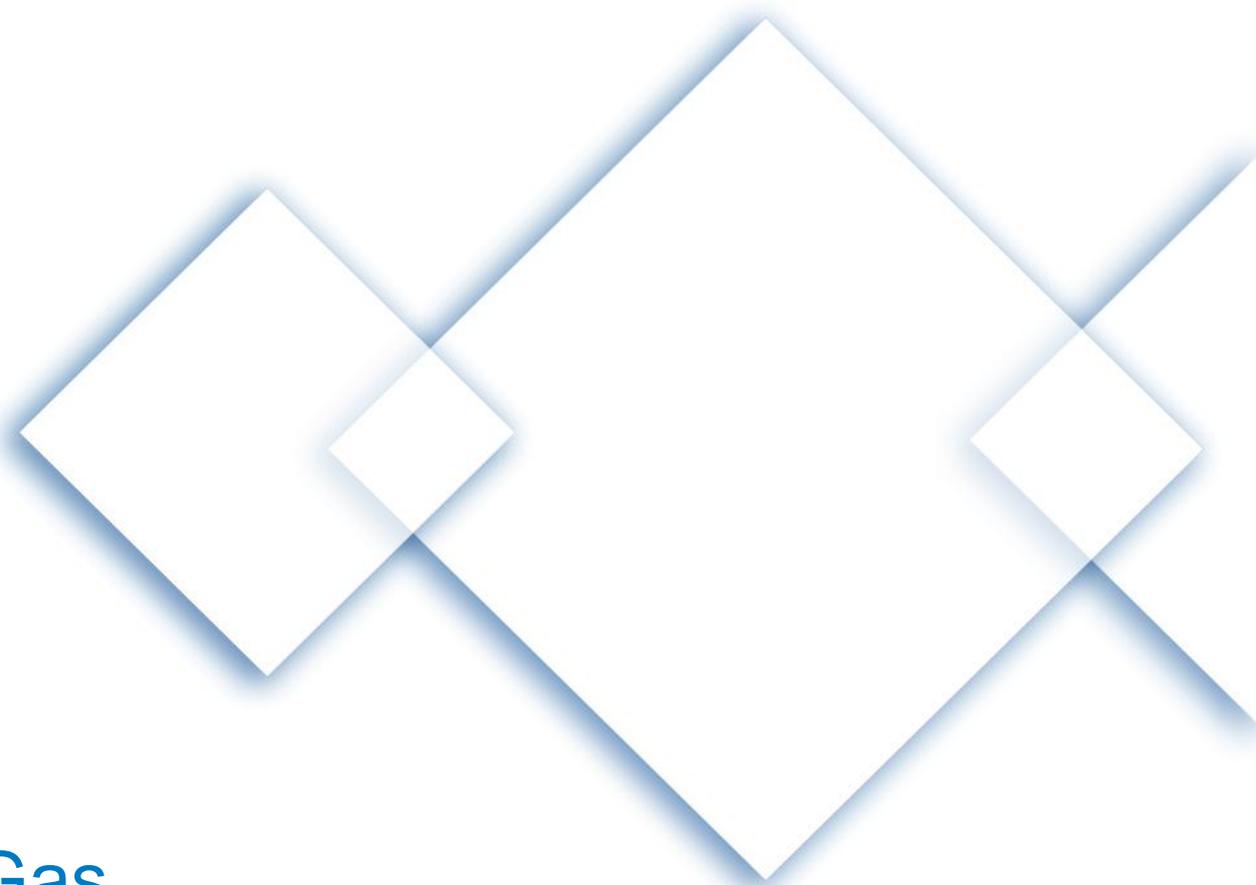
**Scenario 2**

**Cost to supply demand**

$$= 50 \text{ MW} \times \cancel{\text{£25 MWh}} + 50 \text{ MW} \times \text{£50 MWh} + 50 \text{ MW} \times \text{£15 MWh}$$

**= £2600 per hour**

**= £500 per hour constraint costs**



# National Grid Gas Incentive Development

---

**nationalgrid**

The power of action.™



## Information published on gas incentives

---

**nationalgrid**

The power of action.™

# Information on Incentive Performance

**National Grid website is used to publish information on incentive performance**

- ◆ Reporting against performance measures
- ◆ Financial incentive performance (where possible)
- ◆ [www.nationalgrid.com/uk/Gas/soincentives/AnalystArea/](http://www.nationalgrid.com/uk/Gas/soincentives/AnalystArea/)

**We are looking to review this information and welcome industry views on exactly what is needed**

# Residual balancing

## RESIDUAL BALANCING

nationalgrid

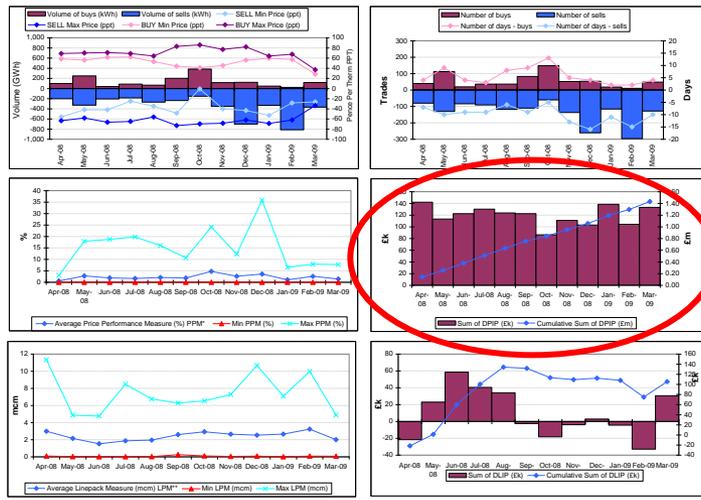
The incentive contains two elements, the Price Performance Measure (PPM) and the Linepack Measure (LM). As National Grid has no direct exposure to the costs of its balancing actions, the PPM is set to encourage National Grid to trade efficiently on behalf of the community, minimising the overall costs passed to neutrality and paid by shippers, and minimising its impact on cashout prices. The PPM encourages price efficiency by incentivising National Grid to carry out any balancing activities close to the System Average Price (SAP), measured through the differential between any National Grid trades. The LM incentivises National Grid to minimise any changes between starting and closing its linepack over a gas day. This is intended to ensure that any system imbalances are resolved on the relevant day, ensuring that the costs of resolving any imbalances are targeted to those responsible for the imbalance.

For further information, please visit <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?DocId=126&ref=Markets/WHM/MS/ETS/system/ops/SystDpncent>

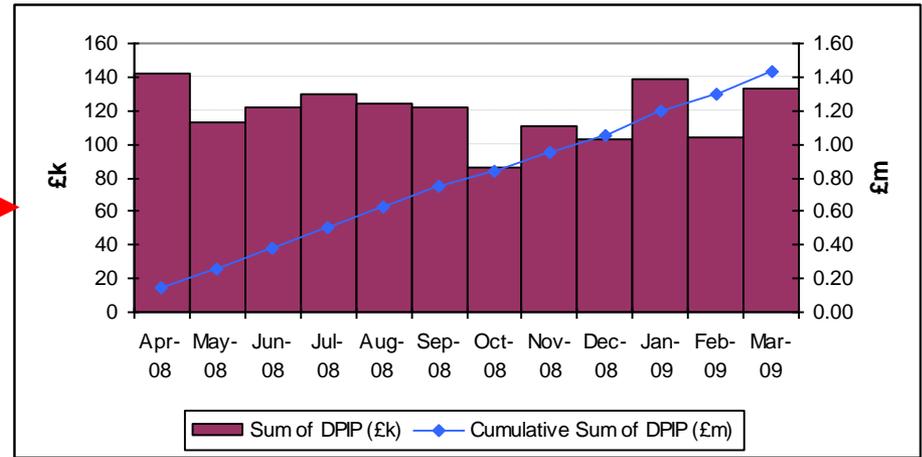
Month	Price						Linepack							
	Sum of Daily Price Incentive Payment (PPM) (£)	Cumulative Sum of DPPM (£)	Sum of DPP (£)	Average Price Performance Measure (%)	Min PPM (%)	Max PPM (%)	Sum of Daily Linepack Incentive Payment (£)	Cumulative Sum of DLIIP (£)	Sum of DLIIP (£)	Average Linepack Measure (mton/LPM)	Min LPM (mton)	Max LPM (mton)		
Apr-08	£142,073	142,073	142	0.14	0.53	0.00	2.98	-£21,702	-21,702	-21.70	2.99	0.10	11.34	
May-08	£113,219	255,292	113	0.26	2.70	0.00	17.87	£22,365	1,291	22.39	1.29	2.35	4.87	
Jun-08	£122,409	377,701	122	0.39	4.06	0.00	16.29	£49,424	16,267	16.26	1.63	0.08	6.49	
Jul-08	£130,177	507,878	130	0.51	1.66	0.00	19.81	£40,420	100,185	40.42	100.18	1.87	0.01	8.49
Aug-08	£123,669	631,547	124	0.63	2.07	0.00	16.03	£24,011	134,195	24.01	134.20	1.95	0.02	6.76
Sep-08	£122,493	754,040	122	0.75	1.84	0.00	10.65	-£2,557	131,639	-2.56	131.64	2.59	0.26	6.29
Oct-08	£86,278	840,318	86	0.84	2.71	0.00	24.13	-£16,240	113,399	-16.24	113.40	2.82	0.11	6.63
Nov-08	£111,007	951,325	111	0.95	2.62	0.00	12.27	£3,907	105,402	3.91	105.49	2.64	0.05	7.28
Dec-08	£103,101	1,054,426	103	1.05	3.56	0.00	35.82	£2,838	112,329	2.84	112.33	2.63	0.09	10.67
Jan-09	£138,378	1,192,804	138	1.19	1.07	0.00	6.51	£4,430	107,869	4.43	107.86	2.65	0.01	7.69
Feb-09	£104,263	1,297,067	104	1.30	2.55	0.00	7.90	£32,925	74,974	-32.92	74.97	3.23	0.08	9.97
Mar-09	£133,228	1,430,295	133	1.43	1.42	0.00	7.71	£30,508	105,480	30.51	105.48	2.00	0.07	4.88

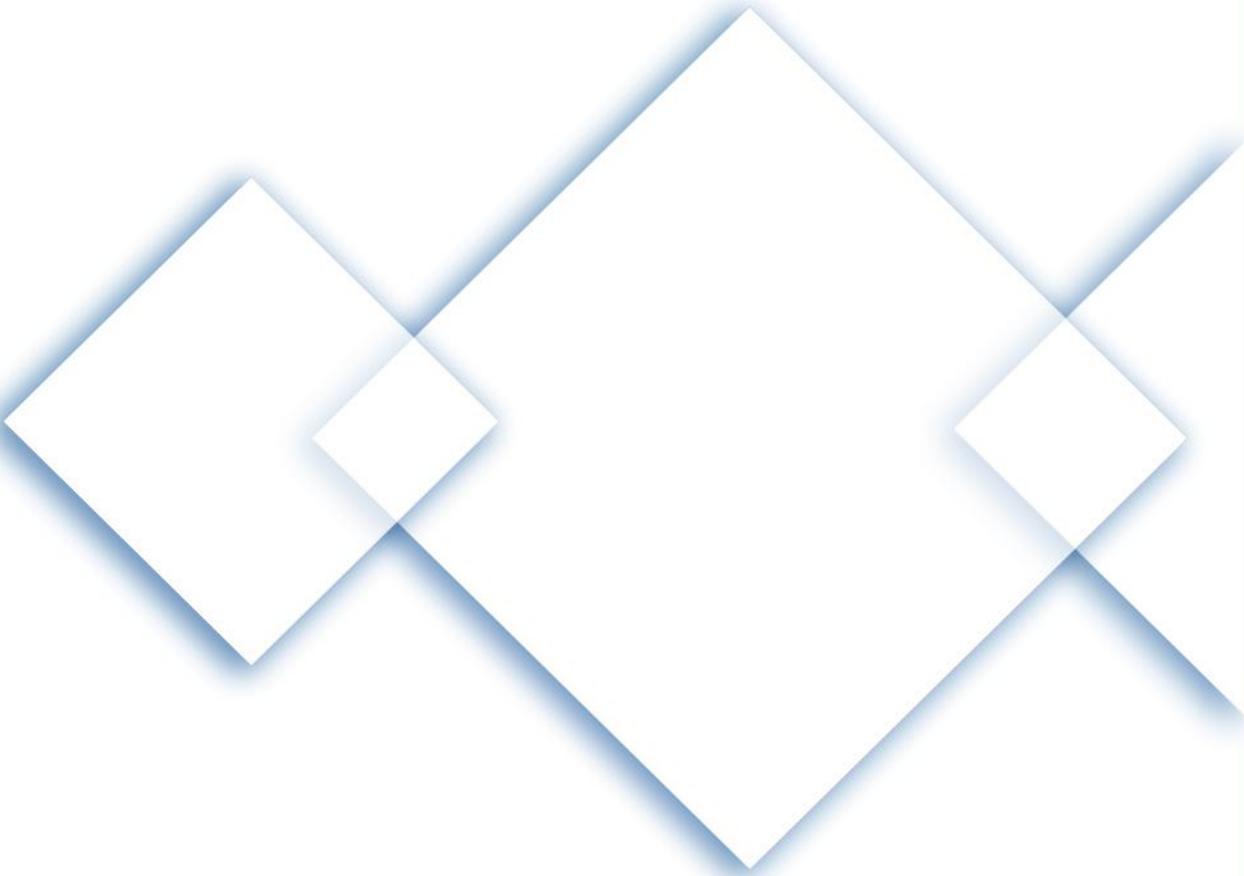
PPM is calculated as  $\frac{\text{SAP} - \text{Min Price}}{\text{SAP}}$  and LM is calculated as  $\frac{\text{SAP} - \text{Min Price}}{\text{SAP}}$  minus Min Price divided by the System Average Price (SAP).  
 LM is the absolute value of opening linepack minus closing linepack.

Month	Trades				Linepack					
	Volume of buys (mton)	Volume of sells (mton)	Number of buys	Number of sells	Number of days - buys	Number of days - sells	SELL Min Price (p/s)	SELL Max Price (p/s)	BUY Min Price (p/s)	BUY Max Price (p/s)
Apr-08	99,628,696	202,512,067	40	80	4	7	-56.2	-63.6	58.3	69.0
May-08	247,176,083	326,386,758	112	131	4	9	-42.0	-66.2	56.0	70.0
Jun-08	37,836,469	206,644,364	14	84	4	9	-40.2	-65.5	61.8	70.8
Jul-08	66,690,403	184,898,501	36	91	3	9	-25.0	-44.9	62.2	69.0
Aug-08	65,413,450	267,984,131	36	117	8	6	-65.0	-66.0	62.9	64.0
Sep-08	203,812,256	237,621,977	83	110	9	9	-48.0	-73.0	44.0	83.0
Oct-08	382,838,659	153,188,216	148	40	13	5	-1.0	-69.7	41.0	86.0
Nov-08	115,294,135	353,121,257	52	137	5	2	-40.2	-68.6	45.3	77.0
Dec-08	121,624,468	700,644,856	53	261	4	16	-43.5	-62.2	55.9	82.0
Jan-09	46,715,517	333,426,892	18	116	2	11	-6.5	-68.5	59.5	64
Feb-09	21,833,790	813,623,738	10	296	2	15	-28.6	-62.1	57	67.5
Mar-09	17,345,633	367,217,969	48	128	4	10	-26.5	-33.71	28.28	37



Month	Sum of Daily Price Incentive Payment (DPIIP) (£)	Cumulative Sum of DPIIP (£)
Apr-08	£142,073	142,073
May-08	£113,219	255,292
Jun-08	£122,409	377,701
Jul-08	£130,177	507,878
Aug-08	£123,669	631,547
Sep-08	£122,493	754,040
Oct-08	£86,278	840,318
Nov-08	£111,007	951,325
Dec-08	£103,101	1,054,426
Jan-09	£138,378	1,192,804
Feb-09	£104,263	1,297,067
Mar-09	£133,228	1,430,295





## Gas incentive specific issues

---

**nationalgrid**

The power of action.™

# Maintenance

**Responses to last year's initial proposals suggested that an incentive around maintenance planning & co-ordination should be considered**

**We are seeking clarity on the behaviours the industry would like to see exhibited**

Is this issue related to

- ◆ Setting of initial maintenance dates?
- ◆ Changes to planned maintenance?
- ◆ Frequency of changes?
- ◆ Notice periods given?
- ◆ Anything else?

**We need to consider whether the UNC rules require updating to facilitate the introduction of an incentive**

- ◆ e.g. Could the requirement to give 30 days notice, lead to overall inefficient outcomes for consumers

# Environmental Incentives

**Existing incentive to ensure the environmental costs associated with venting from NTS compressors are factored into our decision making processes.**

**We need to consult about the ongoing development of the existing venting incentive**

**We are exploring which other SO activities are potential candidates for environmental incentivisation**

- ◆ Which NTS activities impact on the environment?
- ◆ What could be done to reduce the impact?
- ◆ What are the appropriate durations and mechanisms for incentives?

# Residual Balancing

**National Grid is incentivised to bring the system to energy balance each day but with minimum residual balancing activity from the SO (minimising the market influence of these actions)**

**Last year the fundamental review considered the interaction between the two components of the scheme**

**Changes were made to the incentive, designed to reduce the amount of times National Grid entered the market**

**The new scheme has been operational since April 2009**

- ◆ Given the review last year and the limited data available on this year, we do not currently propose any changes
- ◆ We are inviting comments/evidence on whether there is a need for further incremental change

# Operating Margins (OM)

**National Grid procures Operating Margins to meet the requirements of UNC and its Safety Case to support pressures on the NTS during periods of operational stresses**

**Currently OM service is provided by a range of storage and LNG importation facilities**

- ◆ UNC Pre-emption rights over Regulated NG LNG Storage facilities at administered prices (approx 50% of the service)
- ◆ Other facilities on commercial terms

**Previous OM incentives have focussed on cost minimisation**

# Operating Margins (OM)

## National Grid leading the OM contestability review

- ◆ Seeking to attract new providers (including demand side and beach)

## Incentive for 2009/10

- ◆ Given uncertainty over tendered & regulated prices it was not possible to produce a robust forecast cost target for an incentive. Gas holding costs are therefore currently cost pass through (with Ofgem scrutiny)
- ◆ Existing small utilisation scheme retained

## Incentive for 2010/11

- ◆ What are the options for reintroducing an incentive from April 2010?
- ◆ We need to consider implications of ongoing contestability work

# Demand Forecasting

**NG is obliged to publish a demand forecast to the market and is incentivised on the accuracy of the 13:00 forecast at D-1**

## Annual scheme

### Forecast of Total System demand

- ◆ NDM demand
- ◆ Direct connected demand
- ◆ Interconnectors
- ◆ Storage injections

**We are inviting comments/evidence on whether there is a need for further development**

# Data Publication

**NG is incentivised to maintain a standard of service in relation to the publication of some specific data items via our website**

**Measures are timeliness of data publication and availability of system for key data items**

- ◆ Forecast flows onto the network (notified and physical)
- ◆ Within day and D-1 Demand forecast
- ◆ Predicted closing linepack

**Some of last year's responses suggested removing the incentive**

- ◆ We need to clarify if this information is still required
- ◆ To the same levels of availability and timeliness?

# Network Flexibility

**National Grid is currently working up its short, medium and long term plans for considering network flexibility**

**Ofgem have indicated that they will issue a consultation in July 09**

**Depending on the outcome of these initiatives there maybe need to consider incentives arrangements (if required)**

# How do I find out more?

## Register to receive e-mail notifications

- ◆ [soincentives@uk.ngrid.com](mailto:soincentives@uk.ngrid.com)

## SO Incentives area of the National Grid website

- ◆ [www.nationalgrid.com/uk/Gas/soincentives/](http://www.nationalgrid.com/uk/Gas/soincentives/)
- ◆ [www.nationalgrid.com/uk/electricity/soincentives/](http://www.nationalgrid.com/uk/electricity/soincentives/)

## Talk to us

- ◆ [john.perkins@uk.ngrid.com](mailto:john.perkins@uk.ngrid.com) 01926 656337
- ◆ [malcolm.arthur@uk.ngrid.com](mailto:malcolm.arthur@uk.ngrid.com) 01926 654909