

Project Discovery

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Energy policy runs out of steam

Only state
intervention
can keep the
lights on,
says Ofgem

Twenty years of a
liberalised market
may need reversing
to avoid power cuts,

Regulator ditches liberalisation and
calls for public body to control market

**Britain is facing
an energy crisis**

Expect £2,000 bills and power cuts, says energy watchdog



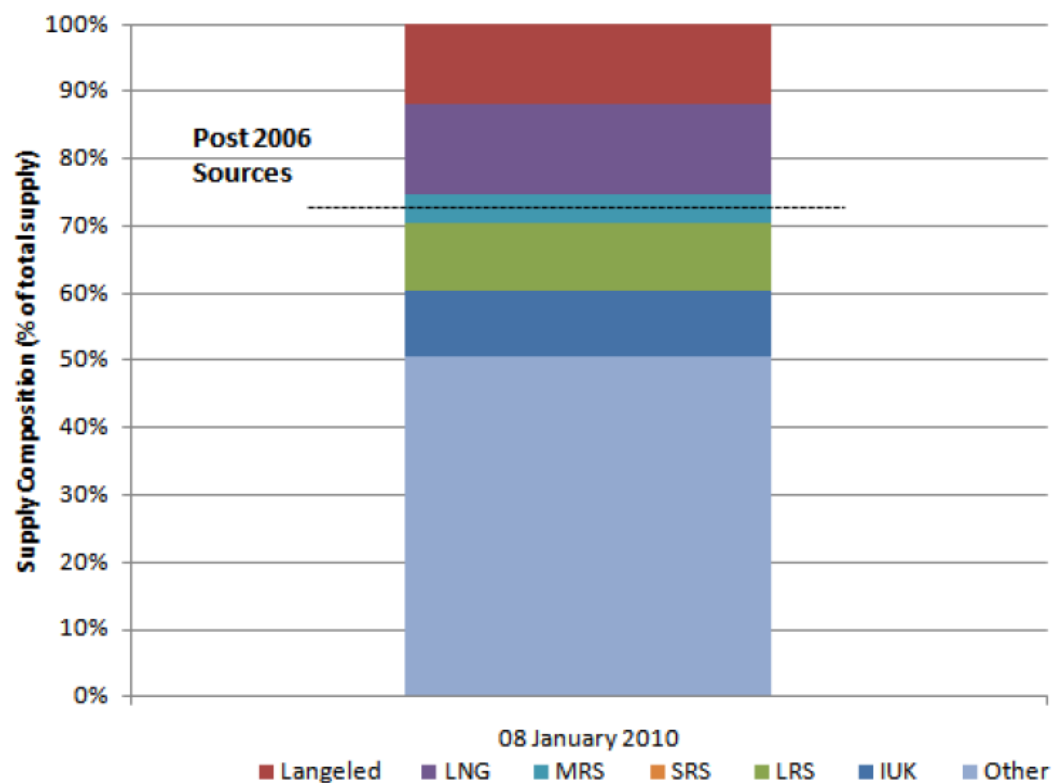
➤ Privatised electricity and gas network will not deliver enough energy, says Ofgem

Market has delivered infrastructure investment

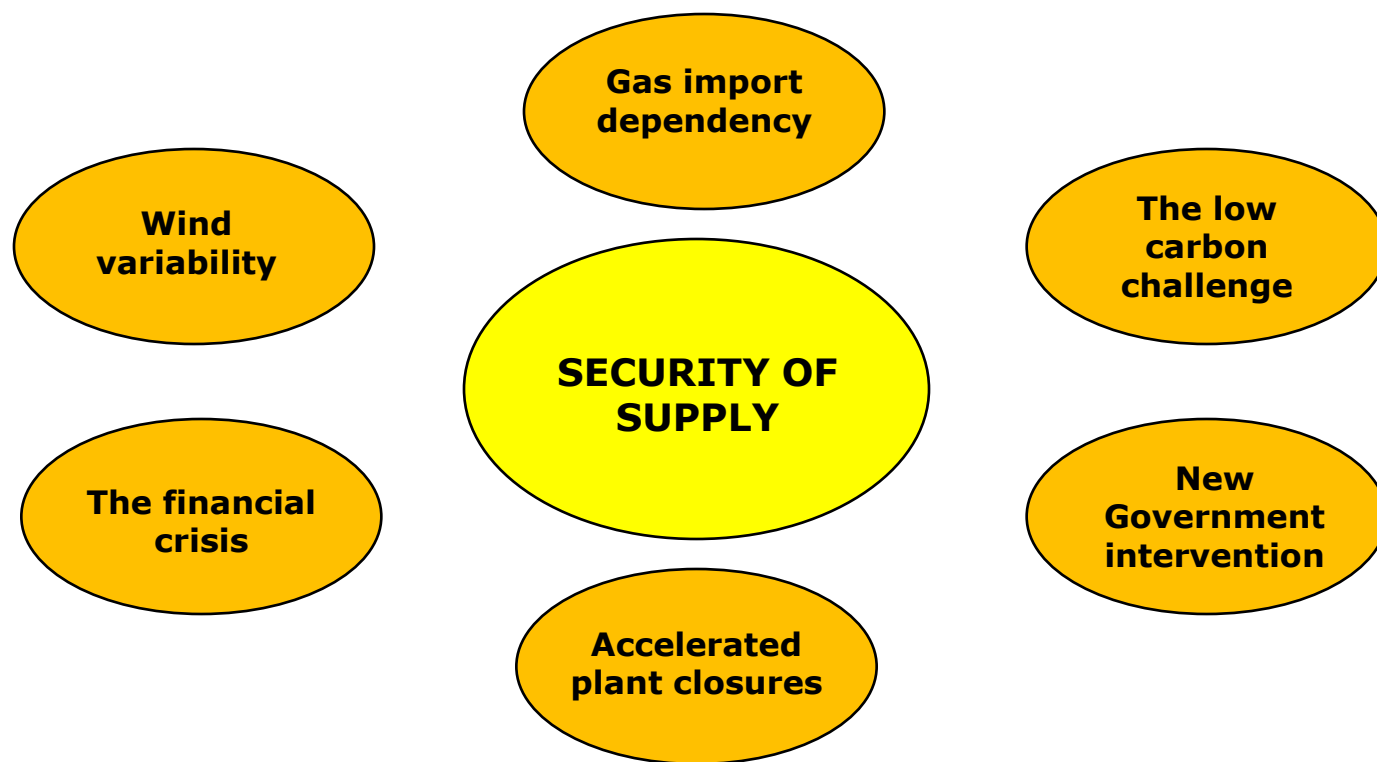
Since 1990 market has delivered:

- Over 30 GW of new generation capacity ($\approx 40\%$ of total capacity)
- 125 bcm/yr of new gas import capacity ($\approx 125\%$ of annual demand)

Role of new investment – 8 January 2010



But context has changed



OCTOBER CONSULTATION DOCUMENT

Respondent feedback: themes

- There was overwhelming support for our approach to modelling uncertainty through scenarios and stress tests
- Respondents highlighted some key challenges for the security of energy supplies over the next 10-15 years, including:
 - regulatory uncertainty, especially for carbon limits and prices
 - financial crisis making it more costly to obtain funds
 - obstacles posed by building/planning requirements
 - renewable technology's relatively higher cost and variability
 - additional risks from oil price shock, gas quality and investment/construction delays

February 2010– update on scenarios

	Green Transition	Green Stimulus
Key supply risk:	Generation variability	Generation variability
CO2 impact:	Down 33% by 2020	Down 46% by 2020
Impact on bills:	Up by 23% by 2020	Up 13% by 2020
Inv't required:	£194bn	£190bn
	Dash for Energy	Slow Growth
Key supply risk:	Gas import dependency	Deferred investment
CO2 impact:	Down 14% by 2020	Down 19% by 2020
Impact on bills:	Up 26% by 2020 (52% by 2016)	Up 19% by 2020
Inv't required:	£110bn	£95bn

February 2010– update on stress tests

Stress test	Period	Today	Green Transition	Green Stimulus	Dash for Energy	Slow Growth
Re-direction of LNG supplies	1-in-20 severe winter					
Russia-Ukraine dispute	1-in-20 severe winter					
Bacton outage	1-in-20 peak day					
No wind output	1-in-20 peak day					
Electricity interconnectors fully exporting	1-in-20 peak day					

Low impact Moderate impact High impact

THE "REDS" CONTINUE TO OUTWEIGH THE "GREENS"

Consumer engagement

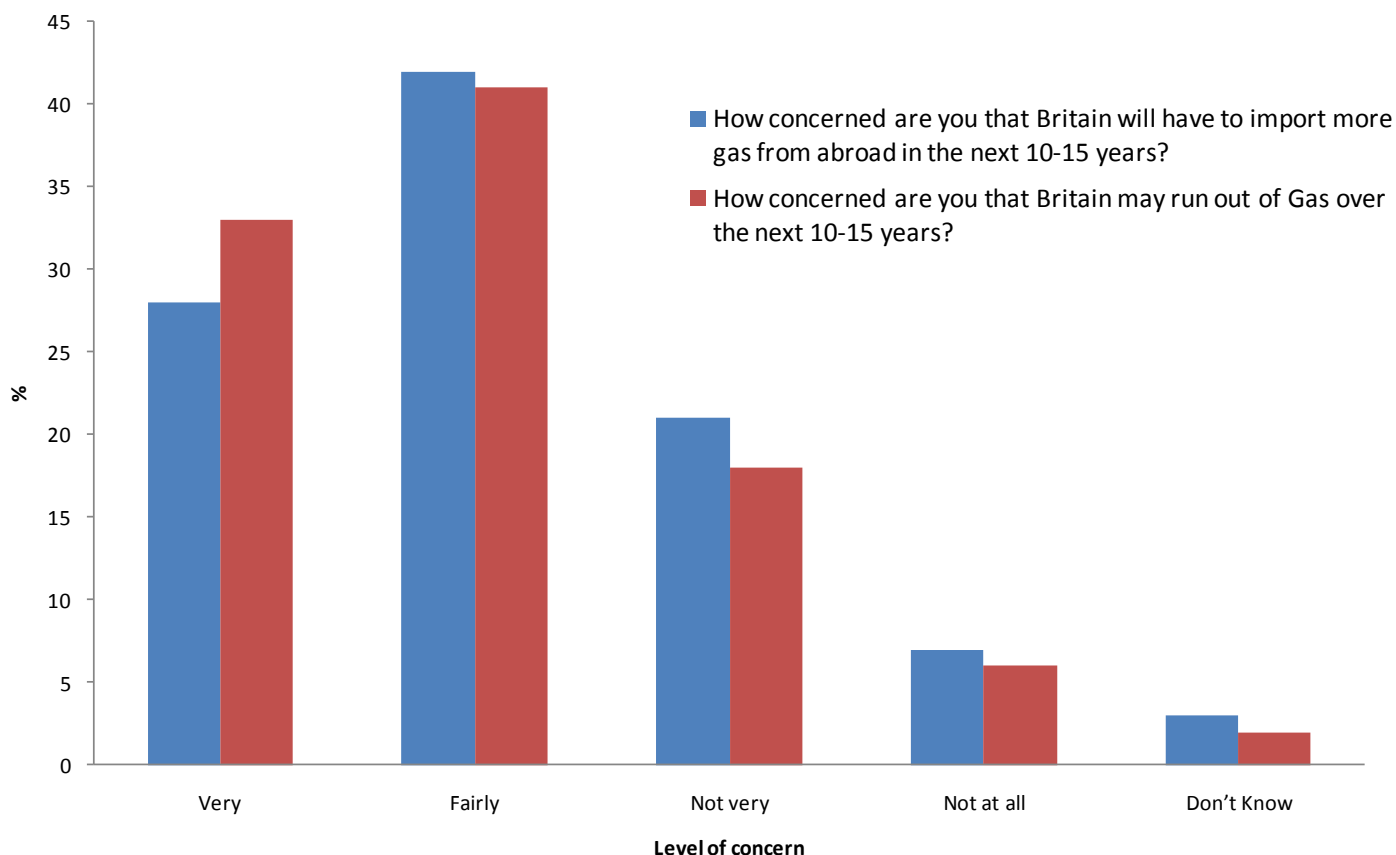
1) Omnibus Survey

- Ipsos Mori conducted a 1,961 - December 2009
- 8 questions: including on generation mix, import dependency, and responsibility

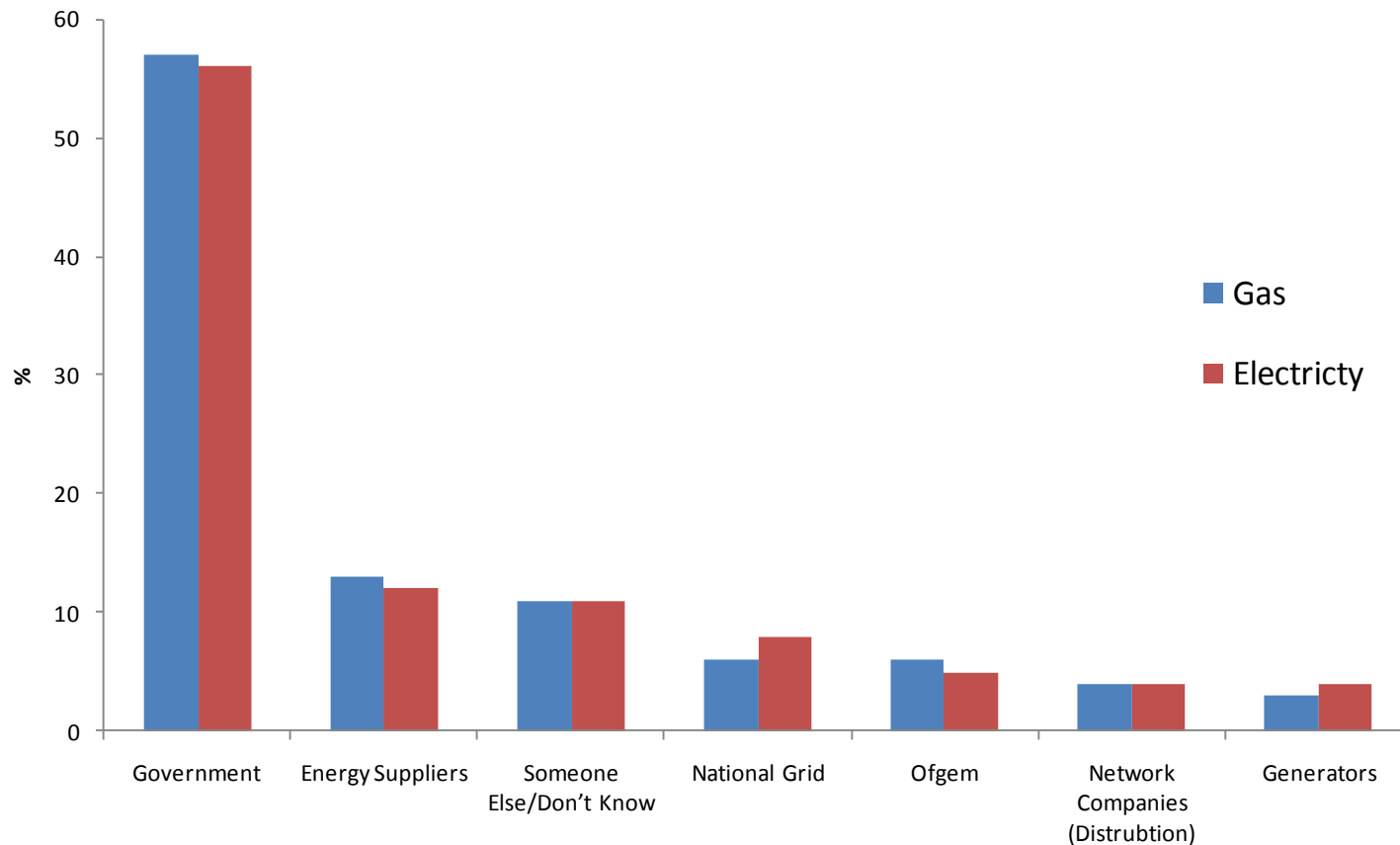
2) Consumer First Panel

- 5 Panel sessions across - January 2009
- Discussed key risks associated with security of supply
- Iteratively discussion

Consumer concerns over gas imports (Mori)



Responsibility for maintaining secure supplies (Mori)



Consumer Panel results

- Renewable technologies generally favoured over fossil-fuel based
- When shown relative costs generation preferences changed - nuclear and gas moving up the rankings
- Overall responsibility for ensuring security of supply was seen to rest with the government rather than energy companies
- Consumers were asked to discuss the trade-offs between security of supply, cost, and environmental objectives. General response was that security of supply is paramount, even if it could mean slightly higher prices

Direct consumer quotes

"I have been really hit by the snow in the last few weeks and it has made me realise how dependant I am on energy on a day to day basis".

"I can't believe we only have 8 days of supplies stored in this country, what happens if our pipelines from other countries are cut off?"

On winter 2010.....

"I am really worried that we won't have any gas or oil here, and that we will have to get it from other countries. We could end up paying so much for it"

"All our energy comes in pipelines from Europe, what happens if they turn them off?"

On secure supplies.....

"We have the resources to power (wind, wave, tidal etc.), we are an island so we have the resources to do these things. By doing these things means less reliance on other countries and being able to make our own resources"

"I want coal and gas to be used less as they are the dirtiest of all these, and they probably damage the environment the most"

On generation mix.....

"I might not trust the government fully, but I trust them more than suppliers"

On responsibility.....

Key findings from the appraisal

Finding 1: There is a need for unprecedented levels of investment to be sustained over many years in difficult financial conditions, and against a background of increased risk and uncertainty.

Up to £200bn of investment required by 2020

Finding 2: The uncertainty in future carbon prices is likely to delay or deter investment in low carbon technology and lead to greater decarbonisation costs in the future.

Significantly higher emissions or reduced capacity margins

Finding 3: Short term price signals at times of system stress do not fully reflect the value that customers place on supply security, which may mean that the incentives to make additional peak energy supplies available and to invest in peaking capacity are not strong enough.

Greatest risk in scenarios with high gas imports & wind generation

Finding 4: Interdependence with international markets exposes GB to a range of additional risks that may undermine GB security of supply.

Greatest risk in scenarios with highest gas import dependence

Finding 5: The higher cost of gas and electricity may mean that increasing numbers of consumers are not able to afford adequate levels of energy to meet their requirements and that the competitiveness of industry and business is affected.

Consumer bills could rise by up to 50%

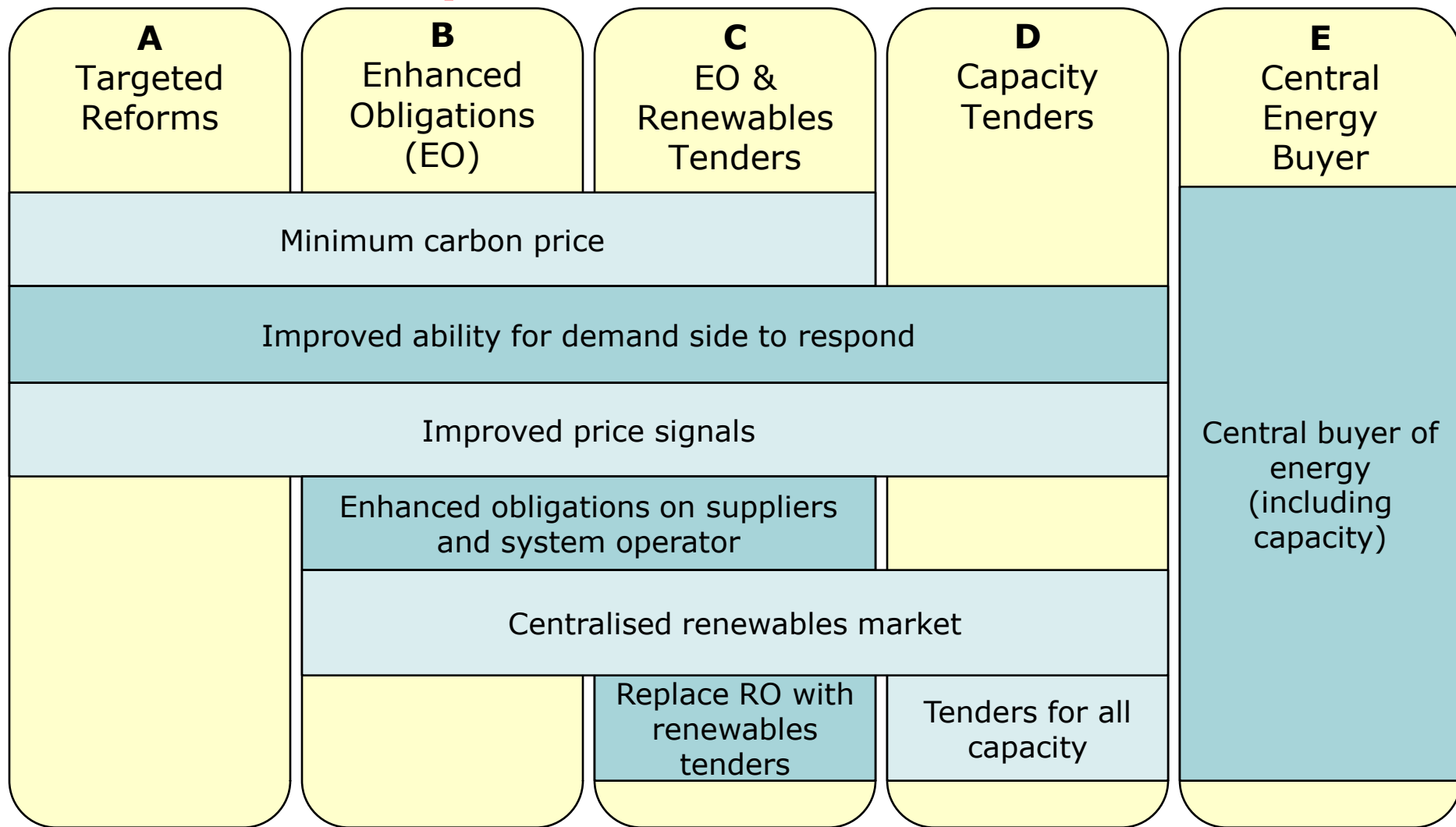
COMBINATION OF FACTORS CAUSES CONCERN

Range of possible policy measures to deal with issues

<p>Scale and timing of investment</p> <ul style="list-style-type: none"> • Improve price signals • Supplier obligations • Centralised renewables market • Capacity tenders • Central energy buyer 	<p>Uncertain future carbon price</p> <ul style="list-style-type: none"> • Carbon price intervention • Tender for low carbon plant • Central energy buyer
<p>Weakness of short term signals</p> <ul style="list-style-type: none"> • Improve price signals • Supplier obligations • Improve ability for DSR • Short term capacity auctions • Liquidity measures • Central energy buyer 	<p>Risks from inconsistencies with international arrangements</p> <ul style="list-style-type: none"> • Improve price signals • Supplier obligations • Storage capacity tenders • Central energy buyer

MEASURES CAN BE PACKAGED IN VARIETY OF WAYS

Options for consultation

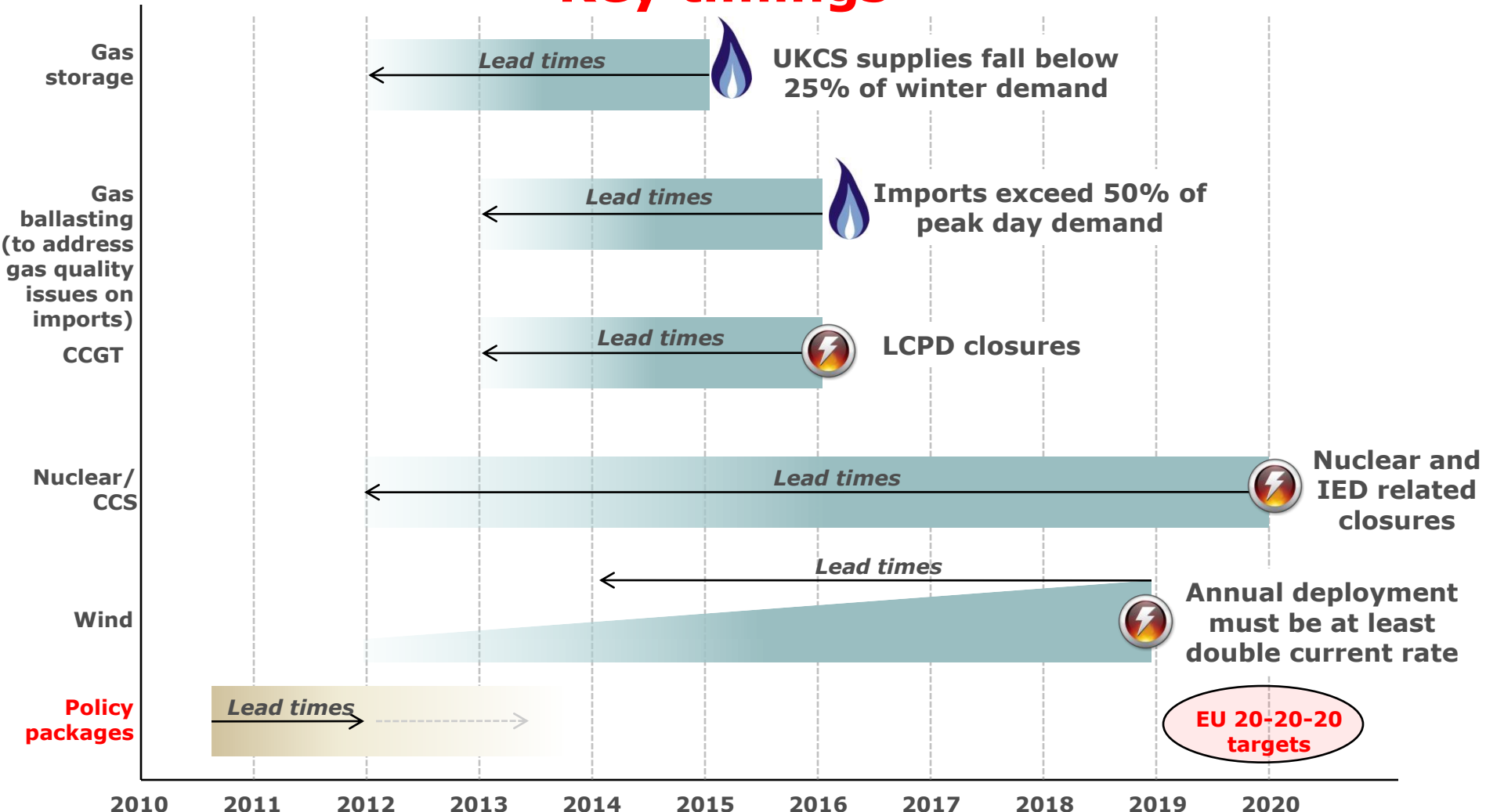


Key benefits and risks of the packages

	Key Benefits	Key Risks
Targeted Reforms	Increases incentives to invest whilst retaining the benefits of competitive markets	May not be sufficient to address the financing challenges and therefore deliver secure and sustainable supplies
Enhanced Obligations	Puts onus on industry players to deliver a specified level of security of supply	May not be sufficient to address the financing challenges and achieve renewables and climate change goals
Enhanced Obligations and Renewables Tenders	Puts onus on industry players to deliver a specified level of security of supply and enhances probability of efficiently meeting renewables targets	May not be sufficient to address all the financing challenges and achieve longer term climate change goals
Capacity Tenders	Facilitates raising finance thus accelerating investment in pre-determined levels and types of low carbon generation and storage	Customers exposed to risk of any poor decisions surrounding the type and scale of capacity required. Small-scale options and supply side may be overlooked
Central Energy Buyer	Underwrites long term contracts giving increased confidence of specific outcomes and access to lower cost finance	May stifle innovation and customers exposed to the risk of any poor contracting decisions Existing European legal framework would limit what is possible under this approach

TRADEOFFS EXIST ACROSS THE PACKAGES

Key timings



INVESTMENT DECISIONS NEED TO BE TAKEN IN NEXT TWO-THREE YEARS

Next Steps

We welcome responses to this consultation by **31 March 2010**.

In particular, we are seeking respondents' views on:

- our appraisal of current arrangements;
- our policy packages and assessment of them;
- whether other policy measures should be considered;
- the extent to which early actions should be considered.



Promoting choice and value
for all gas and electricity customers