

Electricity Balancing Significant Code Review Introduction

Stakeholder workshop

Giuseppina Squicciarini
24/09/13

ofgem

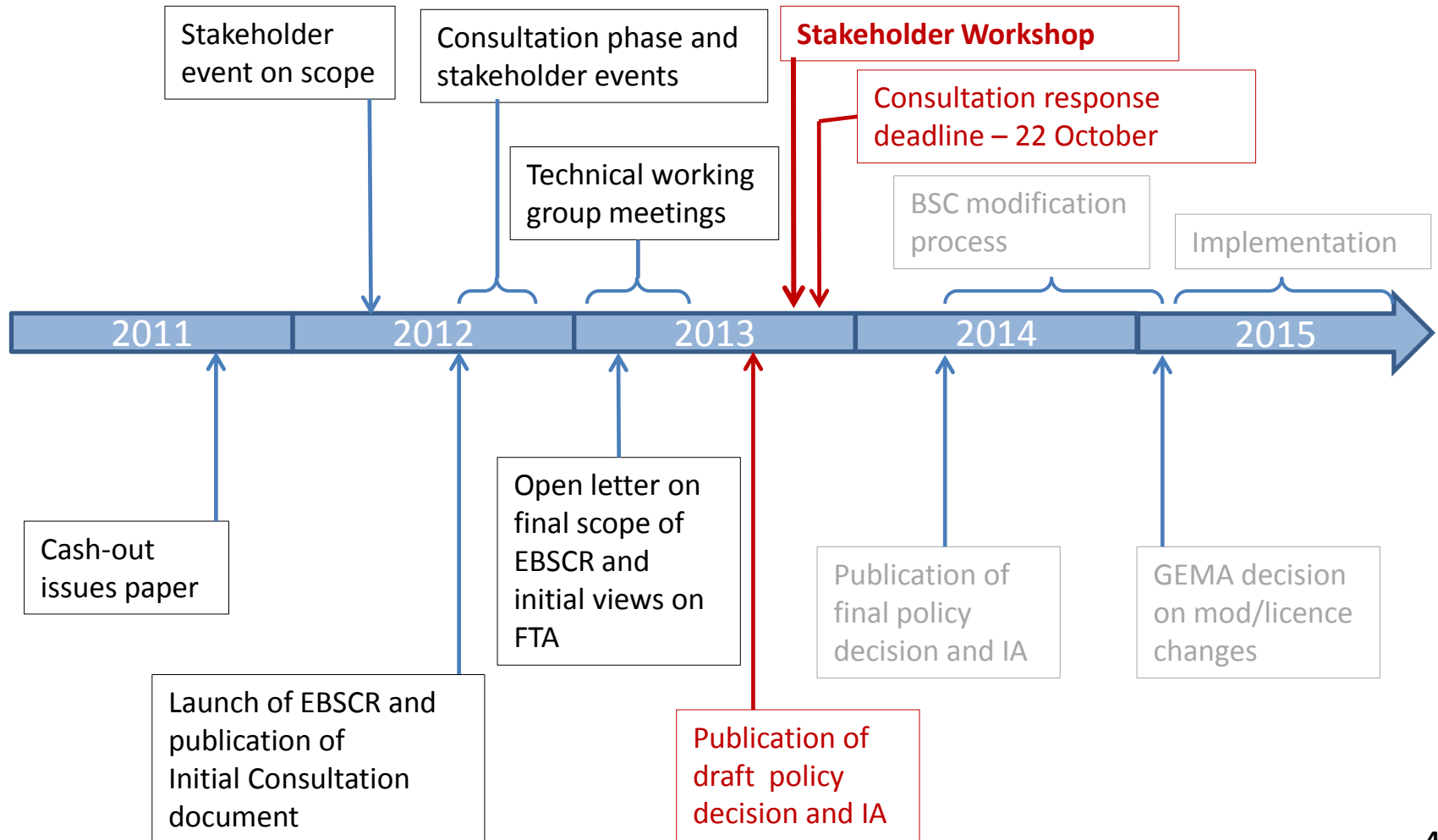
Time	Item
13:00	Registration
13:15	Welcome and introduction (Giuseppina Squicciarini (chair) – Ofgem)
13:25	Ofgem’s high-level proposals (Andreas Flamm – Ofgem)
13:45	Discussion
14:00	Proposal 1 (more marginal pricing): presentation and discussion
14:30	Proposal 2 (reserve): presentation and discussion
15:00	Break
15:15	Proposal 3 (VoLL): presentation and discussion
15:45	Proposal 4 (single price): presentation and discussion
16:15	Interactions Capacity Mechanism (DECC – Anthony Tricot) Ofgem projects (Andreas Flamm – Ofgem)
16:30	Discussion and questions
17:00	Summary of key themes and close (Giuseppina Squicciarini)

Objectives of today's workshop

- To present and explain our proposed reforms to stakeholders
- To hear stakeholders' views
- To encourage responses to our consultation – deadline 22 October
- To provide information on next steps

STAKEHOLDER
ENGAGEMENT

OFGEM
MILESTONES



Electricity Balancing Significant Code Review Overview of the proposals

Stakeholder workshop

Andreas Flamm
24/09/13

ofgem

- Approach
- Rationale
- Our proposals
- High-level impact



- Extensive stakeholder engagement through both industry-wide workshops and Technical Working Group meetings
- Amended scope and timeframe for reaching a draft decision following stakeholder feedback during initial consultation
- Consultancy support (London Economics) to estimate Value of Lost Load (VoLL – estimate of how much consumers value uninterrupted electricity supplies)
- Consultancy support (Baringa) to build forward-looking *cash-out model*: analysing what impact policy changes would have on market / cash-out prices / imbalance costs / party behaviour
- Support from Elexon and National Grid for *historical analysis*: applying the proposed policy changes to cash-out price data from 2010-12, providing insights into *first-order* effect on cash-out prices
- Extensive internal qualitative analysis of proposals



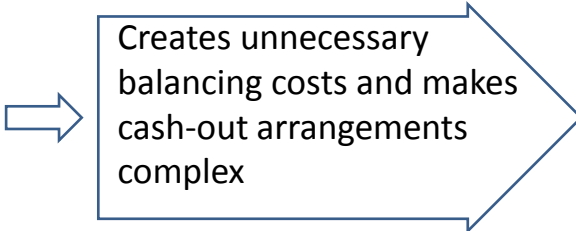
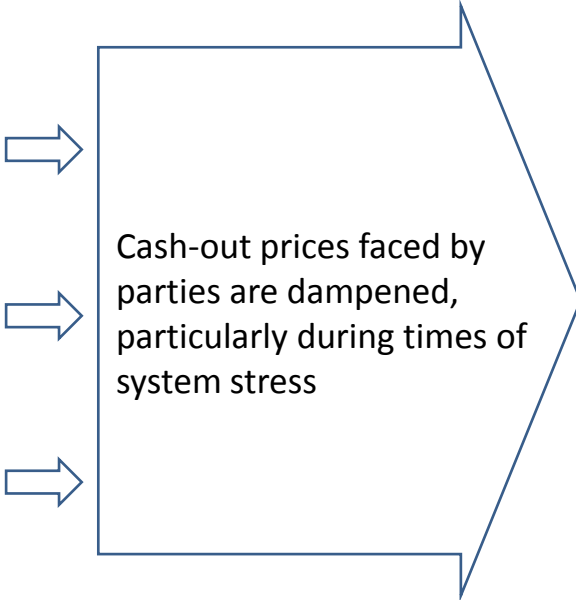
Issues identified

1. Cash-out price based on an average cost of SO actions

2. Reserve costs are reflected inaccurately

3. Disconnection are not costed in cash-out

4. Dual price system creates distortion



Effect on market

- Insufficient signal to balance, trade and invest in flexible capacity
- DSR not properly incentivised
- Interconnector may export at times of system stress

Negative impact on security of supply and balancing efficiency

- Inefficient balancing incentives on parties

Reform package



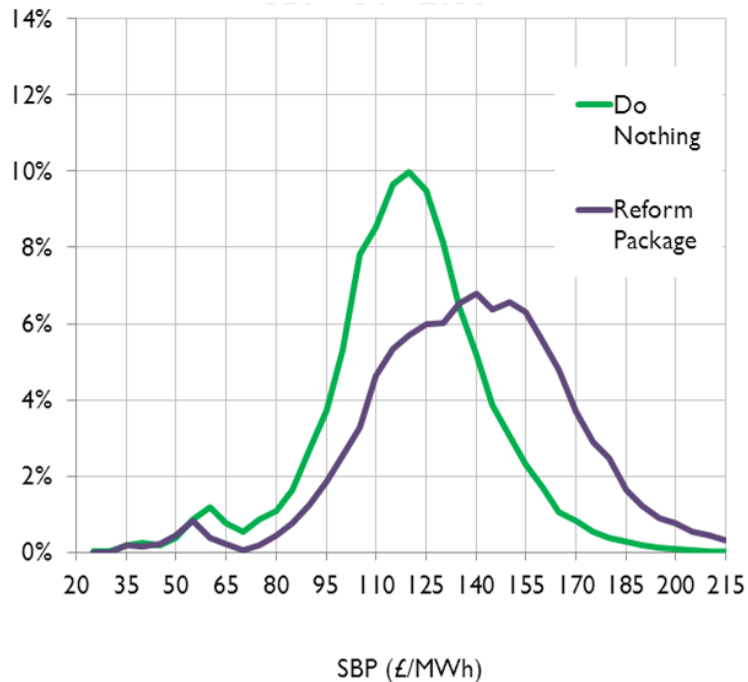
- 1. Make cash-out prices ‘marginal’**
 - Move from averaging to using the most expensive SO action to set the price (PAR500 → PAR1)
- 2. Improve the way reserve is costed**
 - Using a Reserve Scarcity Pricing (RSP) function approach that better reflects the value of reserve used to balance the system
- 3. Attribute a cost to non-costed actions (disconnections and voltage reduction) – “VoLL pricing”**
 - Based on value of lost load (VoLL) to consumers
 - Introduce gradually, starting with £3,000/MWh and increasing to £6,000/MWh.
 - Pay domestic consumers and small businesses at £5 and £10 per hour of disconnection, respectively
- 4. Move to a single cash-out price**
 - Simplify the arrangements and reduce unnecessary imbalance costs, in particular for smaller parties and significantly soften effect of reforms for wind parties

High-level Impact



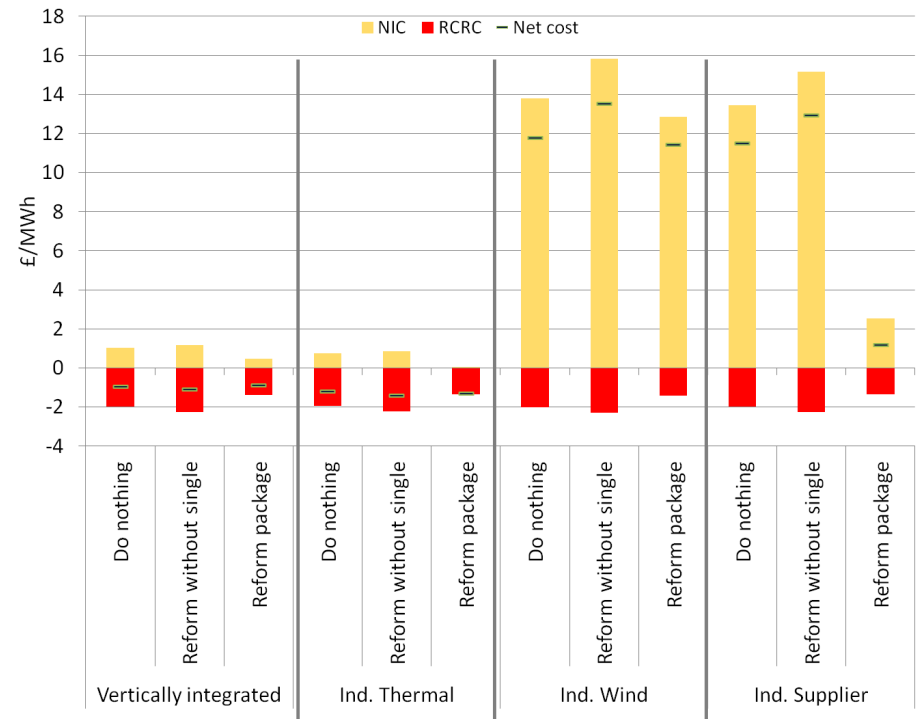
Proposals 1-3 (marginality; reserve; VoLL)

Distribution of System Buy Prices – our proposals compared with 'Do Nothing' (2030)



Proposal 4 (single price)

RCRC and 'opportunity cost' as a proportion of total credited energy in 2030 – positive values represent costs



High-level Impact



Proposals 1-3 (marginality; reserve; VoLL)

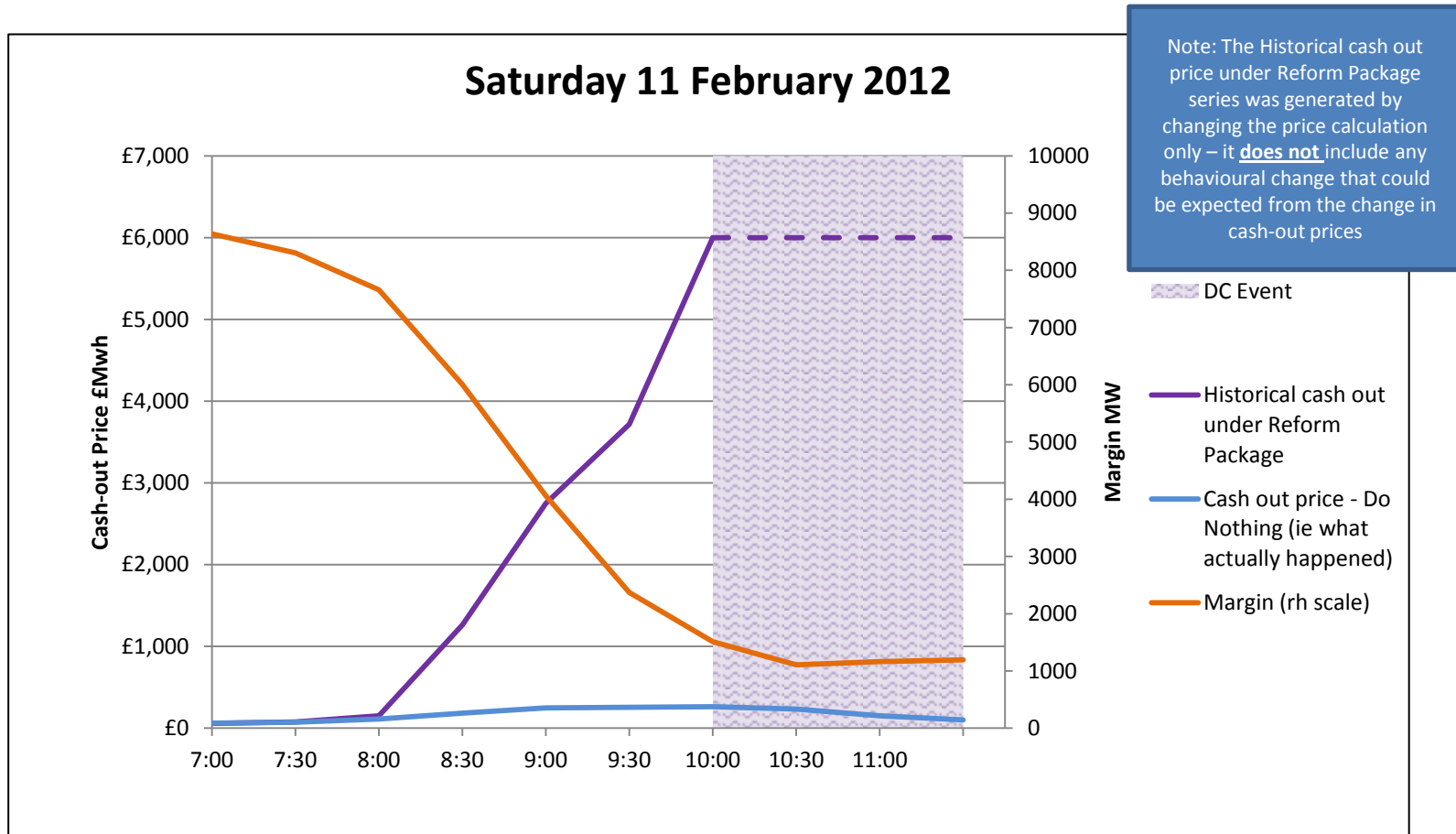
- Sharper cash-out prices more reflective of scarcity in the system, providing a better signal to balance
- Improved business case for flexible generation, DSR, storage and other flexible technologies
- Support interconnector flows into GB at times of system stress
- Cash-out prices more accurately reflect the underlying costs to the SO, sending a better signal to market

Proposal 4 (single price)

- Reduces imbalance risk, in particular for smaller players
- Simplifies arrangements

Overall, our modelling suggests broadly neutral impact on consumer bills, improved security of supply and positive NPV of £152m in 2030

Illustrative example



Discussion

Detailed proposals
More marginal main cash-out price
Stakeholder Workshop

Dominic Scott
24/09/13

➤ Rationale

- Basing the cash-out price on an average of a large number of BM actions (500MWh of most expensive energy actions ('PAR500')) dampens the cash-out price
 - thereby undermines the incentive for parties to conduct efficient trades and to invest in flexible technologies

➤ Options

- Keep PAR500
- Lower to P50
- Lower to PAR1

Lead option from
efficiency perspective



➤ Impact

- Parties face SO's true cost of balancing at the margin => sharper C.O. prices
- Incentivises parties to undertake efficiency-enhancing trades/investments

➤ Implementation

- Increased risks associated with system pollution?
 - Flagging and tagging rules (P217A) seem to be effective in removing system pollution (may over-correct)
 - Annual reports find high degree of accuracy in practice
 - Analysis of past 3 years suggests that under PAR 1MWh there would still have been on average several actions forming the cash out price
 - NG review of mis-flagging

Proposal: fully marginal prices (PAR 1MWh)

Discussion

Detailed proposals
Improving the way reserve is costed
Stakeholder workshop

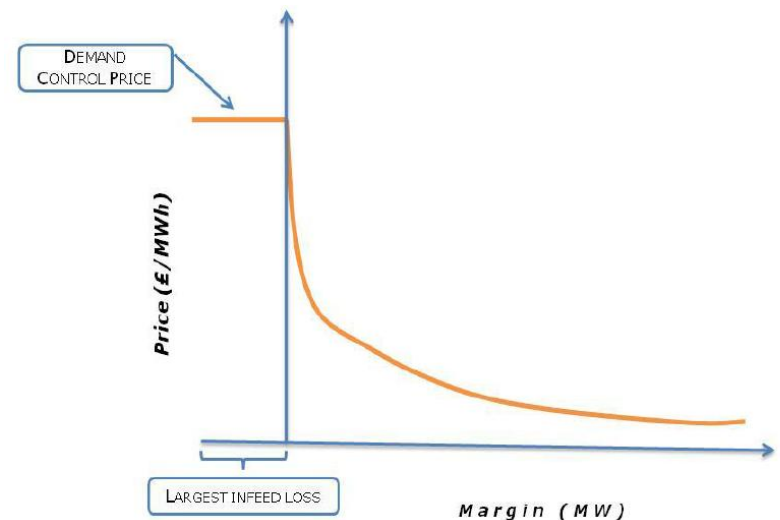
Ryan McLaughlin
24/09/13

Rationale and proposal

➤ Rationale

- STOR prices agreed in long term contracts do not relate to on the day value
- The incorporation of STOR costs in cash-out prices bears little relation to scarcity – and the value of reserve – thereby distorting and dampening prices
- RSP function provides a balance between having firm evidence (e.g. ex poste calculation) and giving the market a clear signal (i.e. Something they can respond to)

Proposal: apply Reserve Scarcity Pricing function



➤ Impacts

- Reflects the value of reserve to the system
- Increased targeting of reserve costs - removes random nature of BPA
- Strengthens signal to balance in times of system stress
- Allows SO to continue to procure STOR on economic basis
- Ensures that prices rise as we approach extreme scarcity (rather than only shooting up when disconnections happen)

➤ Implementation issues

- Striking the right balance between simplicity and accuracy of function
- When to take the snapshot of margin
- The effect of contingency on the curve
- Using STOR capacity when assessing margin

Discussion

Detailed proposals
Attributing a cost to non-costed actions ('VoLL pricing')
Stakeholder Workshop

Grendon Thompson
24/09/13

Rationale and proposals

Issue 1: Some SO balancing actions are not currently reflected in the cash-out price, eg. voltage control and involuntary demand disconnection

- *Effect: dampens cash-out prices during system stress and incentives to invest*

Proposal 1: Incorporate Demand Control (DC) into cash-out price calculation by estimating DC volumes and price (VoLL), ensuring cost reflective prices

Issue 2: Participant imbalance positions are not adjusted following DC actions

- *Effect: participants will not face the correct incentives at times of scarcity if demand control improves their imbalance settlement position*

Proposal 2: Adjust supplier imbalance volumes and introduce payments to suppliers for adjustments

Issue 3: Customers are not paid for involuntary demand disconnection service

- *Effect: Costs and risks of disconnection are currently mainly borne by consumers who are generally unable to manage such risks*

Proposal 3: Payments to consumers for involuntary DSR service provision

- Value of Lost Load:
 - value that electricity users attribute to uninterrupted supplies
 - the value at which they are indifferent to disconnection
- VoLL cannot be determined or observed **directly** from market behaviour
 - Supply interruptions are not traded – no market exists for energy supply quality
- Study undertaken by London Economics on behalf of Ofgem and DECC.
Four main elements of the study:

1. Estimating VoLL for domestic users

Online (1,500) and f2f (140) survey

2. Estimating VoLL for SME users

Telephone (625) survey

3. Estimating VoLL for large I&C users

Analysis using macroeconomic data

4. Estimating a value for voltage control actions

Desk-based research

Selecting an appropriate VoLL number for cash-out

**How many VoLLs
should be used
in cash-out?**

Although different VoLLs could be applied (eg, varying by time of day), the benefits of greater accuracy do not outweigh the additional complexity

**Which estimates
are most robust?**

WTA results were found to be significantly more robust as survey respondents better engaged with the WTA concept

**Average or
marginal figure?**

Wide range of estimates suggests a marginal VoLL would be too extreme. Average using domestic and small business VoLLs to reflect I&C demand side/ back-up capabilities

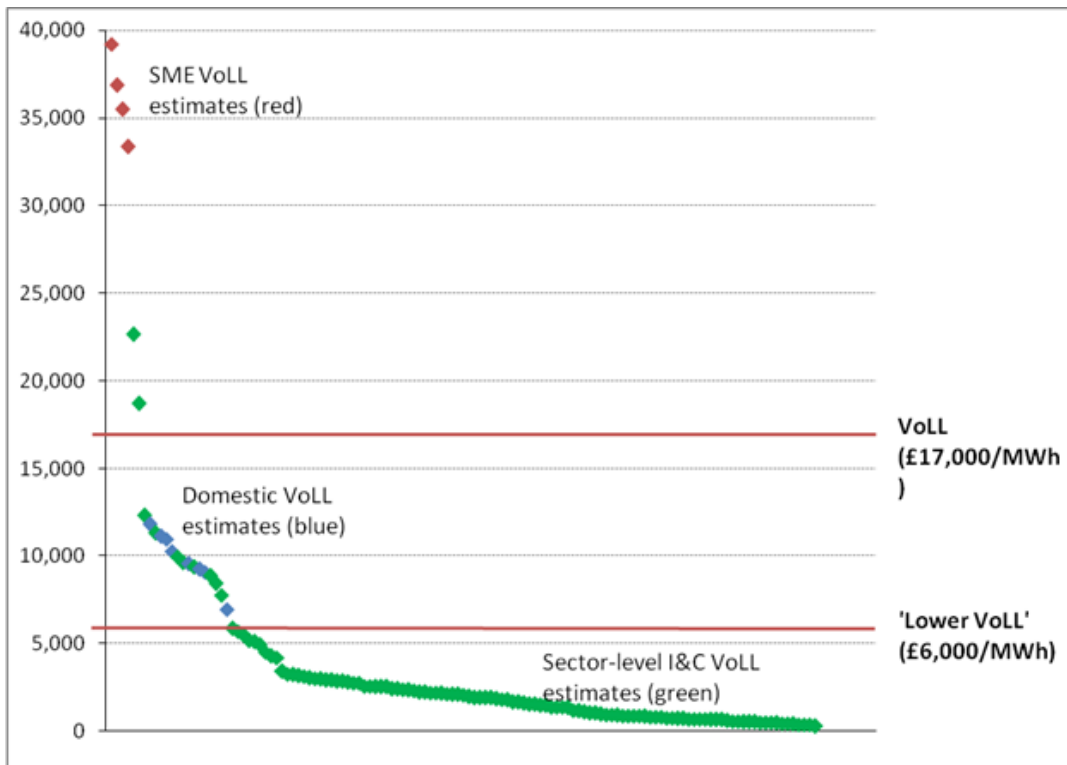
**What 'type' of
outage?**

The cash-out price should reflect scarcity and provide strong incentives. Therefore use the VoLL estimates at typical winter peak periods

A load weighted-average VoLL using domestic and small business consumers' estimates and for winter, peak, weekday disconnections (equal to £17k/MWh)

Selecting an appropriate VoLL number for cash-out

- Selection of a lower VoLL motivated by
 - Introduction of CM: VoLL pricing no longer the only source of income for capacity providers to cover fixed costs
 - assessment of participants' risks



- Draft Policy Decision:
 - £6,000/MWh
 - Incentivises efficient use of interconnectors
 - Provides incentives for majority of I&C consumers to reveal true VoLL
 - We propose initial introduction at £3,000/MWh – to help market participants adapt behaviours and investments over a number of years

High-level impacts and implementation

➤ Impacts

- More cost reflective prices, manifested as higher cash-out prices during stress
 - More efficient balancing and strengthened security of supply as the market responds with -
 - More efficient trades and hedging strategies
 - More efficient investments in flexible technologies
 - More efficient interconnector flows and DSR properly incentivised

➤ Implementation issues

- Stakeholders expressed concern about unnecessary and unmanageable risk
 - Disconnection risk already exists – and is borne by consumers
 - Proposals place risk on market participants to bring forward market-driven solutions to manage them
 - We have taken into account exposure of parties to risk in selecting VoLL
- Proposals could be complex to implement
 - We acknowledge the trade-off between accuracy and simplicity for implementation
 - Having procedures in place should limit need for their recourse
 - Data saved, process defined – even though not fully automated
 - Will be further developed in close consultation with industry, SO and Elexon

Discussion

Detailed proposals
Single or dual cash-out price
Stakeholder workshop

Dominic Scott
24/09/13

Dual price arrangements

		System Position	
		Long	Short
Party Position	Long	Recieve SSP (Main Price)	Recieve SSP (Reverse Price)
	Short	Pay SBP (Reverse Price)	Pay SBP (Main Price)

Issues:

- Complex
- Reverse price does not reflect BM costs

Single price arrangements

		System Position	
		Long	Short
Party Position	Long	<i>Receive</i> Single price	<i>Receive</i> Single price
	Short	<i>Pay</i> Single price	<i>Pay</i> Single price

Reform:

- Simple
- Cost reflective prices

Proposal: move to a single price

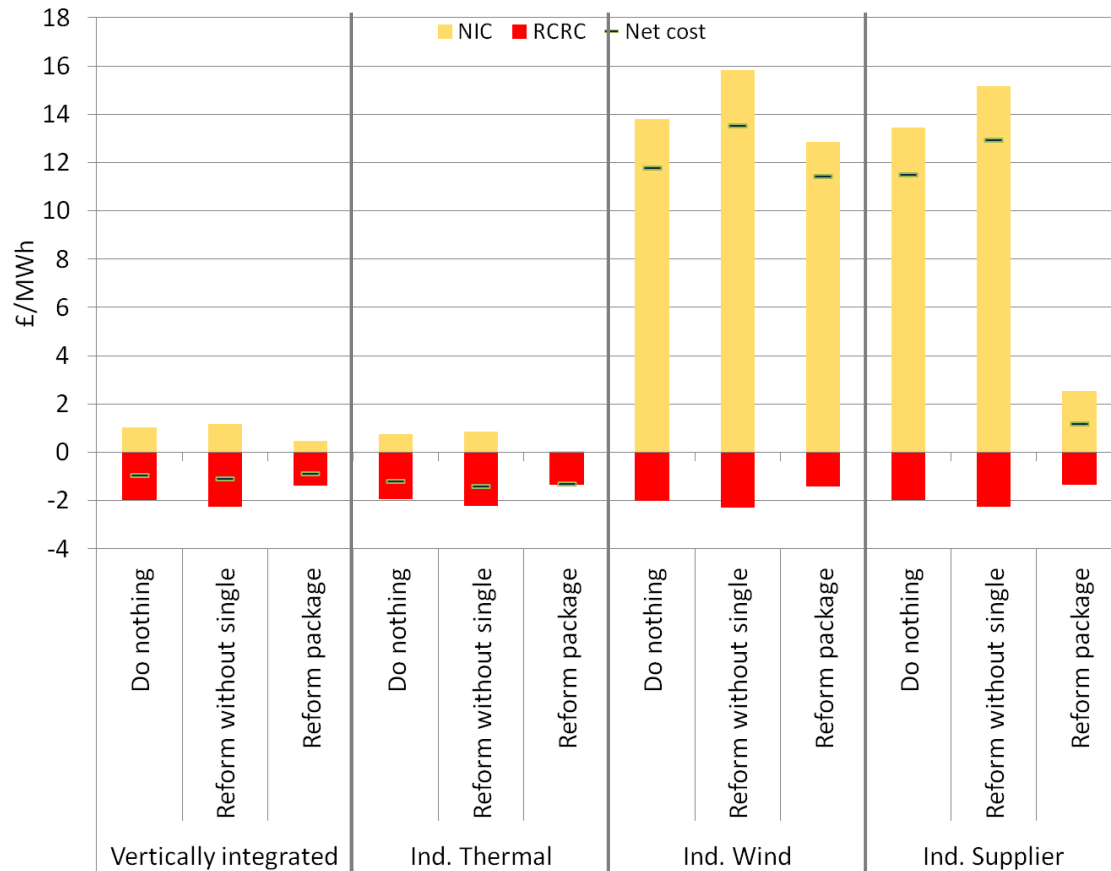
Impacts and implementation

Impacts:

- Improves the cost-reflectivity of the balancing arrangements and places appropriate incentives on parties to balance
- Reduces imbalance cost – in particular for smaller parties – thereby offsetting some of the impacts of sharper prices on imbalance risk
- Simplifies arrangements
 - could support liquidity by facilitating development of new financial products

Low
barriers
to entry

RCRC and 'opportunity cost' as a proportion of total credited energy in 2030 – positive values represent costs



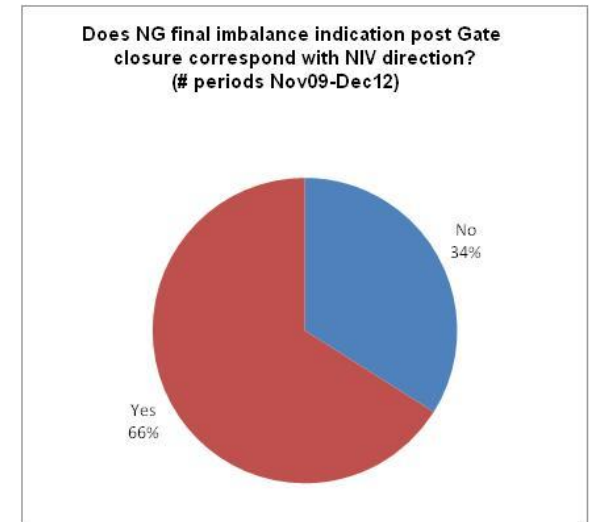
Implementation issues:

Before gate closure: will parties spill and chase NIV?

- Unlikely given system length is very difficult to forecast
- Strategy may be self-defeating (if everybody does it)

After gate closure: will parties deviate from their FPNs and spill?

- Grid Code prohibits this
- Although an incentive for participants exists under dual pricing this is yet to be viewed as a significant issue



Discussion

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We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.

- **EMR Capacity Mechanism**
 - EBSCR is complementary to CM

- **Future Trading Arrangements**
 - Looking at wider trading arrangements issues

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