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Cash-out Review Meeting 2

Philip Davies
Director of GB Markets
26 September 2007
2.30-5.00pm

Agenda

- Introductions
- Ofgem presentation
  - Objectives of Cash-out Review
  - Why cash-out is important
  - Key insights
- Presentation from Professor Stephen Littlechild
  - Balancing market concept
- Moving forward
- Discussion and debate

Purpose

- This presentation summarises Ofgem's current thinking on the Cash-out Review
- It is intended to build on the extensive analysis which has already been undertaken as part of Modification P211 and P212 assessment processes
- We have invited Stephen Littlechild to expand on the concept of a "balancing market" raised in his March paper on Electricity Cash-out Arrangements
- Our intention is to seek industry feedback and generate further discussion

Objectives of Cash-out Review

- Cash-out Review launched in February 2007 to assess how well the current arrangements are meeting the following objectives:

Simple and transparent

Provide appropriate signals

Non-discriminatory

Promote competition in the electricity market

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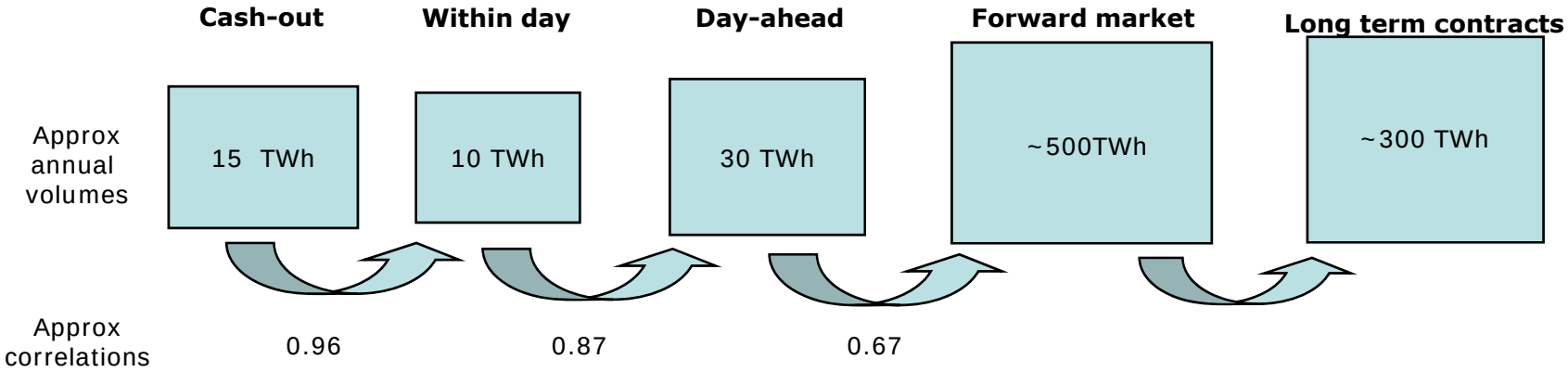
Why cash-out is important

Why cash-out is important
1. Interactions with forward markets

- Although volumes through the cash-out regime are relatively small there are strong correlations with exchange and bilateral markets



Sources: Elexon, Heren, APX, internal analysis

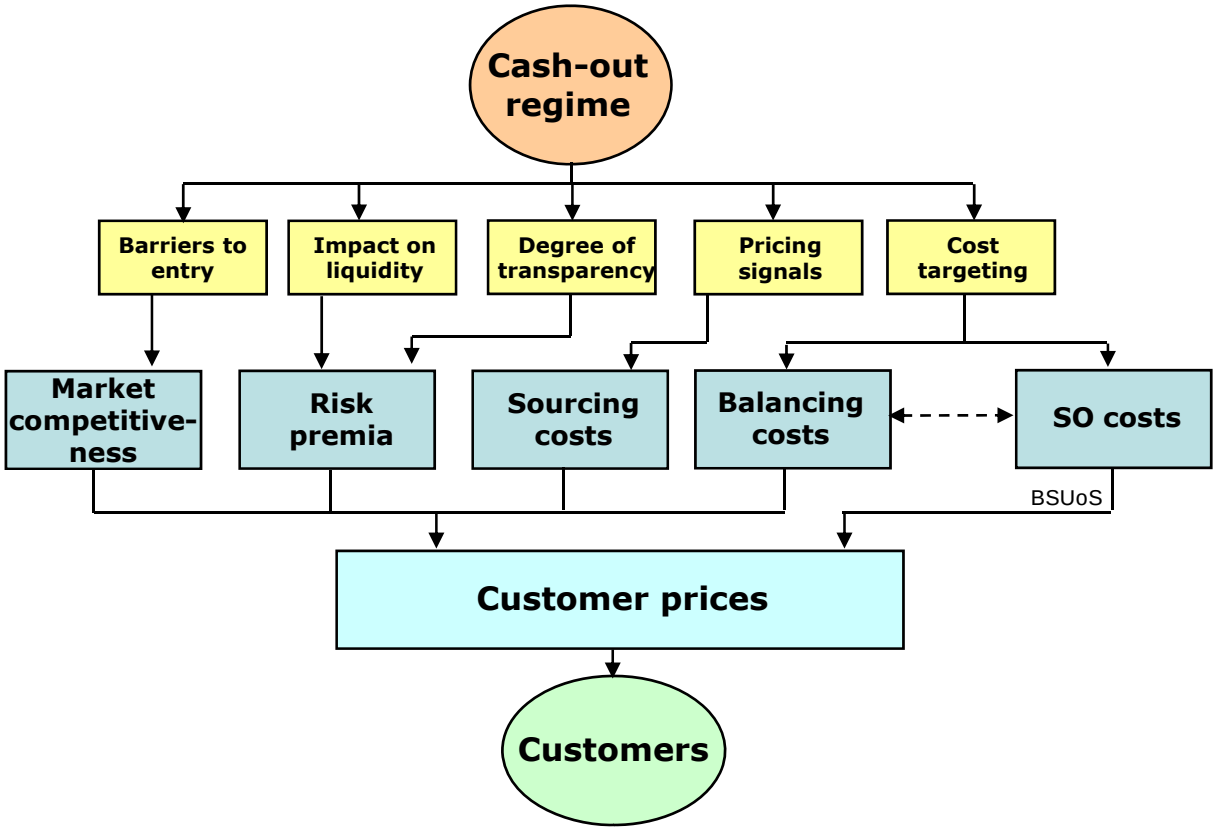
Greater transparency in cash-out should promote ST and LT liquidity

Why cash-out is important
2. Promotion of competition

- New entrants are likely to be exposed to a greater extent to imbalance charges
- In the case of new entrant suppliers due to:
  - Lack of historic consumption data for forecasting
  - Low diversification benefits
  - Less mature forecasting processes
- In the case of new entrant small generators due to:
  - Less predictable/controllable output
  - Low diversification benefits
- An inefficient cash-out regime may act to deter these new entrants

The cash-out regime should not act as a barrier to entry

Why cash-out is important
3. Impact on customers



Cash-out has a significant (direct and indirect) impact on customers

Why cash-out is important
4. Adapting to changing generation mix

- Cost of balancing likely to evolve with the changing generation mix/capacity margin:
  - 17 GW of nuclear and coal/oil plant closures over next ten years
  - Reduced reliability of plant as they approach end of operational life
  - Increased intermittency with growing proportion of wind generation
  - 11 GW of “opted-out” coal and oil plant operating under constraints of LCPD which may affect bidding behaviour in Balancing Mechanism
  - Potential growth in CHP and distributed generation
- Growth of renewables will have implications for how constraints are managed with knock-on impacts for cash-out

Cash out should send the right long term signals for investment

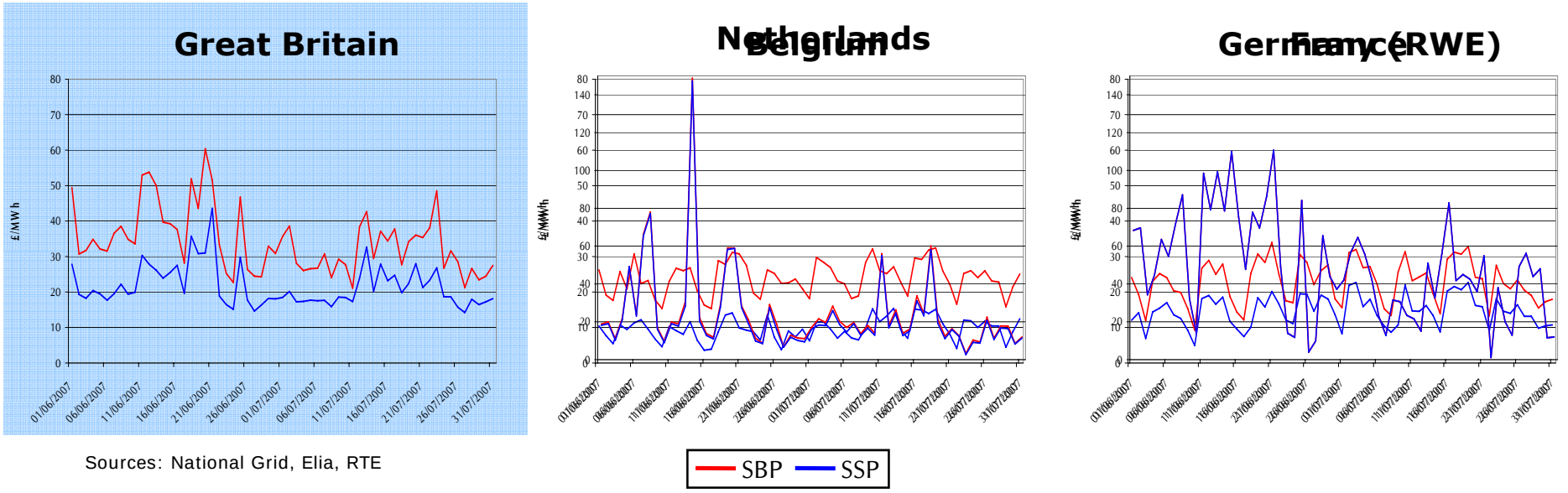
Why cash-out is important
5. Interactions with European markets

- GB market will become increasingly interconnected over the coming years with the addition of two further interconnectors
  - BritNed (2010)
  - New Irish interconnector (~2012)
- Ergeg initiatives on good practices in energy balancing market integration
- Important that:
  - Trading arrangements promote efficient patterns of trade across interconnections
  - There are no perverse incentives caused by differences in cash-out price signals with connected markets

Important that GB market evolves to capture the opportunities created by a more integrated European electricity market

Why cash-out is important
5. Interaction with European markets – cont.

Daily average cash-out prices – June-July 2007



Sources: National Grid, Elia, RTE

Cash-out prices very different from the single marginal approaches adopted in Netherlands and Germany

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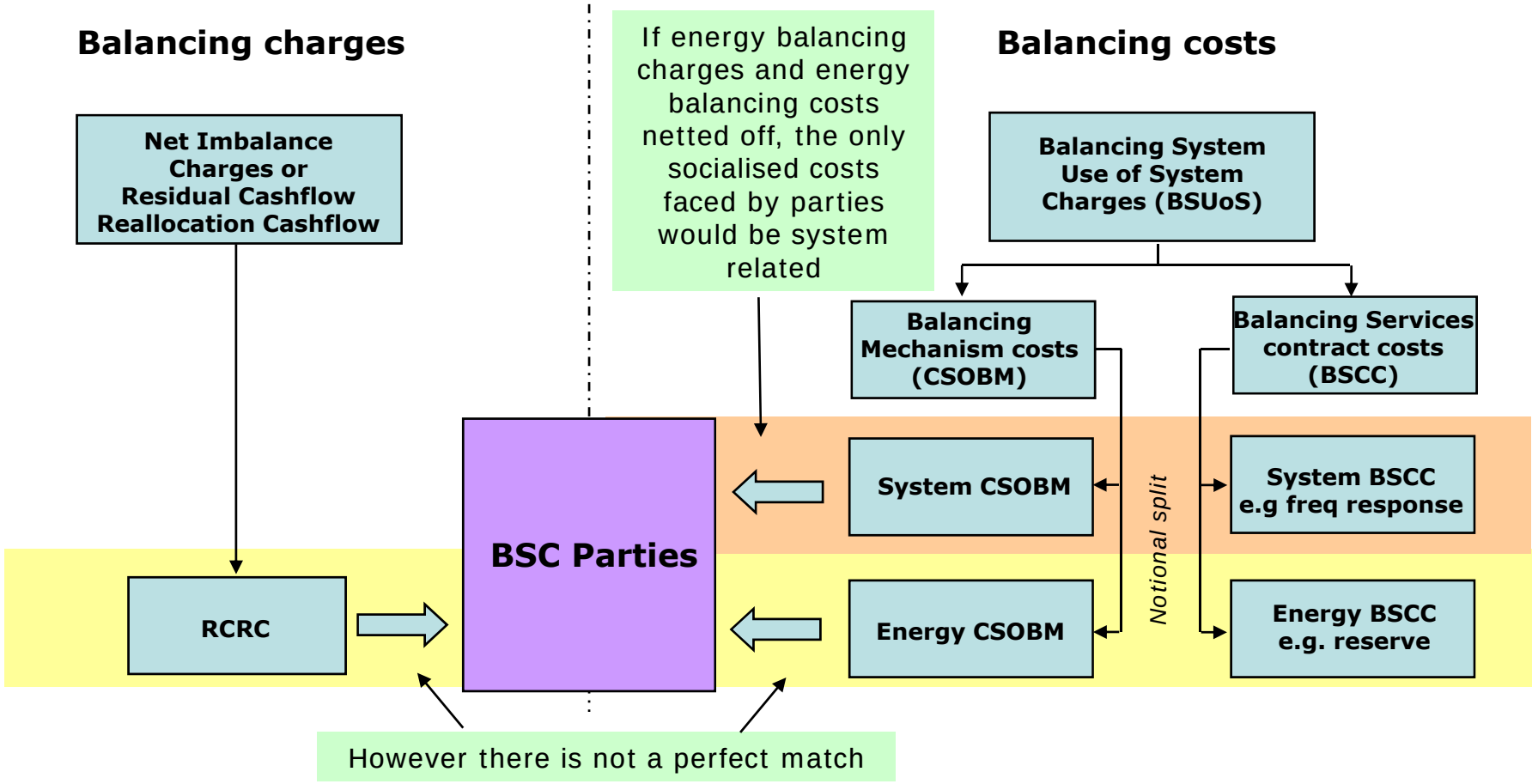
Key insights

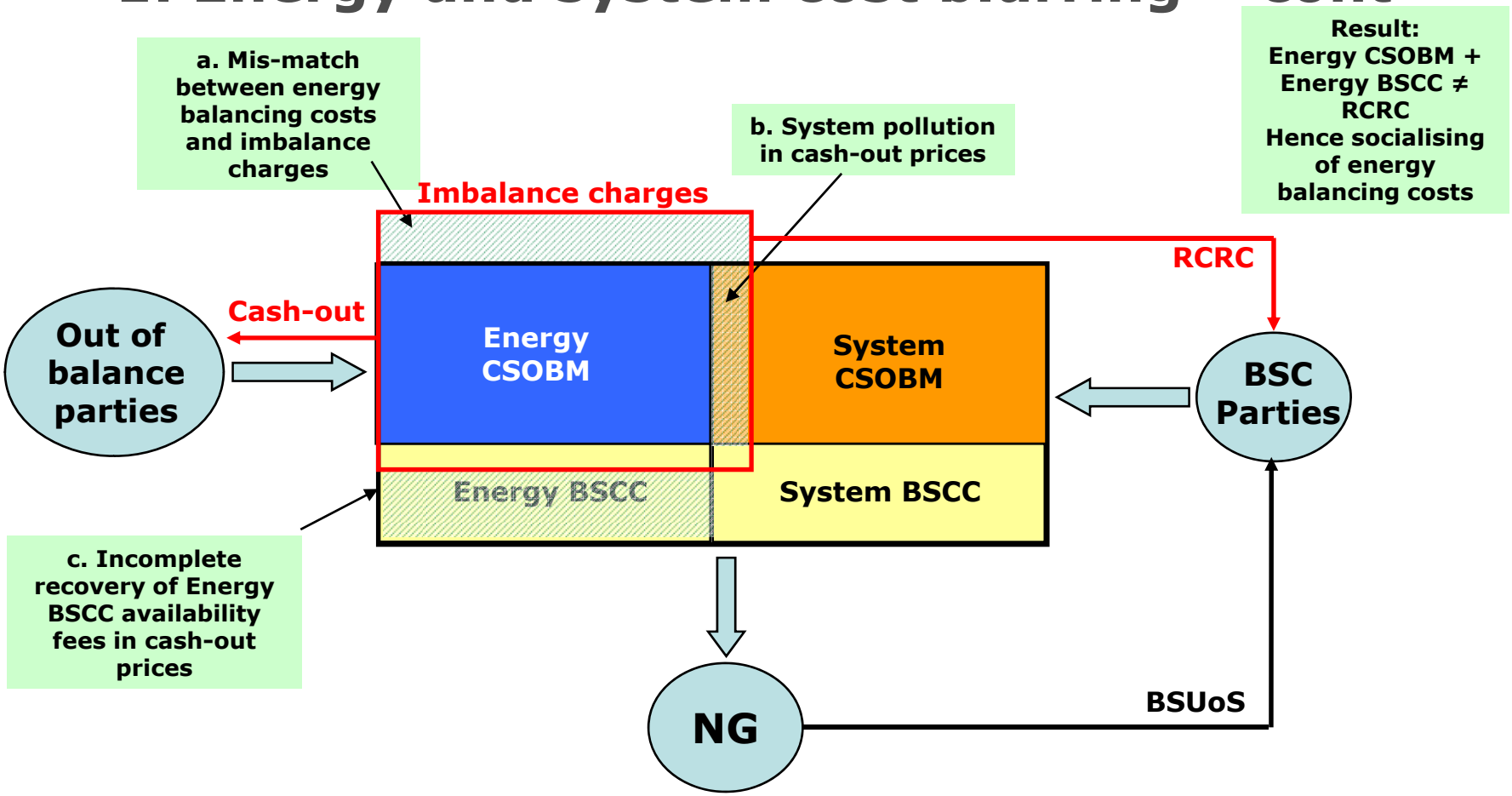
Key insights

1. Blurring of energy and system balancing costs across cash-out and BSUoS leads to inefficient cost targeting and lower accountability for SO
   a. Large and unpredictable spread between SBP and SSP
   b. System pollution in cash-out prices
   c. Incomplete recovery of BSAD costs in cash-out
2. Smaller players may be disadvantaged by large spread between SBP and SSP and by system pollution?
3. Post gate-closure uncertainty is significant, diminishing cost reflectivity of prices set ex-ante at gate closure
4. Short term liquidity in the GB electricity market is lower as a proportion of throughput than many other European markets
5. Other markets have successfully separated out energy and system actions at the point of execution

Key insights
1. Energy and system cost blurring



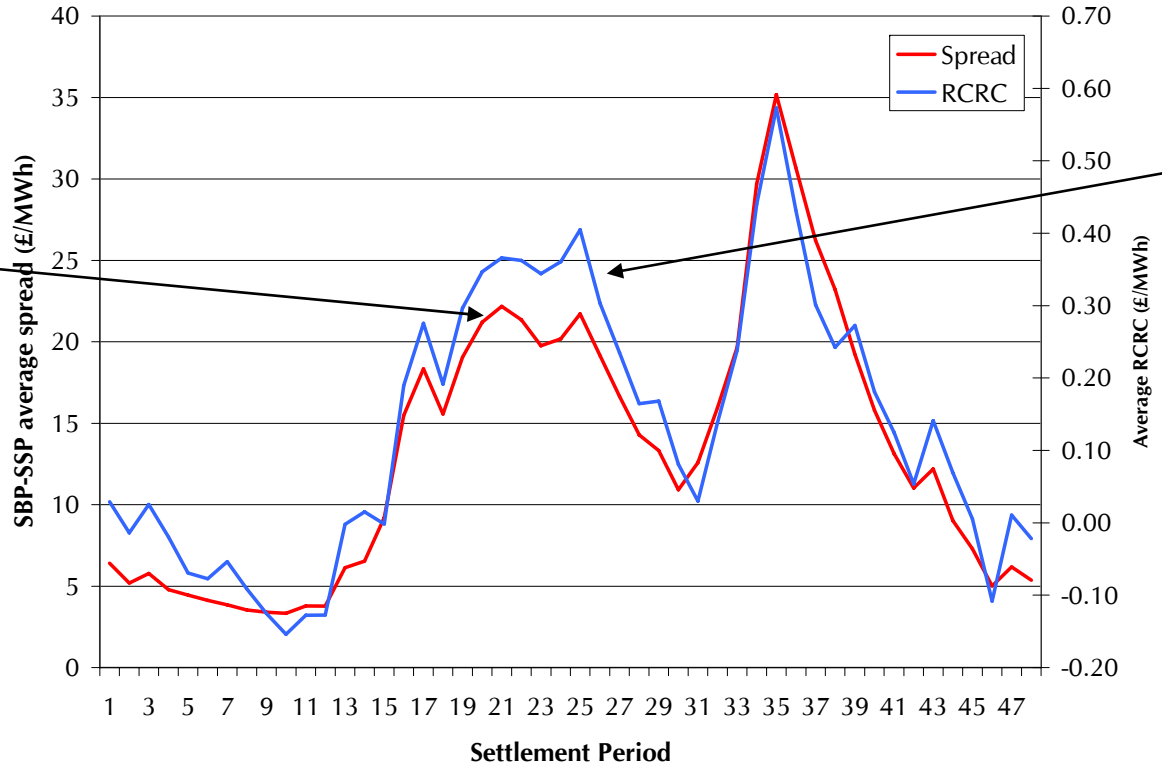
Key insights
1. Energy and system cost blurring – cont



Key insights
1a. Large SBP-SSP spread

Average SBP-SSP Spread and RCRC by Settlement Period

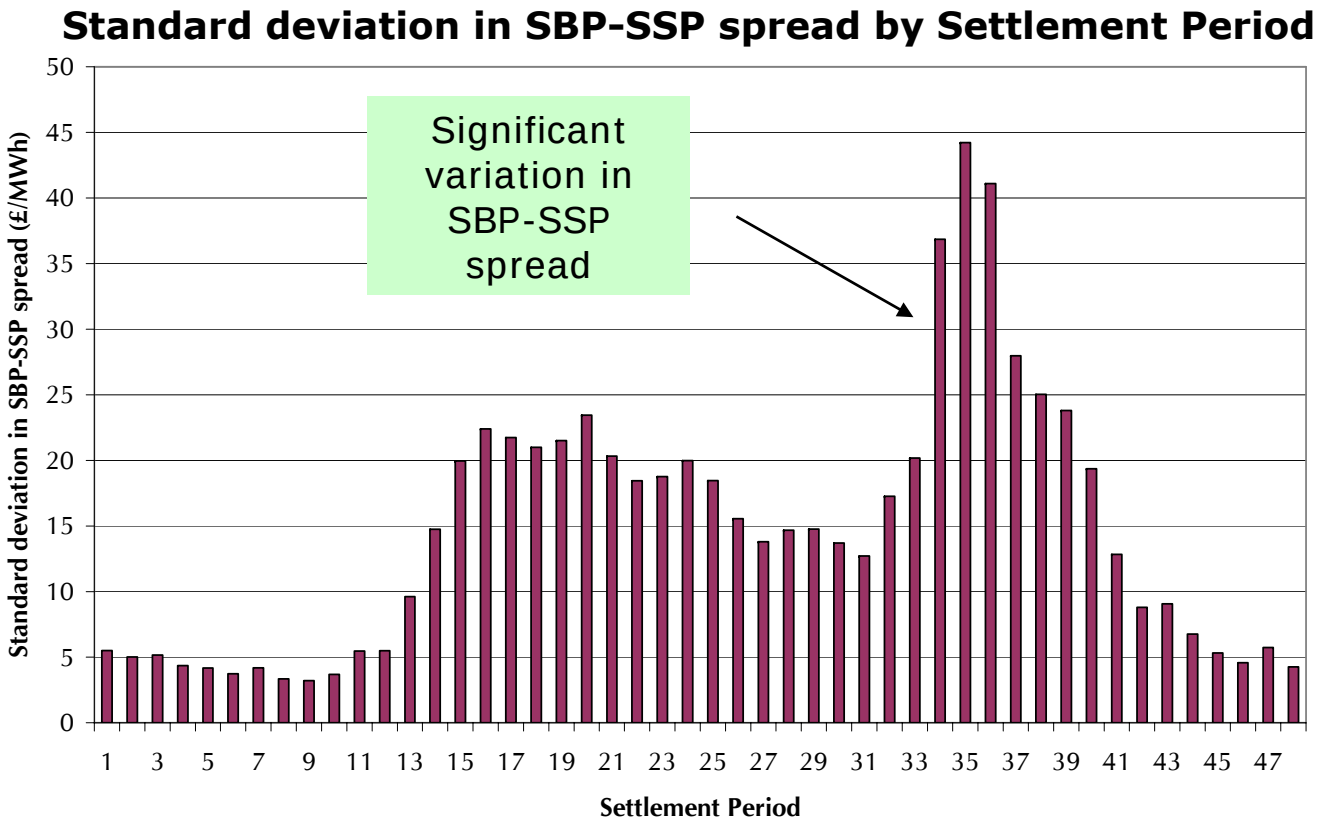
Average spread in cash-out prices is very large contributing to mismatch between energy balancing costs and imbalance charges



Pattern of RCRC tracks SBP-SSP spread

Note: Analysis covers 2 Nov 2006 (post-P205) to 31 July 2007

Key insights
1a. Unpredictable SBP-SSP spread



Note: Analysis covers 2 Nov 2006 (post-P205) to 31 July 2007

Key insights
1b. System pollution in cash-out prices

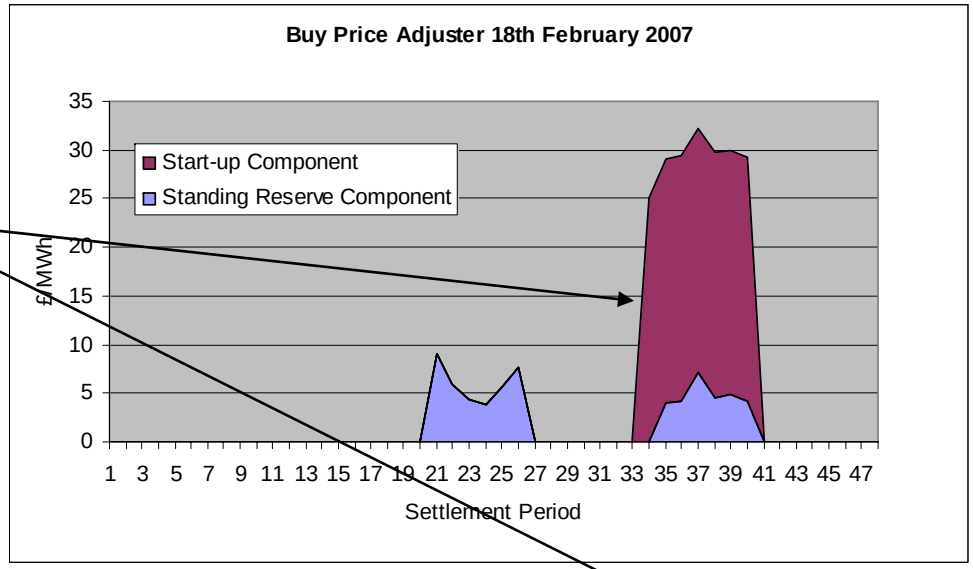
- In the first Cash-out Review meeting in March National Grid demonstrated that energy prices could be polluted by:
  - Resolving constraints
  - Intra-half hour actions
  - Reserve creation
  - Frequency response
- Initial analysis of November data suggested that system pollution was having the following effect relative to an unconstrained energy price:
  - Up to 9% average increase in SBP
  - Up to 7% average decrease in SSP
- Subsequent analysis by EdF provided further evidence of non-energy actions influencing cash-out price in some periods

Key insights
1c. Incomplete recovery of BSAD costs in cash-out

1. Example: Cost of Standing Reserve greater than Start Up yet less effect on cash-out via the BPA (18 Feb 2007)

2. Our analysis suggests that about 10-20% of the energy related Balancing Services availability fees (£100m) in 2006/07 were recovered through cash-out – the rest was socialised

   What proportion of these costs should out-of-balance Parties be exposed to?



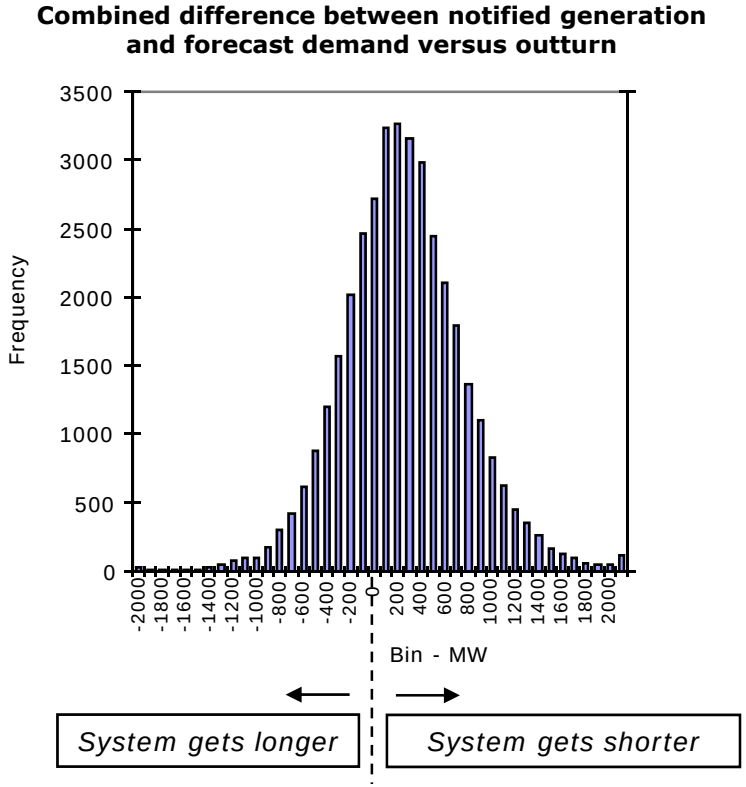
Total Daily Cost of Standing Reserve	£73,501.40
Total Cost of BM Start Up	£43,376.67

Key insights
2. Smaller players disadvantaged?

- Independent suppliers and renewables/distributed generators typically will have greater forecast errors than larger players:
  - Lack of historic consumption data
  - Less mature forecasting processes
  - Less portfolio diversification
  - Less predictable/controllable generation output
- To the extent that cash-out prices are not reflective of pure energy balancing costs smaller players may be disproportionately affected
- System pollution and the large spreads in cash-out prices may be disadvantaging smaller players
- Conversely, are these players making the appropriate contribution to the costs of reserve?

Key insights
3. Post-gate closure uncertainty

- Magnitude of post-gate closure changes is significant
- Limits how cost reflective a ***main*** cash-out price set ex-ante at 1.5 hrs before the settlement period can be
- Also brings in to question whether the current ***reverse*** price is itself cost reflective i.e. can the large spread in SBP-SSP be justified based on information available to Parties at gate closure?



Key insights
4. Low short term liquidity

- Day-ahead liquidity lower in GB than other European electricity markets
- Greater volumes cashed-out than traded on APX within-day market:
  - Approx. 15 TWh/annum versus 10 TWh/annum

Day-ahead trading volume as percentage of demand (2006)

Market	%
GB	8.5%
Netherlands	15.8%
Germany	16.6%
NordPool	63.0%

Sources: APX, EEX, Heren Energy, Nordel, Powernext

Key insights
5. Separation of energy and system actions in other markets

- Dutch market
  - Resolution of energy imbalances is clearly separated as a procedure from the resolution of system constraints
  - A single price ladder is built following the resolution of system constraints
  - Volumes are taken as needed in price order
  - Only bids/offers from energy imbalance actions are used in determining cash-out prices
- Texas (ERCOT) market
  - Separate Balancing Energy Service (BES) and Ancillary Services markets (including day-ahead operating reserve)
  - Also separate Transmission Congestion Rights auction
  - Cash-out prices based only on actions taken in BES
  - Ex-ante single cash-out price calculated using scheduling algorithm published 10 minutes before Settlement Period

Possible implications….(1)

- Is dual cash-out pricing still appropriate versus single pricing?
- If so, should the current main/reverse price approach be reviewed?
  - is the reverse price cost reflective?
  - are such large spreads still required to provide incentives to balance?
  - is the spread generating unnecessary levels of RCRC to the detriment of smaller players?
- Is there another alternative based on a small ***symmetric*** spread around a pure energy price?
  - Maintains an incentive to balance
  - Arguably more cost reflective
  - Reduces unnecessary RCRC generation
  - Energy price may act as a reference index and help to promote liquidity

Possible implications….(2)

- BSAD methodology and governance could be revisited
- Shorter gate closure might be required if cash-out prices are to be based on an ex-ante market reference price
- An approach that establishes separate platforms for resolving energy and system imbalances e.g. via a “balancing market” might also be considered

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Balancing Market Concept

Prof Stephen Littlechild

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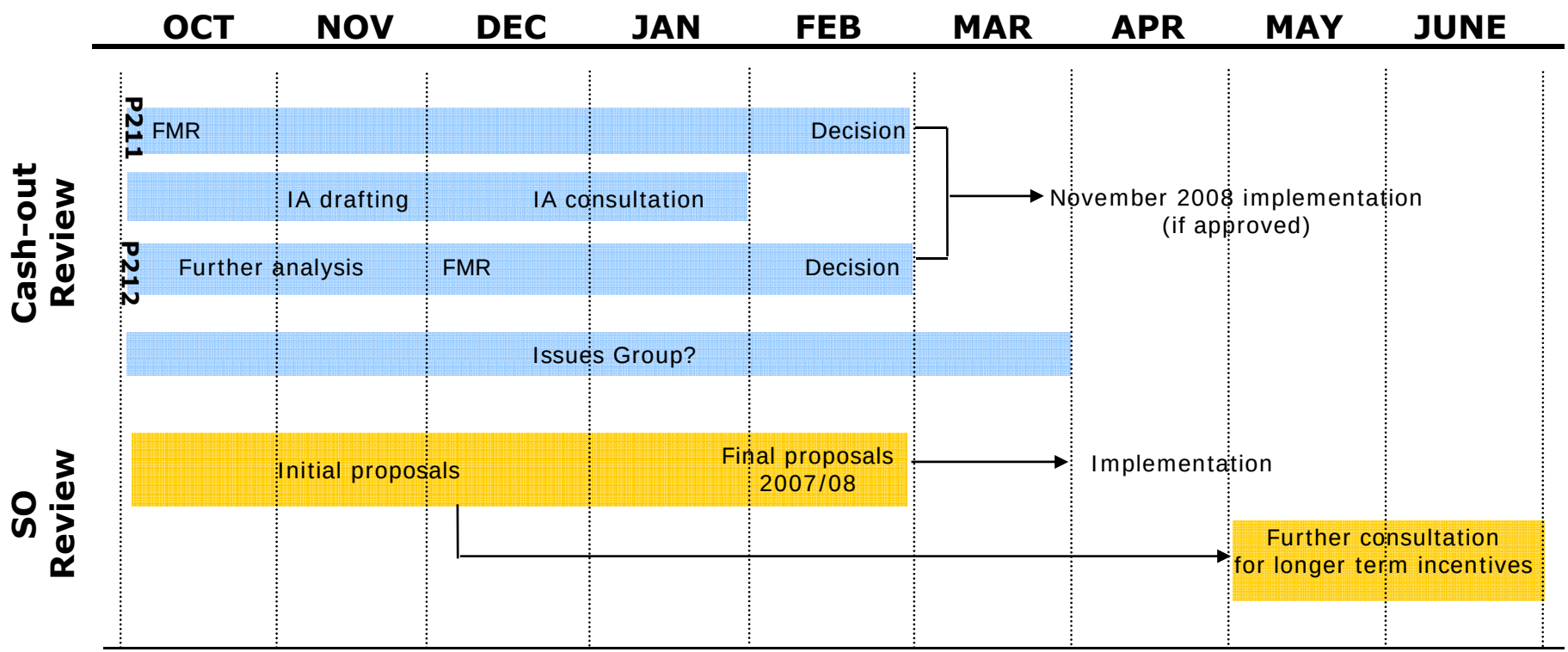
Moving forward

Moving forward

- Why longer term view is important:
  - Move away from incremental changes thus increasing investor confidence
  - Approach needs to be robust to changing generation mix and market interconnections
  - Stable and transparent cash-out regime required for setting effective longer term incentives for the System Operator
  - Recognising interactions with the Transmission Access Review
- A BSC Issues Group focusing on identifying a longer term target model for cash-out may be the most effective way forward
- This would not affect our evaluation of the current cash-out modifications

Timetable


OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUNE
Cash-out Review
P211
FMR
Decision
IA drafting
IA consultation
November 2008 implementation
(if approved)
P212
Further analysis
FMR
Decision
Issues Group?
SO Review
Initial proposals
Final proposals
2007/08
Implementation
Further consultation
for longer term incentives

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Discussion and debate

Questions to discuss

- Strength of the case for change?
- Views on the balancing market approach presented by Prof Littlechild?
- Are there alternatives to the “Littlechild” approach using a continuously traded balancing market akin to the gas market?
- Main/reverse dual price versus single price versus small fixed spread?
- How important is it to equate RCRC and “Energy” BSUoS?
- Alternative ways of targeting BSAD availability fees?


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