P211 Mod Group 23 May 2007

What is the Impact of Non Exclusive Energy Actions on Imbalance Pricing ?

Impact of SO activity on Pricing

- The SO undertakes a variety of activity to manage the System
- This includes
  - Activity to manage market energy imbalance
  - Activity to manage system resilience and security so the market can provide energy to its customers.
- Traditionally been described as the system/energy split
  - However this a simplification of a much more varied set of activity

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SO Activity

- What are the issues that the SO looks to resolve?

- Market Energy Imbalance
    - Buy/Sell energy volume
- Market Energy Imbalance Uncertainty
    - Need to create Footroom/Headroom (Reserve)
- Intra Half Hour Demand volatility (eg TV pick ups)
    - Requires Response/Fast Reserve
- System Issues (Thermal/Voltage)
    - Requires Zonal/Locational procurement

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SO Cost Efficiency

- The SO does not look at each issue in Isolation

- Each SO action may resolve a number of issues as well as energy imbalance

- This is the most economically efficient manner to minimise total SO costs

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Prevalence Within NIV

- The Split of volume of actions in NIV taken
  - Exclusively for Energy Balancing and…
  - Also for other reasons "Energy Balancing Plus"

Volume Percentage of Bids and Offers in NIV Stack (Apr 06 to Feb 07)		
	Energy Balancing Only	Energy Balancing Plus
Offers	25%	75%
Bids	41%	59%

- What are the implications in relation to the acceptance of Bids and Offers in price order?
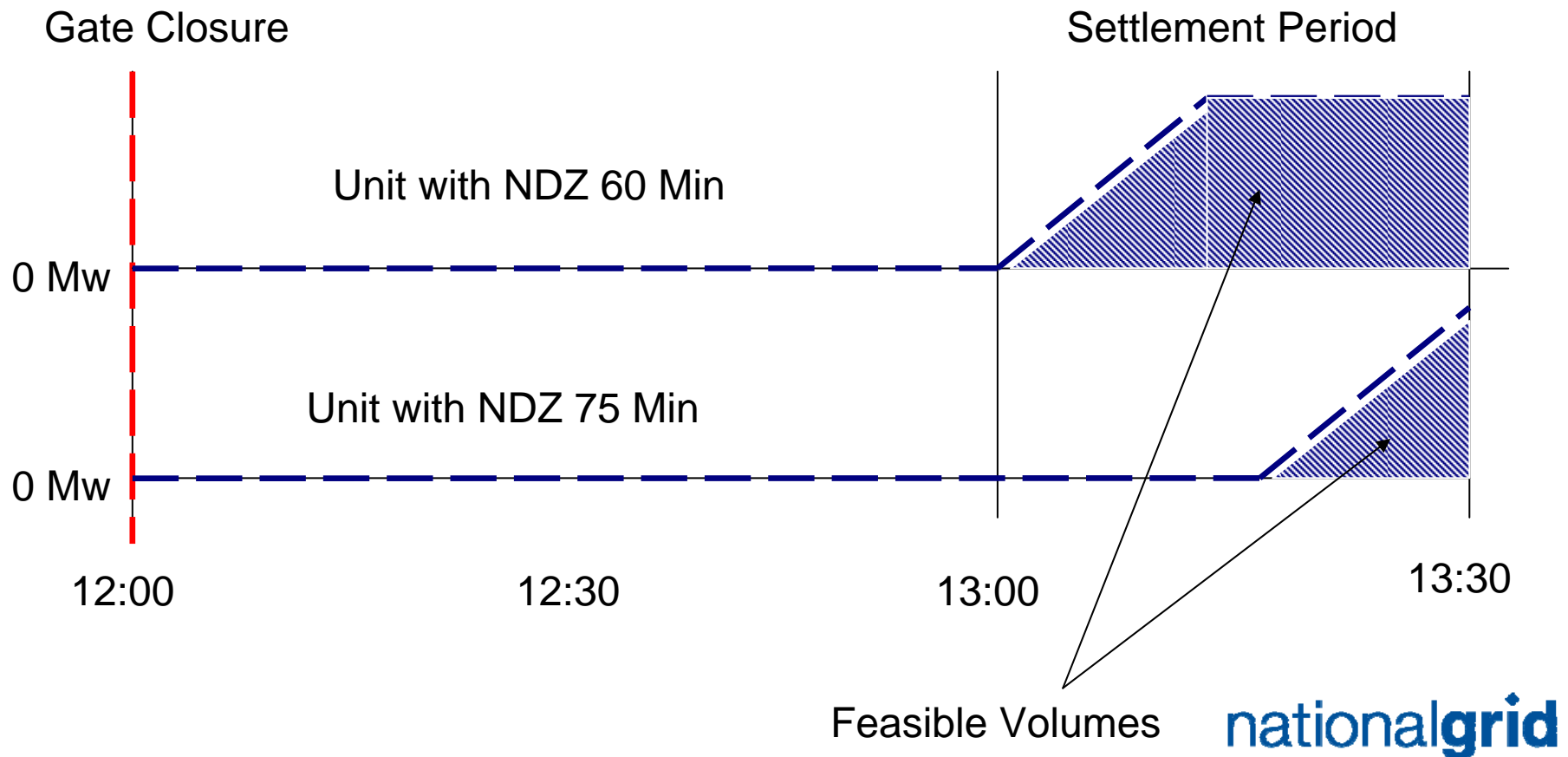
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Energy Balancing Plus- Materiality

- What is the materiality of the "Energy Balancing Plus" activity on Imbalance Pricing ?

- One measure would be to assess in comparison to an idealised Energy Stack

- Idealised Energy Stack – Theoretical Best solution to resolve NIV given
  - Perfect foresight of market characteristics
  - No Reserve, Intra half hour, or Constraint Issues
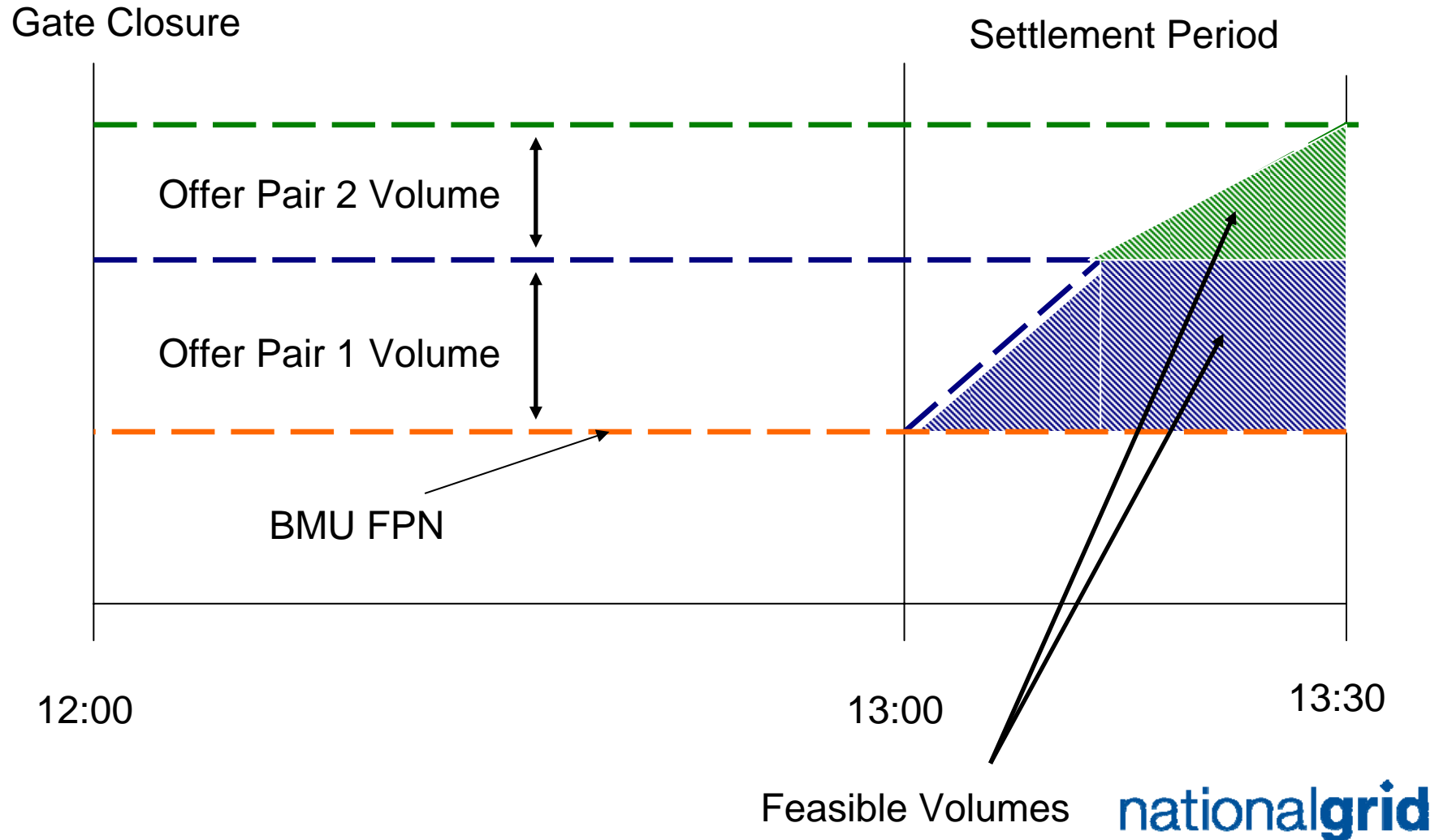
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Idealised Price Stack Comparison

◆ There is no fixed methodology under which an idealised price stack is constructed

◆ For analysis purposes the following assumptions have been made

- Services procured through forward options included in stack
- Snap Shot – Is at 89 minutes ahead (Gate Closure) –
  - BMU with NDZ greater 89 minutes are excluded
- Accessible Bids and Offers based on MEL at Real Time
- All the prices are net of BPA component
- **What Is Not Taken Into Consideration ?** national**grid**

What is The Lead Time for NIV to be Certain ?

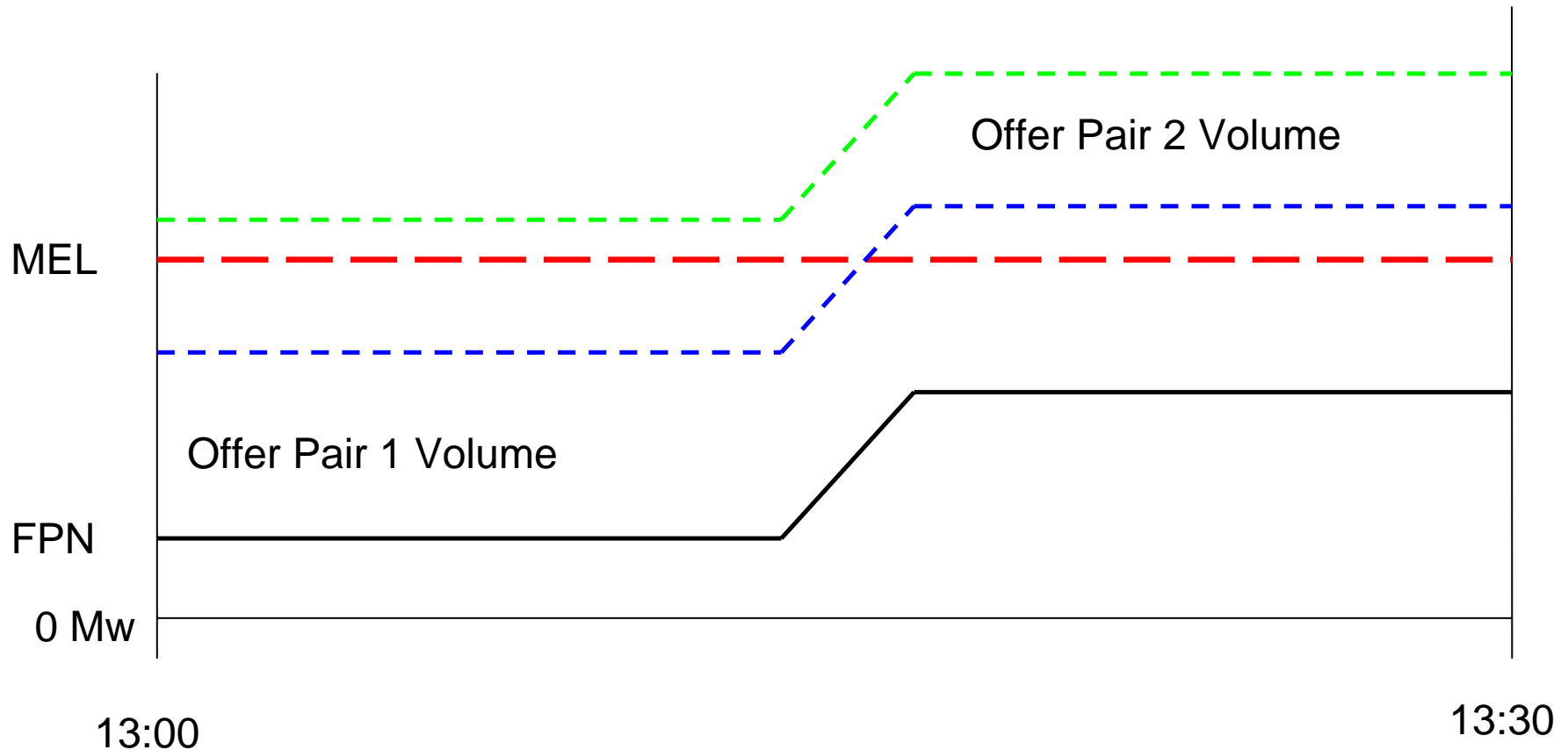**Example :** Assumption of 60 Minute Maximum Lead time to reflect impact of an example of Absolute NIV Certainty (30 mins)

Feasible Volumes

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Offer Pair Accessibility

Gate Closure

Settlement Period

Offer Pair 2 Volume

Offer Pair 1 Volume

BMU FPN

12:00

13:00

13:30

Feasible Volumes

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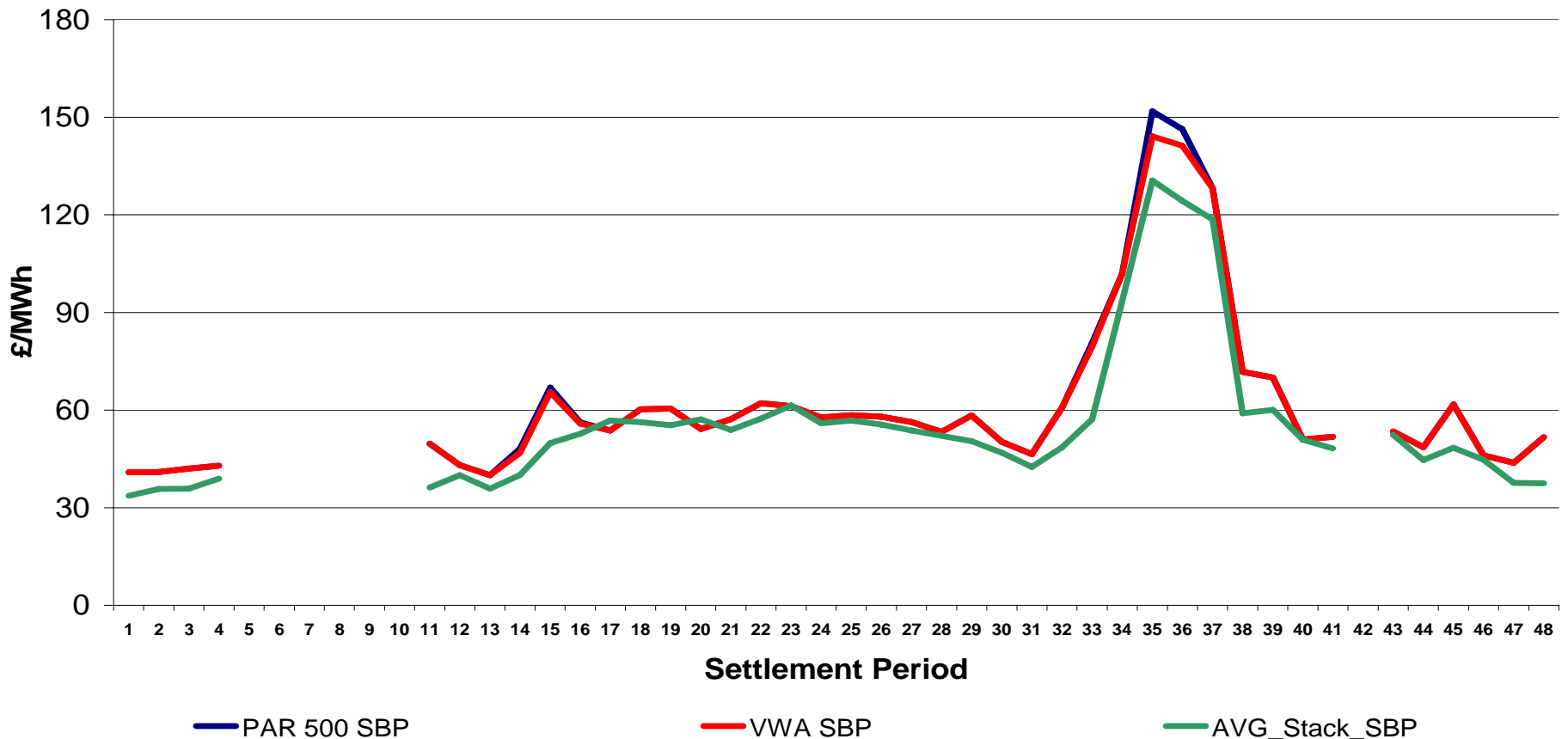# Intra Half Hour Offer Shapes ?

MEL –FPN > Offer 1 Volume (But Can It All be Accessed) ?

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SBP : Approximate Calculation of Stack Prices

**Idealised Stack Buy Price November 2006
Average By Period (NIV Is Short)**

Legend: PAR 500 SBP, VWA SBP, AVG_Stack_SBP

X-axis: Settlement Period

Y-axis: £/MWh

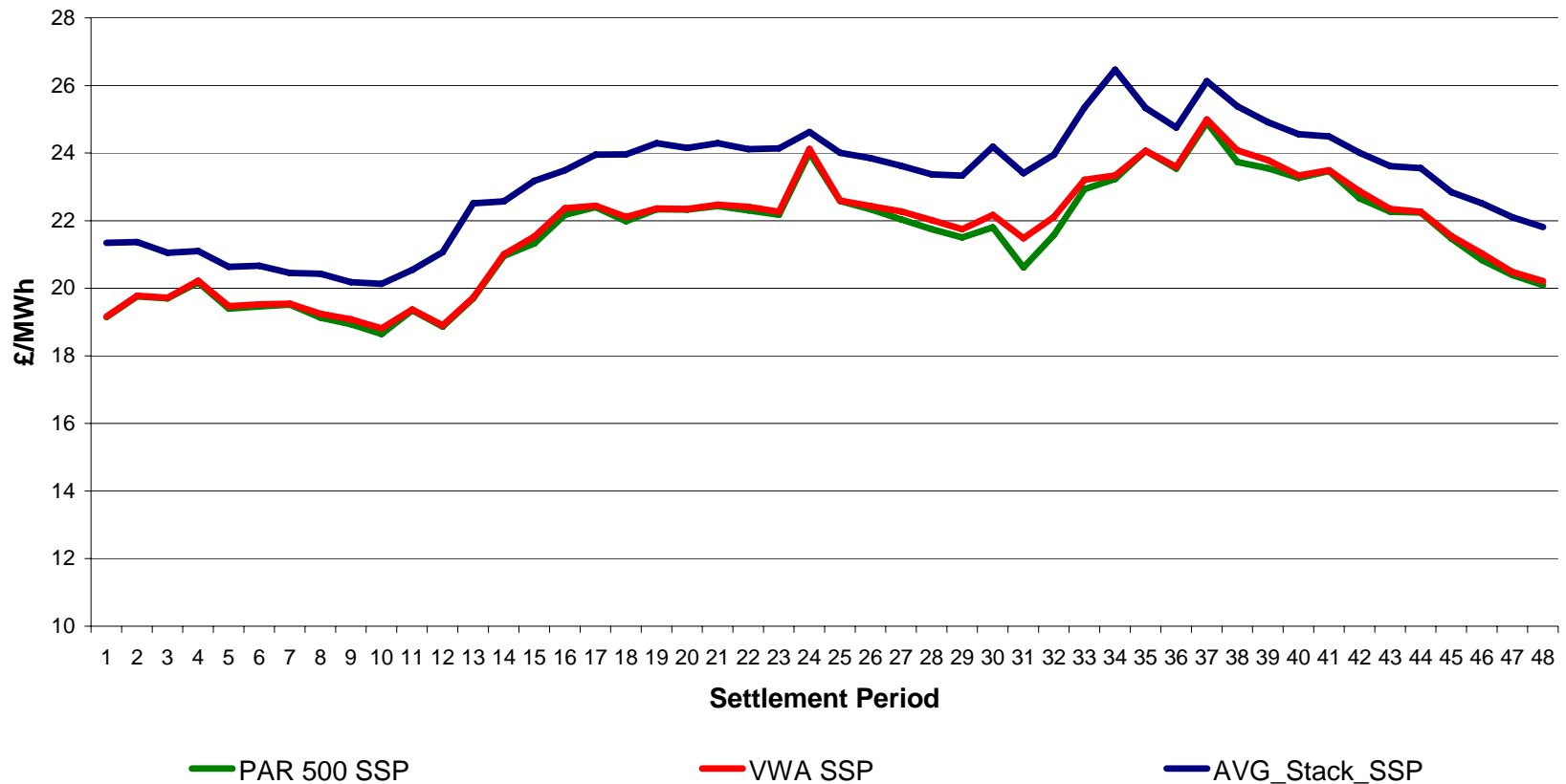# SSP Approximate Calculation of Stack Prices

**Idealised Stack Sell Price November 2006
Average By Period (NIV is Long)**

Approximate Average Prices for November 2006

All Prices in Table are Net of BPA	
Buy Price	**Average Price £/MWh (in a short market)**
PAR 500	£57.15
VWA	£56.80
Avg Idealised Stack	£51.43

Sell Price	**Average Price £/MWh (in a long market)**
PAR 500	£21.52
VWA	£21.66
Avg Idealised Stack	£23.16

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Initial Observations

- On average the idealised price appears to be 9% lower and 7% higher than the comparable SBP and SSP respectively

- Relatively low material impact given the prevalence of Energy Balancing Plus activity in the NIV stacks

- Given the ration of periods when the market is short and long (1:4) the idealised stack leads to an approximate reduction of spread of 7.5-8%

N.B idealised price does not assume is achievable in reality

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Idealised Price Stack

- Can the concept of an Idealise Stack be considered as a possible Cash Out methodology?

- Useful to assess under two categories

  - Practicality of defining a methodology
  - Benefits of cost reflectivity

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Idealised Stack – Practicalities of defining Methodology

- What gets included?

    - Unconstrained Stack must be based on feasible Bids/Offers.

        - The feasibility of an offer is based on the lead time at which the decision to activate it is taken

        - How do we determine the lead time of the feasibility snap shot?

    - Optioned Services : STOR/BM Start Up

        - The SO (rather than the market) brings these services to the market

        - Should they be included?

- The detail of the methodology could potentially have a large impact on the Imbalance Price

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Idealised Stack –
Does it Achieve Cost Reflectivity

- **Removes uncertainty surrounding price order impact of "Energy Balancing Plus" activity.**

- **It reflects the cost of energy**
  - **But does it reflect the cost to the SO of balancing ?**
    - Dependent on belief of what should be included in the price stack

- **Does not resolve the issue of the SO obligation to honour the minimum dynamics of generation.**
    - Idealised stack still underestimates costs in a particular settlement period when SO procures the marginal BMU

- **Does not solve the question of how to allocate option costs**
    - BPA – Historic vs Forward looking / Promptness vs cost reflectivity

  - **Is an idealised Stack susceptible to gaming?**
    - Manipulation of MEL to alter feasible bids and offers?

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Idealised Price Stack – Observations/Thoughts

- Could play a part in an efficient Imbalance Price Methodology
    - but would not appear to be a solution by itself
    - Still need to address issue of Option costs
    - Still need to look at impact of "SO honouring Dynamics"
- Could reduce the spread in a dual price scenario
- Could be utilised under single price regime
- Need to assess if it is susceptible to gaming

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