Electricity Market Reform – The case for capacity payments

Steve Riley, CEO and President, IPR UK-Europe

Nomura Utilities Conference, 22 June 2011, London,
International Power has a global footprint

**North America**
Houston
Total power capacity 13.0GW
in operation 0.3GW
under construction

**Latin America**
Florianópolis
Total power capacity 6.1GW
in operation 2.8GW
under construction

**UK-Europe**
London
Total power capacity 9.0GW
in operation 0.4GW
under construction

**Asia**
Bangkok
Total power capacity 3.7GW
in operation 1.5GW
under construction

**Middle East, Turkey & Africa**
Dubai
Total power capacity 6.7GW
in operation 1.9GW
under construction

**Australia**
Melbourne
Total power capacity 3.0GW
in operation 0.0GW
under construction

*Note: All GW numbers are on a net (by ownership) basis as at 31 December 2010*
International Power in the UK

- Largest Independent generator in the UK
- 9.2 GW gross (6.1 GW net)
- Total generation in 2010 of 25.6 TWh or 8.0% of UK production
- Operate in baseload, mid-merit, and peak markets
- Provide services for the system operator
- Developing renewable portfolio in the UK
- Thriving retail business supplying Industrial and Commercial sector
- Employ just over 1000 people
Evolution of the generation sector

Source: IPR Analysis, Feb 2011
Notes: Total peak demand includes peak demand met by embedded generation; Renewable capacity has been de-rated to account for lower contribution to peak; capacity at peak excludes contribution from interconnectors; does not include plant consented or in the planning process.
Greater flexibility needed in the future

Source - Gas: At The Centre of a Low Carbon Economy Future, A review for Oil & Gas UK, Poyry, September 2010
Establishing the need for capacity payments

Policy will transform energy market
- Dramatic shift in relationship between capacity and energy
- Interventions for low carbon capacity will impact wholesale market
- Nature of ‘peaking plant’ will change

Increasing wind capacity will impact conventional generation
- Lower load factors for fossil plant
- Increased pressure on plant reliability

Significant flexibility challenge will emerge
- Range of generation ‘gaps’
- Potential 20 GW hourly swings, 41 GW daily swings
- Increased need for shorter term balancing

‘Targeted’ Capacity Mechanism concerns
- Designed to meet marginal peak capacity needs – does not meet flexibility requirements
- Will distort what is left of market, leading to ‘slippery slope’
- Unnecessary extension of SO role
Comparing capacity resources in the US market

<table>
<thead>
<tr>
<th>Capacity need (1)</th>
<th>Real Time Demand Response</th>
<th>Imports (2)</th>
<th>Generators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep Emergency Actions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Moderate Emergency Actions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Real time avoidance of an emergency</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Day Ahead Avoidance of an emergency</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Real Time economic dispatch (intra-hour)</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Real Time economic dispatch (hourly)</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Day ahead energy market</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Notes: (1), Example from ISO-NE ‘market’ (Independent System Generator – New England); (2), scale of contribution limited and may not always be available
Lessons from US capacity market

On capacity payments mechanisms

- Primary aim to create price signals to attract new investment and ensure security of supply
- Policy makers need to ensure out-of-market entries do not depress capacity price signals, avoiding adverse financial impact on those existing generators who provide system integrity
- An ideal capacity market design should yield differentiated capacity payments:
  - based on the levels of service the resources are required to provide
  - to resources based on locational reliability

On the contribution of Demand Side Measures

- Can serve as an integrated part of capacity supply but cannot provide the same levels of service as conventional generators
- Can contribute to an apparent capacity oversupply, depressing capacity prices, and discouraging new investments
## Prevailing views on capacity payments in the UK

<table>
<thead>
<tr>
<th>Vertically integrated company (1)</th>
<th>Position on capacity payment</th>
<th>Independent Generator company</th>
<th>Position on capacity payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrica</td>
<td>Yes, reserve market</td>
<td>International Power</td>
<td>Yes, wider</td>
</tr>
<tr>
<td>EDF Energy</td>
<td>Yes, ‘targeted’ on low carbon</td>
<td>Drax</td>
<td>Yes, wider</td>
</tr>
<tr>
<td>E.ON UK</td>
<td>No</td>
<td>Intergen</td>
<td>Yes, flexible cap</td>
</tr>
<tr>
<td>RWE NPower</td>
<td>No</td>
<td>DONG</td>
<td>Yes, targeted</td>
</tr>
<tr>
<td>Scottish and Southern</td>
<td>Yes, market wide</td>
<td>ConocoPhillips</td>
<td>Yes, wider</td>
</tr>
<tr>
<td>Scottish Power</td>
<td>Yes, for all firm plant</td>
<td>Eggborough</td>
<td>Yes, wider</td>
</tr>
<tr>
<td>National Grid</td>
<td>Not at this time</td>
<td>Statkraft</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Energy Spectrum, Cornwall Energy, Issue 283, 6 June  
Note (1): National Grid included as the System Operator; position taken from their Submission
Summary

- Potential for more volatility in UK generation towards 2030
  - Intermittent generation requires a highly flexible portfolio
- DECC should develop a broad capacity mechanism for flexible plant, addressing security of supply challenges
  - A ‘targeted’ capacity approach will accelerate plant closures
  - The nature, scope and timing of a capacity mechanism is very important
- IPR’s portfolio makes an important contribution to the UK’s generation sector
  - IPR remains actively engaged in the Energy Market Reform debate