Supporting renewables in a redesigned power market:

What should change, what should stay?

Fabio Genoese

Power market decarbonisation post-2020: what roles for the EU ETS and for complementary instruments?

Brussels, 17 September 2015
Key messages

- Policy costs for renewables can be reduced by adapting market rules to renewables and by more efficient support systems.

- Dedicated support likely needed to reach 2030 targets unless following trends are revised:
  - Declining trend in market value of renewables (low ETS price, low coal price, suboptimal technology mix)
  - Wholesale prices signal no need for new capacity (any type)

- Demand-response can substantially policy costs for renewables (especially for wind power), but cannot fully reverse the declining trend in market value
Outline

- Redesigned power market
- Supporting renewables
- The role of demand-response
• CEPS Task Force Report (27 July 2015)
  – goo.gl/NW9nXV
  – Members: industry, research, NGOs,…

• Consensus:
  – Properly implement current framework
  – Strengthen ETS
  – Facilitate participation of renewables and demand-side in current markets

• No consensus:
  – Explicit remuneration of availability, long-term contracts
## Consensual recommendations and impact on renewables

<table>
<thead>
<tr>
<th>Implement properly</th>
<th>Strengthen ETS</th>
<th>Facilitate participation</th>
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<tbody>
<tr>
<td>- Couple intraday &amp; balancing markets</td>
<td>- Long-term scarcity signal for carbon allowances needed <em>(no agreement among TF members on how to strengthen ETS)</em></td>
<td>- Balancing markets: shorter commitment period, separate auctions for negative/positive balancing power</td>
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<td>- Standardise products, harmonise gate-closure, relax price caps,…</td>
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### Expected impact on renewables

- **Liquidity ↑, cross-border competition ↑**
  - balancing costs ↓, net support costs ↓
- **Market value of renewables ↑**
  - net support costs ↓
- **Liquidity ↑, cross-resource competition ↑, must-run ↓**
  - net support costs ↓ *(revenues ↑, balancing costs ↓)*
Supporting renewables
What has worked, what hasn’t?

Support has been effective

- Installed capacity 2004-13 (EU-28):
  - Wind: +84 GW (+244%)
  - Solar: +78 GW (+6,000%)

- Feed-in tariffs for solar (DE):
  - ≤ 570 €/MWh (2004)
  - ≤ 130 €/MWh (2014)

but could have been more efficient

- Design flaws:
  - High share of levies in electricity bills
  - Overcompensation
  - No volume control
  - (..)
- Same effect at lower costs would have been possible
Supporting renewables
What should change?

- Main principles laid down in “Guidelines on State aid for environmental protection and energy 2014-2020” (EEAG)

**Direct commercialisation**
- Renewable generators selling directly on the market

**Same responsibilities**
- Balancing responsibility (e.g. for forecast errors)

**Level of support**
- Competitive bidding process (e.g. auctions) to set level of support

**Expected impact**
- No 3rd party taking volume risk anymore
  - *de-facto* end of priority dispatch
- Improved forecast quality, more liquid intraday markets
  - *de-facto* more efficient support
- Reduced risk of over- & undercompensation
- Volume control
Supporting renewables
What should stay?

- Dedicated support likely needed beyond 2020 to reach targets
  - Gap between wholesale market price and technology costs
  - Underlying challenge: currently no need for new capacity

Feed-in tariff: 91 €/MWh (solar, Dec ‘14)
Gap filled by dedicated support, no market-driven deployment

<table>
<thead>
<tr>
<th>Year</th>
<th>Base price</th>
<th>Market value wind</th>
<th>Market value solar</th>
</tr>
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<tbody>
<tr>
<td>2008</td>
<td>65.7</td>
<td>59.6</td>
<td>82.2</td>
</tr>
<tr>
<td>2009</td>
<td>38.8</td>
<td>35.4</td>
<td>44.1</td>
</tr>
<tr>
<td>2010</td>
<td>44.5</td>
<td>42.0</td>
<td>49.7</td>
</tr>
<tr>
<td>2011</td>
<td>51.1</td>
<td>47.1</td>
<td>56.0</td>
</tr>
<tr>
<td>2012</td>
<td>42.6</td>
<td>37.3</td>
<td>44.2</td>
</tr>
<tr>
<td>2013</td>
<td>37.8</td>
<td>32.2</td>
<td>36.9</td>
</tr>
<tr>
<td>2014</td>
<td>32.8</td>
<td>28.0</td>
<td>32.1</td>
</tr>
</tbody>
</table>
The role of demand-response

- Basic idea: increase demand in times of low prices / high penetration of renewables ⇔ price ↑ ⇔ market value ↑
- Ex-post analysis of German market in 2014:
  - Market value increases by 7.3 €/MWh (+22%) with 10 GW of demand-response @ 30 €/MWh
Can lead to substantial savings in net support costs

- Increased market value = reduced net support costs for renewables
- Savings mostly affecting wind, up to €319 millions (≈ 9% of net support costs for wind in DE-2014)
Key messages

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• Dedicated support likely needed to reach 2030 targets unless following trends are revised:
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• Demand-response can substantially policy costs for renewables (especially for wind power), but cannot fully reverse the declining trend in market value
Thank you for your attention

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Backup
Impact on ETS is limited unless renewables target is overachieved

No indication for overachieving RES-E targets!
Cost decrease has been in line with expectations for emerging technologies, e.g. solar

Source: IRENA 2012