Cutting hedges
<table>
<thead>
<tr>
<th>YES =&gt;</th>
<th>NO =&gt;</th>
</tr>
</thead>
</table>
| • Financial certainty for future years | • How good is the hedge?  
  ◦ “The only perfect hedge is in a Japanese garden”  
• How much does it cost to hedge? |
## Financial certainty

### 2010: Need for certainty!
- Utilities = Power stations
  - Fossil generation very profitable – and volatile!
  - Need certainty for huge renewables & gas investment plans

### 2014: Yeah, whatever...
- Utilities = Renewables, Upstream Gas, power stations
  - Divestment, Nuclear closures
  - Fossil generation not very profitable (or volatile)
    - Huge oversupply from falling electricity consumption and renewables
    - UK darks hit by coal tax
    - Italy darks hit by solar, plus fall in gas TTF premium
### How good is the hedge? (1)

<table>
<thead>
<tr>
<th>2010</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Japanese garden</td>
<td>• Oversupply from falling demand and new renewables</td>
</tr>
<tr>
<td>○ Sell base-load for coal</td>
<td>○ Only value for coal is winter peaks</td>
</tr>
<tr>
<td>○ Sell peak for gas</td>
<td>○ Calendar base/peaks don’t work!</td>
</tr>
<tr>
<td>• Calendar liquidity great!</td>
<td>○ Hard to hedge past next season...</td>
</tr>
<tr>
<td>• Hedging Year+2 is easy...</td>
<td>• Only value for gas is days with no wind / no sun...</td>
</tr>
<tr>
<td></td>
<td>○ Hard to hedge past day-ahead</td>
</tr>
</tbody>
</table>
How good is the hedge? (2)

- **2011 German nuclear phase-out**
  - Now have a hedge and no asset!

- **2012 UK Carbon support price**
  - Now have a hedge... but lost money because carbon costs up and not passed into the hedged power price.

- **What else!?**
  - Emissions performance standards for coal?
  - Carbon tax?
  - Coal phase out?!?
<table>
<thead>
<tr>
<th>2010</th>
<th>2014: Regulation increases costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All OTC</strong></td>
<td><strong>MIFID2/EMIR force exchange-trading</strong></td>
</tr>
<tr>
<td>○ No cash requirement</td>
<td>○ Fixed cash margin</td>
</tr>
<tr>
<td></td>
<td>○ Variable cash margin</td>
</tr>
<tr>
<td></td>
<td><strong>Triple whammy</strong></td>
</tr>
<tr>
<td></td>
<td>○ Power, Coal/Gas, Carbon</td>
</tr>
<tr>
<td></td>
<td>○ €billions in cash for fossil hedging!</td>
</tr>
</tbody>
</table>
How far to hedge?

- **Nuclear, hydro – as far as you can!**
  - Good liquidity in Calendar baseload; low hedging cost
  - But... no carbon hedging required!
  - Even negative carbon hedging?!?

- **Coal – past next season?**
  - Financial certainty preferred, but not needed
  - Low asset value to hedge, low volatility
  - High cash cost of hedging (power+carbon+coal)
  - Risk of regulation
  - Poor liquidity on Quarters/Peaks!

- **Gas – past day-ahead?!**
  - No asset value to hedge?!?
Some perspective on numbers...

Emissions hedging, mt

- 1 year's emissions
- 2-yr hedging
- Coal next season; Gas dayahead

2012

Coal
Gas

mt: metric tons
Falling fossil demand

Sandbag forecast, TWh

-37%
Some perspective on numbers...

- 1 year's emissions
- 2-yr hedging
- Coal next season; Gas dayahead
- 1 year's emissions
- 2-yr hedging
- Coal next season; Gas dayahead

- 2012
- 2020

Emissions hedging, mt

- Coal
- Gas