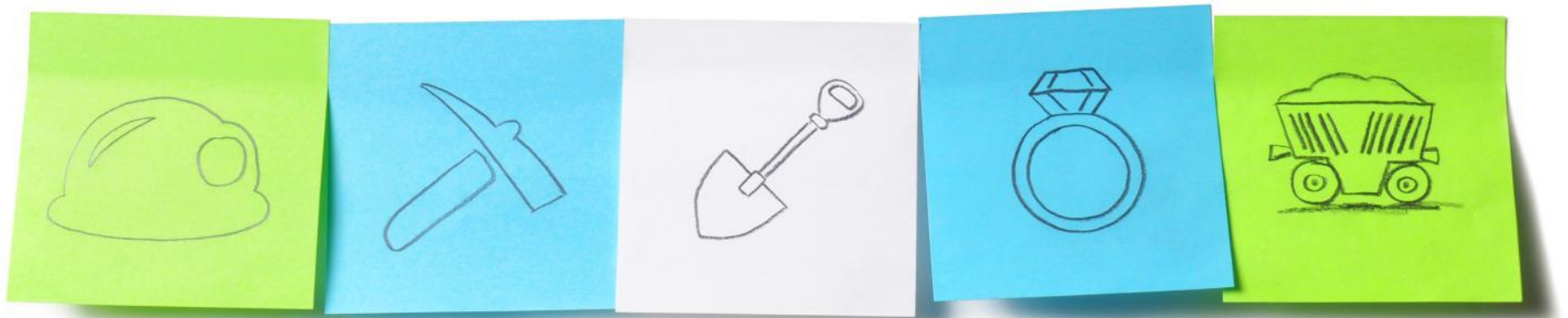


European energy market reform

European energy and climate policies: achievements and challenges to 2020 and beyond



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Sixth Bruges European Business Conference – 17 March 2015

European energy and climate policies

Session outline

- The 3 x 20 policy:

What did the EU plan to achieve?

Are we going to make it?

What were the unplanned impacts on the European energy markets?

- What has gone wrong?
- The road ahead and main challenges – the pathway to 2030 and beyond

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What did the EU plan to achieve?

| | 2020 ^(a) | 2030 ^(a) | 2050 ^(a) |
|---------------------------------------|---------------------|---------------------|---------------------|
| Increase in energy efficiency | 20% | 30% | TBD |
| Share of Renewable energy | 20% | 27% | TBD |
| Reduction in greenhouse gas emissions | 20% | 40% | 80-95% |
| <i>Emissions Trading System (ETS)</i> | 21% ^(b) | 43% ^(b) | TBD ^(b) |
| <i>Non-ETS Sectors</i> | 10% ^(b) | 30% ^(b) | TBD ^(b) |

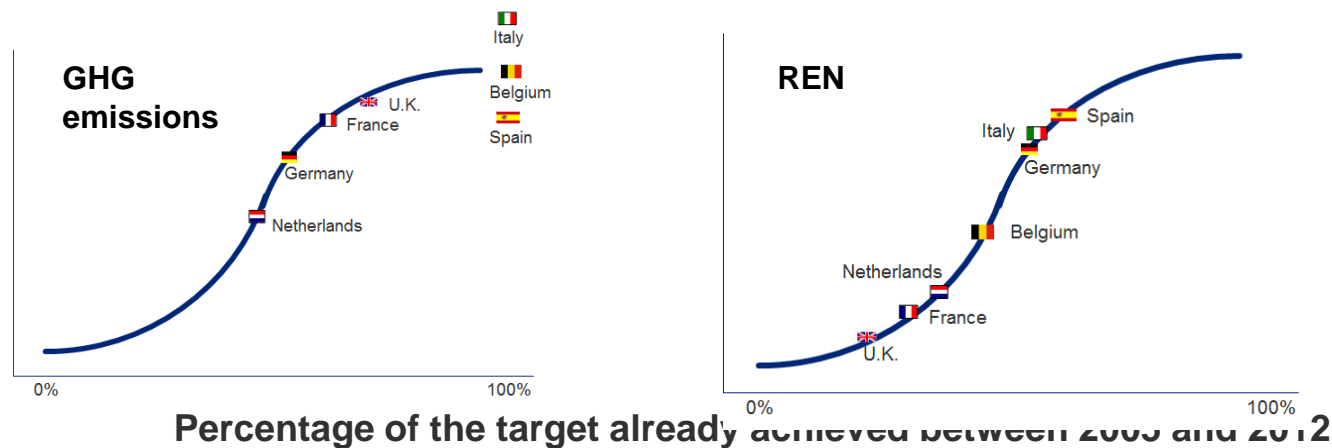
^(a): Comparison with the 1990 levels
^(b): Comparison with the 2005 levels

Along with a broader European energy strategy aimed at achieving sustainability, competitiveness, affordability and security of supply.

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Are we going to make it?

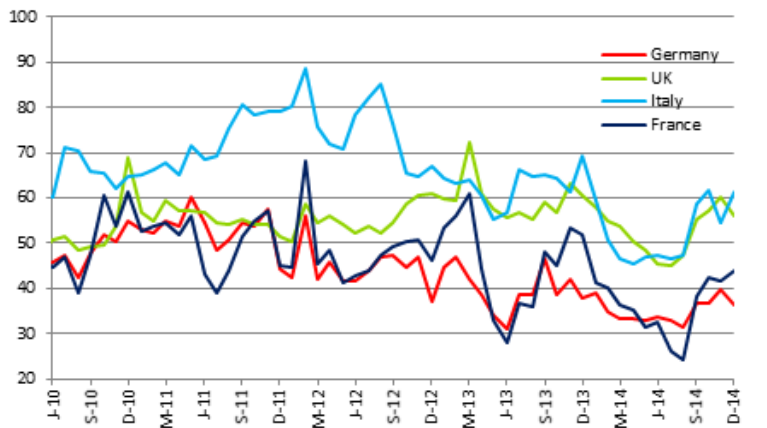
- Many countries are on track to meet their 3 x 20 targets and the EU-28 as a whole has made considerable progress on the way to its targets (but key role of the economic crisis).
 - GHG emissions reductions : Key challenges in the next five years will be economic recovery, nuclear phase-out and coal dilemma.
 - Share of renewables energy in 2020 final energy consumption : It is hard to see how the objective will be met (despite expensive public support).
 - Energy efficiency, it took a long time to define the very difficult-to-understand criteria which may not be met in the end.



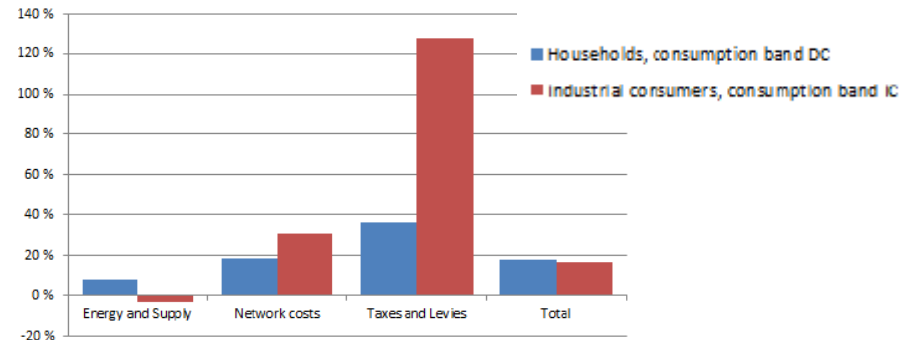
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Unplanned impacts on the European energy markets

- EU policies have resulted in a dramatic change in the rules governing the power industry, and contributed to distorting electricity market
 - The development of renewables has been driven by policy support and incentives rather than supply and demand adequacy and market signals
 - Large scale of renewables capacity send wholesale electricity prices to record lows and driving to mothball efficient gas-fired capacity
 - Power markets are facing the prospect of both over-supply and risk of blackouts
- Decreased wholesale power prices have not made consumers better off.... end user prices have increased over the last decade



Wholesale electricity prices: Baseload Spot Day Ahead (€/MWh)



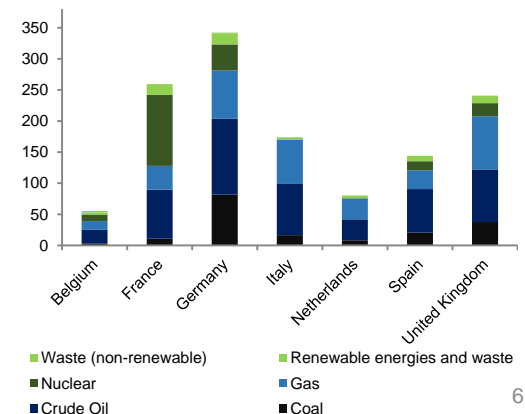
EU-28 weighted average retail electricity prices, 2008-2012 (%age change by component)

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What has gone wrong?

- Have we ticked the three boxes of EU energy strategy ?
 - Sustainability: Energy and Carbon intensities have been reduced, but it is due to a large extent to economics crisis
 - Affordability and competitiveness: Prices to end users consumers have risen
 - Security of supply: Dependence on foreign sources of supply has increased
- The EU energy context has not unfolded as expected (slow down of demand, downward review of public budgets)
- Some technical potential for improvements has been less developed than initially planned e.g. CCS, second generation biofuels, electric cars , demand side management etc.
- An over-supplied carbon market failed to send the right price signals (spot price at 6€/t vs. a switching price from coal to gas in a range of €17 to € 28 /tCO₂eq)
- Energy policy is still a patchwork of national policies with limited coordination on energy mix and generation adequacy
- Energy and climate policies have moved the EU away from the original objective of creating a single, integrated energy market

2012 Gross inland energy consumption (Mtoe)



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Current policy failures

The EU has outlined new 2030 policy measures designed to address the four current failures of the 3 x 20 policy proposals.

- 2050 objective of reducing GHG by 80-95% is unlikely to be met based on current trends
- Long-term energy security of supply remains an issue
- Significant investments in renewables, interconnections and energy efficiency are required... along with the right market signals
- EU needs to achieve energy cost reduction and competitiveness

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The road to 2030 and beyond

- To what extent will the 2030 package make it possible to overcome the difficulties encountered so far?
- More challenges lie ahead :
 - The EU needs to revisit its energy market design, energy-only markets have failed to deliver a price signals for investment : capacity market, development of cross interconnections and more coordination among TSO
 - Renewable targets versus affordability : How can we reach REN targets without pushing energy prices up for consumers?
 - Are we going to fix the ETS market and have a market mechanism that produces the right price of carbon?
 - Backloading of emission quotas and creation of market stability reserve in 2021 seems too late
 - Carbon, renewables, energy efficiency: do we need so many objectives?
 - To what extent can technology be part of the solution?

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Deloitte study on European energy market reform

Study launched in the first half of 2014 with the objective to share our views on the pathway to European energy market integration.

Visit www.deloitte.com/energy to download the study.



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