

Carbon Pricing in EU Climate Policy: It would have been such a nice idea

Insights from the CECILIA2050 project

CECILIA2050 Side Event at the SB 42 meeting
Bonn, 9 June 2015

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Carbon Pricing in the EU – taking stock and looking forward

- **Carbon pricing: theory and practice**
- Past experiences with carbon pricing in the EU: some light, much shadow
- Going forward: what models tell us about the transformation to a low-carbon economy
- Looking forward to 2030 and beyond: will the carbon price be too late to have an effect?

Carbon Pricing: Theory and Practice

- Carbon pricing should be the cornerstone of any emission reduction strategy: prices need to tell us the “Ecological Truth” about the consequences of our decisions
 - Coordinate emission reduction efforts across emitters, across sectors, across countries, so that overall the cheapest abatement potentials are realised, and the overall cost of emission reduction is minimised
 - Change existing trajectories of economic development: encourage low-carbon investment, avoid carbon lock-in and stranded assets
 - Harness the power of the market for the discovery and selection of new technologies
- If all this can be achieved, the economic burden of decarbonising the EU economy will be moderate (in relation to the baseline of continued economic growth)



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Impact of Carbon Pricing and Renewable Support in the EU

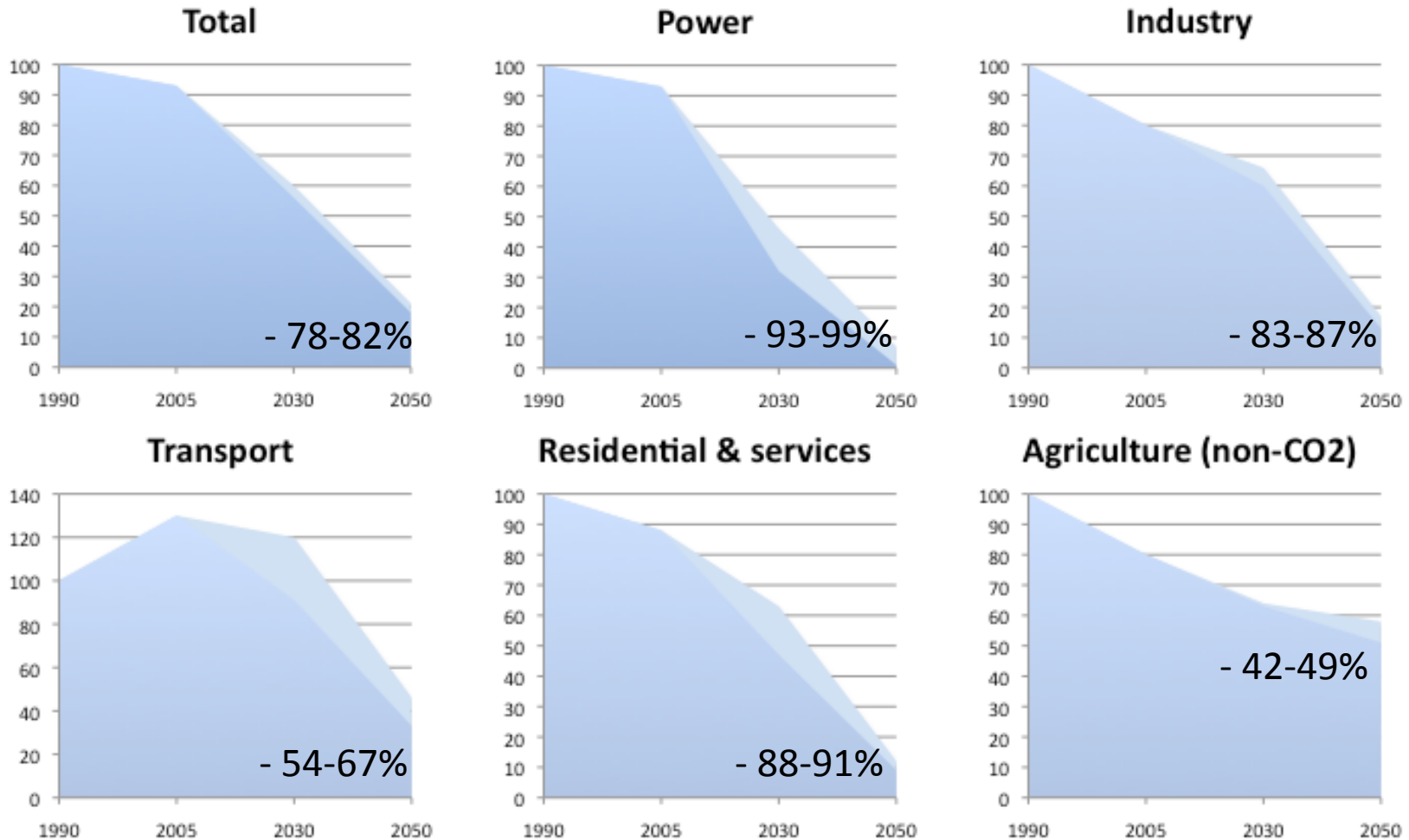
- Climate policies in Europe have achieved their main objective: to reduce emissions. Without environmental tax reform, EU ETS and renewable support schemes, CO₂ emissions in 2008 in selected EU countries would have been up to 12-13% higher than actually observed. Most of this is from renewables support – less from pricing
 - Impacts on GDP have been modest overall: slightly negative for environmental tax reform and ETS, probably positive for renewable support measures
 - Impacts on employment were equally modest: slightly positive for the environmental tax reform, slightly negative for EU ETS, undecided for renewable support
 - On balance, if the analysed policies had *not* been implemented, we would probably have lower – but certainly not higher – figures for GDP and employment
- **Carbon pricing has worked – but the effect has been far from transformative;** neither taxes nor the EU ETS have realised their potential for cost-effective emission reductions
- **Markets** have worked well – witness the transformative impact of renewable support



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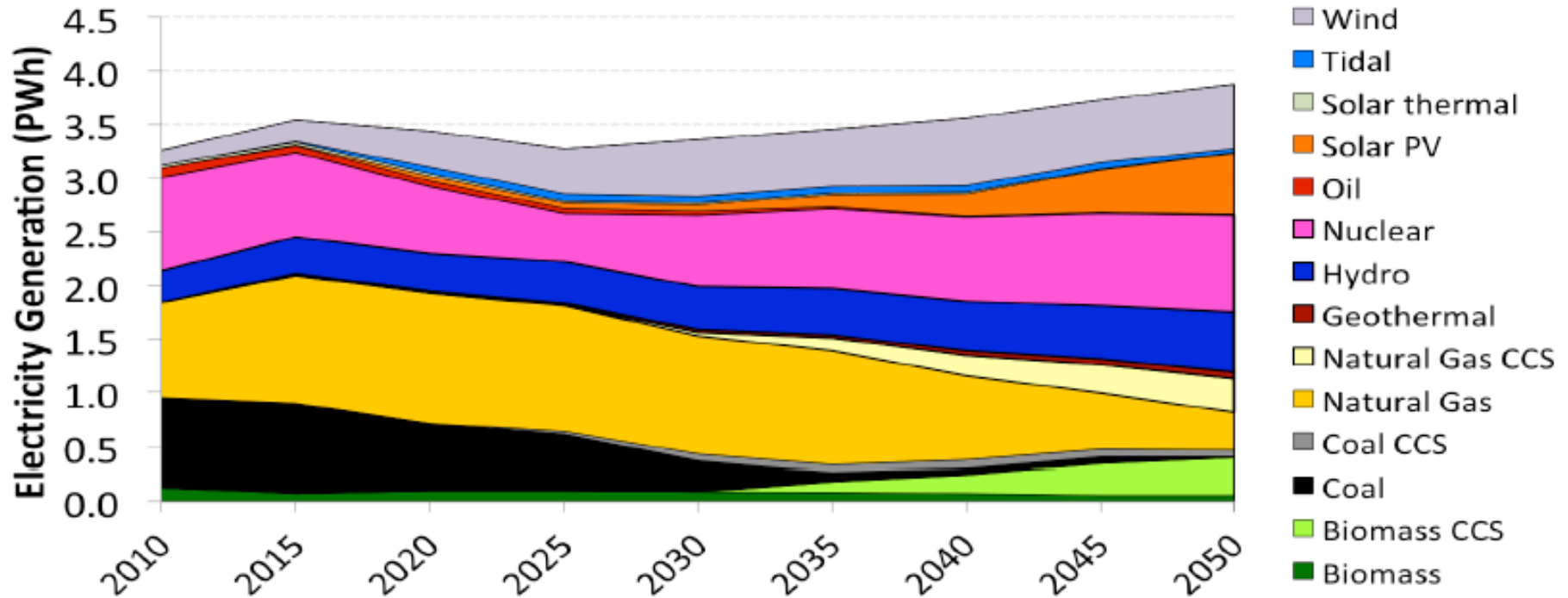
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What models can tell us about the low-carbon transformation



Source: Roadmap Impact Assessment SEC(2011) 288

What models can tell us about the low-carbon transformation



gCO ₂ /KWh	2010	2015	2020	2025	2030	2035	2040	2045	2050
Reference	348	344	342	453	520	554	574	600	612
Fragmented Policy	348	327	283	248	199	171	132	96	-19
Policy Success	348	326	285	264	170	63	-12	-132	-190

Source: Solano & Drummond 2014
(CECILIA2050
Deliverable 3.1)

What models can tell us about the low-carbon transformation

- Power sector (and energy use in industry) will need to reduce emissions faster than the overall economy
 - Overall economy: -40 to -44% below 1990 by 2030
 - Power sector: -54 to -68% below 1990 by 2030
 - Industry: -34 to -40% below 1990 by 2030 – but including process emissions
- By 2030, the power sector will have to be largely decarbonised to keep a realistic chance of meeting the EU's long-term decarbonisation targets
- One implication: need for a reformed electricity market, capable of dealing with a high share of renewables
 - Intermittency
 - Incentives for demand response and storage
 - Zero marginal cost – low wholesale prices

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What role for carbon pricing in the EU low-carbon transformation?

- The current outlook for carbon pricing in the EU is bleak:
 - EU ETS is paralysed by a surplus of >2 bn allowances for the foreseeable future – despite the MSR, it might be another 10-15 years before scarcity is re-established
 - Discussions on taxation at EU level have not been going anywhere, only few national initiatives (France, Ireland, Sweden)
- If a significant carbon price should rebound in ~2030, the EU economy will look different:
 - Electricity sector already largely decarbonised
 - Different design for the electricity market, including some kind of capacity mechanism
 - Most of the “heavy lifting” will need to happen in transport, housing, agriculture, as well as process emissions in industry – sectors that are not very amenable to pricing – and may require a stronger price signal than industry would be able to bear
- **By the time the carbon price rebounds, the opportunity to have an effect may be gone**

What role for carbon pricing in the EU low-carbon transformation?

- Three possible scenarios for the future of climate policy and carbon pricing in the EU:
 1. **The economic optimum:** the EU manages to reform the ETS quicker and more fundamental than planned, the carbon price rebounds soon enough to have an effect (in combination with other instruments, and including as a source of revenue)
 2. **The lost opportunity:** the EU remains on track to meet its long-term decarbonisation targets, but through a suite of other tools including renewables support, ambitious energy efficiency policies, break-through innovation in industry, behavioural change etc – much of this happening at the national level. By the time a carbon price returns, much of the heavy lifting may have been done through other channels – depressing demand further. Climate targets are achieved, but at a higher cost than what would have been necessary.
 3. **Lock-in and failure:** the absence of a strong carbon price leads to investment into new high-carbon fossil infrastructure, locking the EU onto a high-carbon path. When the ETS surplus is exhausted, the carbon price skyrockets, resulting either in stranded assets on a large scale, or political pressure to abandon the ETS and the climate targets

Thank you for your attention.



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