The role of the ETS in Danish Climate Policy

Presentation at the Environmental Economics Conference 2016

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The issues

- Does it make sense to subsidize investment in renewable energy in the ETS sector?
- If so, how should the subsidies be financed?

The long-term goal for Danish climate policy

- EU target for 2050: Member states must reduce GHG emissions by 80-95 percent in 2050 relative to 1990
- The 2050 target in the Danish Climate Act: A "low emission society" → an energy system based on renewables and markedly lower emissions from other sectors
- Implication: A 100 percent share of renewable energy in the Danish energy system by 2050

A strategy for a cost-effective climate policy in an ideal world

- The transition to renewable energy in the ETS sector should be driven by the emissions trading system (no need for subsidies to RE)
- EU Member States should focus their efforts on reducing national emissions from their non-ETS sectors
- Ideally the price of carbon emissions from the non-ETS sector should equal the price of carbon in the ETS

The history of the ETS so far

- The carbon price in the ETS has fluctuated a lot, but..
- For a long time now the carbon price has been quite low, due to a large surplus of ETS allowances
- At the current carbon price, natural gas is generally uncompetitive vis á vis coal, and RE is generally uncompetitive vis á vis fossil fuels, since the (sunk) costs of investment in fossil-fuel based energy production do not need to be covered in the short and medium term → new RE-based production plants competitive only by means of subsidies

But the ETS still works, doesn't it?

- Total ETS emissions are well below the cap, so what's the problem?

- Even though the ETS cap is currently non-binding, the positive ETS price signals a market expectation that the cap will become binding some time in the future,

BUT

- The low carbon price indicates that the ETS will not become a significant driver of the shift to RE for a long time to come.

- If policy makers are unwilling to lower the ETS cap at the current low carbon price, will they be willing to lower it in the future when the price goes up?

Perspectives for Danish climate policy

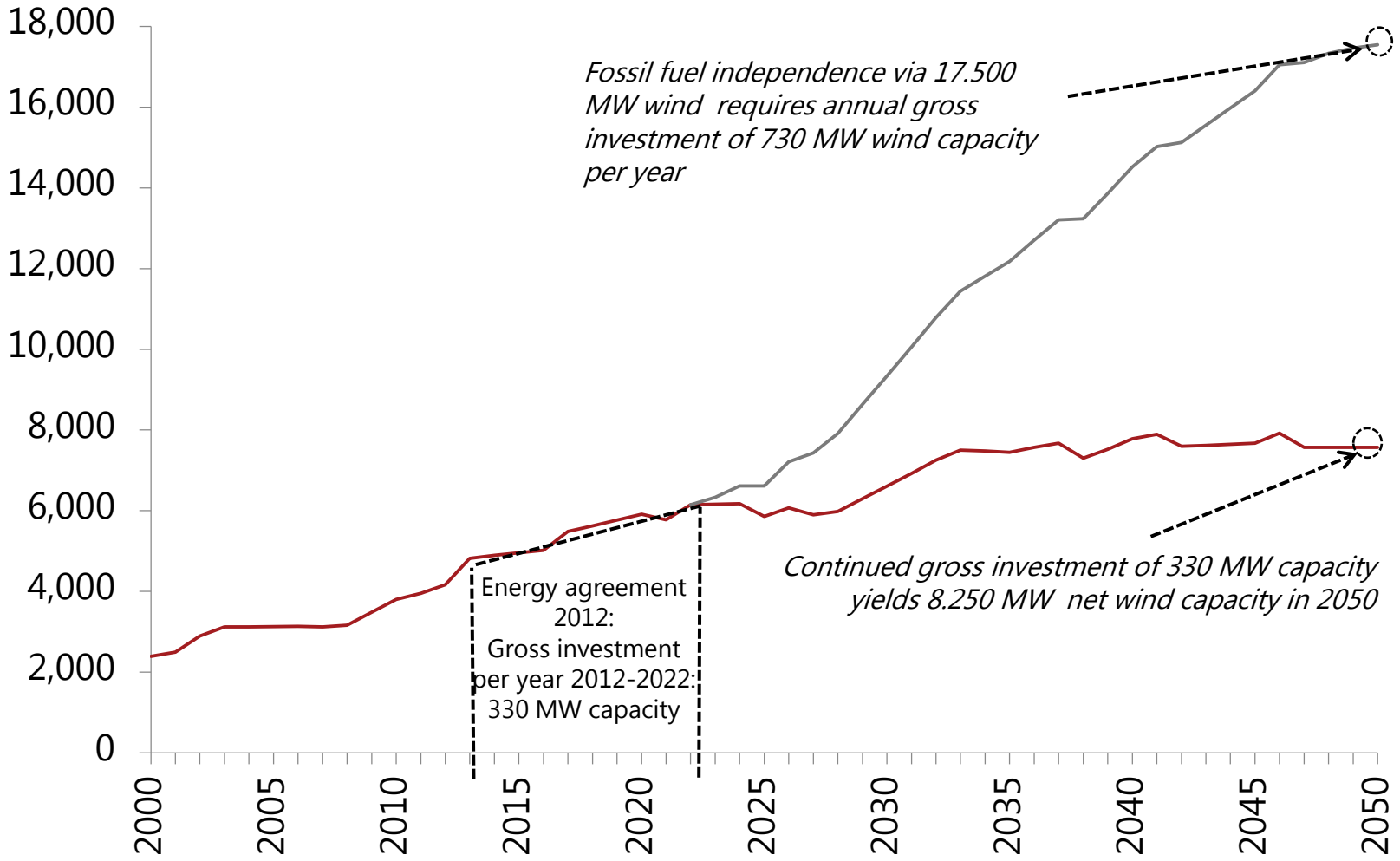
- Argument against subsidies to RE in the ETS sector: CO_2-leakage

- **BUT** if RE-subsidies were abolished, the RE-share in total energy supply would drop substantially in the medium term

The rationale for maintaining (some) subsidies until the ETS price of carbon (hopefully) goes up:

- A relatively smooth transition to a 100 percent share of RE may reduce the present value of the total social cost for Denmark of achieving the 2050 target

Current Danish investment in wind power and the Energy Agency's "Wind Scenario" for 2050



But what about the leakage problem?

- If the EU sticks to its 2050 target, fossil fuels will have to be phased out from the energy sector → no leakage from RE subsidies in the long run

- If RE subsidies increase the surplus of ETS allowances in the short run, this may increase the political will to reduce the supply of allowances → less than full leakage

How should RE subsidies be financed?

- The long-run target of a 100 percent RE-share in total energy supply means that additional power production capacity must be RE-based → The long-run marginal social cost of power is the cost of RE-based power production

- The PSO tariff is a user fee ensuring that consumers of electricity pay the full social cost of green power production → Abolition of the PSO-tariff will amount to a huge distortionary power subsidy to Danish business firms

- The PSO tariff can be made compatible with EU law through pragmatic adjustments

- The electrification of energy consumption can be boosted through a targeted excise tax reform

Conclusions

- Inspired by the EU 2050 target, Denmark has a long-term goal of a 100 percent RE share in total energy supply
- For the time being, RE-subsidies in the ETS sector are likely to be needed to ensure a smooth transition to renewable energy that will minimize the present value of the social cost of the transition
- The Danish government should lobby for an ETS reform ensuring a higher and more stable carbon price level → the faster we will be able to phase out RE subsidies
- As long as subsidies are needed, they should be covered by consumers through a PSO tariff to prevent excessive consumption of energy
- At the same time electrification of energy consumption should be promoted through targeted excise tax reform