

On the Transition of Europe's Power Sector: Economic Consequences of National Targets

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Abstract : The prospects for the European power sector indicate that it has to almost fully decarbonize in order to reach the economy-wide target of CO₂-emission reduction. We apply the EU-REGEN model to explain the penetration of RES from an economic perspective, their spatial distribution, and the complementary role of conventional generation technologies. Furthermore, we identify economic consequences of national energy and climate targets. Our study shows that onshore wind power will be the most crucial generation technology for the future European power sector. Its geographic distribution is driven by resource quality. Gas power will be the major conventional generation technology for backing-up wind power. Moreover, a complete phase out of coal power proves to be not economically optimal. The paper demonstrates that existing national targets have a negative impact, especially on the German region with higher prices and lower revenues. The remaining regions profit are hardly affected. We encourage an EU-wide coordination on the expansion of wind power with harmonized policies. Yet, this requires profitable market structures for both, RES and conventional generation technologies.

Keywords : European, policy evaluation, power sector investment, technology choices

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