EFFECTS OF THE GERMAN *ENERGIEWENDE* ON THE DUTCH ELECTRICITY MARKET

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(1) Overview

We estimate the effects of the significant changes in the German electricity market over the past years on the Dutch electricity market. In Germany, the installed capacity of renewable energy (especially wind and solar) has increased dramatically as a result of a system of feed-in-tariffs which compensates for all costs independent of the level of the electricity price. These changes in the German electricity system not only affect the German market, but also the electricity markets in the neighbouring countries because of the connections between the national networks in Europe. In this paper we assess the impact of the changes in Germany on utilisation of power plants, profits of power firms, electricity prices and intensity of competition in the Dutch market. Using hourly data over the period 2006-2012, we find that the impact of the German market on the Dutch market has significantly increased.

(2) Methods

We expect that the surge in renewable capacity in Germany results in lower prices in the Dutch market, because of the merit-order effect and the availability of cross-border capacity. The lower prices are expected to coincide with a lower rate of utilization of generation capacity in the Netherlands, which is still mainly based on fossil fuels. We also expect that the increase in the supply of renewable electricity fosters the intensity of competition in the Dutch market as it reduces the residual demand for the incumbent suppliers.

We test these hypotheses by estimating a time-series model using high-frequency data on, among others, prices, plant utilization, availability of cross-border capacity and the supply of renewable electricity in the German market.

(3) Results

We find that the Dutch day-ahead market and the German day-ahead market have become more closely connected to each other. Although we find that the supply of wind electricity in Germany has had a negative effect on Dutch power prices, this effect has hardly changed over the period of analysis. Apparently, the Dutch electricity price appears to be still closely related to the price of gas, which is the fuel of the system marginal plant. The intensity of competition in the Dutch market has increased, partly caused by the increased connection to the German market.

(4) Conclusions

Overall, Dutch consumers have benefited from the German subsidies for renewable energy as this system of feed-in-tariffs has reduced their electricity price (both because of the merit-order effect and the increase in competition), while they do not have to pay for the subsidies like the German consumers have to do. Electricity produces in the Netherlands, which are mostly owned by foreign (including German) companies, however, have seen a strong decrease in the utilisation of their fossil-fuel plants, reducing their profits. A number of recently build gas-fired plants, using the latest technologies, are not going to be dispatched because of the oversupply of cheap electricity to the Dutch market.

More recently, the cross-border capacity is increasingly fully utilized, which constrains the Dutch electricity users to further benefit from the low prices in Germany. This has resulted in a less level playing field between the Dutch electricity-intensive industries and the German ones. The differences in power prices between Germany and the Netherlands has contributed to recent bankruptcies of some Dutch firms.

Concluding, although the Dutch energy users initially were on the benefit side of the German *Energiewende,* more and more they also see negative consequences. The severe consequences of national energy policy for other, neighbouring, countries calls for more harmonisation of energy policy within Europe.

References

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