

When the wind blows enough to stifle wholesale prices in Germany, but not in the Netherlands

19 September 2017

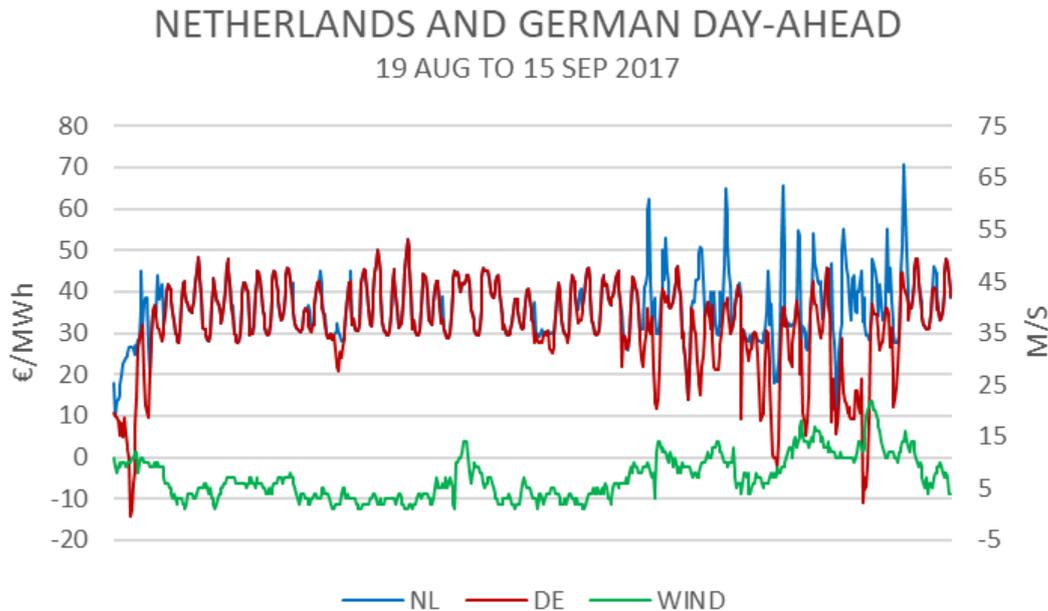


Figure 1 NL and DE Hourly day-ahead prices, wind data source KNMI IJmond

The Netherlands has one of the most interconnected electricity markets of the world, with a total cross-border capacity which will grow to a whopping 11GW within a few years. This means that a very significant portion of the country's demand can be imported or exported depending on the time of day, and that the remaining part can be generated with solar or wind capacity.

At average temperatures and wind conditions, German and Dutch prices tend to develop in sync. But when the wind speed passes a certain threshold, as was the case over the first two weeks of September, the correlation stops with German prices diving into the negative, while Dutch prices remain above the zero line. This is due to the cross-border capacity not being able to absorb all German wind generation at that particular moment. The same effect can be observed on sunny summer days, especially on weekends, when the demand for power simply is "too low".

With renewable ambitions that are comparable to that of her neighbouring countries, the Netherlands will not be able to rely entirely on her cross-border capacity to absorb weather related "shocks" to renewable energy supply, either surpluses or shortages. This is why a wide range of flexibility providing solutions will be needed: at centralised and decentralised level. It is even possible that interconnection will be used less intensively in the future, as weather in the North-Sea area is largely correlated.

This advocates and provides the opportunity to develop the Dutch electricity market as the new flexibility hub of North West Europe, just as it is for natural gas. In this hub, the unique position created by the Dutch interconnection capacity, can be reinforced by the development of a diverse flexibility infrastructure as well as a more flexible demand from industry and electricity users.

eRisk Group has developed and is operating a transparent model of the electricity generation in the Benelux, Germany, France and the UK, which can generate similar insights, looking ahead. The Power Price Scenario Generator (PPSGen) determines market prices per hour, taking into account the developments regarding renewable energy (growth), storage and/or flexibility options, demand, new generation facilities as well as mothballing, seasonal must run obligations, cross border capacities, fuel and CO2 prices, decentralised production by industrials for example, and technical specifications of power plants. Demand for electricity and supply of renewable energy (especially wind and solar PV) is based on actual hourly data, taking weather conditions for those hours into account. For this purpose historical years are applied and scaled to the requested forecast year. PPSGen is modelled in Matlab, Excel, and VBA. PPSGen is different from other models as its calculation times are extremely short (a few minutes per scenario-year) and complete transparency is provided regarding all assumptions and inputs. PPSGen is continuously updated to reflect any changes in new built plans, mothballing of regulations which have a potential impact on the merit order.

More information about how PPSGen can help you run scenarios for the load factor of your planned or existing asset? www.eriskgroup.com