ELTRAMOD – Model description

ELTRAMOD is a bottom-up electricity market model incorporating the electricity markets of the EU-27 states, Norway, Switzerland and the Balkan region as well as the Net Transfer Capacities (NTC) between these countries. Each country is treated as one node with country specific hourly time series of electricity demand and renewable feed-in. The country specific wind and photovoltaic feed-in is characterised by the installed capacity and an hourly capacity factor. The capacity factors are calculated with the help of publically available time series of wind speed and solar radiation from 2009 and 2010. ELTRAMOD is a linear optimisation model which calculates the cost-minimal generation dispatch and investments in additional transmission lines and storage facilities. The set of conventional power plants consists of fossil fired, nuclear and hydro plants where different technological characteristics are implemented, such as efficiency, emission factors and availability. Daily prices for CO2 allowances, as well as daily wholesale fuel prices supplemented by country specific markups are implemented in ELTRAMOD. The country and technology specific parameters and the temporal resolution of 8760 hours allow an in-depth analysis of various challenges of the future European electricity system. For example, the trade-off between network extension and storage investment as well as import and export flows of electricity in Europe can be analysed. A more detailed model description and exemplary results can be found in Gunkel et al. (2012).

Exemplary References

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