

# Impacts on electricity markets Western Europe

May 17th, 2013



The expected climate changes in the 21<sup>st</sup> century are likely to have a small impact on electricity prices and production for the energy markets of Western Europe. This has been estimated by modelling three climatic effects:

- changes in demand for electricity due to changes in the need for heating and cooling,
- changes in supply of hydropower due to changes in precipitation and temperature, and
- changes in thermal power supply due to warmer cooling water and therefore lower plant efficiency.

According to the model results each of these three partial effects changes the average electricity producer price by less than 2%, while the net effect is an increase in the average producer price of only 1%. Similarly, the partial effects on total electricity production are small, and the net effect is a decrease of 4%.

The greatest effects of climate change are found for those Nordic countries with a large market share for reservoir hydro. In these countries total annual production increases by 8%, reflecting an expected increase in inflow of water. A substantial part of the increase in Nordic

production is exported; climate change doubles net exports of electricity from the Nordic countries, while the optimal reservoir capacity is radically reduced.

Source: Golombek, R., Kittelsen, S.A.C. and I. Haddeland, 2012. Climate change: impacts on electricity markets in Western Europe. *Climatic Change* 113: 357-370.

Photo: unknown ([www.flickr.com](http://www.flickr.com))