Danish Energy Agency

China: DEA and Added Values meet with the Electric Power Planning and Engineering Energy Institute in Beijing

The Chinese power sector shows significant potential in lowering its GHG-emissions in regards to flexibility of the thermal coal fired power plants, but the institutional set-up must be change in order for the society and environment to benefit.

Excess Electricity from Power Production goes to Waste

During a recent mission to Beijing the Danish Energy Agency and Added Values, a consultancy company, specialized in power plant technology, met with the Electric Power Planning and Engineering Institute (EPPEI) in Beijing to discuss flexible operations of power plants. Flexibility in relation to thermal power plants covers the ability to operate on low loads, to ramp up- and downwards quickly, to rapidly start up the operations from scratch and to do all of this in an efficient manner.

Flexible operations of thermal power plants are required for the modern market based power system with high shares of renewable energy, like the Danish. In China, the thermal coal fired power plants are currently not operated in a flexible manner, which frequently causes renewable energy production from wind turbines, solar PV and hydropower plants to be curtailed when the power production exceeds the demand. The potential for saving GHG-emissions from downward regulated thermal power plants, instead of renewable energy, in China is very large. However, it requires changes in the institutional set-up, since the power plants currently has contractual rights to run a certain number of full load hours per year and therefore will lose revenue by downward regulation.

Flexibility Incorporated in the 13th Five Year Plan?

EPPEI has been asked by the National Energy Agency (NEA) to analyze the issue and advice on the technical and economic issues related to flexibility in thermal power plants in China in relation to the 13th five year power plan. EPPEI is well-placed for this task, because it is involved in the designs of 80 % of the new thermal power plant capacity that is installed in China. EPPEI is doing a number of tasks related to the strategic development of the power system, including standards and design for power plants and transmission lines.

During the meeting the Danish power plant engineer, Frank Drinhaus, from Added Values presented the status quo regarding flexibility in Danish power system, where the minimum load level at some plants is as low as 10% compared to 50% at a modern Chinese power plant. The Danish plants are in general optimized on several parameters to cope with the variability in the netload caused by wind power and to take advantage of the variable prices on the Nordic power pool.
EPPEI was very interested in the Danish experience with flexibility at the power plants, and shared interesting insight in the technical and economical features of the Chinese power plants. Added Values will use these insights to assess potential for flexibility in the Chinese thermal power plants and later estimate the potential for saving GHG-emissions and improve the utilization of renewable energy.

About the Danish-Chinese cooperation

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