Forum on Flexibility Options in the Electricity and Heat Markets

Berlin, 21 September 2015
DIW Berlin, Mohrenstrasse 58, Schumpeter Hall

The aim of our expert forum is to explore improvement potentials and interactions in storage and renewable energy technologies, demand side management, e-mobility, and energy efficient housing stock. To this end, we have invited experts share their expertise on their respective targets regarding technological and cost potentials, drivers and risk. Each presenter will have about **12 minutes** to give the audience the broad strokes of his or her area of expertise in a nutshell. The remaining session time is reserved for questions and answers as well as general discussion.

The objective of the workshop is to broaden the understanding of the technology options and to discuss future scenarios. The outcome of the workshop will also be used to guide the modelling activities of the overall project, in particular the development of an integrated energy model for electricity and space heating sectors that is intended to be set up as a free, fully disclosed, open-source model.

09.30-10.00 **Registration & Coffee**

10.00-10.15 **Welcoming remarks: Prof. Karsten Neuhoff, Deutsches Institut für Wirtschaftsforschung**

10.15-10.45 **Opening Presentation: Prof. Mark O'Malley, University College Dublin**

10.45-11.00 **Coffee Break**

11.15-12.00 **Electricity storage (power-to-power)**

A variety of battery types as well as hydro storage are being considered to allow for storage of power at different scale and time frames. We will provide a structured overview of the different opportunities emerging, and discuss the key drivers that will impact their relative importance as well as competitiveness with other flexibility options.

Presenter 1: **Dr. Hans Auer**
Presenter 2: **Karlis Baltputnis**

12.00-12.45 **Electricity to heat conversion (power-to-heat)**

Instead of conserving electricity by means of pump-storage, electricity can also be transformed into heat. These heat storages could absorb electricity when production exceeds demand, for example when renewable electricity production is high. To model the potentials for small electric thermal storage (SETS) is at the heart of this project.

Presenter 1: Dr. Martin Kleimaier
Presenter 2: Gerard Finneran

12.45 – 13.45 **Lunch Break**

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13.45 – 14.30 Electro-mobility

In addition to heat conversion, electro-mobility could have a potentially large impact on the electricity market. Batteries in electric vehicles could be charged at times of surplus electricity from intermittent renewable electricity production. There is also the possibility of discharging batteries at times of high electricity demand into the electricity grid. This would depend on the cost of a battery and the number of times it can be discharged before it has to be replaced.
Presenter 1: Dr. Tobias Boßmann
Presenter 2: Dr. Wolf-Peter Schill

14.30 – 15.15 Demand-side measures

Instead of storing and discharging electricity, there is the possibility to shift or shed parts of the electric load. For example, select consumers could be disconnected from the grid to lower peak electricity demand. To make a noticeable impact on overall electricity consumption, these electricity consumers would usually have to be bundled together.
Presenter 1: Dr. Serafin von Roon
Presenter 2: Gerard Finneran

15.15 – 15.30 Coffee break

15.30 – 16.15 Thermal efficiency of buildings and energy conservation

In addition to technological changes in electricity and heat generation, there are also advances with respect to thermal efficiency of buildings that might have a large impact on the overall demand, but might also impact the technology choice for energy conservation.
Presenter 1: Prof. Sarah Darby
Presenter 2: Prof. Thomas Bednar

16.15 – 17.45 Cross-cutting session

After reviewing individual flexibility options in the electricity and heat market, such as power-to-power or power-to-heat storage, the cross-cutting session will open up the discussion and take on questions regarding the expected relative costs as and potential interaction of the individual technologies. The aim is to provide a broader perspective on scenarios of future flexibility provision.

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