

Chair's Statement:

Expert Workshop on Decarbonising Energy Systems

Munich, 14-15 December 2016

On 14-15 December 2016, Agora Energiewende hosted an international expert workshop on 'Decarbonising Energy Systems' at Hotel Kempinski Vier Jahreszeiten, Munich, Germany. Driven by decreasing technology costs, climate policies, environmental concerns and growing thirst for energy, energy systems around the world have entered into a transition. These transition processes take place against specific economic, political and cultural backgrounds and therefore need to be understood and managed in the respective national context. However, the bottom-up exchange showed that similar challenges exist in all countries. The following Chair's Statement highlights the key insights from the three discussed sectors and is to inform our future activities in these fields.

Power Sector

Triggered by dramatically falling costs, wind and solar energy are the fastest growing electricity generation technology as of today. In a growing number of countries, these two technologies are already cheaper than conventional sources like coal. This brings about a fundamental shift in how power systems of the future are operated. Instead of traditional baseload technologies, more and more flexible resources are needed to balance and back-up the weather dependent electricity generation of wind and solar installations. These flexible resources exist: In many countries, the transmission grid provides the best way to cope with the flexibility challenge. Others use conventional gas and pumped hydro. Even coal-fired power plants can be operated in a load-following mode if retrofitted accordingly. Other options like demand response, storage and power-to-x technologies can and should be developed. In order to facilitate a smooth and cost-effective transformation of the power system, the regulatory framework should incentivise the development of flexible power markets and enable a managed decline of inflexible high-carbon assets.

Building Sector

The Building Sector has an enormous potential to contribute to the global mitigation of climate change and offers secure and attractive investment opportunities. However, decarbonisation solutions in the building sector are still not sufficiently known to many policy

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makers; increasing knowledge and awareness is necessary. These measures in the building sector create benefits for the energy system as such, but also benefits outside the immediate boundaries of the energy system, such as reduced air pollution, healthier buildings, increased productivity in commercial buildings, job creation, innovation drive. Documenting evidence about the benefits is essential to create a narrative. Increased data transparency is needed to provide this evidence, and data disclosure, in particular in relation to energy performance of buildings and related investments, should be increased. This in turn would enable scaling strategies for effective financing instruments creating economic opportunities and growth. The regulatory framework should enable large scale investments in decarbonisation of the building sector through a diversity of financing instruments.

Transport Sector

The decarbonisation of transport remains an immense challenge for the success of the global transition of energy systems. There is a strong demand for strategic policy to significantly reduce the climate impact of transport in absolute terms without restricting the mobility of people and goods. Most technologies for the decarbonisation of different modes are already available or under development.

In many parts of the world the direct use of electricity for road and rail would be the most cost- and energy-efficient solution. For aviation and shipping decarbonized gaseous and liquid fuels based on renewable electricity (Power-to-X) are needed in addition to advanced biofuels (second generation). Their swift commercialisation needs strong international cooperation. As the success of the energy transition in transport strongly depends on additional renewable electricity from the power sector there is an urgent need for integrated energy strategies and policies (sector coupling) on national and international level.

Apart from the energy transition in transport, a “mobility revolution” will support the decarbonisation by avoiding unnecessary transport, shifting it to more environmentally sound modes and improving efficiency to reduce energy demand significantly. This “mobility revolution” (including behavioural change) for an efficient and multimodal transport system has already started in major cities around the globe as it comes with a lot of co-benefits to improve the quality of life in cities. Therefor the cooperation with and between municipalities will benefit the decarbonisation of transport.