Sector Outlook 2030+

The energy industry: Electricity and heat

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The most important results at a glance: Summary

This sector outlook 2030+ deals with current trends and development opportunities currently being discussed in science, business, politics and the energy industry. Against the background of the main topic “decarbonisation and sustainability", scientific publications, press releases, industry reports and publications from the political area are analysed and put into context.

In the following the most important results and the core aspects of the respective fields of action are summarised below.

Achieving the climate targets

- A large proportion of the greenhouse gases emitted in Germany and worldwide can be attributed to the electricity and heat generation. In order to achieve the national and EU climate targets, there is a need for nationwide grid infrastructures, energy storage capacities and renewable energy. Investment in energy-efficient building refurbishment, electric mobility and heat pumping systems must be at the forefront of interest in the coming decade.

- In the long term, hydrogen technologies will become more and more important. Solutions should be found to the challenges of production, transport and the necessary infrastructure should be developed and promoted purposefully. In addition, concrete framework conditions must be created that allow opportunities for innovation in research and development as well as to create the basis for a competitive hydrogen economy.

Framework conditions in the energy sector

- The European Green Deal requires ambitious EU-wide measures to achieve the climate policy goals. A large number of these affect the energy sector. Mechanisms such as emissions trading, the CO2 tax and a border adjustment system under discussion are intended to stimulate investment in renewable energies.

- The dynamically changing framework conditions will in the long-term lead to a shift of jobs from the conventional energy industry to companies in the fields of renewable energy, hydrogen technologies and to completely new business models.

- At the national level, too, there are increasingly framework instruments such as the National Hydrogen Strategy, current funding measures and the Renewable Energy Act. Together with the coal and nuclear phase-out they are intended to support to master the energy transition and the associated and the associated structural change.

Transformation trends

- In view of digitalisation, the energy sector is at the beginning of a profound transformation. Networked measurement and control devices in particular will permanently change the energy system. Increases in efficiency and new feed-in and control possibilities due to "smart" processes should also be able to contribute to energy transition. With the digital transformation the roles and tasks of end consumers continue to evolve. In the future, they will be able to use their own solar systems, heat pumps and storage units and with technical expansion of the grids feed energy into the grid themselves.

- Work in the energy sector is also undergoing extensive change. Depending on the activity the influences of the digital transformation differ. Maintenance work is supported by digital technology, as are service aspects of customer service or controlling.

Securing skilled labour and qualification measures

- Forecasts see an increase of jobs due to the development of a hydrogen economy and the renewable energy market. Nevertheless, it is particularly important to absorb regions of structural change and to prepare them for future job requirements also the employees' point of view. The change of job profiles and qualification requirements can be countered with targeted further education and training measures.

- Due to the high heterogeneity of activities in the energy sector, not all job profiles will be shaped in the same way by the transformation. Employee representatives are faced with the task of identifying the different potentials of the transformation for all employees. Innovations in the world of work and organisation of work offer enormous opportunities for an energy industry that is on the move and whose future must be shaped by the workforce.

Corona Pandemic

- At the beginning of the Corona pandemic, the energy industry in Germany was particularly affected by the collapse in energy consumption. The share of renewable energies in the German electricity mix has continued to rise. According to plausible reports, the climate targets for the year 2020 have been achieved. Accordingly, the pandemic could promote a cultural shift towards energy efficiency and thriftiness, as well as raising awareness of climate change in a positive way.

- Furthermore, it is reported that the digitalisation of the industry has accelerated due to a "forced" change in the organisation of work. The areas most affected include customer interaction and smart metering.