



China Carbon Forum | 中国碳论坛

An independent platform to foster trust and cooperation among China's stakeholders for climate action

A National Energy Transition: Germany's 'Energiewende' and China's opportunities

Executive Summary

The broad goals of Germany's National Energy Transition (Energiewende in German) are to: reduce carbon emissions by 40% from 1990 level by 2020 and 95% by 2050; increase renewable energies to 60% of energy consumption by 2050; reduce total energy consumption by 50% by 2050; and, close all nuclear plants by 2020. Germany is well placed to achieve these ambitious goals, and economists agree the energy transition is viable, however, a number of implementation challenges must be overcome, including – energy security (reducing energy imports); diversifying energy supply while phasing out nuclear power; gaining collective agreement on how to achieve the established targets, policies and measures; and, communicating the economic advantages to the broader community.

China's environmental targets and low carbon pilot regions are two major efforts to restructure towards green economy, creating many opportunities for bilateral cooperation on energy planning and energy technologies. China is also focusing on energy market reform and diversification and decentralization. These reforms could eventually set the scene for a broader scale energy transition plan in-line with China's 5 year plans and longer term development strategy. The lessons learned through 'Energiewende', over time, can help make China's eventual energy transition an easier one.

Record of Discussion

The following is an edited synthesis of discussion that took place at the event among panelists (around 1 hour) and open Q&A with participants (45mins). As per convention, individual's comments are not attributed.

Germany aims to be one of the most resource efficient economies in the world. To do this, Germany needs proactive energy policy and tangible action. Policy needs to be designed to incentivize investment in renewable energies and energy efficiency. Specifically:

- A new market design in the electricity sector, creating competitive advantages for renewable energy producers to compete with fossil fuel based energy. Competitiveness of coal-fired power plants is much higher than it was before. **Production of coal-fired power is now increasing in Germany.**
- Improving the economic efficiency of **trading unit allocation in the EU ETS.**
- **Solving investment challenges in Germany's building and transport sectors.** For instance, almost all of the 20 million buildings (and 40 millions flats) in Germany will need to be renovated.

There is still no **clear responsible ministry coordinating the energy transition.** Ministries (building, transport, renewable, and energy efficiency) need to have inter-agency cooperation on implementation of necessary incentives for energy transition.

Renewables currently account for 20% of electricity generation in Germany, with a goal of 35% by 2020. According to studies this goal is economically viable and practically achievable. This would generate \$200 billion / year and employment would be doubled in a decade (380 000 new jobs by 2020) – more people than automotive and mechanical engineering industry combined.

Is there still any 'low hanging fruit' in the German energy system (low marginal cost efficiency measures)? There are many fast payback solutions still out there, especially when investing in industrial energy efficiency. The key is how important this is to the public. Not everybody is thinking economically, otherwise most people would already have invested in energy efficiency.

Are the German people accepting the Energiewende targets? People are accepting the targets, but the consensus is not there concerning the concrete policies. Climate change and resource scarcity are two of the biggest global challenges, but people focus on the cost of the energy transition and not the benefits they provide.

What about strategic energy planning in China? China is facing a challenging planning situation. The government has to plan a long-term (i.e. 2050) strategy on CO₂ emissions. The challenge is coordinating the 5-year plans through this long-term strategy.

At present, **80% of China's electricity generation comes from coal-fired plants** and around 10% from renewables and nuclear power plants. Given China's energy demand is expected to triple by 2030 (15,000 TWh), it is difficult to see how China could stop electricity production from nuclear energy, while at the same time reducing coal-fired power generation.

Is there an opportunity for China to increase its share of cooperation with Germany because of Germany's energy transition? It was felt that China could learn a lot from German experience, especially in energy efficiency. The market price of electricity in Germany forces actors to improve energy efficiency practices.

China's population is more than 10 times that of Germany, what might be the right approach to managing an energy transition in a larger country like China (i.e. centrally or locally)? All favored decentralized plans. In Germany, more and more actors are producing renewable electricity on a small scale at a local level. There is still a centralized policy, but the system is becoming more and more decentralized, and even municipal level governments are helped to produce their own energy and climate policies – about the problem is more easily achieved at a decentralized level. **China's aim is to develop an increasingly decentralized electricity system.** For instance, China has already achieved separation between production and transmission. The second stage is to research and develop independent dispatching of electricity from the transmission system.

One of the big challenges in China is the **power held by actors in the electricity supply chain.** There are almost 900 electricity distributors in Germany, creating a competitive environment. However, in China, there is a need to increase the competitiveness of energy producers, electricity distributors, and transmission system operators. It is extremely important to understand the motivations of all the actors along the energy supply chain.