Danish Ministry of Climate, Energy and Utilities

Danish Energy Agency

SINO-DANISH ENERGY COOPERATION

Updated May 2022

DENMARK AND CHINA COOPERATE ON GREEN ENERGY TRANSITION

The Danish Energy Agency works closely with The Danish Ministry of Foreign Affairs and the Danish embassy in Beijing on a government-to-government basis with Chinese energy authorities on energy and climate. Purpose is to reduce greenhouse gas emissions and cooperate on common solutions to combat the climate challenge.

With over 1.4 billion inhabitants, China is the world's most populous country. It is also the second largest global economy with an average annual growth rate of almost 7 percent. In 2020, the growth rate was reduced to 2 percent due to the covid-19 pandemic. The energy sector in China is at a critical juncture with pressure to continue to support economic growth, while combating local air pollution, and reducing greenhouse gas (GHG) emissions. At present, the Chinese energy system is dominated by fossil fuels and China is the world´s largest energy consumer and GHG emitter. In 2020, China's total CO_2 emissions were roughly equivalent to 30,65 percent of the world's total, while its coal consumption was more than 1900 million tons of oil equivalent. This corresponds to 54 percent of the world's total coal consumption.

China is determined to make a transition to an environmentally sustainable growth model and has ratified the Paris Agreement. President Xi Jinping has stated that before 2030 carbon dioxide (CO_2) emissions will have peaked, carbon intensity will be 65 percent less than in 2005, and the share of non-fossil fuels in primary energy consumption will have risen to 25 percent. The total capacity of wind and solar will reach 1,200 GW by 2030. Speaking at the 2020 United Nations General Assembly, President Xi Jinping also stated that China would strive to become carbon neutral before 2060.

Just like Denmark China has set up clear ambitions to implement a profound energy transformation. With the statement from President Xi Jinping on 22 September 2020, China has significantly stepped up the commitment to strive to peak CO2 emissions before 2030 and achieving carbon neutrality before 2060. The Chinese Energy Research Institute (ERI) and the Danish Energy Agency cooperate on pointing out pathways achieving carbon neutrality without compromising economic growth and has showed how China develops a clean, low-carbon secure and efficient energy system by promoting energy efficiency, electrification, and massive renewable energy deployment.

The Sino-Danish cooperation on green energy transition

Denmark accounts for 0.1 percent of the global GHG emissions. The Danish energy model is based on 40 years of transition and ambitious policy targets on renewable energy and a proven, flexible energy system. But with the new Chinese ambitions, China will only have 40 years to become entirely carbon neutral. To achieve this target China will need to leapfrog over obsolete solutions. Denmark has demonstrated that it is possible to combine economic growth with a parallel reduction of CO_2 emissions and energy consumption, and some of these experiences are useful for China.

China and Denmark have a common responsibility to share and inspire each other with good solutions. Through the Danish Energy Partnership Programme (DEPP) and two strategic sector cooperation programs (SSC) the cooperation is currently focusing on exchanging experiences within:

- Long-term energy modelling and planning
- Enhanced framework conditions for renewable energy including off-shore wind development
- Integration of renewable energy and flexibility of the power sector
- Energy efficiency and district heating
- Energy and climate policy development

Long-term energy modelling and planning is a central element of the energy cooperation with China, identifying different pathways for the development of the future safe, clean, efficient, and cost-effective power systems. The Danish experience in energy planning plays a role in Chinese energy planning as we cooperate on singling out pathways towards an economic and environmentally sustainable transition. Likewise, the green transition in China is contributing to driving down the cost of the Danish transition, as the sheer size of the Chinese market drives down costs, and Denmark can benefit from the new technologies currently developed by China.

Future Chinese Energy Outlook will embrace complete energy sector

The yearly China Renewable Energy Outlook (CREO) report is a key deliverable of the cooperation. The outlook analyses a feasible path for a smooth transition to a clean, low-carbon, safe, and efficient energy system in China in a 2050 perspective. From 2021, the CREO is replaced by the China Energy Transformation Outlook (CETO), which will include the entire energy sector. With that, there will also be a special focus on provincial outlooks to pay attention to the different characteristics and resources of China's 23 provinces.

China has become the fastest growing renewable energy producer in the world and enhancing the framework conditions for renewable energy is a crucial enabler for China to achieve the targets of its NDC – just as it is for Denmark. Denmark offers experience using a variety of planning tools from the Danish energy model based on four decades of transition and ambitious policy targets on renewable energy. China offers experience in speed and cost reducing measures, which may be relevant in achieving the Danish targets as well.

Regarding integration of renewable energy and flexibility of the power sector, the Danish Energy Agency together with the Danish TSO operator, Energinet, cooperate with China on a formalized level at both regulatory and technical level, engaging in activities with the transmission system operator, State Grid Corporation of China (SGCC), as well as the National Energy Administration (NEA).

Contact person:
Jens Hein
Head of China Cooperation
jnsn@ens.dk
Phone +45 33 95 50 47

FACTS

- The Danish Energy Agency cooperates with the National Development and Reform Commission (NDRC), National Energy Administration (NEA), Energy Research Institute (ERI), China Renewable Energy Engineering Institute (CREEI) and State Grid Corporation of China (SGCC). The new 5-year Sino-Danish energy programme 2020-25 also includes a new partnership cooperation with the Chinese Ministry of Ecology and Environment (MEE).
- The Danish-Chinese Energy Partnership Programme (DEPP), which is in its third phase running from 2020-2025, is financed by the Danish Ministry of Foreign Affairs from the Danish Climate Envelope.
- Close Danish parties include the Danish embassy in Beijing as well as the Danish TSO operator, Energinet
- China and Denmark have tailored strategic sector cooperation programs, the Sino-Danish Clean Heating Program and Quality Offshore Wind Program.

China set to have the world's largest installed offshore wind capacity by 2025

Denmark is a world leader in the wind sector, and China is expected to have the largest installed offshore wind capacity in the world by 2025. The Sino-Danish Quality Offshore Wind programme supports the development of China's offshore wind sector and demonstrates best practice technical and regulatory solutions, through engaging directly with Chinese government agencies and other relevant stakeholders.

Long-term planning is also a core part of the Sino-Danish work on clean heating as the Chinese district heating market is set to double 2-3 times over the next 30 years. Through the Sino-Danish District Heating Cooperation, Denmark is sharing its heat planning experiences and best practices with government ministries, provinces, cities and demonstration projects in China.

New partnership programme

The Danish Energy Agency has begun a new five year cooperation programme, DEPP III, that runs from 2020 until 2025. The programme will focus on developing long-term energy planning at national and provincial level together with ERI of the NDRC, as well as on climate change and energy policy development together with the Chinese Ministry of Ecology and Environment (MEE).