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SINO-DANISH STRATEGIC SECTOR COOPERATION IN QUALITY OFFSHORE WIND ENERGY

Cooperation on developing the offshore wind sector in China between the National Energy Administration (NEA) of China and the Danish Energy Agency (DEA).

With an ambitious agenda for the transition of its energy sector China strives to secure access to sustainable and reliable energy sources while keeping up with significant growth rates. This is emphasised by President Xi Jinping's commitment on China's efforts to achieve peak carbon emissions by 2030 and attain carbon neutrality by 2060.

China has demonstrated a great commitment to its transition towards a low carbon economy through an increased use of renewable energy, and the country has set ambitious targets for a wide array of renewable energy technologies including offshore wind energy.

Offshore wind development started at moderate pace in China 8-9 years ago and have gained momentum over the last 3-5 years. Today, offshore wind is developing at a fast pace and is becoming a more important part of the Chinese energy mix.

A strong move towards subsidy-free renewables including offshore wind

China has pledged to reach 1,200 gigawatts of installed solar PV and wind by 2030. This is expected to be reflected in the ambitions for offshore wind in the new

14th five-year-plan covering 2021-2025. In the spring of 2021, China passed the 10 gigawatts mark in terms of installed offshore wind capacity. (For comparison: Denmark has around 1.7 gigawatts installed capacity at present).

Chinese authorities have announced that central level offshore wind subsidies will be phased out by the end of 2021. Looking ahead, provinces can decide to allocate local funding for subsidies, but will not receive reimbursement from the central government. That led to an installation rush in 2020, which appears to continue in 2021, as provinces and developers have been busy approving, developing and constructing projects to ensure their eligibility for subsidies, which require projects to be grid-connected and in full commercial operation by the end of 2021.

As subsidies from 2022 onwards will be limited and short-lived, there will be an increased focus on bringing down prices for offshore wind energy as well as raising the quality and performance of projects. This has also led to a better understanding of the fact that a long-term perspective is necessary, and there is increased interest in far-shore and deep-sea developments in order to tap

into the better wind resources. Several stakeholders and local provincial governments are supporting the idea of demonstration projects that could unlock this potential.

The Danish “Best in Class” framework

Denmark is the cradle of offshore wind and home to world-renowned companies within the sector. Experience accumulated through more than 30 years of offshore wind development has provided Denmark with a vast experience on establishing offshore wind in a cost-efficient manner while maintaining high quality standards. First, the basis has been a comprehensive planning by the authorities, and a framework, where dialogue with the industry is encouraged to reduce risks faced by the developers. Examples of de-risking in the Danish tender model includes preliminary investigations (geophysical and geotechnical surveys and MetOcean data collected by the Danish TSO) carried out before the tender process. These can minimise environmental/planning risks by undertaking mitigating measures that seek to eliminate key risk-factors prior to the developer submitting the final bids.

Furthermore, the so-called one-stop shop model can reduce the risks as the interested developers have only one single point of contact, which is the Danish Energy Agency (DEA), to gather the needed information and approvals. If a developer requires further information, the DEA will contact all relevant authorities to provide the appropriate information. This gives a transparent and coordinated approval system that reduces risks for developers/investors across all steps in the project.

Moreover, a range of test and certification facilities hosted by universities and industries have been established to ensure that solutions used are capable of withstanding harsh conditions offshore. This goes hand in hand with a healthy R&D cooperation between universities and industry.

Finally, Danish developers and the Danish wind industry have consistently optimised approaches and technologies for establishing offshore wind power. This has contributed to cost reductions of offshore wind power - beyond what the Danish industry targeted just a few years ago.

Longstanding partnership with China on green transition of the energy system

Denmark has a first mover status within offshore wind, with some of the world’s best producing offshore wind farm companies as well as a well-developed supply chain for offshore wind. Engaging in development of China’s offshore industry, through sharing of best practices, will be instrumental for the objectives of this project. The aim is that Denmark and Danish experiences over time can contribute to reducing the cost of establishing offshore wind power while simultaneously raising its quality and lifetime.

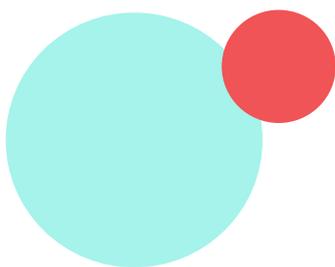
Objectives include a constructive policy exchange with NEA and provincial government and energy bureaus showing clear pathways for China setting ambitious offshore wind targets for the future.

The Sino-Danish Cooperation on Quality Offshore Wind

Denmark and China have a longstanding government-to-government cooperation, which started in 2006. The objective is to share experiences gained over 30 years of offshore wind development in Denmark with the Chinese government and thereby support China in reaching its long-term offshore wind ambitions. The collaboration presents an opportunity to influence the further development of China’s offshore wind sector, to demonstrate best practice technical and regulatory solutions as well as position the Danish OEMs and supply chain in the Chinese market.

The Sino-Danish Offshore Wind Cooperation (Quality Offshore Wind) is based on a Memorandum of Understanding between NEA and the Danish Ministry of Climate, Energy and Utilities from 2017 and an Implementing Agreement signed in June 2018.

The basis for the offshore wind program is the mutual trust created through 15 years of successful cooperation between Denmark and China in green and renewable energy, with the National Energy Administration of China (NEA) as the primary Chinese partner. This relationship has provided Danish authorities with multiple platforms and occasions for strengthening the Danish green energy brand in China. Consequently, the awareness about



Danish offshore wind solutions has increased in China, and almost every wind conference in China (such as the Global Offshore Wind Summit and China Wind Power) has a reference to Denmark and participation from Danish stakeholders. The relationship allows Denmark to raise awareness about the climate change agenda repeatedly in parallel with different Chinese authorities.

As a result of the Sino-Danish Offshore Wind Cooperation on Quality Offshore Wind, the Danish Embassy now has “boots on the ground” in China as a sector counsellor focused on the SSC programme has been posted to China.

The main objective of the Strategic Sector Cooperation (SSC) is to assist Chinese government agencies and other relevant stakeholders in developing relevant strategies, policies and solutions to improve their roll-out of offshore wind energy and to achieve the government’s long-term objectives for the technology. The project-design puts focus on three parallel tracks with different outcomes and runs until the end of 2021. These tracks are:

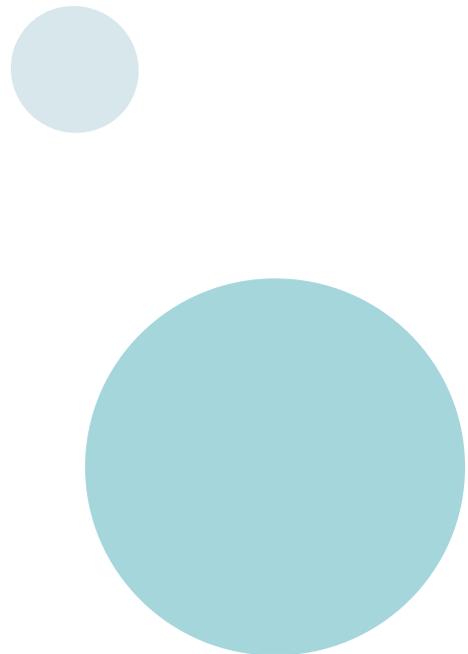
1. Regulatory track - Exchange of experiences on regulatory framework
2. Certification track - Quality and safety of components and turbines for offshore wind
3. Commercial track - Best practice on developing a Sino-Danish demonstration project

In addition, the programme aims to create more transparent rules and processes around auctioning models, allocation of sites, subsidy schemes, grid connections etc.

The Quality Offshore program has already provided several opportunities for Danish companies in the offshore wind sector and created numerous activities including interactions between both Chinese and Danish developers as well as supply chain companies.

Outcomes

The SSC programme will provide methodologies to manage processes and risks in a complex development cycle through policy exchange, policy practice awareness, analysis, and dissemination of Danish experiences, enabling China to establish state of the art, cost-efficient offshore wind.



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