

## CHINA: PROJECT PERFORMANCE EVALUATION PUTIAN PINGHAI BAY OFFSHORE WIND POWER PROJECT

*Did the NDB-financed Putian Pinghai Bay Offshore Wind Power Project in China increase offshore wind power capacity to provide adequate electricity supply to Fujian province, catalyse offshore wind energy development with technological advances and reduce carbon dioxide (CO<sub>2</sub>) emissions in the province and country?*

Here's what the Independent Evaluation Office (IEO) of NDB found in answer to the above questions (and more!) with its project performance evaluation (PPE).

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Putian Pinghai Bay Offshore Wind Power Phase II wind turbines

PROJECT DATA

Approval date:	<b>November 22, 2016</b>
Actual project completion date:	<b>December 21, 2021</b>
Actual project cost:	<b>RMB 4,634 million (USD 727.47 million)</b>
Actual NDB financing amount:	<b>RMB 1,969 million (USD 309.1 million)</b>

**The NDB loan was designed mainly to finance the equipment and installation, construction, and capacity-building for the project.**

### MAIN FINDINGS

**What worked well...** Overall, the Putian Pinghai Bay Offshore Wind Power Project has been successful. The experience and lessons learnt from this project also benefited the project design of the NDB-financed Guangdong Yudean Offshore Wind Power Project.

In terms of energy generation and reduction in pollution, the project exceeded expectations – it brought positive environmental impact, improved China's overall offshore wind power development and contributed to the country's clean energy supply, as can be seen below:

### Why the Putian Pinghai Bay?

The project aimed to contribute to China's national development path towards green and sustainable development, and the Bay, located on China's south-eastern coastline, was an ideal location for a windfarm. Due to the "narrow channel effect", the sea area where the project's wind turbines are located experiences stronger winds which are suitable for large scale offshore wind development. The annual average wind speed exceeds nine meters per second, making the annual average utilisation hours for offshore wind power range from 3,500 to 4,000 hours.

What the project aimed to do ...	... and what actually happened	Success?
Generate 250 megawatts (MW) with 50 turbines.	246 MW generated with 41 turbines.	Yes!
Generate 873 million kWh of electricity in the first year (with full capacity installed).	1,403 million kWh were generated in 2022.	Yes!
Avoid an average of 869,900 tonnes of CO <sub>2</sub> emissions annually.	1,020,400 tonnes of CO <sub>2</sub> emissions will be avoided.	Yes!

## Project Innovation

The project promoted the offshore wind power technology localisation and innovation in China. Facing challenges with complex geological conditions, the project implementation agency invented 11 patents and several innovative solutions, many of which were replicated in other offshore wind projects in China, setting the project as a reference project to develop offshore wind power in complex geophysical situations.

### In addition:

- The project adopted energy-saving and environmental-friendly measures during implementation, such as disposing of project waste on the land instead of in the sea and using special equipment to drive away birds from the turbines.
- The project also brought positive social and economic impact to the local economy: 60% of the employees of the projects are from Putian, and 1,101 fixed and temporary job positions were created.
- The success of this project emphasizes the vital role of a strong, supportive institutional arrangements. The overall endorsement and strong institutional support from the Government of the People's Republic of China, the borrower, local government and the project implementation agency (PIA) who consistently showed dedication to the project, helped address obstacles during project design and execution with great efficiency.
- Green financing plays a particularly significant role for capital-intensive technologies like offshore wind power projects. The completion of such a project highlighted NDB's contribution to support China's movement to a cleaner and more sustainable energy route.

### THE INDEPENDENT EVALUATION OFFICE

The NDB Independent Evaluation Office was established in April 2022. The Director General of IEO reports directly and exclusively to the NDB Board of Directors. The main objective of IEO is to promote accountability and learning for enhancing the Bank's performance. IEO conducts a range of independent evaluations at different levels: evaluations of projects and programmes as well as of policies, strategies, instruments, and corporate processes.

## RECOMMENDATIONS

**Recommendation 1:** Further consolidate TA at the initial stage of the project and leverage the Project Preparation Fund (PPF) for future projects.

**Recommendation 2:** Design a well-adjusted ToC at appraisal and gradually fine-tune it during project implementation.

**Recommendation 3:** Improve project implementation support and supervision.

**Recommendation 4:** Enhance the design of monitoring and evaluation (M&E) frameworks to better capture project results and provide the necessary guidance for the PIA, for example in tracking impact indicators and capturing real-time data.

**Recommendation 5:** Strengthen project exit strategies.

**Recommendation 6:** Strengthen capturing and sharing of knowledge, lessons and good practices.

### ... and what requires improvement

- Local projects that aim to have national implications – such as this project – require a well-articulated theory of change (ToC) that clarifies how project level actions strategically lead to high-level results through attribution.
- More strategically designed technical assistance (TA) provided by the Bank could benefit the project and maximise impact.
- The funds earmarked for capacity-building, which were reallocated for other purposes, should have been used for the intended purposes.
- Given the lack of experience in implementing large offshore wind power projects in the country, an exit strategy should have been articulated early on, as well as an operations and maintenance arrangement and decommissioning plan.

### Want to find out more?



Evaluation Lens' provides a short summary of evaluations conducted by IEO. The full evaluation report and related documentation may be accessed through the IEO web pages.

◀ Scan to access the full report.

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