

# PIONEERING PRIVATE SECTOR UTILITY-SCALE WIND POWER THROUGH THE 'THEPPANA WIND POWER PROJECT' IN THAILAND



## THEPPANA WIND POWER PROJECT

- **PROJECT COST:**  
USD 13 MILLION
- **FUNDERS:**  
EGCO/PROVENTUM INTERNATIONAL, ADB, CIF, BANK OF AYUDHYA
- **IMPLEMENTING AGENCIES**  
EGCO, ADB
- **PROJECT DURATION:**  
2011-2013
- **COUNTRY SERVED:**  
THAILAND

## THE THEPPANA WIND POWER PROJECT:

The 7.5 MW Theppana Wind Power Project marked one of Thailand's first ventures into large scale solar and wind energy in 2011. It was structured as a public-private partnership (PPP) and implemented by the Theppana Wind Farm Company (TWF), a special purpose company 90 percent owned by the Energy Generating Public Company Limited (EGCO)—Thailand's first independent power producer (IPP)—and 10 percent by the wind developer ProVentum International.

## DELIVERY CHALLENGES:

At the time of the Theppana project, the market had limited experience with project financing for the renewable sector. The

## Development context:

Thailand is the second largest economy and the fourth largest country by population in Southeast Asia. The country's economic success in recent decades has resulted in a steep, steady increase in its energy consumption and, consequently, a rising dependency on imported fuels. Thailand had an estimated installed power capacity of almost 46 Gigawatts in 2016, 60 percent of which was fueled by natural gas.

project's main delivery challenge was the gap in available project financing. Wind power is characterized by high up-front costs and uncertainty about annual energy production and sales, given the variability of wind speeds. In view of the revenue risks involved, commercial banks were reluctant to provide loans with the longer-than-usual tenor needed to amortize the high initial investments of the project.

Delivery was also challenged by certain regulations within the project framework. A required first step towards implementation was obtaining the necessary permits and licenses and securing a power purchase agreement. EGCO faced delays during the licensing process, largely due to licensing institutions' unfamiliarity with wind power infrastructure. Since the project occupies 0.9 hectares of land owned by the Agricultural Land Reform Office (ALRO), it required ALRO's approval. Additionally, getting the Certificate of Building Construction for the project was hindered by a stipulation requiring tall buildings to have safety infrastructure to allow people to escape in case of emergency.

### OVERCOMING DELIVERY CHALLENGES:

Closing the financing gap was achieved by de-risking the investment. Financing provided by the Asian Development Bank (ADB) and the Climate Investment Fund's (CIF) Clean Technology Fund (CTF) increased confidence in the Theppana project and improved its bankability. Both EGCO and the ADB had worked with the Bank of Ayudhya in the past, and based on this relationship, a financing package was drawn up in 2012. It included USD 4 million in CTF concessional financing, an ADB loan of USD 4.54 million (THB145.2 million), and a Bank of Ayudhya loan of USD 4.54 million (THB 145.2 million).

The project addressed the second delivery challenge by waiving some of the construction requirements. Although wind towers are tall, thanks to the discussions between the TWF team and the institutions involved, they are no longer considered "buildings," as structures where people work or live.

### EMERGING LESSONS AND OUTCOMES:

The most direct and immediate outcome from the Theppana project is that it led to the development of the larger 90 MW Subyai wind project. The Theppana project demonstrated the importance and viability of PPP modalities for commercial scale wind power development by IPPs.

The development of legislation and policy related to the renewable energy sector in Thailand has been key to increasing the share of renewable energy in the country.

The availability of debt financing with longer-than-usual tenor through a local bank, supplemented by concessional loans, played a critical role in the development and implementation of the project. This was especially important given commercial banks' unfamiliarity with wind power and its perceived high-risk profile.

Energy markets are usually highly regulated, and investment can typically only take place within a conducive framework of policy instruments, such as tax incentives, standardized Power Purchase Agreements, and feed-in tariff mechanisms. Without such a regulatory environment, private investors and financiers would not have sufficient confidence in the sector.

Projects like Theppana and Subyai have helped to enhance private investors' confidence in wind power in Thailand. They have been quite active in developing large wind farms across the country, increasing the total installed wind

capacity in Thailand from just 7.3 MW in 2011 to around 630 MW as of 2017. Today, Thailand has a local banking market that is familiar with lending to the renewable sector. Thailand has become a leader in promoting renewable energy in Southeast Asia.

### LOOKING AHEAD:

With lessons learned from the project and the Thailand Integrated Energy Blueprint 2015-2036 (TIEB), the government aims to expand the use of on-grid wind power. The TIEB calls for achieving energy security while ensuring environmental sustainability and keeping energy prices low. The increasing volatility of international energy commodity prices, rising concerns over energy security, and the continuing dependence on imported fossil fuels contribute to a compelling case for renewable energy, including wind energy, in Thailand. ■

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