



**24.75 MW BANGUI BAY
WIND ENERGY PROJECT**

NORTH WIND POWER DEVELOPMENT CORPORATION



- The NorthWind Bangui Bay Project involves the development and operation of a wind farm consisting of 15 wind turbines, a switchyard and a control station, and the construction and operation of a 57-km 69,000 Volts overhead transmission line.
- The wind turbine towers are erected on a 9-km stretch of undeveloped and uninhabited foreshore area in Bangui Bay which is covered by lease agreement with the DENR.
- Energy produced by the wind turbine farm on a peak month can supply up to 40% of the electricity requirement of Ilocos Norte.



- The 25MW power plant produces electricity without emitting Green House Gases (GHG).
- The electricity generated will reduce GHG emissions by an amount of approximately 46,960* Tons of CO₂e per year.
- The first commercial capacity, on-grid wind turbine farm in the Philippines and South-East Asia.

**As verified by DNV for the Bangui Bay Project*



Economical Benefits

The electricity consumers of INEC derive savings from their electricity bill based on:

- ✓ A 5% discount to the “effective cost of delivered electricity” based on:
 - Cost of electricity generated by NPC and;
 - TransCo cost of delivering the electricity to INEC.
- ✓ Since NorthWind owns the 69kV transmission line from the wind farm in Bangui to Transco Laoag substation, the embedded kW delivered by the wind farm does not incur TransCo wheeling charges thereby reducing transmission expenses of INEC.



Technical Benefits

- Tremendous improvement in the quality of voltage for municipalities north of Laoag when INEC connected their 10MVA substation in Pasuquin to NorthWind's 57KM 69 KV transmission line.
- Encourage new industries and load growth in the area;
- Encourage technology transfer with concerned governmental agencies and public/private technical schools and institutions

Social Benefits

Increased tourism in the area due to the visual impact of the region's ecological beauty and the wind farm's ability to harness nature's forces.



Uplift local populace awareness on NEWS motto of “clean and green” towards generation of clean energy and the protection of the environment.

Environmental Benefits

NORTHWIND displaces GHG such as:

- CO₂ - 46,960 tons/year
- SO₂ - 802 tons/year
- SPM - 1602 SPM/year

which would have otherwise been emitted from a typical fossil-fueled generating plant



Direct Benefits to the Province of Ilocos Norte

- REM and Chattel Mortgage Registration Fees in the total amount of Php10 million.
- Real Estate Taxes of approximately Php3.5 million annually to the Municipality of Bangui.
- Business Tax of approximately Php1.5 million annually.
- Php0.01/KWH benefits to host communities or Php750 thousand per annum.
- Direct employment for the local population.
- Savings for the consumers of electricity in the province of Ilocos Norte.
- A landmark commemorating the province's position on global warming and protection of the environment.

Direct Benefits to the Project Site

Increase in Real Estate Value



Market and Financial Barriers

1. Inability to deliver competitive power to the Wholesale Electricity Market (WESM).
2. Limited foreign ownership.
3. Payment of VAT.
4. Passage of the RE bill.
5. Credit rating of EC's.

Market and Financial Barriers

1. Inability to deliver competitive power to the Wholesale Electricity Market (WESM).

- ✓ *NorthWind's competitiveness is lost because of "wheeling charges" from TransCo.*
- ✓ *Wind turbine's upfront cost is expensive.*
- ✓ *However, wind power's competitiveness gets better over the long term.*
- ✓ *Suggest a reasonable fixed-rate or feed-in-tariff for RE's.*

WESM Actual Rates

Min	-	per Mwh
Max	21,575.00	per Mwh

Luzon Grid Energy Demand Sources (Mwh)

From NRE	0.15%
From all other sources combined	99.85%

Effect to the Grid

	@ Min	@Max
From NRES (i.e. Feed-In Tariff), Php/Mwh	6,000.00	6,000.00
From all other sources combined, Php/Mwh	-	21,575.00
Effect to WESM Prices, Php/Mwh	9.00	21,551.64
% Effect on WESM Price	0.150%	99.892%

Market and Financial Barriers

2. Limited foreign ownership

- ✓ *Under EPIRA, power generators are allowed full foreign ownership.*
- ✓ *Under Foreign Investments Act of 1991, “wind power generation” is limited to 40% foreign ownership only..*

Market and Financial Barriers

3. Payment of VAT

- ✓ *Sale of power generated by RE's are zero rated for VAT.*
- ✓ *Zero rating is a taxable transaction for VAT purpose but shall not result in an output VAT.*
- ✓ *Input tax on the zero rated transaction shall be recovered as tax credit or refund.*

Cost of Project	=	\$2.0M per MW
Cost of 25MW Project	=	\$50.0M
Cost of WT's	=	\$35.0M
VAT charges	=	\$4.2M
Equity (D:E of 70:30)	=	\$15.0M
VAT as % of Equity	=	28%

Market and Financial Barriers

4. Passage of the RE Bill
5. Credit Rating of the EC's



THANK YOU!