

Case Study: NorthWind Bangui Bay 33 MW Wind Farm Bangui Bay, Ilocos Norte, Philippines

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Third Quantum Leap in Wind Workshop

What will it take to accelerate wind development in Asia and the Pacific?

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Case Study



Agenda

- Background of the project
- Planning & Development Phase
- Construction & Commissioning
- Operations
- What Lies Ahead

1. Background of Project

- Response to Ilocos Norte's need for additional power
- Local Government did not want fossil fuel plant
- Initially conceived to supply 40% of power of Ilocos Norte under bilateral contract with local electric cooperative
- Developed from 2000, timeline dependent on securing PSA from Electric Coop
- Conceived by Founders Niels Jacobsen and Chito Dumlao
- Former diesel operators, now RE advocates
- Belief in wind regime in Ilocos Norte as wind corridor

1b Planning & Development Phase

- Bangui Bay, Ilocos Norte
- 33MW (Phase I 24.75MW, Phase II 8.25MW)
- Contract with local electric cooperative
 - Discount to INEC's delivered cost of electricity (i.e., generation + transmission)
- DANIDA & PhilExim Support
 - Commercial Lenders: ABN-Amro and Nordea Bank
 - DANIDA Subsidy
 - PhilExim: Loan Guarantee

2. *Wind Resource Assessment*

- Wind measurement phase:
 - 40 meter NRG measuring towers
 - 2 years
 - Assessment by Tripod DK: Consultant of DANIDA
 - Average Energy Production: 25% capacity factor, approx. 70 GWh year
- Issues
 - No long-term correlation
 - No extreme weather

4. Key Financial Data

- Total Project Cost: PhP2.6 Billion
- Total Debt:US\$42.2 Million
 - Commercial Lenders
 - 10 years
- Incentives:
 - Carbon credits
 - VAT and Duty-free importation
 - 6 year Income Tax Holiday
- Owners
 - 50% Project Founders
 - 50% Other Investors: Ayala Corporation as of March 2011

5. Project Siting Issues

- Visual Effect: Unique layout following contour of Bangui Bay
- Land: 25 Year foreshore lease from DENR
- No Wild life Issues
- Noise: Deserted beach location, sound mixes with ocean
- No Airspace obstruction
- No telecommunications interference
- Neighbor Issues: None, deserted beach prior to construction
- Constructability issues: Beach lent itself to ease of construction
- Logistics: Port, roads, bridges available for both turbine and construction equipment

5b. Project Contracts

- EPC contractor selection: FIDIC Silver Book
- NEG-Micon NM82 1.65MW
 - Winning bidder in open competitive bid between Vestas and NEG-Micon; later merged with Vestas
- 5 year Warranty Service & Maintenance Contract (2003)
- Guaranteed 97% Availability
 - Automatic Extension of S&M Contract for failure to meet Availability Guarantee
- Separate Substation and 57 km 69 kV Transmission Line

5b. Construction & Commissioning

- Construction: 14 months
 - EPC signing in November 2003
 - Financial Closing in March 2004
 - Groundbreaking in April 2004
 - Projected COD of December 2004
 - Weather window not observed, resulted in significant delay for contractor

5c. Operations

Phase I

- June 2005
- ESA approved by Energy Regulatory Commission
- 15 x 1.65 Vestas V82
- 24.75MW

Phase II

- August 2008
- 5 additional Vestas V82
- 8.25MW

5c. Operations

Period of Regulatory Change in Power Industry

- EPIRA passed in June 2001
- Privatization of NPC anticipated; NPC Rate as benchmark could be phased out
- 2007: Time-of-Use implemented in NPC rates
- 2008: NPC ordered to refund over-collection of forex portion
- Resulted in reduction of rates and cause of dispute with off-taker

5c. Operations

Period of Regulatory Change in Power Industry

- March 2010: Under NPC privatization, NPC benchmark rate to INEC terminated
- NorthWind & INEC sought negotiate new rate for ERC approval, could not agree
- September 2009: Mutual pre-termination
- All NorthWind sales to WESM
- Filed for Inclusion under the FIT, for ERC approval

6. *Benefits & Rewards*

- Pioneering Effort
- Helped Shape Policy and Regulations Towards Wind Farms
- Support from Gov't
- Proved the technical feasibility of a wind farm in the Philippines (and need for stable tariff, i.e., FIT)
- Historical Significance
- First Wind Farm in Philippines and Southeast Asia
- Tourist Attraction, icon of province
- Development of Ilocos Norte

6b. Issues

- Dealings with local electric cooperative (same with any other generator)
- No stability in tariff
- Difficulty with further developments (no other wind farms have been built)

6e. Acceleration of Wind Development

What Government can do?

- Firm policy and direction with respect to RE Law
- Installation target beyond 1st 3 years: Glide path to NREP target
- FIT for wind and other emerging RE technology, plus mechanisms
- RPS Rules
- Transmission support: Looping of Northern Luzon

THANK YOU.