



SAPPHIRE WIND POWER COMPANY LIMITED

**49.5MW WIND POWER PROJECT
JHIMPIR, SINDH**

October 2013

Joint Venture with Sapphire Group in the Renewable Energy Space

- ❑ Infrastructure Investment - core area for BAFL's Merchant Bank
- ❑ Entered into a Joint with Sapphire Group to invest in Renewable Energy - through Sapphire Wind Power Company
- ❑ Strategic partnership to create leading renewables company across segments, including wind and solar
- ❑ First project: development of a 50MW Wind Power Plant in Jhimpir, Sindh
- ❑ Actively considering further investments opportunities through:
 - Future capacity expansion
 - New development opportunities

Sapphire Group

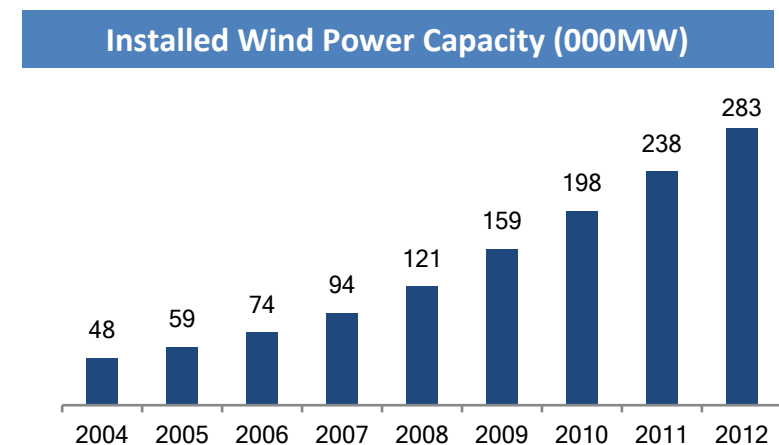
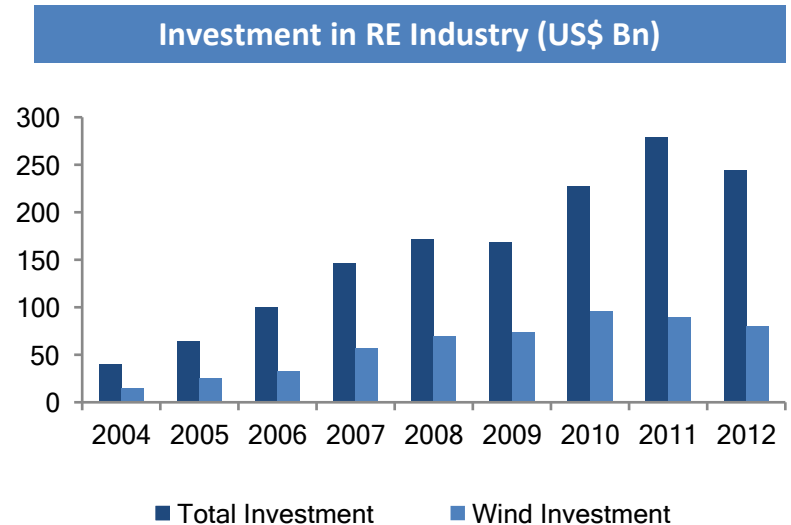
- Leading business group across a range of sectors – textiles, energy and agro
- Exporter to 35 countries globally
- Sapphire Group highlights:
 - ✓ annual turnover of over US \$850 million
 - ✓ asset base of over US \$750 million, and
 - ✓ headcount of over 13,000 employees
- Actively involved in community welfare programs

Bank Alfalah Limited

- Majority owned by Abu Dhabi Group
- Group has investments across the economy including in Financial Services, Telecoms, and Real Estate
- Sixth largest bank in the country in terms of total assets with a network of over 500 branches including
 - ✓ 110 Islamic branches
 - ✓ 8 overseas branches in Bangladesh, Afghanistan and Bahrain
 - ✓ Total assets of over Rs. 500 Billion

Investment Thesis - Renewable Energy

- ❑ Predictable cashflows and long life asset
- ❑ Asset profile
 - Devaluation / inflation indexed returns
 - No working capital – ‘free’ natural resource (wind)
 - Guaranteed offtake of production / capacity
 - Technology competitive position – no long term exposure to commodity price inflation
- ❑ Growth prospects
 - Re-rating of asset
 - (Re)investment for growth
 - Capital structuring options
 - Operational performance optimization
- ❑ Stable regulatory environment
- ❑ Global trend favouring Renewable Energy
 - Favourable government policies: Green energy; Indigenous resource; no pressure on countries import bill
 - Technology advancements increasing commercial attractiveness



Key Project Quality Drivers

Wind Resource

- **Wind speed (m/s)** – reliable assessment at site over reasonably long horizon
- **Wind quality** – turbulence / wake effect / seasonality

Power Conversion

- **Equipment quality** – reliable and consistent performance in local environmental conditions
- **Conversion efficiency** - equipment rate of converting wind to power
- Performance guarantees

Power Off take

- **Grid availability** – able to evacuate power efficiently often from remote locations
- **Long term tariff** – provide reasonable rate of return and indexing against macro variables (currency, interest rates etc.)

Wind Projects – Key Risk Factors

Macro Risk

- Production not directly correlated to GDP
- But timely payment linked to govt. finances

Technology Risk

- Proven turbine technology in local / similar environment from dependable supplier
- Financially strong supplier – long term warranties and performance guarantees

Wind Risk

- Reliable wind data – key input to developing a power curve
- Wind speeds can be volatile over short periods but relatively predictable over longer horizons

Construction Risk

- Risk of delay and overruns
- Reliable and experienced EPC contractor with local market presence / commitment
- Well structured construction contracts – fixed price, milestones, penalties, performance bonds

Operations & maintenance

- Reliable party for O&M with long term commitment and coverage
- Defined price contract over project life

Leverage

- Maintain sufficient flexibility in coverage ratios
- Assess conservative scenarios and seasonality

Regulatory

- History of stable, well-established and tested regulatory environment

SAPPHIRE WIND POWER PROJECT

Project Overview

Project Profile

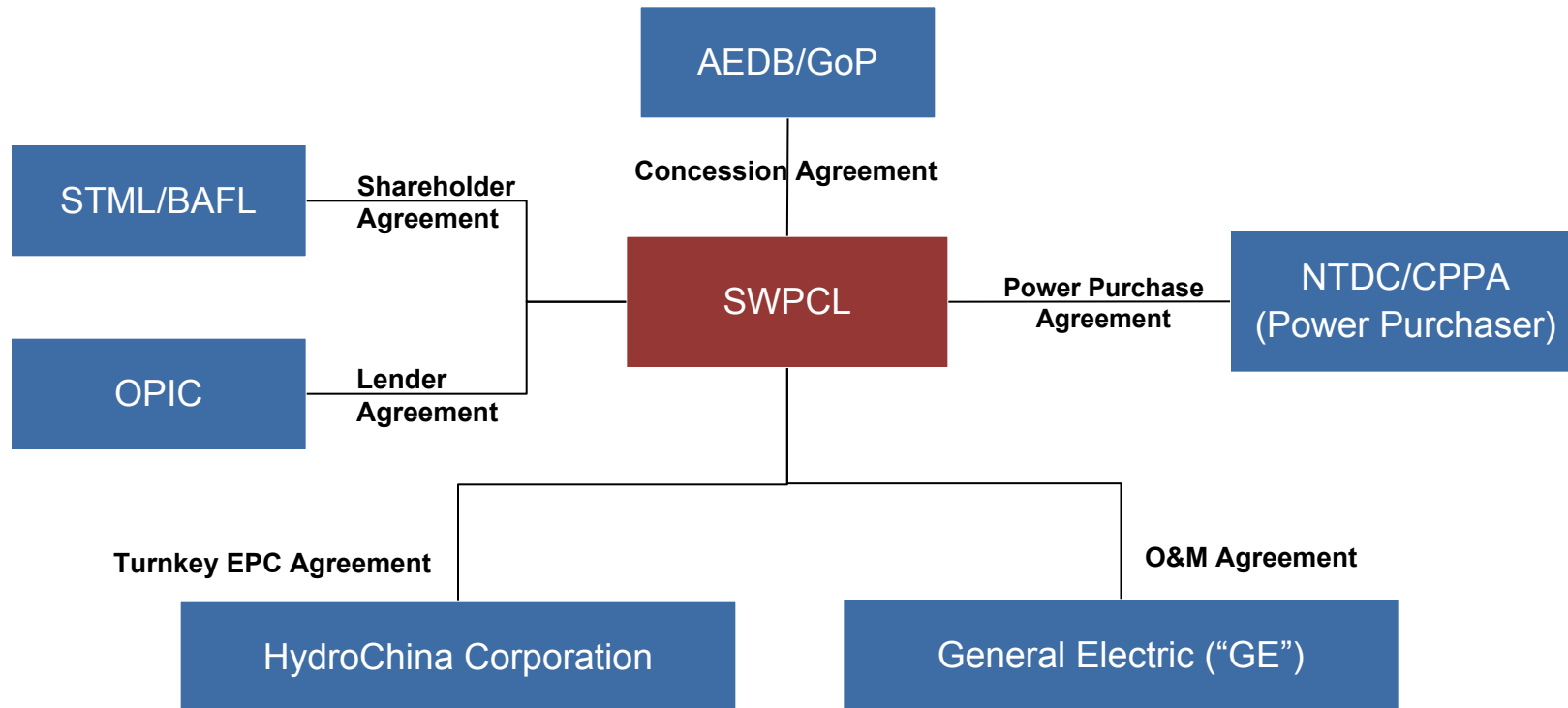
- ☐ **Project Capacity:** 50MW
- ☐ **Equity Shareholding:**
 - Sapphire Group: 70%
 - Bank Alfalah: 30%
- ☐ **Project Mode:** Build, Own & Operate Basis
- ☐ **Power Purchaser:** NTDC
- ☐ **Concession Period:** 20 Years
- ☐ **Est. Construction Period:** 15 months

Capital Structure and Tariff

- ☐ **Project Funding Plan**
 - Senior Debt 75%
OPIC US\$ Loan (100%)
 - Equity 25%
Sapphire Group (70%)
Bank Alfalah (30%)
- ☐ Levelized Upfront tariff for 20 year is USc 13.52/kWh

Project Structure

Investment Structure



- Turn key EPC Contractor
- Chinese govt. administered agency
- Wind installed capacity of over 6000MW
- Investment in 3000MW wind projects
- Approx. 4250MW under construction

- WTG Supplier: GE Wind Energy
- WTG Make / Model: 1.5 xle – 82.5 m
- Conversion rate guarantee

Technical Studies and Tariff

Technical Studies

- ❑ c. 4 years wind data from on-site mast
- ❑ Captured directly by technical consultant's (Sgurr Energy)
- ❑ Analyzed wind data and calculated energy yields
- ❑ Developed complete feasibility with Sgurr:
 - site topography and turbine layout
 - energy yield predictions
 - soil geo-tech study
 - grid interconnection study
 - environment impact assessment, and transport study
- ❑ The Company was the first Pakistani wind project registered under the CDM regime

Tariff

- ❑ Levelized Upfront tariff for 20 year is US\$ 13.52/kWh
- ❑ Annual indexations applicable on:
 - Operations & Maintenance
 - US\$ / Pak Rupee Variation & US CPI
 - Insurance, Return on Equity
 - US\$ / Pak Rupee Variation
 - Loan Repayment
 - US\$ / Pak Rupee Variation
 - Interest charge on Loan
 - LIBOR Variation

Project Site

❑ Site Conditions

- Good soil conditions; no steep slopes; no flooding risk
- Existing road network from port to site
- Minimal environment impact as uninhabited, with limited flora / fauna
- Minimal wind obstruction due to flat land surface with minimum infrastructure development
- Unobstructed wind blows directly from Arabian Sea to the proposed wind farm locations

❑ Geotechnical data

- Detailed geotechnical investigation undertaken
- Boreholes drilled at 33 locations, more investigations planned
- Results broadly consistent across site
- Gravity foundations assessed to be suitable



Project Highlights

