



Project Financing of R.E. Projects

By

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Grid connected Renewable Energy and Co-generation /

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Indian Power Scenario



Total installed Capacity – 135 GW (As on 31.08.2007)

- Hydro 34,130 MW (25%)
- Thermal 86,976 MW (64%)
- Nuclear 4,120 MW (3%)
- Renewable 10,175 MW (7.5%)

□ 17th EPS Projections for Requirement of Power

Year	Electrical Energy Requirement at Power Station Bus Bars (GWh)	Annual Peak Electric Load at Power Station Bus Bars (MW)
2011-12	968659	152746
2016-17	1392066	218209
2021-22	1914508	298253

Renewable Energy Scenario



Estimated Medium Term Potential (2032) & Achievements as on
30.06.2007

Sources / Systems	Estimated Potential (MW)	Cumulative Achievements (MW)
Grid interactive Solar Power	50,000	2.12
Bio Power (Agro residues & Plantation)	16,881	543
Wind Power	45,195	7,231
Small Hydro Power (up to 25 MW)	15,000	2,013
Cogeneration – Bagasse	5,000	635
Waste to Energy	2,700	43
Total	134,776	10,467

Renewable Energy Key Drivers



- ❑ Huge growing energy demand
- ❑ Rising oil prices, depleting fossil resources
- ❑ Reduces import dependence and promotes self sufficiency
- ❑ Provides both ON GRID and OFF GRID solutions
- ❑ Helps combat climate change/global warming
- ❑ Supports sustainability/eco-efficiency at enterprise level
- ❑ Ability to utilize CDM benefits
- ❑ Can help rural areas combat large scale migration to urban areas

Regulatory Framework



Electricity Act 2003

- ❑ Section 3 – National Electricity Policy and Plan for development of power system based on optimal utilization of resources including renewable sources of energy
- ❑ Section 4 – GoI to prepare a National Policy permitting stand alone systems (including those based on renewable sources of energy and non-conventional sources of energy) for rural areas.
- ❑ Section 61(h) – Tariff Regulations by Regulatory Commission to be guided by promotion of generation of electricity from renewable energy sources in their area of jurisdiction
- ❑ Section 86(1) (e) – Regulatory Commission to specify purchase obligation for licensee from renewable energy

Regulatory Framework Contd.



National Tariff Policy

- ❑ SERCs to fix minimum percentage for purchase of energy from Renewable Energy sources taking into account availability of such resources in the region and its impact on retail tariffs
- ❑ National tariff policy prefers procurement of power from NCES based on preferential tariff
- ❑ Future procurement of power from NCES through competitive bidding under section 63 within suppliers offering energy from same type of non-conventional sources
- ❑ In the long-term, these technologies need to compete with other sources in terms of full costs

The Challenges of RE



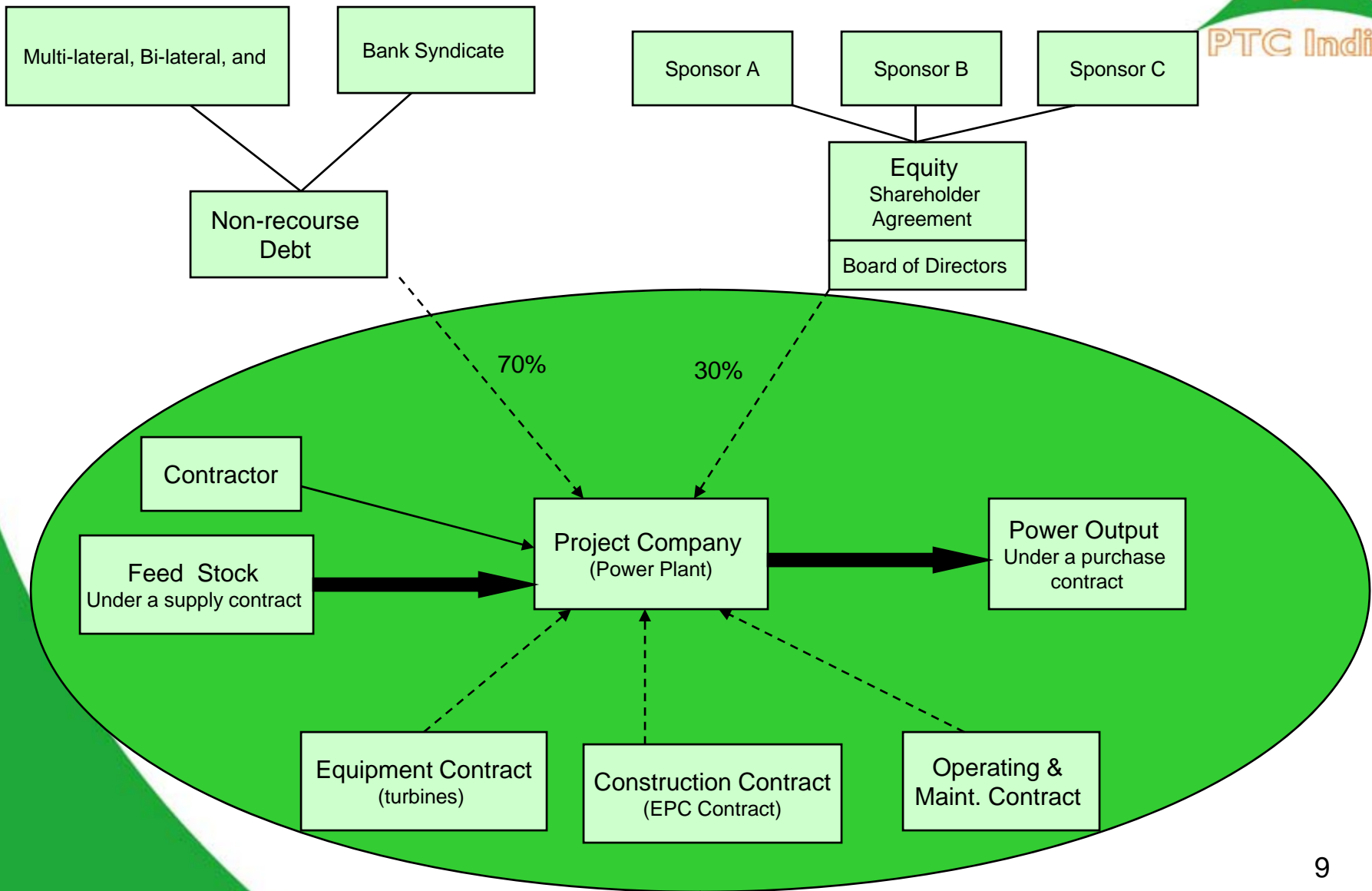
- ❑ Hydro, biomass and geothermal are commercial – sector activity still limited by weak deal flow & few strong sponsors
- ❑ Wind is intermittent resource (not base load) and generally not competitive without price supports
- ❑ Solar PV and solar thermal electric not cost competitive for grid-connected applications
- ❑ Market barriers: weak regulatory frameworks, absence of subsidies/poorly designed subsidies

Transactional Barriers for RE Projects



❑ Smaller project sizes	➔	Higher transaction costs
❑ Newer technologies	➔	higher operating risks
❑ Unfamiliar to financiers	➔	Scarce/ higher – cost capital
❑ Either excess or absence of concessional funding	➔	Over – subsidized or under-competitive
❑ Less experienced sponsors	➔	Higher completion and operating risks
❑ Higher ratio of capital costs to operating costs	➔	Need for longer-term financing at reasonable rates

Project Structure (Typical)



Capital Structure of a RE Project



S. No.	Instrument	Percentage of Project Cost	Costs/Tenor
1	Equity	15% - 30%	14% - 20% Equity IRR
2	Senior Debt	50% - 80%	Maturity 5 to 12 years Typical Cost 9% to 12%
3	Subordinate Debt	0% - 20%	Maturity 7 to 15 years Typical Cost: 10% to 15%
4	Grants (if applicable)	0% - 20%	Nil

Financing Instruments for RE Projects



- ❑ Equity Financing
- ❑ Debt Financing
- ❑ Grants
- ❑ Innovative Financing Instruments

Equity Financing



- ❑ Equity can take the form of direct investment of
 - Own Resources and Capital
 - Third party Capital Inputs – e.g. risk capital by venture capital funds

- ❑ Lenders normally look for a minimum of around 20% of the project cost to come in the form of Equity

- ❑ RETs with higher risks are expected to have a corresponding higher equity ratio

- ❑ Equity IRRs of 14% - 20%

- ❑ Ability to exit – within 7-10 years

Debt Financing



- ❑ Unlike Equity Investors, Lenders are conservative
- ❑ The Debt contract is a fixed obligation and the lender does not gain from the upsides in the project
- ❑ Lenders tend to analyze a project from a conservative perspective
- ❑ Higher the risk/uncertainties in the project higher is the interest rate charged by the Lenders

Other Financing Instruments



- ❑ Soft Loans or Grants from Government
 - Loans/ Grants from government/ RE promotional agencies at concessional terms for viability gap funding
 - Grants to meet the set up cost of setting up an RE Project
 - Combination of Soft Loans with commercial funding such that the weighted average cost of capital is lowered

- ❑ Innovative Financing Instruments
 - Securitization of receivables from Power Off takers once the project is up and running
 - Lease Financing (Project – Financing)

Financing Mechanism



Corporate Finance (Recourse)

- ❑ Based on a Company's Balance Sheet
- ❑ Company guarantees all obligations
- ❑ All risks on Company
 - (Regulatory, Energy sales, Fuel cost escalation, Grid availability)
- ❑ Faster financing process, since lender has full recourse to Company
- ❑ Limited to Large Companies with healthy Balance Sheets
- ❑ Analysis of Project cash – flow streams are secondary issue
- ❑ Driven by fiscal benefits e.g. Accelerate depreciation, tax breaks
- ❑ Stagnates development/ investments in R.E. space

Financing MechanismContd.



Project Finance (Non Recourse)

- ❑ Non-recourse or Limited recourse
- ❑ Early risk is on IPP, shifts to Contractor during construction and finally to financiers after COD
- ❑ Burden of Due Diligence is very high
- ❑ Need to identify all possible risks and mitigation mechanisms
 - PPA, Regulatory (OA, Tariff)
- ❑ Incentivises Investments
- ❑ Facilitates market expansion
- ❑ Brings in the economies of scale

Way Forward



- ❑ Introduction of R.P.S. – nation wide (Section 86(i) of EA 03)
- ❑ Facilitating 3rd party sale from R.E.
- ❑ Creating framework for Transferable Tax credit certificates (linked to generation) for IPPs – not availing benefits of accelerated depreciation
- ❑ Non-recourse project financing can put R.E. in the main stream and generate the right economies of scale

PTC - Value Proposition



PTC - overview

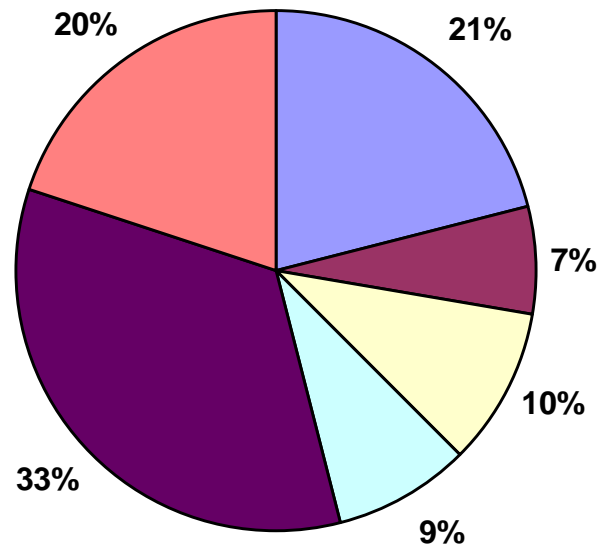
- Set up in 1999 at the initiative of Government of India with the following objectives:
 - Promoting power trading to optimally utilize the existing resources;
 - Facilitate development of power projects under private sector and development of power market for market based investment in the Indian Power Sector; and
 - Promote exchange of power with neighboring countries

PTC - overviewContd.



- Promoted by industry participants with a credible track record and significant sectoral experience
 - **NTPC** - India's largest thermal power generator
 - **POWERGRID** - India's central transmission utility
 - **PFC** - Development financial institution dedicated to the power sector
 - **NHPC** - Largest hydroelectric power generator in India
- Played a pivotal role in creation of power market in India
 - Sale of MUs increased from 1,617 MUs* in FY 2002 to 9,549 MUs in FY 2007

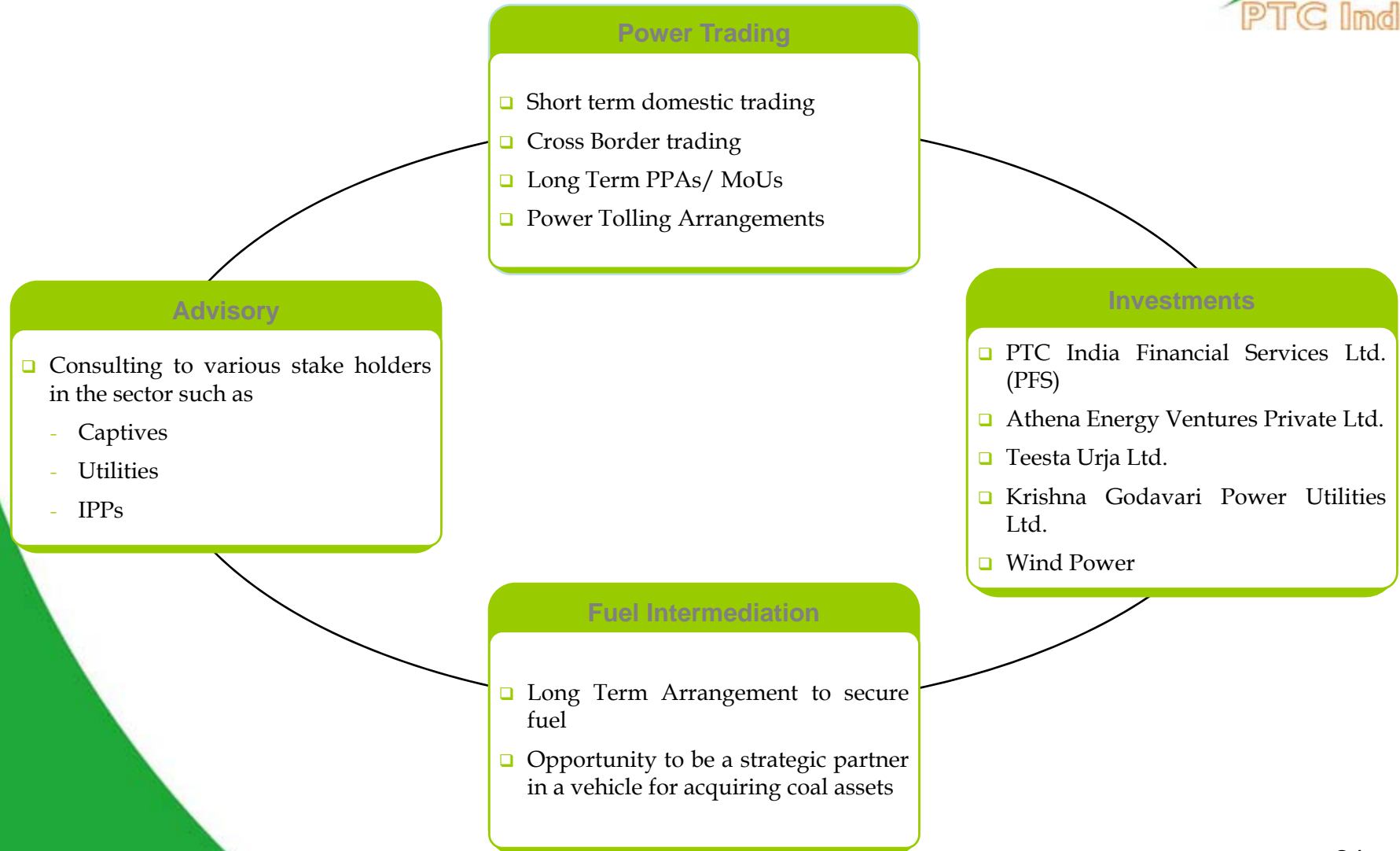
PTC Shareholding Pattern



■ Promoters
■ FI & Banks
■ FII

■ Mutual Funds
■ Insurance Companies
■ Others (including Individuals)

PTC Business Model



PTC Uniquely Positioned: Relationships



- ❑ Government Departments
- ❑ State Utilities
- ❑ Independent Power Producers
- ❑ Financial Institutions
- ❑ Reputable financial investors
- ❑ Nordic Power Exchange
- ❑ United States Energy Association

PTC Advisory Solutions



- ❑ PTC's Advisory Services group has evolved with a view to advise clients in dealing with emerging issues in the development of Power Market
- ❑ The gamut of services offered include
 - Tariff and financial modeling for IPPs/ Captives;
 - Preparation of RFP & RFQ for competitive bidding of power projects;
 - Consultancy on CDM Certification;
 - Advisory on matters relating to regulatory framework; and
 - Market study reports amongst others.
- ❑ Wide variety of clients for PTC Advisory services including State Utilities, Private sector and other players with existing presence or interested in exploring opportunities in the Power Sector

Investments in Energy Value Chain:PFS

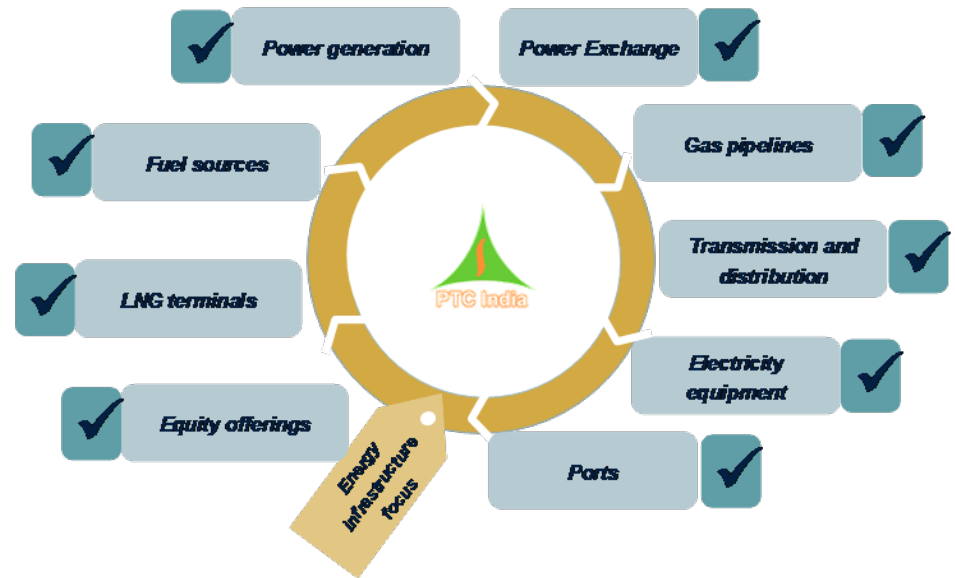


To provide Investment and Financing solutions for the broader Energy Value Chain

Proposed business activities

- Invest in Greenfield projects, Brownfield projects and provide expansion capital on an ongoing basis
 - To the companies engaged in identified target sectors
- Investment in identified projects
 - Power Exchange
 - Tolling projects
 - Biomass project
 - Wind project
 - Investment in cross border transmission link
 - IL&FS Transmission ventures
- Term Financing
- Financial solutions and advisory

Identified target sectors



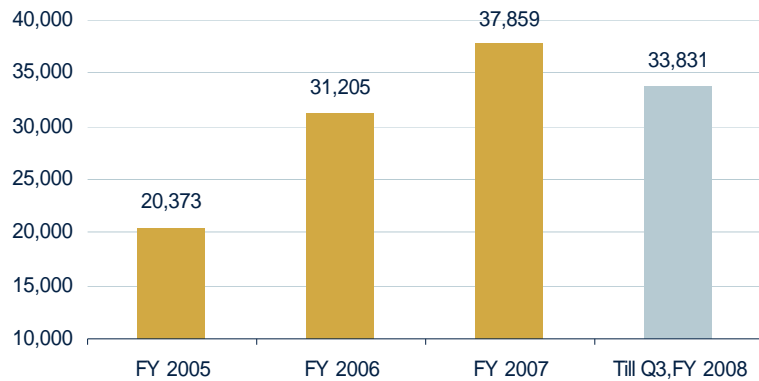
We have signed definitive agreements with GS Strategic Investments Limited & Macquarie India Holdings Limited in PTC India Financial Services to bring in:

- Fund management best practices
- Strong relationship with global investors

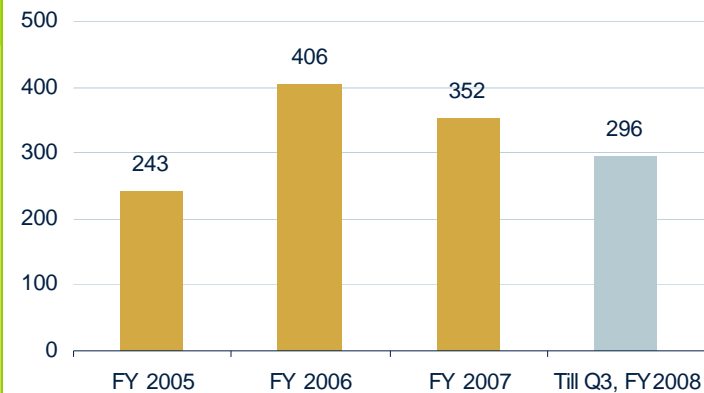
Key Financials



Sales (in INR mn)



PAT (in INR mn)



Key Financial Highlights

- ❑ Sales growing at a CAGR of 59.5 % over the last five years
- ❑ Net Income growing at a CAGR of 36.7% over the last five years
- ❑ Margins on Short Term trading capped at 4 paise/ unit in FY 2007, New Business and Long Term Trading to drive future profitability

Experience in R.E.



- ❑ Stand by PPA for Wind Farm Projects (2x64 MW)
- ❑ PPAs with small hydro projects in excess of 100 MW
- ❑ Installed 6 MW (4x1.5 MW) Wind Farm Project (Recourse)
- ❑ Equity Participation (37%) in a 100 MW Wind Farm Project (IPP/Lease Financed)
- ❑ Equity Participation (26%) in a 10 MW Bio-mass Project (Non-Recourse)
- ❑ In advanced stages of facilitating sale of power from various R.E. Projects (Hydro, Biomass, Bagasse, Wind)

Conclusion



On the whole, the R.E. sector appears poised to maintain the momentum in growth in the coming years. There is a significant scope to attract funds in this sector, provided that the R.E. Projects are structured to fit within the investment parameters of Financing Agencies



“If we cannot do great things,

Let us do small things in a great way”

Thank you...

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