



**NATHAN**  
ASSOCIATES INC.

National Competition Policy and Economic Growth in India:  
A study of the Electricity Sector by Nathan India

A dark grey world map is centered in the background of the slide, showing the outlines of continents and countries.

*Solutions powered by an  
understanding of the economics of  
competition, innovation, and reward*

# TERMS OF REFERENCE OF THE STUDY

## Terms of Reference

- Identify competition issues in generation, transmission and distribution of power
- Historical developments in the electricity sector
- Legislations in the sector
- Government's efforts to open up the sector through acts and reforms
- Distortions or anomalies created through these regulations



# Factors Governing Electricity Sector

- Demand Supply disequilibrium
- Monopolization of the sector by state monoliths
- Issues related to political economy such as subsidies to rural and agriculture sectors
- High dependence on coal as raw material, which is government controlled
- Conflict of interest as officials have overlapping jurisdictions at state levels (STUs and SEBs)
- Open access still not a reality
- Various plant vintages
- Subject in Concurrent list of Constitution
- Fuel located in few states – MP, Chhattisgarh, Orissa, Jharkhand
- Himalayan belt has potential for hydel but environment concerns hamper growth
- Conflict of interest at various levels
- Highly politicized



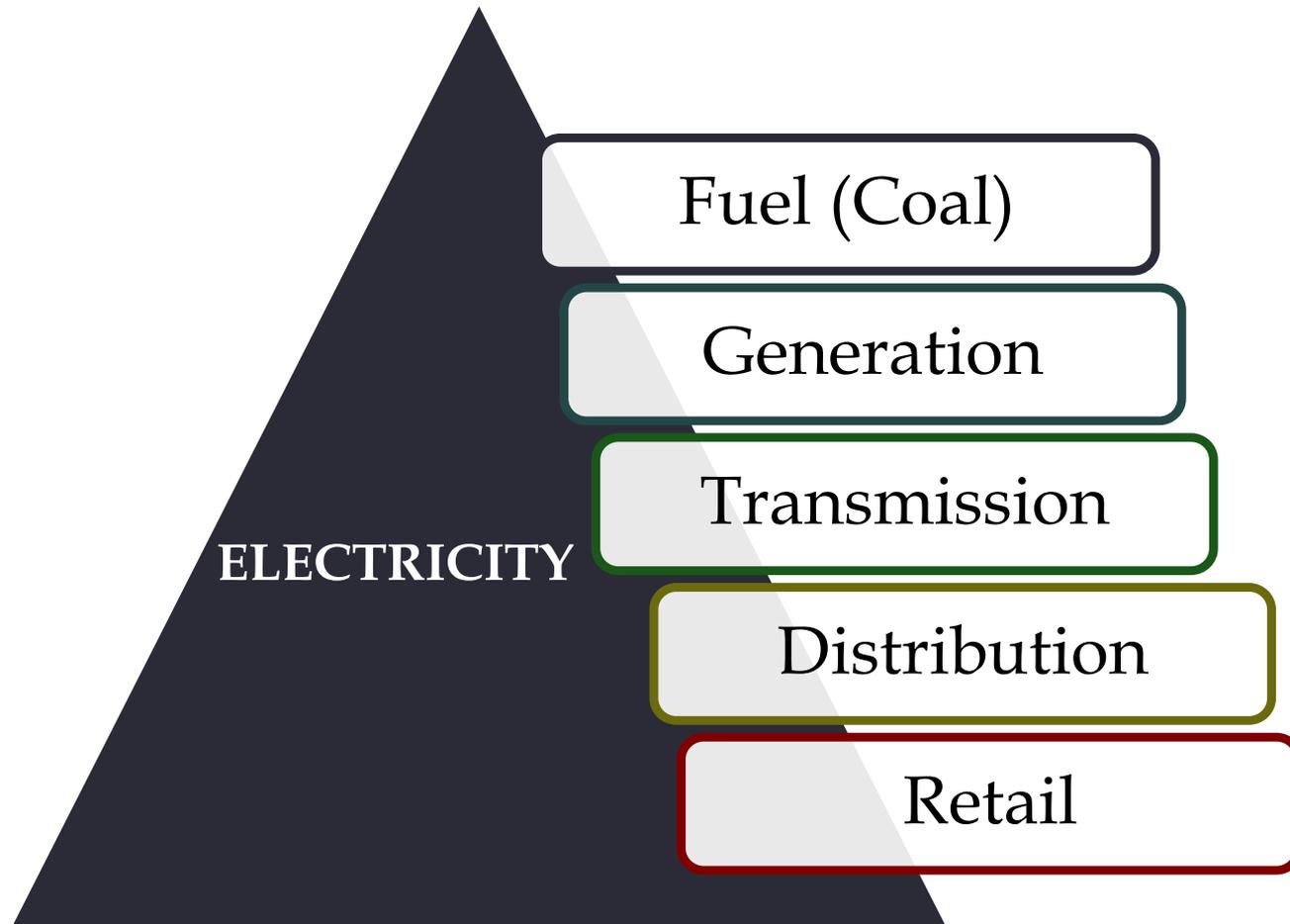
## Scope of Work

- Whether existing policies and laws are in line with the National Competition Policy
  - If yes, how can they be reinforced for implementing an effective competition policy
  - If no, how can they be altered to bring them in line with the proposed national competition policy
- What could be the possible gains in the sector due to these changes
- Possible political economy constraints and how can they be addressed
- How consumer welfare can be maximized with competition



## Sub-sectors within Electricity Sector

A study on electricity sector necessitates an analysis of all the different sub sectors within the sector



# PRIMARY FUEL - COAL

## Primary Raw Material - Coal

Coal dominates the primary raw material market for the Indian electricity sector

Coal India has a near monopoly in India's coal segment largely because of government support. This has resulted in a situation of no level playing field for private players

Government's attempt to issue licenses to private players for captive use landed it in a controversy in the form of *Coalgate*. Reports suggest competition issues were neglected and favoritism played a role in this multi billion coal scandal

Nathan proposes to analyze whether competition should exist in coal. This is because allocations on basis of competition could result in operations by non-serious power players who would under cut serious players to get coal blocks. Is amending Coal Act a solution?

# Coal - Data Analysis

## Coal India's Production

- Government's coal procurement process
- Government's coal disbursement process

## Private Players

- Number of private mining licenses granted by government
- Private players who have started operations

## Contribution of other sources of energy

- Hydro Energy
- Nuclear Energy -
- Solar Energy
- Wind Energy

## Viability

- Analyze the viability of using other sources of energy, especially nuclear, in terms of availability of bank finance for projects that might last over 30 years. This might be useful since nuclear is a very cheap source of electricity.



# GENERATION

# Generation

As of March 2012  
India had an installed  
power capacity of  
almost 2,00,000 MW

The Centre and  
States generated  
around 3/4th of this  
capacity, at 145602  
MW. Private players  
(allowed after 1991)  
generated the rest.

Nathan India  
proposes to use data  
analysis to  
determine the  
performance of  
private players in  
electricity generation,  
to study the level of  
competition in this  
segment

We propose to  
estimate potential  
opportunities in the  
sector by analyzing  
the future growth  
plans of private  
players

# Analyzing Growth of Players

Nathan proposes to study :  
 Installed Capacities, Production Decisions, Pricing Strategies, Distribution Patterns,  
 Recent Growth and Projections of players in Public and Private sectors.

**Public Sector:**  
 NTPC, NHPC, NPCIL, Damodar Valley Corp,  
 Neyveli Lignite

**Private Sector:**  
 Lanco, Tata Power, Adani, Reliance Power,  
 Suzlon etc in the private sector.

Contribution of Merchant Policy to the realm of Competition

New concepts can be used for analyzing issues

Arrangements for sharing power generation  
 with the concerned state government

Arrangements for selling exclusively in the  
 market

We study the cases of Torrent and Tata power. Both are present in generation and distribution businesses of electricity. We also study, the acquisition of BSES by R Infra to enter into distribution.



# TRANSMISSION

# Transmission

Transmission is characterized by a natural monopoly. This is because electricity passes easily through grids that by nature are least resistant

- Transmission segment of electricity generation is dominated by Central Transmission Utilities such as the Power Grid Corp. and State Transmission Utilities such as APTRANSCO

Entry barriers exist because of the nature of the market. Private investments are however allowed in certain projects approved by CERC

- Adani has entered transmission in Mundra-Dehgam area and is also setting up another 1,000 km system, which will be first HVDC line by a private player.

There are also issues of conflict of interest as there is overlap of members (govt officials) of SERC and STUs



# Competition Issues in Tariff in Transmission

- A formula based approach is used by CERC to set tariffs
- Interstate tariffs between generation and distribution are set by CERC
- Adani follows the model of sunken cost for transmission, which means tariffs are built into the generation cost. This can be an interesting case study of competition issues
- The study will focus on the competition issues being taken care of by CERC while setting up tariffs and provisions for private players

# DISTRIBUTION

# Distribution

Distribution sector is a near monopoly of the state discoms

- There are very few private players such as Tata Power (NDPL), Torrent and Reliance Power (BSES Rajdhani and BYPL) in the distribution sector are there

Administrative hurdles restrict open access to consumers

Competition issues need to be studied with respect to multiple distribution licensee model as each work in fixed areas

Competition can be introduced when wires and distribution are separated. The government is exploring the idea of allowing multiple players in distribution with the wires business with another entity.



# TRADING

# Trading Sector

Trading in the electricity sector has been recognized as an independent segment

- PTC India looks into trading in the electricity sector. By taking equity positions in companies and signing power tolling agreements it is also responsible for boosting generation.

Power exchanges have recently allowed trading in power sector

Our study proposes to analyze the functions of PTC and the level of competition in the trading sector

- We propose to analyze reasons for existence of only handful of players despite over 40 licenses issued for trading

We also propose to analyze the operations of State Trading Corporations in the sector.



# EVOLUTION OF ELECTRICITY SECTOR IN INDIA

# Evolution of the Electricity Policy

Our study aims to analyze the evolution of Electricity policy in India through

- Acts implemented in the sector;
- Objectives of the Acts;
- Amendments to the acts keeping in mind larger public interest besides reducing entry barriers
- Implementation of open access of electricity in India as practiced in UK

Electricity  
Act, 1910

Electricity  
Act, 1948

Electricity  
Act, 2003

National  
Electricity  
Policy, 2005

National  
Tariff Policy  
2006

Will be analyzed keeping in mind that it:

- Opened the sector through license free generation;
- Opened access in distribution and more scope for private players ;and
- Pronounced terms such as consumer welfare and competition



## AIM OF THE STUDY

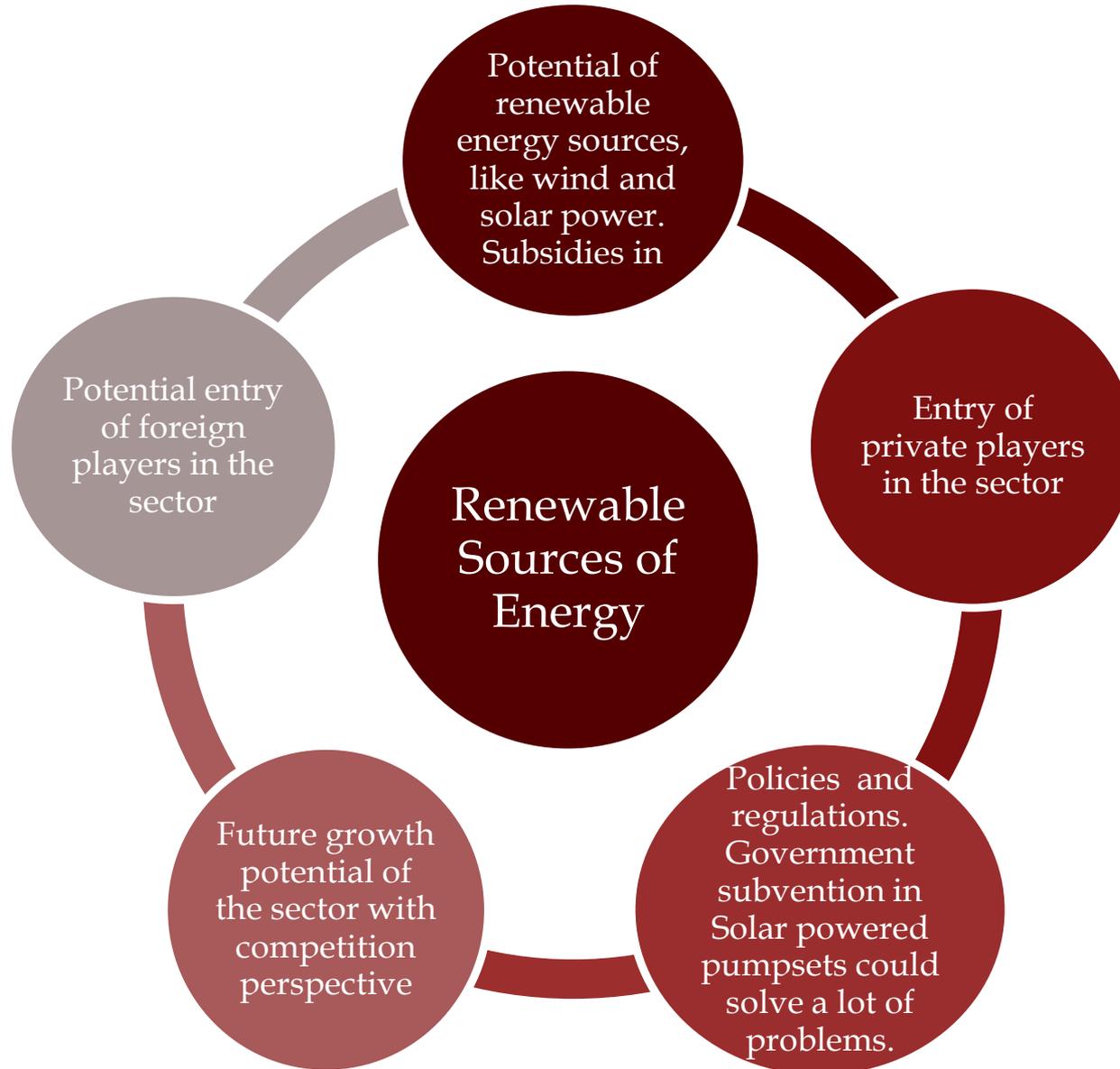
## Future Course of Action

Our study will aim to analyze

- Recommendations made by recent expert panels and forum of regulators, like Shunglu panel
  - The Shunglu panel was set up in 2011
  - It estimated accumulated loss of discoms at Rs 82,000 crore during the period from 2006 to 2010
  - The panel has made some radical recommendations like creating a SPV for SEB losses
- Amendments sought by the forum of regulators to the Electricity Act
- Progress in terms of functions of Forum of Indian Regulators (FOIR) (Power minister has sought amendments on which FOIR has given opinion)

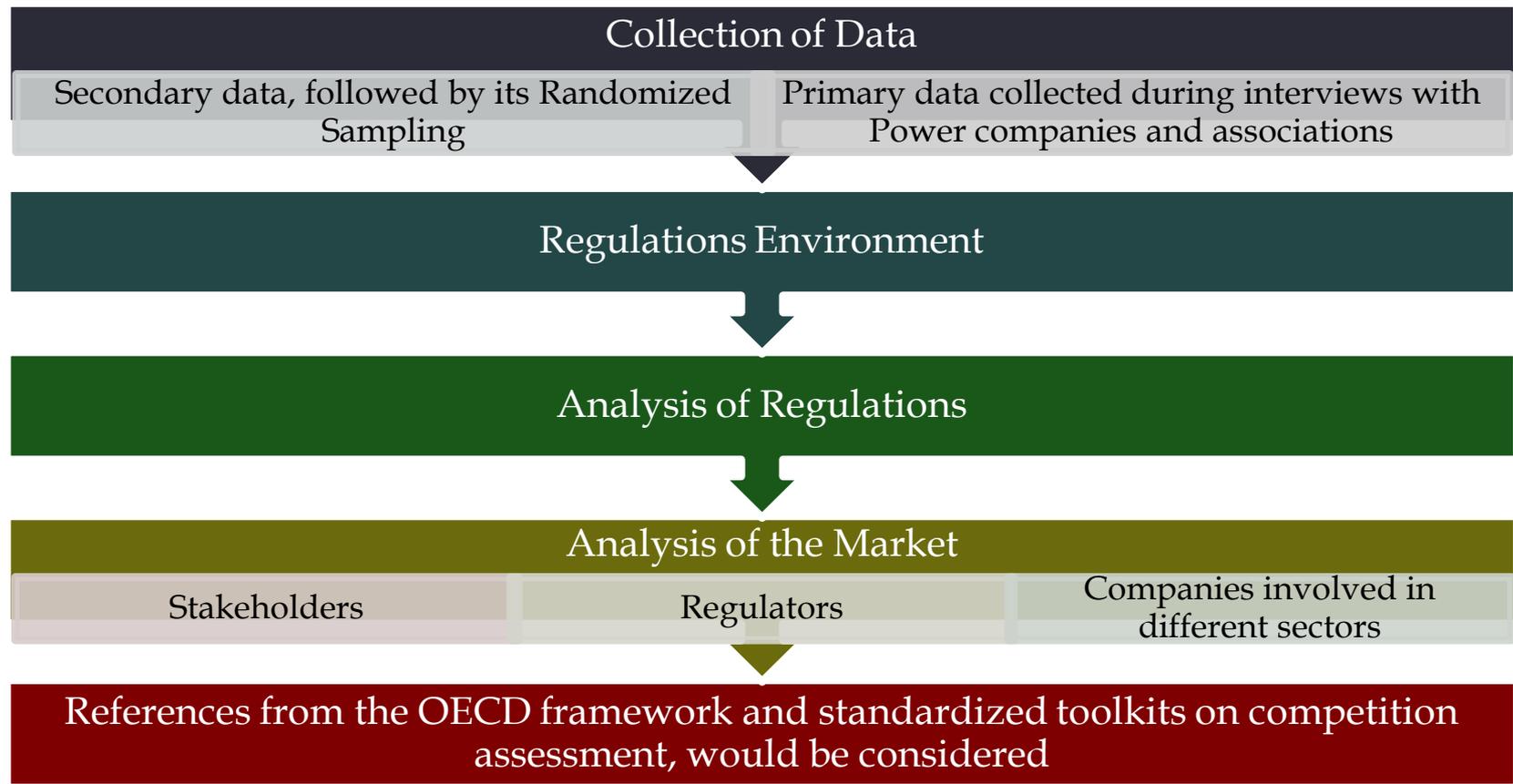


# Renewable Energy Sources



# Work Plan

Our work plan comprises of an analysis of the electricity market with the perspective of the National Competition Policy.



# Time Frame

<i>Nov-12</i>	<i>Dec-12</i>	<i>Jan-13</i>	<i>Feb-13</i>
Collection and analysis of primary data	Interviews with Power Companies and Associations	Work on the analysis	Submission of the final report
Policy Framework	Preparation of Primary Data from interviews	Writing the draft of the report	

*\*Please note that more than one person will be working on an activity*



# Conclusions and Recommendations

On successful completion of the report, Nathan will make recommendations based on the economic analysis of the sector

The recommendations will focus on the potential of the sector when it is fully opened to competition

Competition advocacy will be a thrust area for recommendations

# ELECTRICITY DATA

# Electricity Data Available Yearly at Power Ministry Website

- Generation
  - Generation and power supply position (1997-98 to 2011-12 up to November)
  - Plant load Factor (PLF) of TPSs (Index of utilization of installed capacity) Share Central, State and Private Utilities
  - Energy requirements, availability and shortage, peak demand & supply
  - List of central sector power station as on 31.01.2012
  - Data capacity addition (XIth Plan)
- Central sector transmission
  - Name of the Transmission line/Sub station with voltage class
  - Private sector participation in transmission
    - Name of the project
    - Scope of work
    - Implementing agency
  - Year-wise rural electrification from 1991 to 2012

# Data Available on CEA

- Generation
  - Rate of sale of power of generating stations in the country for the year 2008-09
  - The month wise energy generation targets vis-à-vis actual generation from Thermal
  - Growth rate of energy generation in the country since 2000-01
  - Region wise and category wise growth in power generation during the Year 2010-11
  - Targets & Actual Generation in the Country during the Year 2010-11 (Region Wise and Category Wise)
  - Growth in Power Generation during the Year 2010-11 (Region Wise and Category Wise )
  - List of Thermal Power Stations (Coal / Lignite based)
  - List of Coal based Thermal Power Stations
  - Generation from Gas based Plants (2009-11)
  - Generation Performance of various Sectors during the Year 2010-11



# Data Available on CEA

- Statement of new thermal units which has exceeded the generation targets during 2010-11
- Statement of shortfall in generation ( more than 100 MU) vis-a-vis targets of existing thermal stations during 2010-11
- Installed capacity (in mw) of power utilities in the states/UTs (Mode-wise breakup)
- Performance of Thermal Units
  - Fuel wise Break up
  - National average PLF 1997 onwards (Trends)
  - Number of stations operating above 90% PLF
  - Gas Based Generation
  - Performance of Nuclear Units
  - Performance of Hydro Stations
  - Performance of Central Sector utilities (thermal stations)
  - performance of the various Central Sector Utilities in hydro power generation



# All India Electricity Statistics Report 2003-04 and 2004-05

- Electricity Generation
  - Gross Electrical Energy Generation in the country ((utilities & non-utilities)Prime-mover-wise during the year 2004-05)
  - All India Gross Electricity Generation (utilities only) Ownership-wise and prime mover-wise during 2004-05
  - All India Gross Electrical Energy Generation (Utilities only)during 2004-05
  - Gross Electrical Energy Generation (Utilities only) Prime-mover-wise/Region-wise/State-wise during 2004-05.
  - Gross Electrical Energy Generation by State Electricity Boards Prime mover-wise during 2004-05
  - Gross Electrical Energy Generation by Electricity Departments, Government Undertakings, Central Sector, Municipalities and Private Sector-Prime mover- wise during 2004-05



# All India Electricity Statistics Report 2003-04 and 2004-05

- Electricity Transmission & Distribution System
  - Length of transmission & distribution lines State-wise as on 31.03.2005
  - Length of transmission & distribution lines in State Electricity Boards as on 31.03.2005
  - Number of transformers and their aggregate capacity (utilities only) State-wise as on 31.03.2005
  - Number of transformers and their aggregate capacity in State Electricity Boards as on 31.03.2005.
- Monthly Power Supply Position (Normal and Peak)
- Inter-regional Energy Exchange report Aug 2012 available here



- Generating capacity (Regional Spread of Generating Facilities)
- Operational performance of coal based NTPC stations
- No. of coal based power station and their capacity
- No. gas based power stations ant their capacity
- Hydro Based Power Projects
- Station-wise production in 2011-12
- Nuclear Power Generation DATA (2006-07 to 2012-13) (NPCIL)

- NHPC Limited is committed to serve the nation by developing hydro-power projects throughout the country in general and in Himachal Pradesh in particular. Himachal Pradesh has vast hydroelectric potential of 11647 MW at 60% load factor as assessed by Central Electricity Authority (CEA). NHPC Limited is surging ahead in developing hydro power in Himachal Pradesh, thereby changing the socio-economic conditions and augmenting overall development of the region.
- Power generation data available in gross by Plant name



# NHPC and SJVN

- Power Generation

## NHPC Limited commissioned projects

- Baira Siul (180 MW)
- Chamera Stage - I (540 MW)
- Chamera Stage - II (300 MW).

## Under active construction stage

- Parbati Stage - II (800 MW)
- Parbati Stage - III (520 MW) and
- Chamera Stage - III (231

## SJVN

- SJVN - SJVN is the second largest hydel power company in India which is a JV between the Indian government and the Himachal Pradesh state. Monthly generation data from 2007 available here.

# LANCO Group Thermal Power

- LANCO Group Power Generation

## LANCO Kondapalli Power (IPP) Andhra Pradesh, India.

- Total Capacity:1466 MW Divided into three phase
- Fuel Source (Natural Gas):From GAIL (India) Ltd and M/s Reliance Industries Ltd based on a long term contract
- Power off-taker: Transmission Corporation of Andhra Pradesh Limited (AP TRANSCO) for 15 years, as per PPA

## LANCO Tanjore Power Company Ltd. , Tamil Nadu, India.

- Total Capacity:120 MW
- Fuel Source (Natural Gas):From GAIL (India) Ltd on a long term contract
- Plant Off-taker:TNEB for the supply of the entire power generated for a period of 15 years, as per PPA

## LANCO Anpara Power, Uttar Pradesh India.

- Total Capacity:2x600 MWFuel Source:Northern Coal Fields

# LANCO Group Thermal Power

## LANCO Group Power Generation

### The Udupi Power Karnataka State, India.

- Total Capacity: 1200 MW
- Fuel Source: imported coal-based
- Plant Off-taker: Long term PPA for 90% to five ESCOMS in Karnataka and 10% to Punjab State Power Corporation Limited

### LANCO Amarkantak Power Ltd. Chhattisgarh, India.

- Phase I: Total Capacity: 2 X 300 MW
- Phase II Capacity: 2 X 660 MW
- Fuel Source (Coal): South Eastern Coal Fields
- Plant Off-taker: PTC India Limited

### LANCO Vidarbha Thermal Power, Maharashtra, India.

- Total Capacity: 2x660 MW Fuel
- Source: From South Eastern Coal Fields

# LANCO Group Thermal Power

- LANCO Wind
  - 10 MW wind power generation unit at Tirunneveli in Tamil Nadu and
  - 3 MW wind power generation unit at Chitradurga in Karnataka.
- LANCO Solar
  - has signed Power Purchase Agreements (PPAs) for a cumulative capacity of 141 MW in solar PV and solar Thermal, with the NTPC Vidyut Vyapar Nigam Limited (NVTN) under the National Solar Mission and with the Gujarat Urja Vikas Nigam Limited (GUVNL) under the state policy.
- In hydro sector, currently Lanco is producing 20MW and 640MW project capacity is under construction



- Generation
  - Tata Power generates about 6900MW of power from energy sources like thermal (coal, gas, oil), hydroelectric, solar, wind and geothermal energy.
  - Successfully Commissioned
    - 120 MW Haldia (West Bengal)
    - 120 MW Power House (Jamshedpur)
    - 120 MW Unit 5 at Jojobera and
    - 250 MW Unit 8 at Trombay
  - Under Implementation are
    - 4000 MW Ultra Mega Power Project at Mundra,
    - 1050 MW Maithon, 1600 MW Coastal Maharashtra Project

# TATA Power

- Transmission and Distribution (only descriptive data is available).
- Joint venture with Power Grid Corporation of India for the 1,200 km Tala Transmission Project
- Tata Power has a customer base of over 1.5 Lakh direct customers in Mumbai and on, average about 12,000 million units (MU) are sold in a year.

# Reliance Power Generation

- RPG have successfully commissioned a 40 MW solar photovoltaic project, India's largest such project , in Pokharan, Rajasthan in March 2012.
- Developing Projects:
  - 100 MW solar thermal in Pokharan, Rajasthan project expected to be commissioned by May 2013..
  - 45 MW wind project in Vashpet, Maharashtra which is expected to be commissioned by the end of 2012.
  - 10,000 MW of gas based power capacities at multiple locations.
  - 4,620 MW of hydroelectric power capacities at seven locations.
  - Reliance Power is developing around 18,000 MW coal based power
  - 94 MW of operational wind farms within the Group
- All the data is available descriptive and project-wise.
- Most of them are under construction or under developing banner.



- Power Generation

## Tiroda Thermal Power Project

- Capacity: 3300 MW
- Phase I - 2 x 660 MW
- Phase II - 1 x 660 MW
- Phase III - 2 x 660 MW

## Mundra Thermal Power Project

- Capacity: 4620 MW
- Phase I - 2 x 330 MW
- Phase II - 2 x 330 MW
- Phase III - 2 x 660 MW
- Phase IV - 3 x 660 MW

## Kawai Thermal Power Project

- Capacity: 1320 MW

## Pench Thermal Power Project (Upcoming)

- Capacity: 1320 MW



# AdaniPower Limited

- Adani Power Dahej Limited a subsidiary of Adani Power Limited is implementing at a coastal location, near the port of Dahej, in the industrial district of Bharuch in Gujarat, a thermal power project with an aggregate capacity 2640 MW.
- Kutchh Power Generation Limited a subsidiary of Adani Power Limited is implementing at a coastal location, near the port of Mundra, in district Kutchh in Gujarat, a thermal power project with an aggregate capacity 3300 MW.



# Adani Power Limited...

- Power Transmission
  - APL has already developed and commissioned 400 KV D/C dedicated Mundra - Dehgam transmission line of 430 Kms, which is the longest dedicated transmission line by private sector.
  - APL is also setting up another 1000 Kms  $\pm$  500 KV HVDC transmission system for supply of power to HPGCL. This will be the first HVDC transmission line by private sector in the country. Along with this, APL is also developing a dedicated 50km 400kV Mohindergarh-Bhiwani transmission line for supply of power to HPGCL.
  - Adani Power Maharashtra Limited (APML), a subsidiary of APL, is developing a 221km 400kV Tiroda-Warora Transmission Line as an Intra-state transmission licensee to evacuate power from APML's Tiroda Power Project.
  - APL is also setting up a 100 MW solar power project at Surendranagar in Gujarat. A PPA has been executed with Gujarat Urja Vikas Nigam Limited for 40 MW in the first phase.



# Gujarat Industries Power Co. Ltd.

- Annual Reports available from 2006-2007
- Annual Plant performance of GIPCL 2010-11 and 2011-2012
  - Vadodara Station-I
    - Capacity: 145 MW
    - Type: Combined Cycle Power Plant, Fuel: Gas
    - Fuel Source: Natural Gas from GAIL and R-LNG from GAIL and GSPC
    - Supplies Power to Promoter Companies through MoU
  - Vadodara Station-II
    - Capacity: 165 MW
    - Type: Combined Cycle Power Plant, Fuel: Dual Fuel
    - Fuel Source: Natural Gas from GAIL and R-LNG from GAIL and GSPC



# Gujarat Industries Power Co. Ltd.

- SLPP Station-I (Unit 1 & 2)
  - Capacity: 250 MW
  - Type: Lignite based Power Plant Fuel: Lignite Coal
  - Fuel Source: Lignite as fuel from Captive mine
  - Status: Independent Power Producer (IPP) – Supplies power to GUVNL through Power Purchase Agreement
- SLPP Station-II (Unit 3 & 4)
  - Capacity: 250 MW
  - Type: Lignite based Power Plant Fuel: Lignite Coal
  - Fuel Source: Lignite as fuel from Captive mine
- SLPP Solar Power Plant
  - Capacity: 005 MW
  - Type: Solar Power Plant
  - Commissioned In: April, 2012

All the plants are Independent Power Producer (IPP) – Supplies power to GUVNL through Power Purchase Agreement



- Three project have been completed and 12 are under development. Completed projects are:
  - GMR Energy Limited: GMR's Barge mounted power plant is an environment friendly, natural gas based 220 MW generation plant. It was originally commissioned at Mangalore in 2001. After operating successfully with naphtha as fuel till April 2010, the barge was moved to Kakinada in Andhra Pradesh in July 2010, where it has been modified and commissioned to operate on Natural Gas.
  - GMR Vemagiri Power Generation Ltd: The GMR Group's third power generation project is a natural gas based thermal power plant with an installed capacity of 388.5 MW. Power Off taker Transmission Corporation of Andhra Pradesh.
  - GMR Power Corporation Limited: The 200 MW power plant in Chennai was commissioned in 1998. The entire power generated at this plant is supplied to the Tamil Nadu State Electricity Board.

# Torrent Power

Torrent is in business With ventures in power generation, transmission and distribution.

- Generation
  - Torrent Power has an aggregate generating capacity of 1647.5 MW comprising:
    - 1147.5 MW SUGEN gas based mega combined cycle power plant near Surat
    - 400 MW coal based thermal power station at Sabarmati, Ahmedabad
    - 100 MW gas based combined cycle power plant at Vatva, Ahmedabad
    - setting up a standalone power project with a capacity of 382.5 MW at its existing SUGEN Power Plant site.
    - Torrent Energy Ltd., is in the process of expanding its generation capacity substantially by setting up a 1200 MW gas based power project at Dahej near Bharuch in South Gujarat.



# Torrent Power

- **Transmission**
  - Torrent Power has entered into a joint venture with PGCIL to form a company named Torrent Power Grid Ltd. for implementing a 400 kV transmission system
  - The project is spread across a length of 249 Kms and is being implemented in a phased manner
- **Distribution**
  - Torrent Power transmits and distributes more than 12 billion units of power to around 2.2 million customers in the cities of Ahmedabad, Gandhinagar, Surat and Bhiwandi spanning an area of 408 Sq. Km. and franchise area of 721 sq. km. These cities are major industrial and commercial hubs.
  - City-wise distribution network details available for Ahmedabad, Gandhinagar, Surat and Bhiwandi

# Kalpataru Power Transmission Ltd.

## ■ Generation

- KPTL has ventured into renewable power generation by setting up Biomass plant (using agricultural waste and crop residues as inputs) in the Ganganagar district of Rajasthan in 2003, having set up the Padampur power plant of 7.8 MW.
- It was followed up with another facility set up in Tonk District of Rajasthan in 2006 of 8 MW
- KPTL has also put up 4 wind mills totaling 1300 kw in the state of Gujarat which supply power to its manufacturing plants in a cost effective way.

## ■ Transmission Domestic

- The Transmission Line – Domestic has been the core business of KPTL which has recorded spectacular growth and made KPTL a key player in Indian transmission industry
- Secured first BOOT – Transmission Project- Jhajjar ‘Haryana’ in 2010.
- Awarded for supply & erection of one of the largest project of more than 1,000 kms of 400 KV line (Rihand) - 46,000 MTs for Powergrid, India.
- Our credential includes construction of more than 14,000 kms of transmission lines on turnkey basis.

# Kalpataru Power Transmission Ltd.

- Power Distribution (DMS)
  - The Company diversified its presence into distribution contracting business in 2005.
  - The Company has carried out various types of works under various schemes supported or funded by Government of India as mentioned below:
    - RGGVY-Rajiv Gandhi Grameen Vidyutikaran Yojna
    - APDRP-Accelerated Power Development & Reform Programmes
    - FRP-Feeder Renovation Programme
    - GFSS- Gaothan Feeder Separation Scheme
  - Company's vast experience includes supply, installation & commissioning of
    - Construction of new 33/11KV sub-stations
    - Augmentation of existing 33/11KV sub-stations
    - Feeder bays 33/22/11KV HT lines
    - LT Lines
    - Distribution Transformer centre
    - BPL Connections



# Wind Power

- As per the assessment of CWET (Center for Wind Energy Technology, a Government of India undertaking), the harnessable wind power potential in India is about 102,788 MW
- As per Ministry of New and Renewable Energy (MNRE) data, the cumulative wind power installed capacity in India is 17351 MW as on March 31st, 2012
- India ranks 5th worldwide in terms of total installed wind power and has contributed to approximately 6.7% share according to the statistics published by Global Wind Energy Council (GWEC).
- Wind potential is concentrated in southern, western and north-western regions and grid connected wind power projects have been operational predominantly in 8 states.
- FY 2011-12 was a historic year for the wind energy industry in India as it recorded a highest ever capacity addition of 3196 MW.



# Wind Power

- BF Utilities
  - Under the Kalyani Group initiative to generate green energy, 18.33 MW wind farm has been set up during the years 1998 to 2001.
  - The wind farm consists of 51 wind energy generators (WEGs) of 230 kW and 11 WEGs of 600 kW.
  - The power generated is being utilized by Bharat Forge Ltd. at its plant in Pune.
- Suzlone Energy Ltd.
  - Cumulative installed base (as on September 2012) is more than 7500 MW across 8 states in India
  - Suzlon enjoys market leadership edge in India with a consistent market leadership for 14 consecutive years with nearly 43% cumulative market share
  - Over 1700 customers in India comprising of SMEs, large corporate houses, PSUs, Utilities and IPPs
- Note: Manufacturer-wise data of wind electric generators installed in India (As on 31.03.2010)

# Solar Power

- Status of commissioned Solar Power Projects under Rooftop PV & Small Solar Power Generation Programme Company-wise (RPSSGP) (as on October 15, 2012)

# Suryachakra Group

- Power Generation:
  - Suryachakra Power Corporation Limited had set up a 20MW diesel based power plant in a remote area near Port Blair, Andaman Islands
  - SPCL acquired 51% stake in Sri Panchjanya Power Pvt Limited, which was setting up a 10 MW biomass based power plant at MIDC Hingoli, Maharashtra.

# KSK Energy Ventures Ltd

- Thermal Power plants in operation
  - 58MW Sai regency power, Tamil Nadu
  - 43MW Sitapuram Power Plant, Andhra Pradesh
  - 86 MW Arasmeta Captive Power Plant, Chhattisgarh
  - 540MW Wardha Warora Power Plant, Maharashtra
  - 135 MW VS Lignite Power Plant, Rajasthan
- Plant Under Construction
  - 3600 MW KSK Mahanandi Power Project, Chhattisgarh
- Hydel Power plant (Under Construction)
  - 120 MW KSK Dibbin Hydro Power Private Limited, Arunachal Pradesh
- KSK group also has acquired 52 MW of operating wind farm and has setup another new 18.9 in Tami Nadu.



# India Power Corporation Limited(IPCL)

IPCL embarked upon its journey in year 2003 to develop power projects in the conventional as well as renewable energy sector.

- Projects completed
  - Renewable:
    - 10.4 MW Wind Farm in Karnataka
    - 24.8 MW Wind Farm in Gujarat
    - 60 MW Wind Farm in Rajasthan
  - Non- Renewable:
    - 12 MW Thermal Power Plant in Dishergarh
  - Projects in Progress:
    - 3 x 150 MW Thermal Power Plant in Haldia, West Bengal
    - 2 x 270 MW Thermal Power Plant in Raghunathpur, West Bengal
  - Projects in anvil:
    - 2x 660 MW Thermal Power Plant in Bihar
    - 2x660 Thermal Power Plant in Gujarat
    - 1 x 660 MW Thermal Power Plant in Madhya Pradesh



## ■ Power Generation

- The Group has most creditable track record of implementing Hydropower projects in the Country. JPVL with its operational projects of 300 MW Baspa-II, 400 MW Vishnuprayag and 1000 MW Karcham-Wangtoo is India's largest Private sector Hydro-power prod
- The company is developing 2700 MW hydroelectric project (the Lower Siang project), expected to commence operations in 2016 (1500 MW Phase I) and a 500 MW hydroelectric project (the Hirong project), expected to commence operations in 2018, in the state of Arunachal Pradesh.
- JPVL has also entered into implementation Agreement with Government of Meghalaya to set up 270 MW Umngot and 450 MW Kynshi Stage - II hydropower projects.
- Jaypee Nigrie Super Thermal Power Project comprising 2 x 660 MW Super-critical Unit will be set up by JPVL at a site in Nigrie in Madhya Pradesh. The expected date of commissioning for Unit - I and Unit - II are end April 2013 and end October 2013 respectively.



# JAYPEE Power Venture Ltd.

- The company has also acquired Sangam Power Generation Company Ltd. for setting up super critical technology boiler based 3 x 660 MW Karchana Thermal Power Project (Phase - I : 2x660 MW) and Prayagraj Power Generation Company Ltd. for 5 x 660 MW Bara Thermal Power project (Phase - I : 3x660 MW) from UP Power Corporation Ltd. on BOO basis.
- JPVL has acquired Bina Power Supply Company Limited (BPSCL) with a capacity of 1250 MW from the Aditya Birla Group.
- Transmission
  - Jaypee Powergrid Limited (JPL), which has developed a 217 km long power transmission project to evacuate power from the Karcham-Wangtoo project.
  - The power transmitted is meant for distribution and consumption in the states of Himachal Pradesh, Haryana, Punjab, Uttar Pradesh and Rajasthan.

- GVK has expanded itself to a slew of CCPP - Combined Cycle Power Plant (gas/naphtha based), Thermal (coal based) and Hydro Power Projects across the country. Besides over 900 MW operational power plants, it has over 5000 MW projects under various stages of construction and development.
- Projects under operation
  - 445 MW Jegurupadu CCPP (Phase: 1&2), East Godavari district, Andhra Pradesh
  - 469 MW Gautami CCPP, East Godavari district, Andhra Pradesh
- Projects under development
  - 800 MW Jegurupadu CCPP Phase 3, East Godavari district, Andhra Pradesh
  - 800 MW Gautami CCPP Phase 2, East Godavari district, Andhra Pradesh
  - 540 MW Goindwal Sahib Thermal Power Project, Tarn Taran district, Punjab



- 2X660 MW Coal based Thermal Power Project, Tarn Taran district, Punjab
- 330 MW Shrinagar Hydro Electric Project, Uttarakhand
- 850 MW Ratle Hydro Electric Project, Jammu & Kashmir
- 146 MW Bogudiyar Sarkari Bhyol Hydro Electric Project, Uttarakhand
- 200 MW Mapang Bogudiyar Hydro Electric Project, Uttarakhand

Thank you



**Nathan India** is an economic consulting firm that specializes in survey design and research, market and business analytics and competition policy.

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