

# Capability Statement

## Renewable Energy Consulting

April 2010



**ABPS Infrastructure Advisory**

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## Renewable Energy Consulting

### 1 Overview of ABPS Infra

'ABPS Infrastructure Advisory Private Limited' (ABPS Infra) is a management consultancy organization providing services in commercial, financial, and regulatory spheres of the infrastructure sector. ABPS Infra focuses on various infrastructure sectors such as Power, Renewable Energy, Oil & Gas, Water, Transportation, Urban Infrastructure, etc.

In a short span of around two and a half years since inception, ABPS Infra has completed more than 80 consultancy assignments in the infrastructure sector. ABPS Infra has advised/assisted a wide spectrum of entities in the infrastructure sector such as Corporates, Project Developers, Equity Investors, Regulatory Authorities, Utilities, Industry Associations, Governments/Government Organisations and Multi-lateral Agencies.

## 2 Practice Areas

ABPS Infra offers its services in five practice areas:

### Financial Advisory

- Counter Party Risk Assessment
- Financial Modelling
- Risk Assessment and Mitigation Measures
- Due Diligence
- Public Private Partnership
- Contract Structuring
- Business Strategy

### Renewable Energy

- Renewable Energy Resource Assessment
- Renewable Purchase Specifications
- 'Feed-in' Tariff Determination
- Grid Integration of Renewable Sources
- Market Study and Investment Strategy
- Project Development Support
- Project Structuring

### Regulatory and Policy Consulting

- Diagnostic Studies
- Licensing & Regulations
- Pricing Issues in Regulated Markets
- Market Development
- Monitoring and Compliance
- Rural Electrification
- Capacity Building

### Energy Efficiency and Demand Side Management

- Demand Side Management Planning
- Energy Audit
- End Use Efficiency Improvement Programmes
- Monitoring & Verification (M&V)
- Life Cycle Assessment
- Training and Capacity Building

### Climate Change

- Climate Change Policy Analysis
- Carbon Foot-Print
- Carbon Neutrality
- CDM Project Development Support
- Emission Trading Advise

### 3 Scope of Services - Renewable Energy

ABPS Infra has developed an extensive and unparalleled track record of supporting renewable energy sector developers, financial investors, industry associations, private and public utilities as well as Regulatory Commissions in addressing issues related to project development, regulatory, policy and implementation, which influence the growth of renewable energy sector across India. ABPS Infra's experience spans across the range of renewable energy sources and renewable energy technologies such as wind energy, small hydel power, biomass power, bagasse based co-generation, waste to energy, landfill gas based generation, solar PV, solar thermal, etc. ABPS Infra's areas of expertise in this regard are:

- a) Renewable Energy Policy Development
- b) Regulatory Analysis and Support
- c) Renewable Energy Resource Assessment
- d) Project Competitive Assessment
- e) Market Study and Investment Strategy
- f) Project Development Support
- g) Project Structuring

#### 3.1 Renewable Energy Policy Development

Since 1990s, the Policy framework announced by the Government of India has been a key factor in commercial exploitation of renewable energy resources. The Government announced various fiscal and financial policy measures like accelerated depreciation, tax benefit, subsidy support etc. for promotion of renewable energy projects. Similarly, some of the State Governments announced the policy for promotion of renewable energy sources in their State. However, the nature of policy support varies with the passage of time due to change in market structure. In the current market set-up, the issue of high cost of generation has been replaced by the issues such as grid integration, devising national perspective, nation wide RPS, and funding mechanisms etc. and all these issues needs to suitably addressed through appropriate policy framework at national level as well as state level. ABPS Infra offers its services to Government ministries, departments and agencies to devise the suitable policy framework for short term and long term period. It also advises the Non-Government Organisations to prepare the policy road map for the development of various renewable energy sources like solar, wind and biomass etc.

### 3.2 Regulatory Analysis and Support

Electricity Act 2003 has held the State Electricity Regulatory Commissions (SERCs) responsible for providing the suitable measures for promotion of electricity generation from renewable energy sources in their respective States. Some of the promotional measures are ensuring grid connectivity, specifying feed-in tariff and renewable purchase specification etc.

The policy of 'Feed-in Tariff' has been practiced the world over as the preferred regulatory instrument for promoting renewable energy sources. In India, the National Tariff Policy has mandated State Electricity Regulatory Commissions to determine Preferential Tariff for RE sources. The renewable energy projects are site dependent and their performance is characterized by unique site specific factors. However, the regulatory regime in India has necessitated adoption of 'cost plus' mechanism with development of sample representative cases and uniform tariff determination across RE sources within a particular State.

Mandatory renewable energy procurement obligations have played a key role in development of grid connected renewable energy sources the world over. In India, pursuant to enactment of Electricity Act 2003, a specific provision under Section 86(1)(e) mandates State Electricity Regulatory Commissions to specify a minimum percentage obligation for renewable energy procurement in their area of jurisdiction. Accordingly, several Electricity Regulatory Commissions have formulated RPS Regulations for the initial Control Period.

ABPS Infra offers services to Regulatory Commissions for formulating appropriate Regulations/Orders for feed-in tariff and renewable purchase obligations as also to Utilities and captive/open access industrial consumers, and State nodal agencies to address the regulatory and implementation issues arising therefrom. The key aspects to be addressed under feed-in tariff Orders and RPS Regulations are institution of an efficient implementation mechanism and effective monitoring/compliance mechanism. We also offer services to private and public utilities as well as investors, to understand the implications of RPS Regulations in respect of specific State or specific RE technology. With implementation of RPS regulations for the initial Control Period already underway, further issues that need to be addressed are instruments for facilitating inter-State renewable energy transactions, extension of RPS framework to captive and open access transactions, technology specific procurement targets, assessment of tariff impact, implications of large scale RE integration on Grid operations, etc.

### 3.3 Renewable Energy Resource Assessment

Commercial exploitation of the renewable energy is critically dependent on the realistic assessment of the renewable energy resource, which is dependent on several factors apart from geography specific conditions. Whether it is wind resource assessment based on wind mapping studies or biomass potential assessment based on village level studies, significant information is available from various State level nodal agencies. However, many Developers or Investors seek an independent assessment of the renewable energy resource assessment, either at macro-level to understand the interplay amongst diverse influencing factors or at micro-level for specific project site under consideration, to facilitate their investment decisions. ABPS Infra offers its services to prospective Developers/Investors to carry out an independent assessment of the renewable energy potential for a particular State at macro level, or helps them evaluate key influencing factors that may affect resource availability for a specific Project on long term and/or short term basis. Such resource assessment studies by ABPS Infra are based on rigorous economic and statistical analysis of the in-house research data as well as information available in the public domain. In addition, primary survey or interaction with key stake-holders can also be undertaken for validating the project specific information.

### 3.4 Project Competitive Assessment

With significant increase in the renewable energy capacity addition taking place across India, the Grid Integration of renewable sources assumes significance on account of two factors, viz., (a) Evacuation arrangement, and (b) Grid operation requirements. While the Electricity Act, 2003 mandates SERCs to promote grid connected RE projects by providing them suitable measures for connectivity to the Grid, the connectivity standards specifically for RE sources are yet to be notified. Accordingly, renewable energy projects find little place amongst evacuation planning of State utilities.

ABPS Infra offers services to Renewable Energy developers as well as State Utilities to undertake Transmission and Evacuation studies for the prospective renewable energy projects or planned capacity addition, to be able to identify associated risks and highlight development/augmentation requirement in advance. ABPS Infra also extends its support in undertaking techno-commercial evaluation of grid integration, recommending appropriate regulatory strategy to address key risks including facilitation support for availing transmission licence or support for development of grid interface requirements.

### 3.5 Market Study and Investment Strategy

#### Market Studies

Market Studies for renewable energy sector are a pre-requisite for formulation of Investment Strategy and development of detailed Business Plan for the renewable energy investor. The market studies include assessment of potential and factors responsible for growth in RE capacity addition for particular type of renewable energy resource, evaluation of pricing trends for RE type within particular State or across States, comparative analysis of various project parameters for a particular RE type within a State or across States, etc. Typically, the market study involves analysis of key factors responsible for growth of RE sources, undertaking projections based on analysis of historical data, economic parameters, expected capacity addition programmes of key stakeholders, evaluation of regulatory, policy and contractual framework, evaluation of conducive/non-conducive factors, etc. The pricing trend and tariff trend studies include analysis of historical data, Government policies, regulatory environment and expected demand supply position. Market studies can be based on combination of research techniques such as desktop analysis of public domain information as well as primary survey for addressing specific concerns of the potential investor.

#### Market Entry Strategy/Investment Strategy

Many companies desire to explore the merits and demerits of entering new markets and/or industries in order to explore opportunities for renewable energy investments. Equity investors or dedicated funds for renewable energy sector also look for investment opportunities in new areas to invest identified corpus of funds to achieve the investment objectives. ABPS Infra assists the investors in formulating their investment strategy by undertaking assessment of investment potential in particular renewable energy sector/s at different geographical locations based on market studies, which includes analysis of demand supply position, market players, governing Regulations, expected future developments, etc. ABPS Infra also assists the Investors in identification of specific investment opportunities.

### 3.6 Project Development Support

There are enormous opportunities and avenues for development of renewable energy projects in India. While State nodal agencies can undertake allotment of pre-identified project sites to private sector developers (say, in case of windfarm or small hydel projects), the renewable energy project developers can also identify sites and seek allotment as per prescribed procedure and guidelines or acquire RE projects from other RE developers for further development. The project development support entails techno-commercial due-diligence, evaluation of project financials, identification of suitable development partners, establishing appropriate contracting arrangement, negotiation with key stakeholders, etc.

ABPS Infra facilitates project development efforts of RE developers/investors, by undertaking due-diligence for identified project opportunity, project risk assessment and recommendation of suitable risk mitigation measures, and also identifies suitable project partners taking into consideration investment/development objectives of the investors.

### 3.7 Project Structuring

Several market models are feasible for commercialization of the renewable energy projects. During initial phase of RE development in India, sale to captive or open access consumer was the predominant market model, however, pursuant to mandatory stipulation of renewable purchase obligations, the market model of sale to grid or distribution licensees has assumed significance. However, the regulatory regime and retail tariff for industrial/commercial consumer in each State or within the jurisdiction of each distribution licensee is unique. Thus, in order to maximize returns to potential investors, appropriate project structuring with combination of various market models needs to be evolved. Besides, the project structure should address varying requirements of potential investor over the development, construction, and operational phase of the project, with adequate safeguards built in within the project structure and contracting structure at each stage.

ABPS Infra's experience in providing Project Structuring services to RE developers spans from 5 MW biogas based generation facility to 1000MW plus wind project structuring. ABPS Infra has developed unique 'project structures' to address requirements of its clients – ranging from RE developers, RE equipment manufacturers, Investors, Lenders, etc. Due to its background of policy and regulatory consulting, ABPS Infra is well placed to anticipate regulatory developments well in advance and factor the same in its recommendations of suitable 'project structures'.

## 4 Key Assignments in Renewable Energy Services

The brief description of some of the key assignments undertaken by ABPS Infra for Renewable Energy Services is given below:

### 4.1 Renewable Energy Policy Development

#### Development of Renewable Energy Certificate (REC) Mechanism for India

*Client: Ministry of New and Renewable Energy, Government of India*

ABPS Infra has been engaged by the Ministry of New and Renewable Energy (MNRE) to develop REC mechanism for India to facilitate and promote renewable energy based transactions across the States. The main aspects to be covered under this assignment are:

- Hurdles faced by renewable energy in India
- Regulatory developments in India
- Potential for competitive bidding in renewable energy sector
- Feasibility of implementation of REC in India
- Assessment of costs associated with implementation of REC
- Potential for creating competition among various RE resources
- Operational Aspects of REC Mechanism
- Institutional Mechanisms needed for REC implementation
- Legal and Regulatory Issues
- Process for implementation of RECs

#### Development of Policy Roadmap for 'Solar Energy Development in India'

*Client: World Institute of Sustainable Energy*

ABPS Infra was retained by World Institute of Sustainable Energy (WISE) to act as exclusive Knowledge Partner for the first international solar conference in India – Solar India 2007. Outcome of the event was a draft policy road map for development of solar energy in India, which was formulated by ABPS Infra. During the event, the Proposed Policy Roadmap was presented to Honourable Minister for New and Renewable Energy. Under this Knowledge Partnership, ABPS Infra undertook following activities:

- Development of detailed Concept Paper
- Identification of barriers for solar development (grid and off-grid) in India
- Analysis of drawbacks in existing policy framework
- Compilation of international best practices and policy measures
- Development of distinct Policy Options for promotion of off-grid and grid interactive systems

- Development of Policy Road Map for harnessing of Solar Energy in India.

Evaluation and recommendation on Fiscal Policy framework for Solar Energy

*Client: World Institute of Sustainable Energy*

ABPS Infra has been nominated as an expert committee member by World Institute of Sustainable Energy to evaluate and recommend the suitable fiscal policy framework for the promotion of Solar Energy in India. The responsibilities assigned are:

- Analysis of solar economics at national and international level on account of variation in capital cost and increase in efficiency due to technology innovations. Task also includes the development of tariff model and impact model
- Understanding the Policies and practices adopted by different countries for promotion of Solar energy
- Cost implications on Solar tariff an account of exemption/waiver of Taxes and duties (Import duty, Excise or VAT, as the case may be)
- Drafting the recommendations for tax waiver with the suitable justifications for each head of tax and duty exemption.

## 4.2 Regulatory Analysis and Support

Development of Norms for fixation of tariff for generation of power from Renewable Sources of Energy

*Client: Central Electricity Regulatory Commission*

ABPS Infra was engaged by the Central Electricity Regulatory Commission to evolve norms which would be applied for determination of tariff for generation of electricity from Renewable Sources of Energy. The scope of work essentially included development of tariff norms for Wind power projects, Biomass/Non-fossil fuel based cogeneration projects, Small Hydro projects, Waste to Energy and Solar power projects. The main tasks performed in this assignment are:

- Review of Legal and Regulatory Framework for tariff determination for Renewable Energy
- Analysis of the tariff orders and regulations notified by the various State Electricity Regulatory Commissions (SERCs)
- Analysis of the approaches considered by respective SERCs while determining the norms for tariff for a specific RE technology
- Review of existing feed-in tariff structure for RE sources
- Scrutiny and Evaluation of project parameters for various RE technology
- Appraisal of Capital Cost for specific RE technologies
- Analysis of international practices for determination of tariff for RE sources

- Analysis of various incentive and subsidy scheme extended MNRE/Government Agencies for Renewable Energy Generators.
- Development of Indexation formulae for Capital Cost to take care of market variations
- Development of Indexation formulae to take care of Fuel Price Escalation
- Analysis of the feedback/comments received from the stakeholders
- Assistance to regulator during public hearing and post public hearing process

### Assistance to MERC for formulation of RPS Regulations for Maharashtra

#### *Client: Maharashtra Electricity Regulatory Commission*

ABPS Infra was engaged by Maharashtra Electricity Regulatory Commission for development of appropriate Renewable Purchase Specification (RPS) framework within Maharashtra under Section 86(1)(e) of the Electricity Act 2003. The scope of services under this engagement included:

- Analysis of the Central Government and State Government policies, schemes and concessions related to renewable energy
- Review of existing renewable energy projects in the State
- Assessment of potential for RE generation in the State
- Evaluation of key parameters and premises for specifying RPS Percentage
- Review of existing feed-in tariff structure for RE sources
- Analysis of long term implication on retail tariff due to renewable energy purchase under RPS Regulations
- Devising mechanism for deciding Renewable Purchase Specification and methodology for its application in the State
- Assistance in devising strategic measures to ensure balanced growth for all types of Renewable Energy sources
- Devising mechanism for treatment of Open Access and Captive consumers.

### Determination of preferential 'Feed-In Tariff' for Wind Energy projects across various States in India

#### *Client: Indian Wind Energy Association*

ABPS Infra has been engaged by Indian Wind Energy Association, a renewable energy association for assistance in regulatory matters pertaining to Wind Energy projects in the States of Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Gujarat, Tamilnadu and West Bengal. The main tasks performed in this assignment are:

- Analysis and Development of Financial Model using State specific factors, e.g., CUF, wind regime, etc.
- Drafting of Petition for determination of 'Feed-in Tariff' for wind energy projects in respective States
- Analysis of applicability and determination of wheeling charges in respect of captive or third party wheeling transactions from wind energy projects
- Analysis of issues related to applicability/exemption from State Grid Code, metering regulations, merit order dispatch, etc.
- Assessment of impact of Feed-In Tariffs and RPS under Section 86 (1)(e) of the Electricity Act, 2003, on utility tariffs
- Review of issues related to grid connectivity, evacuation arrangement and reactive energy pricing, etc
- Assistance in presentation of case before respective State Regulator.

### Determination of preferential 'Feed-in Tariff Rate' for Biomass Power projects in Rajasthan

#### *Client: Rajasthan Biomass Power Developers Association*

ABPS Infra was engaged by Rajasthan Biomass Power Developers Association (RBPDA), for assistance in regulatory matters pertaining to 'Biomass Power Projects' in Rajasthan. The main tasks performed in this assignment were:

- Development of Financial Model based on State specific factors, e.g., biomass prices, biomass availability, Station Heat Rate, PLF, capital cost, etc.
- Preparation of Petition for determination of 'Feed-in Tariff'
- Analysis of issues related to applicability/exemption from State Grid Code, metering regulations, merit order dispatch, etc.
- Review of issues related to grid connectivity, evacuation arrangement and reactive energy pricing in respect of biomass power projects
- Assistance in presentation of case before the State Regulator.

### Determination of 'Feed-in Tariff Rate' for Small Hydel power projects

#### *Client: Maharashtra Electricity Regulatory Commission*

A small hydel project developer and the Water Resources Department of the State Government sought approval for feed-in tariff to be applicable for small hydel power projects. ABPS Infra was engaged by the MERC to assist them in finalizing Feed-in Tariff for SHP projects. The scope of services under this engagement included:

- Review of petition and detailed grounds for petition filed by SHP developers and Water Resources Department
- Detailed analysis of various cost components for determination of 'Feed in tariff' for SHP projects including evaluation of the influencing factors
- Analysis of various project parameters such as CUF, design energy, hydrology data, availability factors, royalty, subsidy aspects, etc.
- Assistance during regulatory process and formulation of 'Feed in Tariff'.

### 4.3 Renewable Energy Resource Assessment

#### Assessment of Landfill potential across Municipal Councils in India

*Client: International Renewable Energy Investor*

ABPS Infra was engaged by an international player in the carbon emissions trading market to undertake assessment of Municipal Solid Waste market and Landfill potential thereof across India from energy generation perspective. The main tasks performed under this assignment included:

- Survey of Municipal Solid Waste (MSW) management practices followed in more than fifty cities in India
- Assessment of per capita waste generation for the identified cities
- Development of database for cities with existing sanitary landfills and proposed landfills
- Secondary research on MSW practices and technical details for sanitary landfills, viz., quantum, chemical characteristics, disposal techniques, etc.
- Review of future plans for development of sanitary landfills

### 4.4 Project Competitive Assessment

#### Assessment of Transmission and Grid Integration issues from Wind Energy Perspective for the States of Gujarat, Karnataka, Maharashtra and Rajasthan

*Client: International Wind Energy Developer*

An international wind energy developer engaged ABPS Infra to carry out review of transmission planning processes and evaluate issues related to grid integration of wind energy projects in the States of Karnataka, Maharashtra, Rajasthan and Gujarat. The objective of this study was to understand the policy and regulatory framework as well as planning practices prevalent at Central level as well as State level for various aspects of power evacuation planning, construction and operation of transmission systems from the wind energy project's perspective. As a part of this engagement, ABPS Infra undertook following activities.

- Detailed analysis of Regulations notified by Central Electricity Regulatory Commission (CERC), Central Electricity Authority (CEA) and State Electricity Regulatory Commission/s related to transmission planning, transmission investment and connectivity standards with specific focus related to renewable energy/wind energy
- Review and analysis of existing practices and procedures adopted by State Transmission Utility and State Nodal Agency
- Review and analysis of procedures for grant of Open Access and reservation of transmission capacity followed at regional and State level
- Identify key procedural aspects and draw up detailed advance action plan necessary for WEG project implementation in each State
- Review of practices related to scheduling and dispatch in each State and highlights its implications for Wind Energy projects.

## 4.5 Market Study and Investment Strategy

### Assessment of potential for investment in select Renewable Energy Sectors

#### *Client: International Fund dedicated for investment in Renewable Energy*

An international Fund intending to invest in the Renewable Energy sector in India engaged ABPS Infra to carry out assessment of the Wind, Biomass and Small Hydel sectors. The assignment involved primary and secondary research for these three sectors. The objective of the study was to assess institutional and policy framework, and gauge the investment opportunities in the key identified States for each type of renewable energy source, namely, biomass energy, wind energy and small hydel power. Further, the engagement entailed assessment of the operational performance of the existing projects and comparing the same against the backdrop of prevalent normative regulatory framework in those States. The exercise intended to highlight key success factors influencing development of renewable energy project opportunities for facilitating decision making by the renewable energy investor. As a part of this engagement, ABPS Infra undertook the following activities:

- Assessment of renewable energy potential and actual achievement
- Identification of the factors responsible for current and future growth of RE projects across the short-listed States
- Analysis of policies, regulatory and contractual framework, clearances required and incentives offered by the State Governments
- Comparative analysis of normative regulatory framework of the three sectors across the short-listed States
- Evaluation of the contractual framework for renewable energy projects across the short-listed States

- Assessment of operational and project parameters for commissioned projects through primary and secondary research
- State-wise pricing analysis, historic trends in pricing and forecasting
- Comparative analysis of key project parameters across the short-listed States in respect of each of the three RE sources.

### Bidding support for Municipal Solid Waste (Waste to Energy) Project

#### *Client: International Investor*

ABPS Infra has been engaged by a renowned international investor for providing assistance during the bidding process for setting up a solid waste to energy project in India. As a part of this engagement, ABPS Infra is required to undertake the following activities:

- Review of Regulatory framework and highlight the various risk and issues
- Critical Review of Bidding and Contractual agreements, and identify the various issues and risks involved. Suggest the suitable risk mitigation measures.
- Assessment of State power sector including the regulatory and policy development, market status and its economics etc.
- Assistance in developing the financial model for evacuation infrastructure
- Assistance in identifying the suitable market mechanism for selling the power in a most economical manner.

## 4.6 Project Development Support

### Development Support to Wind Power Generation Facility

#### *Client: A renowned wind farm developer*

A renowned wind farm developer proposes to set up large wind farm power projects across various states in India, primarily in Maharashtra. ABPS Infra has assisted them in exploring various opportunities for wind energy development. We have also assisted them in carrying out forecasting and evaluation of long term scenarios of retails tariff (primarily industrial tariff) as electricity industry evolve in Maharashtra. ABPS Infra has undertaken the following activities as a part of this engagement:

- Analysis of current status of power sector scenario in Maharashtra State
- Analysis of present Electricity Demand and Supply position in Maharashtra i.e. FY 2007-08
- Projection of Electricity Demand in Maharashtra up to FY 2016-17
- Projection of Electricity Supply in Maharashtra up to FY 2016-17
- Preparation of merit order stack up to FY 2016-17 for Maharashtra
- Projection of Power Purchase cost for distribution utility for FY 2016-17

- Projection of tariff for HT - Industrial consumer category
- Analysis of wind energy development and prospective renewable energy development within State

### Development Support to proposed Biogas based power generation facility

#### *Client: A Distillery Unit proposing to install Biogas Generation Facility*

A distillery manufacturing unit desirous of exploiting its industrial waste – biogas - for power generation purposes, engaged ABPS Infra to provide support for development of the project and for implementation including establishing contractual arrangement for power sale from proposed biogas based power generation facility. ABPS Infra has undertaken the following activities as a part of this engagement:

- Support in addressing techno-commercial aspects such as project design, capacity sizing and configuration, grid connectivity aspects and delivery point, metering arrangements, etc.
- Preparation of Project Information Memorandum for biogas based power generation facility for circulation to prospective off-takers
- Analysis and evaluation of trading business opportunities and evaluation of select trading licenses
- Identification and short-listing of trading licensees based on various parameters and evaluation of short-listed trading licensees
- Co-ordination and facilitation with short-listed trading licensees
- Negotiation with the prospective trading licensees
- Drafting of Power Purchase Agreement for effective implementation of transaction
- Monitoring the implementation during initial period, i.e., Up to completion of first billing cycle

## 4.7 Project Structuring

### Project Structuring and Development of 1500 MW Wind Farm project

#### *Client: A renowned wind farm developer*

A renowned wind farm developer desired to develop a 1500 MW wind farm project in one of the coastal States in the country. ABPS Infra was engaged to act as ‘policy and regulatory advisor’ as well as financial advisor for structuring the project and extending support for implementation of the wind farm project from concept to commissioning. The main tasks under this assignment and the services provided by ABPS Infra are as follows:

- Development of Approach Paper recommending suitable approach for development of the proposed Wind Farm Project.
- Regulatory assistance in matters pertaining to setting up of wind farm project and assistance in filing requisite Petitions before the SERC.
- Assistance in developing Master Plan/Consolidated detailed proposal for submission to the Government covering issues and justification for preferential treatment and requirement of support from the Government.
- Assistance in availing Transmission Licence, as necessary, for the proposed evacuation/transmission arrangement for the proposed Wind Farm project.
- Development of business plan and evaluation of transmission business model and structuring the Project Company (SPV) for undertaking transmission for 1500 MW wind farm project.
- Devising the appropriate market model for sale of power from the proposed wind farm power project through combination of sale to grid, sale through open access and captive transactions, etc.

### Wind Power: Towards Development of 5000 MW per year

#### *Client: World Institute of Sustainable Energy*

India is bestowed with Wind Power Potential of around 45000 MW. However, Wind farms of capacity around 9000 MW have been installed till date. World Institute of Sustainable Energy (WISE) has engaged ABPS Infra to carry out study on measures to be taken in order to have a capacity addition of 5000 MW per annum utilising Wind Energy. As a part of this engagement, ABPS Infra has undertaken following activities as a part of this assignment

- Review of legal and regulatory framework supporting renewable energy development in India
- Review of the initiatives taken by respective state for promoting the electricity generation from Wind energy
- Review and analysis of the initiatives extended by Government/MNRE for the development of Wind Energy
- Review and analysis of the initiatives taken by the State Government for the development of Wind Energy
- Analysis of Wind Energy Development in India
- Analysis of present and future market scenario for the development of Wind Energy
- Analysis of Market Barriers/Roadblocks in the development of Wind Energy generation
- Recommendation on how installation of 5000 MW per annum of Wind farms can be achieved

## Evaluation of Project Implementation Structure for Power Off-take from Cogeneration Facility

### *Client: Infrastructure Leasing and Financial Services Limited*

Infrastructure Leasing and Financial Services Limited (IL&FS) is managing the Urjakur Nidhi, a Fund (“Fund”) established through the levy of cess of 4 paise/unit on energy consumption by commercial and industrial units to develop, part finance and implement Renewable Energy Projects in Maharashtra. ABPS Infra was engaged by IL&FS for providing assistance in evaluating the proposed sale/wheeling arrangement for off-take of power from said Bagasse Based Cogeneration Project Company within Maharashtra from regulatory perspective and ascertains the feasibility for such arrangement within the framework of Electricity Act 2003 and the prevalent Regulations. ABPS Infra has taken following activities as a part of this assignment:

- Evaluation of provisions under Electricity Act 2003 and Electricity Rules 2005 related to captive generating stations
- Scrutiny and analysis of related provisions under National Electricity Policy and National Tariff Policy
- Scrutiny and analysis of the Order passed by Maharashtra Electricity Regulatory Commission (MERC) in the matter of determination of tariff for Bagasse based co-generation
- Scrutiny and analysis of MERC (Transmission Open Access) Regulations 2005
- Scrutiny and analysis of MERC (Distribution Open Access) Regulations, 2005.
- Scrutiny and analysis of MERC Order passed in the matter of Transmission Pricing Framework
- Scrutiny and analysis of MERC Order passed in the matter of determination of Intra-state transmission tariff for FY 2008-09
- Analysis of the issues related to operationalising the Open access
- Evaluation of possible Project Structures along with their merits-demerits

## 5 Clientele of ABPS Infra

<b>Corporate Entities / Investors</b>	<p>CLP Power India Private Limited                      Erudite Engineers Private Ltd.                      Essar Power Ltd                      Garware Polyester Limited                      Gupta Coalfield and Washeries Limited                      Kalyani Steel Limited                      Lanco Infratech Limited                      Nagreeka Export Limited                      Navayuga Power Corporation Limited                      Neelkamal Realtors Suburban Private Limited                      Pioneer Distilleries Limited                      Senergy Global Private Limited                      Spectrum Power Generation Ltd.                      Usha Martin Limited                      Veolia Environment Services Asia Pvt. Ltd.                      Wartsila India Limited</p>
<b>International Clients</b>	<p>Emerging Markets Ltd., UK                      European Investor active in Renewable Energy                      Genting Group Malaysia                      Ranhill Corporation Bhd., Malaysia                      RE Partners, LLP</p>
<b>Government and Regulatory Commissions</b>	<p>Bureau of Energy Efficiency                      Chhattisgarh Electricity Regulatory Commission                      Forum of Regulators                      Gujarat Electricity Regulatory Commission                      Maharashtra Electricity Regulatory Commission                      Ministry of New and Renewable Energy                      Punjab State Electricity Regulatory Commission                      Rajasthan Electricity Regulatory Commission                      Special Officers to Appellate Tribunal                      Uttarakhand Electricity Regulatory Commission</p>
<b>Industry Associations &amp; Institutions</b>	<p>Himachal Small Hydro Power Association                      Independent Power Producers Association of India                      Indian Wind Energy Association                      World Institute of Sustainable Energy</p>
<b>Utilities</b>	<p>BSES Rajdhani Power Limited                      BSES Yamuna Power Limited</p>

Bhilai Steel Plant (Steel Authority of India Ltd)  
Chhattisgarh State Electricity Board  
Maharashtra State Electricity Distribution Company Ltd  
Maharashtra State Electricity Transmission Company Ltd  
Maharashtra State Power Generation Company Ltd  
South East Central Railway  
The Tata Power Company Limited  
The Mula Pravara Electric Co-operative Society Ltd.  
Transmission Corporation of Andhra Pradesh Ltd  
WESCO, NESCO and SOUTHCO

## 6 Contacts

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