



Enhancing the corporate energy performance

*Energy efficiency and
Renewable energy,
GRID*

pwc

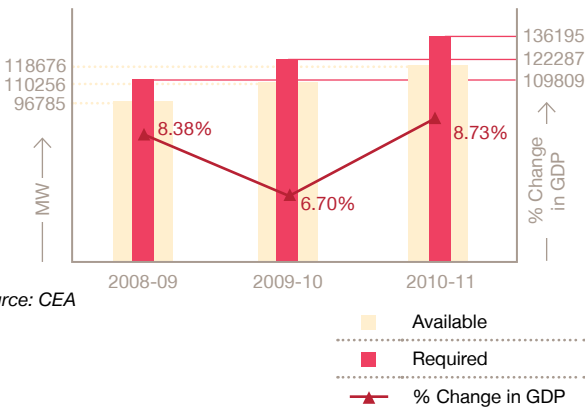
Emerging Energy Markets

Some Concerns in the Indian energy scenario

India faces formidable challenges in meeting its energy needs and providing adequate energy of desired quality (in various forms) in a sustainable manner and at competitive prices. Persistent electricity shortages have been identified as a key bottleneck in sustaining India's growth rate. The dynamic Indian energy market centres around the following factors:

Availability

- “For India to maintain the existing GDP growth trajectory of 9% (approx), power sector shall need to grow at the rate of 8.1% annually” - Planning Commission of India
- Economy primarily dependent on fossil fuels – likely to last for another 60 years.
- CEA estimates energy deficit and peak deficit of 10% and 13% respectively in 2011-12.

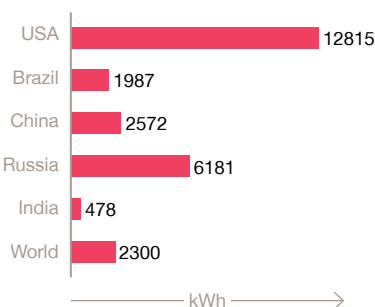


Source: CEA

Accessibility

- Per capita consumption of electricity in India is mere 478kWh compared to world average of 2300kWh
- Investment opportunities remain untapped in:
 - Urban India, where 21 million do not have access to electricity.
 - Rural India, where 268 million do not have access to electricity.

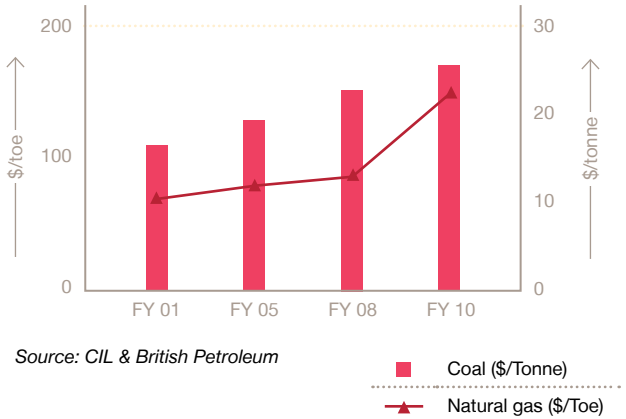
Per Capita Consumption



Source: CIA Fact Book, 2010

Reliability

- Cumulative power outage –in some states is as high as 1,30,000 Hrs/Annum (Source: CEA)
- Industrial consumers are shifting from GRID connectivity to Captive or Open access mode, which have inherently complex procedures



If the cost of energy increases at the current rate, then will the business survive?

Affordability

- Crude oil price (Indian Basket) has increased from 26.92 to 85.09 in last decade (Source: MoPNG)
- Average Coal price has increased by about 77% in last 10 years. (Source: CIL)

Some potential Solutions - Clean Energy Initiatives in India

- Perform Achieve and Trade (PAT): Mandatory Energy Saving target to specified designated consumers
 - EE market estimated to be about Rs. 74000 crores
 - 23 million TOE worth of fuel savings, avoided capacity of over 19,000 MW
- Renewable Purchase Obligation (RPO): Specific quantum of power mandated to be sourced from renewable energy defined for each state and captive consumers
 - Aimed at increasing the national renewable power consumption from 5% in 2008-09 to 15% in 2019-20
- Renewable Energy Certificates (REC): Tradable certificates issued to renewable energy generators, etc.
 - Over 2000 MW RE projects registered under REC regime
- Building Sector EE initiatives like LEED India / ECBC compliance
- Evolving EnMS standards like ISO 50001 can prove to be an effective instrument to harness the mentioned benefits

Our Services

PwC has extensive experience of working closely with private sector, policymakers, financiers, utilities and other stakeholders to address the challenges of conventional energy with energy efficiency and renewable energy. We offer comprehensive services aimed at industries in Energy Management which include:

Corporate EnMS

(comprehensive service based on ISO 50001:2011)



Corporate Energy Strategy

Technology Roadmap

Greening the Supply Chain

Energy Management Systems (EnMS)

- Put in place sound systems and processes – to progressively and systematically bring down energy consumption and costs
- Implement alternative and renewable energy solutions
- Strengthen the EnMS implementation by strategic planning, detailed energy review, long term technology roadmap and even cover your energy intensive supplier base.

Corporate Energy Strategy

- Articulate long term, and short term goals on your energy requirements, technologies and energy costs
- Make best use of existing Govt. Policies, regulatory climate and technology trends

Technology Roadmap

- Conduct detailed energy audits and technology studies
- Substantially reduce your energy intensity in the long term
 - Explore technology interventions in process & auxiliaries
 - Explore Renewable energy sources & technologies
- Benchmark your energy performance across the sector

RPO - REC Services

- Leverage the REC-RPO regime to tap new investment opportunities in RE space
- Shift from regulated to market-driven revenue streams thus improving your RE power project financials



Bid-Advisory Services



RPO / REC Services

Bid-Advisory Services for RE power projects

- Take advantage of evolving RE power cost parity under competitive bidding regime
- Optimize project costs through judicious selection of vendors

Greening the Supply Chain

- Have an energy intensive supply chain? Positively influence the energy performance of your supplier base and reap allied benefits

Customised Solutions

We at PwC firmly believe in putting ourselves in our client's shoes. While we have carefully assembled a comprehensive package of clean energy services, we do recognize that the most effective of services are designed by collaborating with you, our customers. We listen to your specific concerns and requirements, and then collaborate with you to design a customized set of services. In the process, we can also draw upon the elements of the various services described above, like corporate energy strategy, technology roadmap etc.

Contacts

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Key Credentials

Corporate Energy Strategy

- Energy sector investment plan and roadmap for Maldives
- Preparation of business Plan 2020 and Vision Document 2032 for a leading power finance corporation
- Preparation of business plan for Energy Efficiency Services Limited
- Preparation of corporate plan
- Preparation of business plan, and support in debt equity syndication
- Advisory on setting up a 5 MW solar thin film power plant in Karnataka
- Financial model review for Hydel plant acquisition
- Advisory support for identifying limitations in transmitting wind power

REC / RPO Services

- PwC has pioneered in designing REC implementation framework
- Formulation of mandatory RPO targets in MP
- Wind project development under REC mechanism

Technology Roadmap

- Detailed energy audits in energy intensive industries – Chemicals Sector, Textile Sector
- Baseline energy audits under PAT - Textile sector
- Identification of applications of solar energy technologies in industries
- Technical expertise for development of energy standards for inverters, batteries and UPS
- RE technology development in states of West Bengal & Madhya Pradesh
- Energy Efficient Procurement
- Identification and Application of Eco design requirements in India
- Support for Investment Grade Energy Audits and Implementation in Buildings

Greening Supply Chain

- Selection of partners for turnkey and EPC services to solar IPP's in India
- Tenant identification and closing transaction for solar manufacturing SEZ

Key Clients

Private Sector

Lanco Solar Pvt. Ltd., GVK group, TVS group, Greenko group, Caparo Energy India Ltd., GMR Krishnagiri SEZ Ltd., Advita (P) Ltd., Abhijit Group, HCC Infrastructure, Genexx Enpower Corp. Pvt. Ltd., Sunner Solar Corporation Taiwan, Bihar Caustics & Chemicals Ltd., Cheviot Company Ltd, United Telecoms Ltd.

Multilateral & Bi-Lateral agencies

European Union, British High Commission, Department for International Development - UK, Collaborative Labelling and Appliance Standards Programme (CLASP), GIZ, Asian Development Bank, Shakti Foundation (The Climate Works), ADEME.

Government & policy makers

BEE, Solar Energy Corporation of India, IREDA, MNRE, MPERC, HPERC, CESC, Forum of Regulators (FOR) / CERC, REC, APUFIDC, PCRA, IDC South Africa.

About team

Our team consists of a mix of professionals having worked extensively on cutting edge concepts across the globe. The team consists of MBA's, Energy Auditors, Engineers and Economists backed fully by international experts from developed and emerging markets.

The team holds domain expertise in areas of Regulatory and policy support for energy efficiency and renewable energy, Energy Audit / conservation studies, Standards & Labeling of energy products, market assessment and business plans, project management, renewable energy viability assessment, implementation etc.

Our professionals have had substantial experience in working with various corporate clients, multilateral & bilateral agencies, government & policymakers and hence have a thorough understanding of energy efficiency and renewable energy sectors in India and abroad.

About PwC

PwC firms help organisations and individuals create the value they're looking for. We're a network of firms in 158 countries with close to 169,000 people who are committed to delivering quality in assurance, tax and advisory services. Tell us what matters to you and find out more by visiting us at www.pwc.com.

In India, PwC (www.pwc.com/India) offers a comprehensive portfolio of Advisory and Tax & Regulatory services; each, in turn, presents a basket of finely defined deliverables. Network firms of PwC in India also provide services in Assurance as per the relevant rules and regulations in India.

Providing organisations with the advice they need, wherever they may be located, our highly qualified, experienced professionals, who have sound knowledge of the Indian business environment, listen to different points of view to help organisations solve their business issues and identify and maximise the opportunities they seek. Our industry specialisation allows us to help co-create solutions with our clients for their sector of interest.

We are located in these cities: Ahmedabad, Bangalore, Bhubaneshwar, Chennai, Delhi NCR, Hyderabad, Kolkata, Mumbai and Pune.

Core Group of Certified Energy Auditors, CMVP's, ISO 50001:2011 & Renewable energy professionals

Equipped with state-of-the-art portable instrumentation

Cumulative Experience of More than 1500 detailed energy audits

Distinguished panel of process & technology experts

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