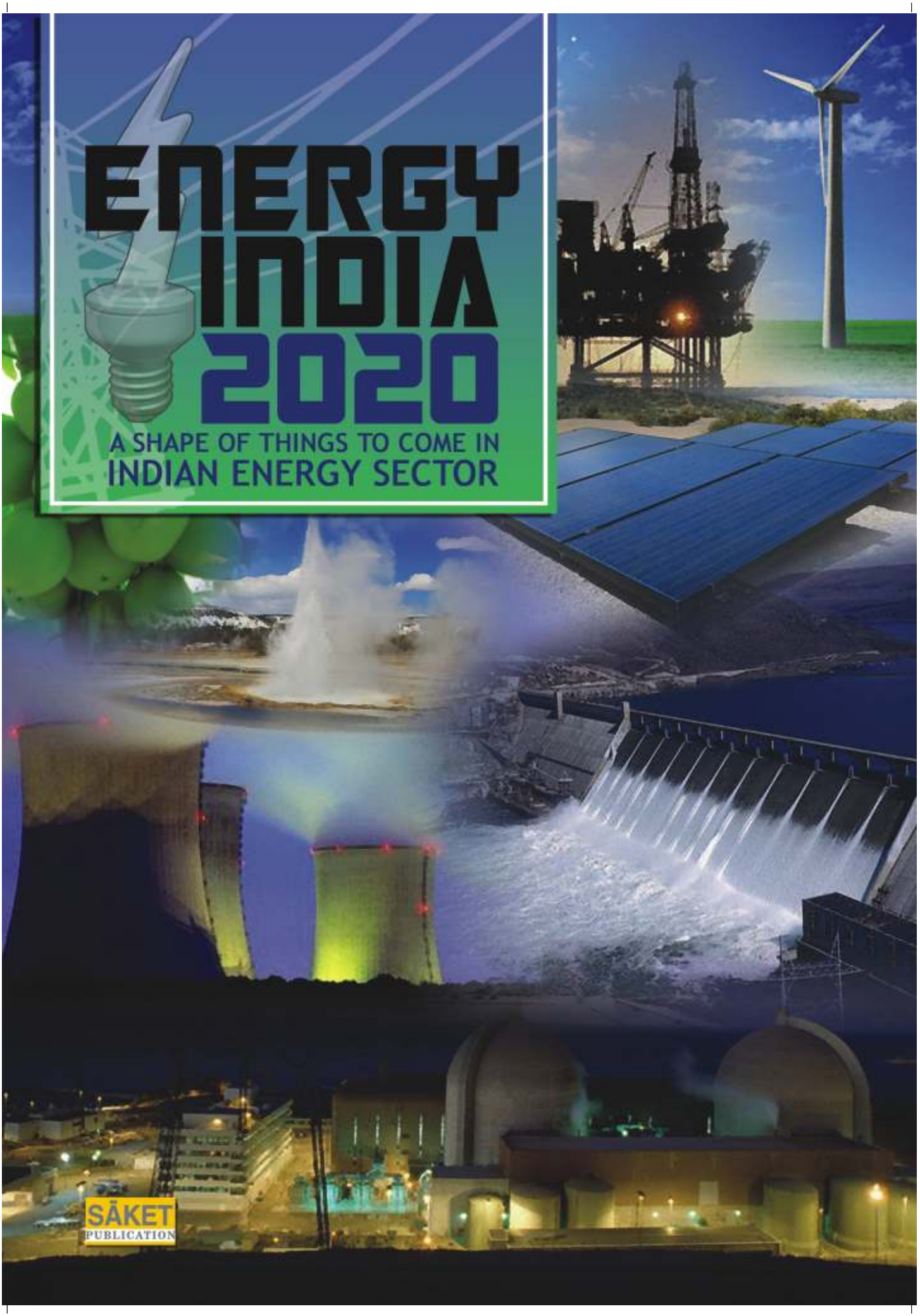
ENERGY INDIA 2020

A SHAPE OF THINGS TO COME IN INDIAN ENERGY SECTOR



SĀKET PUBLICATION

GENERAL SCENARIO

India is poised to achieve the growth rate of around 6 to 7 percent on the moderate term average. This is predicted despite the global slowdown and its after effects through which the World Economy has been passing for last several months. This would mean a considerable investment in the core sectors like energy. Despite overall increase in energy demand, per capita energy consumption in India is still very low compared to other developing countries. Today India is mostly relying upon the thermal energy though other forms of energy like Solar, Wind etc. are fast on rise. This is evident from the fact that India is world's fifth largest producer of wind power after Denmark, Germany, Spain, and the USA. A significant potential also exists for developing other non-conventional sources of energy like small hydro, biomass, and solar energy in India.

WORLD ENERGY SCENARIO

According to International Energy Agency (IEA) Report, world primary energy demand increases by 1.6% per year on an average between 2006 and 2030, registering a growth of 45 percent. The demand for oil may rise from 85 million barrels per day now to 106 mb/d in 2030. Same way demand for coal increases more than any other fuel in absolute terms. IEA 2009 report shows that there was a major shift in consumption pattern of fuel. Consumption of Gas in total energy was 14.4 percent in 1971 has increased to 15.6 percent by 2007. While consumption of oil and coal/pit has decreased in the same period. It shows the effort towards clean energy.

Renewable resources grow faster, started overtaking oil and gas and have become the largest source of energy. It is assumed that India and China may account for nearly half of incremental energy demand by 2030. Middle East is also emerging as a new demand centre for energy. Due to urbanization, the share of the world's energy consumed in cities grows to two-thirds by 2030. These present trends call for energy-supply, needing investment worth $26.3 trillion by 2030. It means an investment of over $1 trillion/year.

INDIAN ENERGY SCENARIO

India is presently the world's fourth largest economy as far as Purchasing Power Parity (PPP) terms are concerned (the GDP in PPP terms is estimated at approximately USD 3.2 trillion) and the fifth largest energy consumer in the world. However, due to its high population of approximately 1.1 billion, the per-capita consumption of most energy related products is extremely low. The per capita energy consumption is estimated to be a very modest 530 Kg of Oil Equivalent (kgoe), while the world average is approximately 1800 kgoe.

According to CEA data of 2009 thermal energy accounts 64.6 percent share in total energy production, of which energy through coal accounts 53.3 percent while gas 10.5 percent and oil 0.9 percent. The hydro power constitute 24.7 percent while nuclear 2.9 and all renewable resources constitute only 7.7 percent share in energy generation.

According to the Planning Commission, by the year 2020, oil and natural gas will meet 44 per cent of India's energy requirement compared to 50 per cent by coal. Nuclear and hydel energy would form 2.5 per cent and 3.5 per cent, respectively. Natural Gas may form 14 per cent of our energy needs in 2020 compared to 8.6 per cent today.

The importance of oil in India can be derived from the fact that oil accounts for 36 per cent of the primary energy mix in India. If we consider natural gas, this percentage increases to 44 per cent. However, the proportion of natural gas is approximately one-third of the world average, once again indicating the potential for rapid growth. It may be noted in this context, that a heavy reliance on coal in India is not optimal, given that coal is a far more polluting fossil fuel as compared to natural gas.

Indian has immense potential of renewable resources. The renewable energy sector in India attracted investments worth US$ 3.7 billion in 2008, a growth of 17% over the previous year. According to Mr. Deepak Gupta, Secretary, MNRE, “India generates 13,878 MW of grid power from renewable resources like wind, solar, small hydro, biogas co-generation and biomass, which accounts for 9% of total installed generation capacity. The 11th Five Year Plan targets 14,000 MW of grid interactive and distributed renewable power generation installed capacity by 2012. This envisions a 10% contribution of renewable power generation capacity by 2012”.

There will be an enormous potential for exploring various renewable resources as quoted the figure in his book: India 2020 - A Vision for the New Millennium by Dr. Abdul Kalam with Y S Rajan.

ESTIMATED POTENTIAL FOR VARIOUS RENEWABLE ENERGY TECHNOLOGIES

Sources/System	Approximate Potential
Biogas plants (in millions)	12
Improved woodstoves (in millions)	120
Biogas (MW)	17000
Solar Energy (MW/KM2)	20
Wind Energy (MW)	20000
Small Hydropower (MW)	10000
Ocean Energy (MW)	50000

Source: India 2020 - A Vision for the New Millennium by Dr. A P J Abdul Kalam & Y S Rajan, Page No. 254

ENERGY VISION 2020

In the coming years, India needs to adopt clean energy technology to have quality, uninterrupted power supply as its demand increases almost by 4-fold. It is most essential; to take long term policy initiatives as well as modernization to promote clean energy.

India 2020 - A Vision for the New Millennium Dr. APJ Abdul Kalam quoted that "No nation can aspire to be modern and developed without the availability of quality power for all. No modern machinery can run without uninterrupted and quality power systems. The whole magic wand of Indian information technology will be at naught if there is no electric power. Imagine New York or London or Tokyo having just one day without power or a week of interrupted power supply. It just cannot happen. If it did, it could bring down the government. When we look at the power situation in India, "depressing" or "gloomy" appear to be mild words to describe it. Hundreds of thousands of precious human hours are lost because of lack of quality electric power."

In his recent paper "Leading to Energy Independence" Dr Kalam quotes that "India has 17% of the world's population, but only about 0.8% of the world's known oil and natural gas resources. Based on the progress visualized for the nation during the next two decades, the power generating capacity has to increase to 400,000 MW by the year 2030 from the current 130,000 MW in India. This takes into consideration the energy economies planned and the design and production of energy efficient equipments and systems. Energy independence has got to be achieved through three different sources namely renewable energy (solar, wind apart from hydro power), electrical power from nuclear energy and bio-fuel for the transportation sector. "

In the near future, there will be a major shift in the fuel sector where oil and gas are known as fuel for the future. On the other hand, renewable energy sector has also paves their way to tap the potential.

ABOUT THE BOOK

Looking to the enormous potential in power sector, we are launching book on Energy India - 2020 : A Shape of Things to Come in Indian Energy Sector with special focuses on global as well as Indian scenario by year 2020. The book covers perspective of global energy sector and its resources in the next ten years, the second part of the book taking stock of the situation of Indian power sector and its resources like oil, gas and coal sector and also discusses the clean technology too. The third part of the book discusses the renewable energy resources in India as well as in the world.

In present competitive economy it is now essential for all sectors to conserve energy to cut down the power cost. Energy conservation and management is very crucial now a days where power cost increases day by day. The ESCO companies have made great efforts to save the energy to lower down the cost in domestic as well as industrial energy consumption. Apart from all these major topics, we are planning to cover latest and authentic statistical information as well as listings of global/Indian energy companies. Besides that we also cover profiles of major players, energy statistics and directory.

ENERGY INDIA 2020 : A SHAPE OF THINGS TO COME IN INDIAN ENERGY SECTOR

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GLOBAL PERSPECTIVES OF ENERGY SECTOR

Status Report
• Conventional Energy • Renewable Energy (Wind/Hydel/Solar/Biomass/Bio diesel etc.)

Global Energy Resources
• Coal • Oil • Gas • Nuclear • Renewable (Wind/Hydel/Solar/Biomass/Bio diesel etc.)

PERSPECTIVES OF ENERGY SECTOR IN INDIA

Status Report
• Conventional Energy • Renewable Energy (Wind/Hydel/Solar/Biomass/Bio diesel etc.)

Energy Resources - India
• Coal • Oil • Gas • Coal Bed Methane • Nuclear • Renewable (Wind / Hydel / Solar / Biomass / Bio diesel etc.)

Power Sector Reforms & Future Potential
Energy Scenario - Global & in India, Emerging areas in Power Sector and Future Projections, Present market size and status of energy sector, Urban and Rural energy shortages and future plan, Key Government (state/central) Policies and Act, Regulatory reform, achievements, problems, and future action, Private sector participation and distribution reforms and its impact, Transmission and Distribution of Energy & its reform and scenario by 2020, Power Trading in India by 2020, Likely Reform in the electricity sector by 2020, Energy Efficiency Initiatives by government and its Future Investment in Energy Sector by 2020, Planning, design, implementation, and evaluation Energy Security (Demand side Management) by 2020, Profile of Leading Power Sector Companies.

Fossil Fuels as Key Energy Sources
Global Scenario/Indian Scenario of Fossil Fuels

Oil & Gas
Emerging Opportunities in Oil & Gas Sector, Expected Reserves/Exploration in the World/India, Trends in Production of Oil & Gas sector, Policy Initiatives for Oil & Gas Sector World/India, Oil/Gas Sector Pricing & Its Impact on global economy, Profile of Oil & Gas Companies (World/India Top Ten Oil & Gas Companies)

Coal/Lignite
Coal Reserves in India/World, Coal/Lignite as Major Source for Power in India/World, New Technology (Clean Technologies) in the Thermal Power Sector, Policy Issues
Distribution of Coal/Lignite, Pricing and Demand Side Management, Profile of Coal/Lignite Companies (World/India), Coal Bed Methane

NON-CONVENTIONAL ENERGY - DEVELOPMENT SO FAR & POTENTIAL SOURCES

Present status and future demand for non-conventional energy sources (World/India)
(Hydro power, Wind Energy, Solar Energy, Biomass energy (Biomass power generation, bio-waste to energy, bio fuel (ethanol/Bio diesel), Hydrogen & Fuel Cell, Marine Energy, Geothermal Energy), Development of Non-conventional energy sources & its potential
Policy Initiatives by the government in Non-conventional energy sector, Financial Support from Government to Promote Non-conventional Energy in India, Emerging Technologies for non-convention sources, Role of Government Organization/Institutions
Nuclear Energy - Global & India, Profile of Global Funding Agencies for Renewable Energy Source, Profile of World/India Major Technology Suppliers of Wind/Solar/Hydro/Biomass etc)

PROFILE OF MAJOR PLAYERS OF ENERGY SECTOR

Company profile of major Energy Companies with their activities and future plans.

ENERGY EFFICIENCY & ENERGY AUDIT

Energy Efficiency Initiatives
Increasing Energy Cost & its Impact on Global & Indian Market, Depleting Energy Resources and its Impact on Competitive market, Potential of Energy conservation in India (Sector wise), Clean Energy Initiatives by the Government, Need for Energy Efficient Use, Economic assessment methods for conservation and generation technologies, Co-generation and its technologies issues, Role of the Bureau of Energy Efficiency (BEE), Demand Side Management, CDM & Carbon Credit

Energy Audit & Role of Energy Management Company/Auditors
Importance of Energy Audit in Industries, Energy conservation Act and its benefits
Norms of Energy conservation, Accreditation of Energy Auditor, Energy Efficiency through ESCO, Energy Audit Standards and labeling programs, Profile of Major Energy Management & Auditors

Energy Efficient Systems
Energy efficient buildings, Energy Conservation in HVAC System, Energy Efficient Boiler / Steam system, Solar Energy System, Energy Efficient Lightings, Energy Efficient Cooling Tower System, Energy Saving in Electric Motor & Plump.

ENERGY STATISTICS

Statistics of conventional and non-conventional energy sector

ENERGY DIRECTORY

List of Ministries concerned with Energy Sector, Organization & Institutions of Energy Sector, State Electricity Boards, Private/Government Sector Power Sector Companies, Oil Sector Companies, Gas Companies, Lignite Companies, Major Electrical & Lighting Companies, ESCO consultant.

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As a part of energy management activity and also with a view to spread awareness about prudent use of energy, SAKET organizes annual event - Synergy with Energy and exhibition - INDIA ENERGY SHOW (www.synergy4energy.net). SAKET also organizes TEXCELLENCE, STEAMTECH and PORTS & INFRASTRUCTURE events every year. All these events are high profile events enjoying very good brand equity.

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