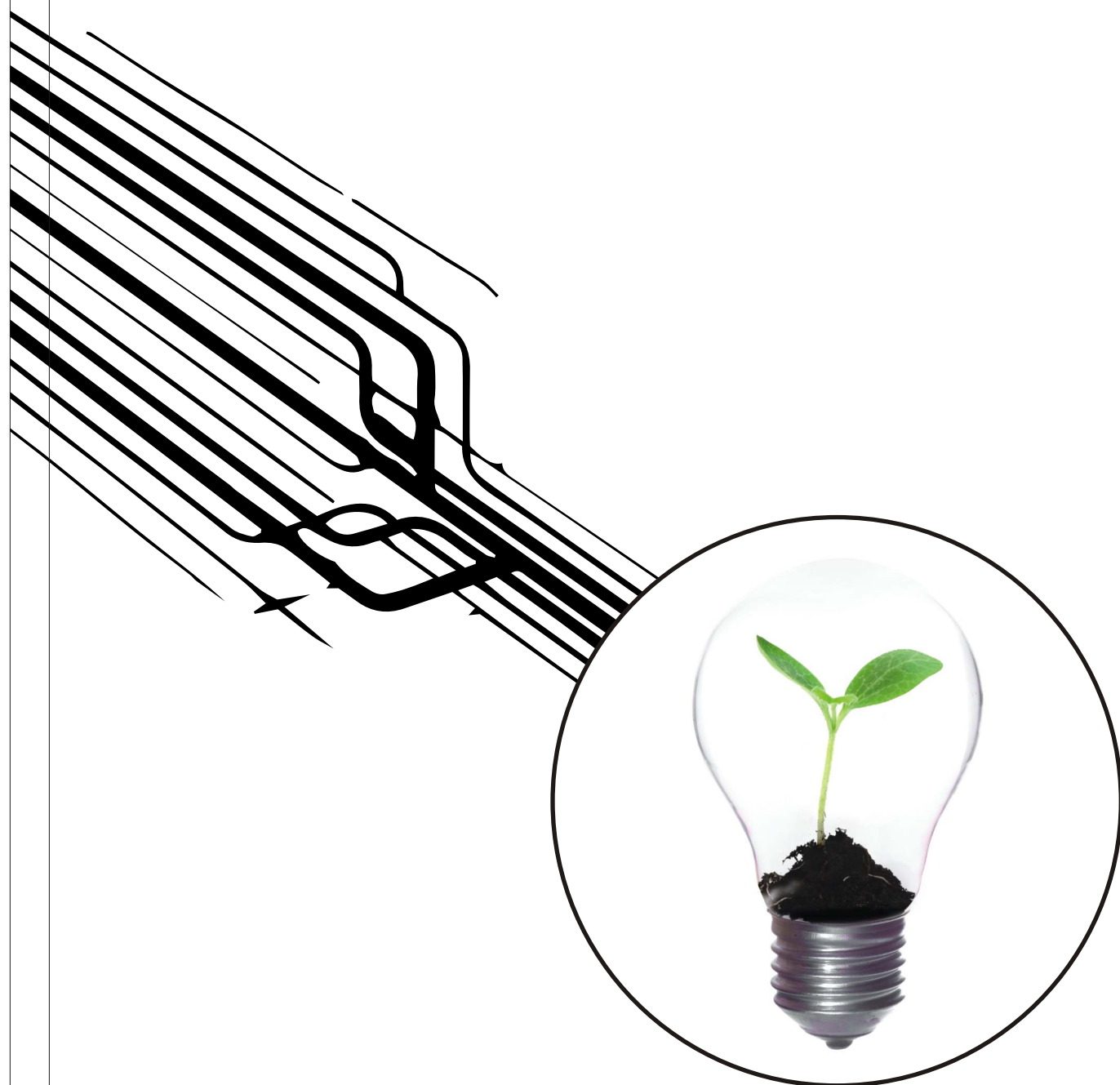


# Power to the Planet

**Sustainability Disclosures  
by the Indian Power Sector**

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**Thought Arbitrage Research Institute**

Thought Arbitrage Research Institute (TARI) is a not-for-profit organisation set up under Section 25 of the Indian Companies Act, 1956. TARI's mandate is to develop intellectual capital for the country in the areas of corporate governance, sustainability and public policy.

TARI works with the Indian government, regulators, multilateral agencies, standard setting bodies, various businesses and trade organisations both in India and overseas to put together independent research and thought papers. Our research output is based on quantitative and empirical analysis which is supplemented by qualitative interventions for holistic outcomes. Some of the thought papers and articles can be accessed at [www.tari.co.in](http://www.tari.co.in)

TARI is an Organisational Stakeholder of Global Reporting Initiative (GRI) and GRI's Certified Training Partner in India.



**TERI BCSD**

With a vision to create a synergy for the corporate sector as a whole to move towards sustainability, TERI-BCSD (Business Council for Sustainable Development) was set up by The Energy and Resources Institute (TERI) in 2001. It has now evolved into a strong industry body, with membership from diverse sectors, including public sector undertakings, multinationals, and private companies from across India. They work towards evangelizing business sustainability through industry specific initiatives that provide a platform for knowledge, learning and encourage sharing of best practices. It is also the Indian partner of the WBCSD (World Business Council for Sustainable Development), Geneva.

TERI-BCSD India member company representatives identify, conceptualize and implement projects in partnership with researchers at TERI and the structure of the business council reflects this partnership. TERI provides research and implementation support to the business council and acts as the permanent technical resource for various theme specific action oriented projects, knowledge papers, seminars and capacity building workshops. Membership is by invitation only. For more information please visit [www.teriin.org/bcsd](http://www.teriin.org/bcsd).



**CLP India**

CLP India is a wholly owned subsidiary of the CLP Group, which is listed on the Hong Stock Exchange and is one of the largest investor-owned power businesses in Asia. CLP India is one of the largest foreign investors in the Indian power sector with a total committed investment of over INR 12,000 Crores. This investment is spread across a diversified and environment friendly generation portfolio that covers renewable energy, supercritical coal and gas fired generation, amounting to 2,947 MW.

It's been operating a 655 MW gas fired power plant in Bharuch, Gujarat, since 2002. This plant has achieved NOSA 5-Star accreditation for complying with the highest level of internationally accepted safety standards and is ISO 14001 certified, complying with the highest standards in environment conservation. The plant was recently awarded the status of a "NOSCAR" company-which is the ultimate recognition of excellence in occupational risk management. The company is also building a 1,320 MW supercritical coal-fired power plant in Jhajjar, Haryana. Both the units of this plant have been successfully synchronized and the first 660 MW unit of the Jhajjar Power Plant has achieved Commercial Operation Date (COD).

In line with the CLP Group's commitment to developing 20% of its generating capacity from non-carbon emitting energy sources such as renewable energy and nuclear power by 2020, CLP India is one of the largest wind power developers in India with over 970MW of committed wind projects – over 400MW of this capacity is already commissioned and the rest is in various stages of development.



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## FOREWORD



indicators for determining the most material and comprehensive sustainability reports.

It became evident from the analysis that Indian power companies need to disclose sustainability data relevant to key stakeholders in the corporation—not just economic stakeholders, but also customers, employees, communities, suppliers, and above all the environment. Transparency in data disclosures by industry players would be critical in their business performance making them more responsive to global challenges and the emerging demands of the society.

We believe this study provides new insights into the materiality of sustainability issues for power companies in India in its journey towards disclosure, transparency and good management. As such, it is useful not only for regulatory or standards-setting bodies, but for corporations working to put processes in place to manage risks and opportunities associated with non-financial issues facing the power sector.

We recognize that the task at hand is challenging. What exactly will be the outcome of this study toward mandatory sustainability disclosure in India and beyond may not be entirely clear today, but we hope that the ideas brought forward in this paper can contribute to that important debate.

We thank our project partner Thought Arbitrage Research Institute for this report and look forward to bringing out more specialized sector reports in the months ahead.

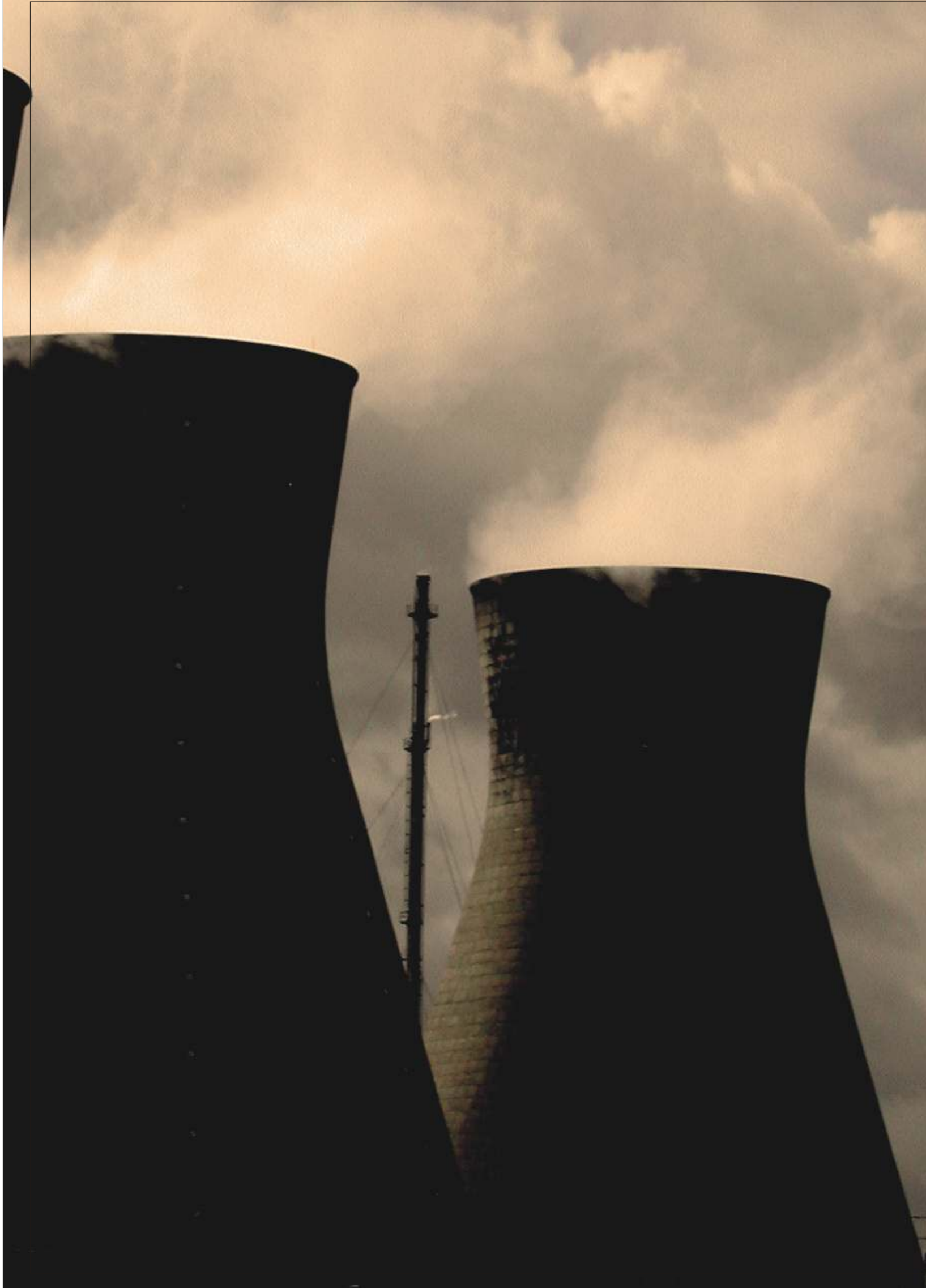
**Dipankar Sanyal**  
CEO, TERI-Business Council for Sustainable Development  
The Energy and Resources Institute (TERI)

The power sector is one of the largest consumers of finite resources and also forms the fundamental input in any growth economy. Our conviction is that

- improved disclosure of sustainability data in India is both necessary and urgent
- reporting must be mandatory, albeit with a progressive level of maturity over a defined time frame, and
- better guidance would enable companies rise to the challenge of sustainability reporting, and see its benefits in business rather than as a burden of compliance.

With the above as *raison d'être*, we took this maiden endeavour to look beyond the obvious in state of reporting/disclosures by business in India, and with an active support of CLP Power, started with the power industry. We also wanted to understand and possibly provide sufficient inspiration to Indian power companies to move from a compliance driven “disclosure” approach to one of managing, and even competing on, sustainability issues that are important for business continuity and profitable growth.

We also recognize that it is difficult to ascertain what data will constitute comprehensive, information on how actions of corporations affect lives of the community in which they operate and what measures should corporations adopt to ensure sustainability or improved quality of goods and level of services in future years. In the absence of specific guidelines, companies adopt commonly used reporting formats in varying degrees of detail. Meanwhile, the Indian government's new National Voluntary Guidelines have set out its own list of principles, core elements and key



## EXECUTIVE SUMMARY

Welcome to the **Power to the Planet: Sustainability Disclosures by the Indian Power Sector**—a joint research by Thought Arbitrage Research Institute, TERI BCSD and CLP. This study focuses on analyzing existing sustainability reporting practices in the Indian energy sector among the top power companies, both public and private sector. We have analyzed publicly disclosed information of these companies in the form of dedicated sustainability reports, disclosures in their annual reports and websites. Some of the significant areas that the study examines are major risks and opportunities identified by power companies, methods of mitigating these risks, commitment to environment, adoption of efficient technologies, and improvement of livelihood, rehabilitation and resettlement of project affected people.

The attempt to understand—and change—the global situation has led to the growth of an important movement within society: people are requesting for more information as they attempt to understand the causes of this situation at both local and global levels, and are beginning to discuss solutions. This is accelerated by the increasing use of social media which exponentially exposes companies to public scrutiny. Citizens from all backgrounds are engaging to change the shape of the world.

Increasing civil society participation poses several challenges for organizations as there is a real and continuing demand for more information about how the organization is dealing with society's demand for transparency. As a consequence, businesses and other organizations have had to adapt their products, services, decision-making processes and management systems accordingly.

Information is also needed to monitor the effectiveness of sustainability policies, and help in the development of new macro-level metrics for national Sustainability Development Indicators. Globally, several hundred organizations report their economic, social and environmental performance, showing that sustainability reporting adds value. If sustainable development has to be reached, the time has now come for sustainability reporting to become standard practice.

India's business and investment communities are beginning to recognize the benefits of sustainability reporting and

organizational transparency. This is shown by the Securities and Exchange Board of India (SEBI) mandate that the 100 largest listed entities must submit Business Responsibility Reports, as a part of their annual reports for reporting periods 31st December 2012 onwards. This is closely aligned to the National Voluntary Guidelines on Social, Environmental & Economic Responsibilities of Business issued on 8 July 2011 by the Ministry of Corporate Affairs, Government of India. The Guidelines provide a robust framework that may be adopted voluntarily by companies to address interests of various stakeholders, including employees, customers and investors. Other recent developments include the Sustainable Development and Corporate Social Responsibility Guidelines for Central Public Sector Undertakings (CPSEs). This requires that a part of each CPSE's yearly target of SD & CSR spending is earmarked along with a commitment to implement such goals in addition to their financial and business targets. Also, the Companies Bill 2012 requires companies to spend 2 percent of average net profit of the last three years on CSR activities, setting a clear forward movement on the agenda. With reporting on sustainability still voluntary in nature, companies have a choice of disclosure mechanisms, and this choice is determined by the preparedness of the organization as well as an analysis of the sustainability risk. A growing number of companies in the metals and mining, oil and gas, power, construction and the automotive sectors are among the leading adopters of sustainability reporting.

Very few power companies in India report on sustainability matters in any form—annual reports, website or investor information, dedicated sustainability reports, etc. Traditional power companies, particularly thermal power plants, are among the highest consumers of finite and non-renewable resources which call for higher demonstration of commitment to sustainability reporting.

This study looked at the major power sector companies in India to study the communication of commitment to sustainability matters. With a few notable exceptions, no major power company in India prepares a separate sustainability report. Therefore, our analysis was focused on information contained in the annual reports and websites of the respective companies and information put out by the Ministry of Power, the administrative ministry of the power sector.

India currently suffers from a major shortage of electricity generation capacity, even though it is the world's fourth largest energy consumer after United States, China and Russia in terms of capacity. The International Energy Agency estimates India needs an investment of at least \$135 billion to provide universal access of electricity to its population.

The share of thermal power in India's energy mix is over 57% and is expected to remain as the major source in the years to come. One of the biggest environmental effects of the operation of a thermal power plant is the production of fly ash as a by-product of the process. The quantity of fly

ash generated is accentuated due to the high quantity of ash content in Indian coal; this requires a large area of land for its disposal. The land required is approximately one acre for one MW of installed capacity. It is estimated that by 2014-15, 1000 sq km of land will be required just for ash disposal. India's recent experience over land acquisition for various infrastructure projects only accentuates the risk of land acquisition for power projects. The study finds that only about half of the power sector companies consider land acquisition as a risk factor but the breakdown of this risk into land for ongoing, expansion or ash disposal is not evident.

Involvement and ownership by top management—the management structure that formulates strategies and runs the operations of the company—is a critical part of the sustainability process, given their ability to effect changes and to develop a long-term vision and goals for the organisation. However, very few companies disclose targets and associated investments on their most material aspects of business operations and policies, making evaluation and monitoring of progress by top management a non-accountable process.

Central public sector enterprises already need to spend a portion of their profits on corporate social responsibility (CSR), and this is expected to cover private sector companies as well in the Companies Bill 2012. However, there is little clarity, let alone consensus, among Indian companies about what constitutes CSR; without a clear definition, CSR means different things to different

companies. The study finds lack of a cogent and coherent CSR policy which is linked to corporate strategy including plans for periodic evaluation and monitoring of CSR spends.

The need to engage with stakeholders and partners in the value chain and the community, particularly project affected people (PAP) is not evident nor is the effective integration and outcomes of these inputs. Key processes like clear allocation of responsibility for follow-up action, establishment of linkages between stakeholder inputs and business risks, do not feature prominently in discussions and sustainability disclosures. Businesses also miss out on the opportunity of identifying material issues through constructive dialogue with stakeholders, and rather depend on their internal understanding on materiality.

The study has analyzed the preparedness of power sector companies in preparing Business Responsibility Reports (BRR) for complying with SEBI's new clause 55. The study has mapped the principles forming part of the BRRs and analysed eligible companies for readiness/compliance with the requirements of the Listing Agreement. It finds that there is still a long way to go for these companies to comply with requirements of clause 55 of the Listing Agreement; the quality of disclosures that do exist requires substantial improvement.

The study analyzed sustainability reporting practices of the top ten global utilities companies (as per Forbes magazine's Global 2000 list) to get a sense of the major concerns, risks and opportunities identified, and the extent of reporting done by these companies. The study revealed that globally,

like in India, thermal power (coal and gas) constitutes the largest share of the energy mix although unlike India nuclear energy has the second largest share. Sustainability reporting among global power utilities is more robust with several companies using established global frameworks and addressing specific sustainability issues.

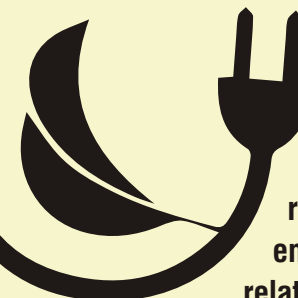
The International Energy Agency also estimates India will add between 600 GW to 1200 GW of additional new power generation capacity before 2050. Around 404 million people in India do not have access to electricity. Providing electricity to these people while moving to low-carbon electricity generation is a social imperative. Indian electricity supply and demand are projected to increase five fold to six fold between now and 2050. The technologies and fuel sources India adopts, as it adds this electricity generation capacity, may make significant impact to global resource usage and environmental issues. This will require huge investments and also create unique opportunities to transform the country's carbon dioxide intensity.

Earth's climate is a fundamental part of our life support system and shapes the way we live on this planet. With a target of 6% to 8% GDP growth in the coming years, migration from agriculture to industry and service sectors, increasing urbanization and changing consumption patterns, India's emissions are set to increase dramatically. These issues become risk factors for businesses which have to be integrated into business strategies. Measuring and reporting on all aspects of business including sustainability matters thus becomes very important for businesses to remain relevant.





## INTRODUCTION



In 1919, in a landmark judgment in the case of *Dodge v. Ford Motor Company*, the Supreme Court of the State of Michigan, USA, held that the primary objective of a business is to make profits, and that any business is responsible to its shareholders and not to the community as a whole or to its employees. To date, this judgment is treated as a fundamental reference point in relation to the responsibilities of a business and the inherent principle in it has not been overruled by courts.

Freeman brought in the concept of stakeholders in 1984, which he defined as ‘...any group or individual who can affect or is affected by the achievements of an organisation’s objectives’. The stakeholder theory asserts that firms have relationships with many constituent groups and that these stakeholders both affect and are affected by the actions of the firm. Freeman (1984) argued that systematic attention to stakeholder interest is critical to the success of a firm and that management must pursue actions that are optimal for a broad class of stakeholders rather than those that serve only to maximise shareholder interests.

The concepts of sustainability and stakeholder inclusion have been motivated by the belief that adopting sustainability practices in the long run would lead to the improved financial performance of the firm, increased competitive advantage, profit maximisation and the long-term success of the firm.

### What is Sustainability reporting?

Sustainability means different things to different people; therefore, a universal definition of sustainability is elusive. The most often quoted definition is from the Brundtland Commission (1987), which states that sustainable development is “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainability is,

therefore, more of a journey than a destination wherein ideals, values and measurement metrics are in a constant state of evolution.

The quest for sustainable development started with environmental concerns, and climate change has now become one of the biggest developmental challenges. As *the Brundtland Commission had discovered through stakeholder interaction, no single environmental issue can be seen in isolation*. Given the economic impact of climate change, it is a major governance issue.

There are compelling arguments both for and against the contention that sustainable businesses are competitive. However, only measuring, disclosing and reporting information and initiatives on sustainability will conclusively settle the open question of whether businesses practising sustainability are indeed sustainable.

**“What you can't measure,  
you cannot manage.  
What you can't manage,  
you cannot change.”**

Peter Drucker, Writer, professor and management consultant

Sustainability reporting is a vital step for managing change towards a sustainable global economy—one that combines long-term profitability with social justice and environmental care.

A key development that brought reporting on Environmental, Social and Governance (ESG) parameters to prominence in India was the launch of Standard & Poor's (S&P) ESG India Index in 2008. This is the first index of companies in India that measures and ranks 50 National Stock Exchange (NSE) listed companies on their ESG performance. The initiative, launched in 2008, was sponsored by the International Finance Corporation and executed by the Credit Rating Information Services of India Limited (CRISIL) and KLD Research & Analytics. It is the first index in India comprising of companies whose business strategies, performance and investment decisions demonstrate their commitment towards ESG obligations. Fifty of the 500 largest companies listed on the NSE (that meet certain ESG criteria) are a part of the index. The Bombay Stock Exchange, supported by GIZ recently launched the new index called 'BSE-GREENEX' measuring the performance of companies in terms of carbon emissions. This index is expected to assist investors in their decision making based on the carbon efficiency of stocks according to purely quantitative performance based criteria.

### About this Study

Indian companies have been reporting on sustainability parameters as a distinct section for about ten years now. However, the overall reporting initiatives have been sporadic and incomprehensive. It has been only over the past five years that a growing number of companies have been preparing separate sustainability reports in the backdrop of coordinated efforts made by the Indian government in its policy and legislative framework, coupled with initiatives of the industry and investors in this sphere.

A baseline study of sustainability practices among Indian reporters was conducted in early 2012 ('Sustainability Reporting: Practices and Trends in India 2012', Thought Arbitrage Research Institute, Global Reporting Initiative Focal Point India and GIZ) over eight sectors covering 110 annual reports, 75 sustainability reports and 110 websites.

The study found that reporting formats and disclosures are based on guidelines and questionnaires and are primarily voluntary. Companies therefore have a choice, determined by their preparedness to deal with the challenges concerned and their sustainability risk analysis. Companies in certain

sectors are required to conduct an Environment Impact Assessment and find it easier to make requisite disclosures. Therefore, the top three sectors that have disclosures related to sustainability which are distinct from their annual reports are:

- Oil and Gas
- Information Technology
- Metals and Mining

Very few power companies in India report on sustainability matters in any form; traditional power companies, particularly thermal power plants, are among the highest consumers of finite and non-renewable resources which call for higher demonstration of commitment to sustainability reporting.

This study looked at the major power sector companies in India to study the communication of commitment to sustainability matters. With a few notable exceptions, no major power company in India prepares a separate sustainability report. Therefore, our analysis was focused on information contained in the annual reports and websites of the respective companies and information put out by the Ministry of Power, the administrative ministry of the power sector.

The findings of the study are expected to draw attention to the level of public commitment to sustainability matters by India's largest power companies who operate in a sector with acknowledged high intensity of sustainability impacts. The study is also expected to establish a reference or baseline against which reporting efforts can be compared in subsequent reporting assessments.

### Introduction to the power sector

One of the key drivers of economic development is electricity. It plays a pivotal role in sustainable development. While it powers social and economic progress it also has an adverse impact on the environment. A continuous, consistent and reliable supply of electricity is a prerequisite for economic development, social security and public welfare. In developing nations where electricity is in short supply social services such as health and education are constrained. Electricity utilities that are engaged in extending electrification make an important contribution to alleviating poverty both in the individual household as well as at the societal level as well as having a positive impact on the environment.

According to the World Business Council for Sustainable Development, sustainable development applied to electricity includes maximising its contribution to economic and social development, whilst minimising its environmental impact. This can be achieved through:

- promotion of available, accessible and affordable electricity to benefit the economy, the environment and society;
- using electricity wisely;
- making economical end-use of energy sources;
- maximising economic use of low-and zero-carbon emitting electricity generation options;
- maximising the efficiency and minimising the environmental impacts of the generation, transmission,

distribution and use of electricity in a cost-effective manner

Efficiency improvements in the electricity sector have the potential for big savings in total power use and large reductions in greenhouse gas (GHG) emissions. According to the International Energy Agency (IEA) Energy Technology Perspectives (ETP) 2010 Blue Map Scenario, energy savings in the electricity sector could reduce carbon dioxide (CO<sub>2</sub>) emissions by 7.3 Gigatonnes (Gt) in 2050 relative to business as usual (BAU), representing 17% of total emission reduction.

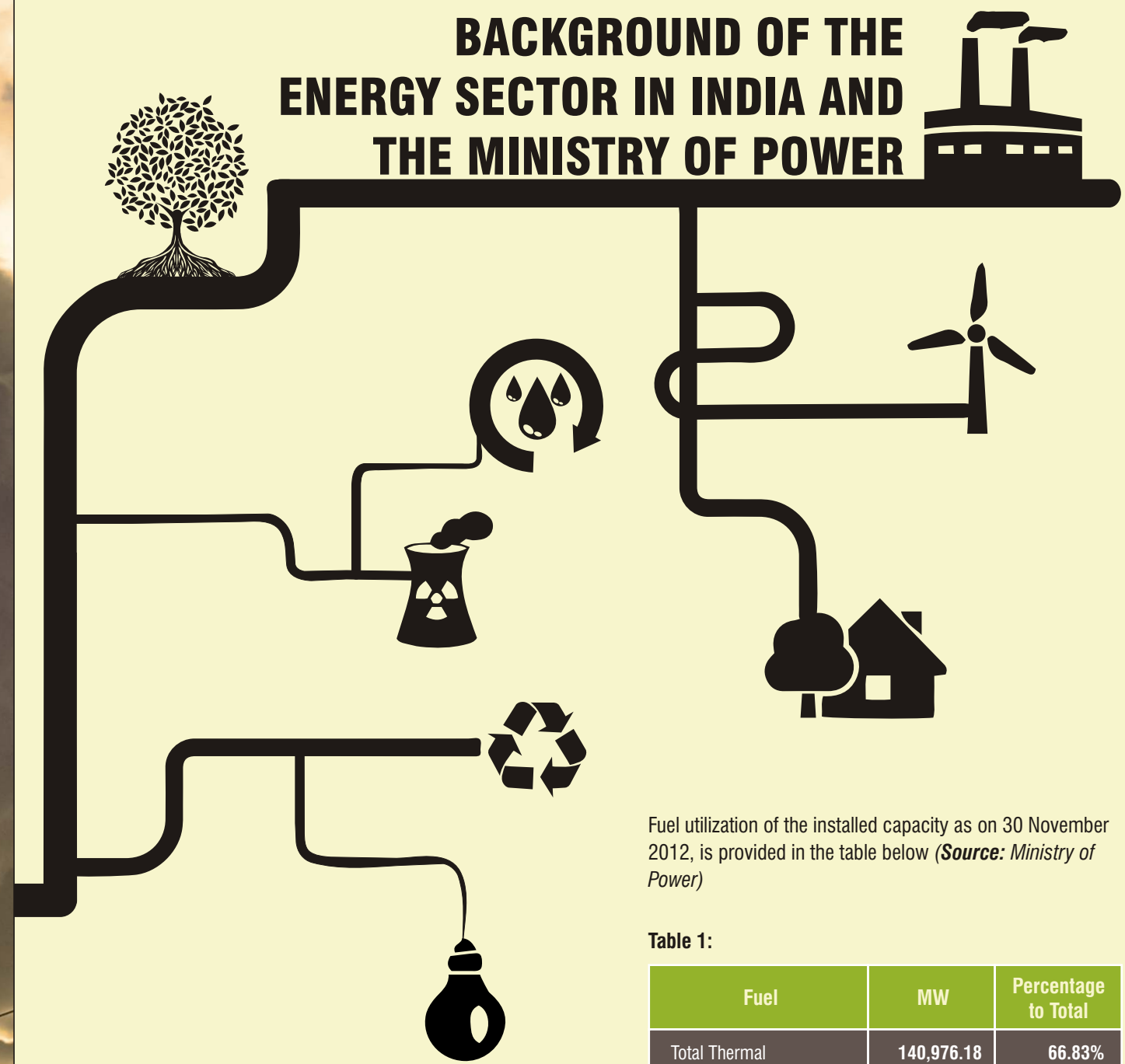
*(Source: Integrating Energy Efficiency Across the Power Sector Value Chain-WBCSD)*

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## BACKGROUND OF THE ENERGY SECTOR IN INDIA AND THE MINISTRY OF POWER



Fuel utilization of the installed capacity as on 30 November 2012, is provided in the table below (*Source: Ministry of Power*)

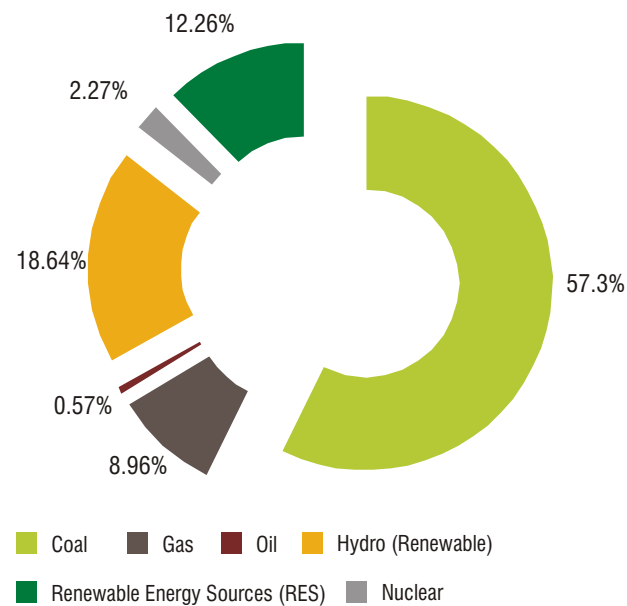
**Table 1:**

Fuel	MW	Percentage to Total
Total Thermal	140,976.18	66.83%
Coal	120,873.38	57.30%
Gas	18,903.05	8.96%
Oil	1,199.75	0.57%
Hydro (Renewable)	39,324.40	18.64%
Nuclear	4,780.00	2.27%
Renewal Energy Sources (RES)	25,856.14	12.26%
<b>Total</b>	<b>210,936.72</b>	<b>100.00%</b>

India is the world's fourth largest energy consumer after the United States, China and Russia. According to the World Energy Outlook 2012 (of the International Energy Agency - (IEA)) the global energy demand is expected to grow by more than one-third over the period to 2035 with China, India and the Middle East accounting for 60% of that increase. The Indian power sector has made substantial progress during the past few years, but it still has a long way to go to meet ever-increasing demand and make good transmission and distribution losses. The installed capacity of the industry has grown from 1,361 MW in 1947 to 209.28 GW (i.e. 209276.04 MW, which is a growth of 15K+%) as of October 2012 (*Source: Ministry of Power*).

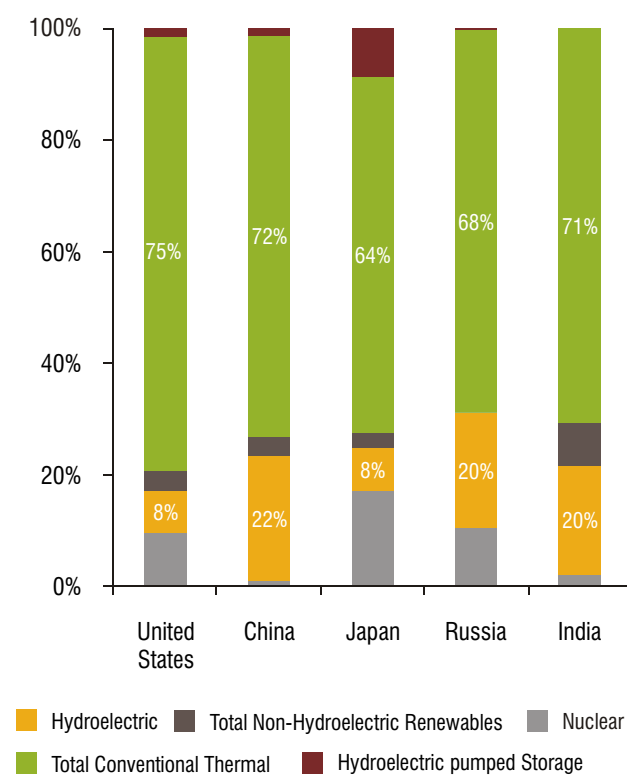
*RES include Small Hydro Project, Biomass Gasifier, Biomass Power, Urban & Industrial Waste Power and Wind Energy*

**Figure 1: Fuel Utilisaion of Installed Capacity**



Compared to this based on data available for 2010 the installed capacity in the United States predominantly comprised of coal fired plants - 75%, while for China it was 72%, for Japan 64% and Russia 68%. (See chart below)

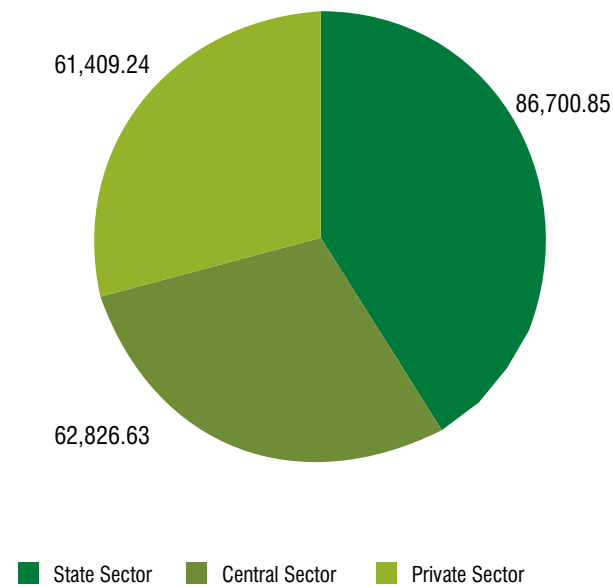
**Figure 2: Electricity Installed Capacity by Type (Million Kilowatts)-2010**



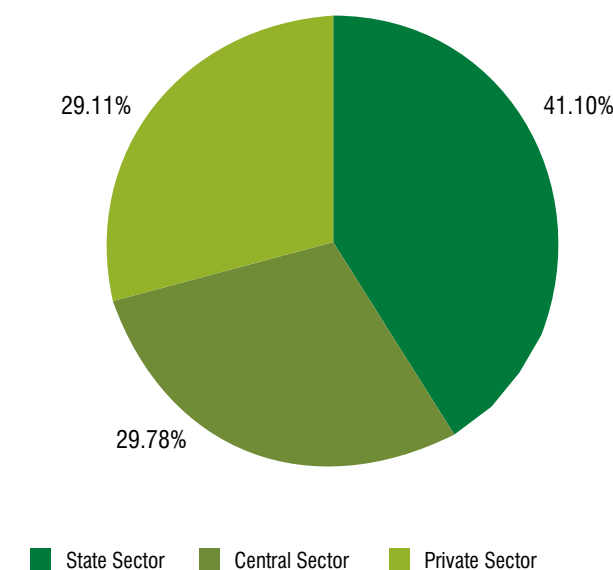
Source: US Energy Information Administration - Independent Statistics & Analysis

The sector-wise distribution of installed capacity is presented below

**Figure 3: Total Installed Capacity by Sector (in MW)**



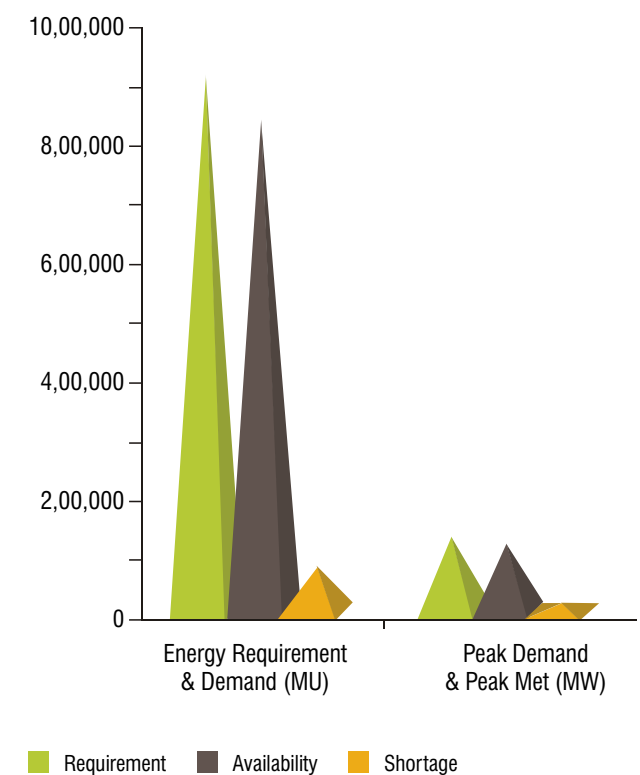
**Figure 4: Total Installed Capacity by Sector - %age Contribution**



**Energy Requirement & Demand**

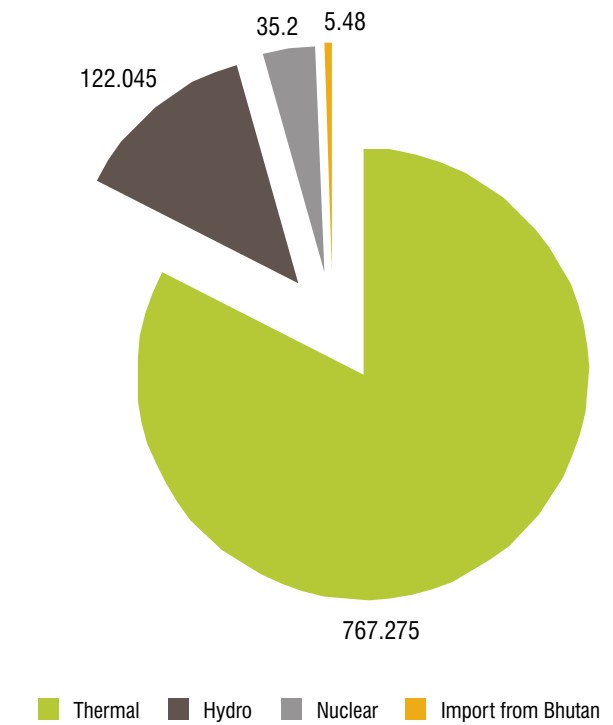
According to the Ministry of Power during the year 2011-12, the energy requirement was 937,199 MU (million units), as against energy availability of 857,886 MU, showing a shortage of supply to the tune of 79,313 MU or 8.5%. During the same period peak demand was 130,006 MW while the peak met was only 116,191 MW resulting in a peak shortage of 13,815MW or 10.6%.

**Figure 5:**



**National Electricity Policy (NEP):** The NEP stipulates power for all and the Annual Report of the Ministry of Power has estimated the annual per capita consumption of electricity to rise to 1000 units in 2012. The electricity generation target for 2012-13 has been fixed at 930 BU a growth of 6.04% as compared to the actual generation of 877 BU in 2011-12 (Source: Ministry of Power). The break-up of this target by fuel source is presented below:

**Figure 6: Electricity Generation - Target 2012-13**



**Structure of the Power Sector**

Under the Indian Constitution, power is a concurrent subject; therefore its development is the joint responsibility of the central and state governments. The Parliament and state legislatures are both empowered to make laws.

**Ministry of Power (MoP):** The MoP is responsible for development of the electrical energy sector. It started functioning as an independent ministry from July 1992. Earlier, the power sector was governed by the Ministry of Energy, which had departments for power, coal and non-conventional energy resources. The main functions of the MoP are planning, policy formulation, administration and enactment of legislations for thermal and hydropower generation, transmission and distribution. It also looks after the processing of projects for investment decisions as also monitoring of their implementation. Training and manpower development in the power sector also come under its purview. The ministry is also responsible for administration of the Electricity Act 2003 and the Energy Conservation Act 2001 and to make amendments to these Acts from time to time in accordance with government policies.

**Central Electricity Authority (CEA):** The CEA was constituted under the Electricity (Supply) Act 1948 and was

subsequently included in the Electricity Act 2003 as well. Its functions include:

- Advising the government on matters including the national electricity policy;
- Setting technical standards for setting up electrical plants, electrical lines and connectivity to grid;
- Specifying grid standards for operation and maintenance of transmission lines;
- Promoting and assisting in timely completion of schemes and projects for improving the electricity system;
- Increasing public awareness through reports and publications;
- Advising governments and commissions on technical matters relating to generation, transmission and distribution of electricity.

**Regulatory Bodies:** The CERC (Central Electricity Regulatory Commission) and the SERC (State Electricity Regulatory Commission) are the two main regulatory bodies that govern the power sector. These regulatory bodies were formed in 1998 primarily for the protection and promotion of consumer interest, fair competition, transparency, and for providing a level-playing-field for all players in the sector. They are charged with setting up transparent procedures for tariff fixation keeping in view the interest of both the supplier and the beneficiary.

**System Operators:** There are five different regional load dispatch centres which look after the operation of power systems in their respective regions and report to the National Load Dispatch Centre (NLDC). Power Grid is the central transmission utility which acts as the NLDC.

### International Cooperation and International Climate Change Negotiations

The International Cooperation Division of the Ministry of Power (MoP) works towards augmenting cooperation in the power sector with various countries. Memoranda of Understanding and bilateral agreements exist between India and Bangladesh, Bhutan, Sri Lanka, United States of America, Germany and Canada. India is assisting Myanmar and Nepal in the development of their hydro potential. The main aim of such cooperation is to strengthen energy security, promote stable energy markets and manage Green House Gas emissions to promote sustainable growth while addressing environmental concerns through increased trade and investment and deployment of clean and efficient technologies.

The MoP has constituted a climate change cell to focus on the climate related issues that have a direct bearing on the power sector. It has helped through various conferences of the UNFCCC to inter-alia establish a second commitment period under the Kyoto Protocol, the launch of a new process towards an agreed outcome with legal force applicable to all parties and in operationalization with the Green Climate Fund (GCF).

### Other Activities of the Ministry of Power Towards Sustainable Development Vigilance Activities/disciplinary cases

**Ministry of Power & PSUs:** The PSUs continued to focus on preventive vigilance during 2011-12. The Secretary to the MoP reviews the vigilance work undertaken by PSUs and other offices functioning under the Ministry. The Central Vigilance Commission also periodically reviews the sector through meetings with the Secretary, CMDs and Chief Executives and Chief Vigilance Officers (CVOs) of the Power Sector.

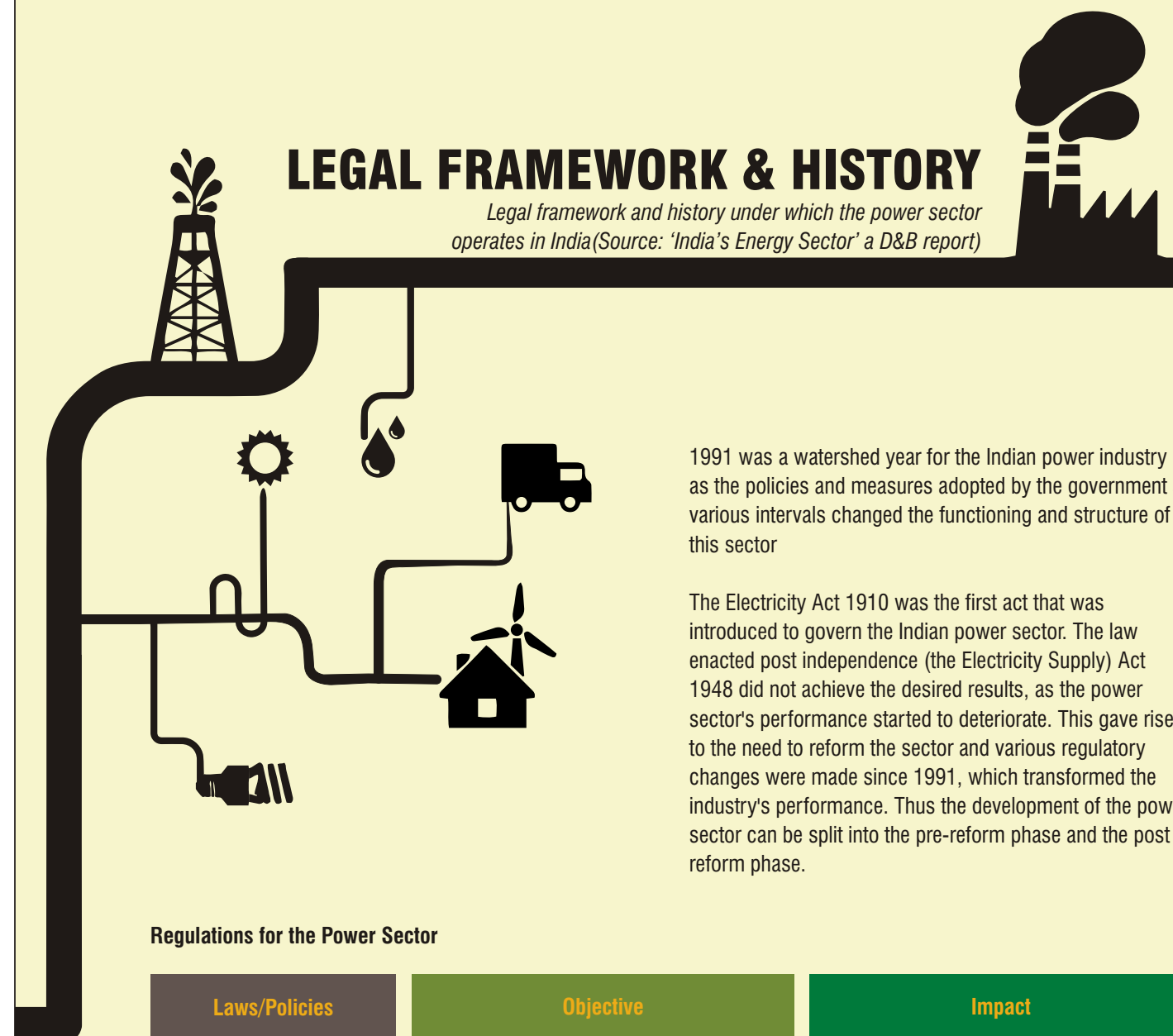
**CEA:** As on November 2011, there was only one vigilance complaint pending finalisation and prescribed periodical returns are sent to the Ministry of Power. The Vigilance Division of the CEA deals with various facets of the vigilance mechanism and functions for carrying out investigations into complaints, suggestive, corrective measures for improving the control system, compliance with laid down procedures and carrying out preventive vigilance exercises.

**National Power Training Institute (NPTI):** A vigilance awareness week was celebrated at NPTI during the year 2011-12. A seminar was also conducted on participative vigilance for creating awareness of vigilance among officers and employees. Out of the 5 vigilance cases at the beginning of the year action has been taken in 3, disciplinary action has been taken in 1 and preliminary enquiries are in progress in the remaining case.

**Bureau of Energy Efficiency (BEE):** There were no complaints received or disciplinary cases initiated in the BEE during 2011-12.

## LEGAL FRAMEWORK & HISTORY

Legal framework and history under which the power sector operates in India (Source: 'India's Energy Sector' a D&B report)



1991 was a watershed year for the Indian power industry as the policies and measures adopted by the government at various intervals changed the functioning and structure of this sector

The Electricity Act 1910 was the first act that was introduced to govern the Indian power sector. The law enacted post independence (the Electricity Supply) Act 1948 did not achieve the desired results, as the power sector's performance started to deteriorate. This gave rise to the need to reform the sector and various regulatory changes were made since 1991, which transformed the industry's performance. Thus the development of the power sector can be split into the pre-reform phase and the post reform phase.

### Regulations for the Power Sector

Laws/Policies	Objective	Impact
The Electricity Act, 1910	Infrastructural framework for supply of electricity	Attracted private capital
The Electricity Act, 1948	Mandated creation of SEBs	Ownership in the hands of SEBs
IIP Process, 1991	Private investment in power generation	Projects from private players came into generation
The Electricity (Amendment) Act, 1998	Making transmission a separate activity	Central Transmission Utility & State Transmission Utilities were set up
Mega Power Policy, 1995	Setting up of Mega power plants	Mega power plants get benefitted
The Regulatory Commission Act, 1998	Provision for setting up of Central State Electricity Regulatory Commission	Independent regulatory mechanism
National Electricity Policy	Competition and protection of consumer	More players influenced to invest and more efficient consumer service
Electricity Act, 2003	Providing reliable and quality power to customers at reasonable rate	Investments in capacity addition
National Tariff Policy	Tariff structuring	Attractive tariff for players

Source: D&B Industry Research Service

### Pre-Reform Period

Electricity was first generated in India in the 1800's in Kolkata. During this pre-independence period the demand was driven by demand from industries, commercial enterprises (including tramways) and domestic use. Most of the earlier private companies in the power sector cease to exist today as they were amalgamated into state-owned enterprises; however, a few of them continue to exist as private players. Electricity generation was mainly in the private sector and power generation was largely based on coal and hydropower. Tata Power (formerly known as Tata Electric), which is the country's largest private sector utility, commissioned its first hydro-electric station with a capacity of 72 MW at Khopoli. During this phase the industry sustained large costs and wide variations in voltage; besides, domestic technical knowledge was limited resulting in import of technology that further involved huge costs.

It was during this period that the 1910 Act was enacted which provided a basic framework for supply of electricity and encouraged growth by issuing licenses to private companies.

After independence the power sector moved from the private sector to the public sector, primarily as a result of the Electricity (Supply) Act 1948. The Central Electricity Authority (CEA) was established at the Centre under this Act, while State Electricity Boards (SEB) were set up in the states. While the performance of the SEBs was satisfactory in the initial years, it faltered later and the SEBs had to obtain financial assistance from the state in the form of grants, subsidies, soft loans etc. By the early 1970s incidences of power cuts and blackouts occurred frequently which was primarily due to delays in civil works, supply of power plant equipment and transmission and distribution infrastructure were inadequate. Hydropower generation suffered especially, as availability of water resources was heavily dependent on the monsoon season.

The Central government amended the Electricity (Supply) Act 1948 and established the National Hydropower Corporation (NHPC) in 1975 to build hydropower plants and the National Thermal Power Corporation (NTPC) to set up coal-based power plants to supplement the generation capacities of the SEBs and private companies.

With many states facing an electricity crisis, the government was forced to give an impetus to the industry through restructuring it in a phased manner, which paved the way for the electricity reforms of 1991.

### Reforms - 1991 and onwards

The government decided to restructure the power sector in a phased manner starting from 1991, through liberalisation and inviting foreign players to infuse funds and introduce modern technology.

#### ▪ Independent Power Producers (IPP)

Amendments to the Electricity Act 1910 and the Electricity (Supply) Act 1948 in 1991 allowed private participation in thermal, hydro, wind, and solar power projects, and also allowed them to operate as IPPs. Foreign investment up to 100% was also allowed. IPPs were to operate on a costs-plus model wherein the tariff was determined by the Central government and the IPPs were guaranteed a 16% post-tax return on equity.

#### ▪ Mega Power Policy 1995

1995 saw the introduction of the Mega Power Policy to increase private investments in generation projects of over 1,000-MW that would supply electricity to more than one state, which were to be awarded through competitive bidding. The CEA, Power Grid, and NTPC were to provide support to these projects in providing assistance in identifying potential sites for setting up plants, and for transmission of power and preparation of feasibility reports respectively.

**The government decided to restructure the power sector in a phased manner starting from 1991, through liberalisation and inviting foreign players to infuse funds and introduce modern technology.**

The experiences of the first phase were not great as reflected in the Enron debacle where, in the Dabhol Power Project priority was given to FDI rather than the cost of generating electricity.

### Box 1: Enron Dabhol Power Project

In 1992, Enron agreed to build a state-of-the-art power plant and liquefied natural gas terminal on the Arabian Sea. The Dabhol Power Company (DPC) which was a joint venture between Enron, General Electric, Bechtel and Maharashtra Power Development Corporation started construction of the Dabhol Power Station in 1992 located in the Ratnagiri district of Maharashtra. At the time of construction it was the largest foreign investment in India. The plant had a planned capacity of more than 2,000 MW. The CEA gave clearance to ENRON in 1995, but they did not conclude the PPA. The project ran into trouble as it was alleged that negotiations between Dabhol and the Maharashtra State Electricity Board lacked transparency and had not been made public. MSEB ended up agreeing to pay Rs 4.67 for each unit of power, even though it was collecting only Rs 1.89 from its customers. The plant was closed for five years as negotiations dragged on between bankers, the Indian government, the American agency Overseas Private Investment Corporation, which had guaranteed some of the loans, and Enron's partners in the deal, General Electric and Bechtel. (Enron sold its stake to G.E. and Bechtel after declaring bankruptcy in 2001.)

Source: 'India's Energy Sector' a D&B report & New York Times <http://tinyurl.com/a3jgvt7>

It was perceived that unbundling the SEBs and segregating generation, transmission and distribution into different corporations would make monitoring of efficiency levels in each of the areas more feasible. Many states initiated the restructuring process; Orissa was the first state to undertake restructuring of the power sector in 1996.

The first phase of the reform failed as the objective of attracting private players did not achieve the desired results. Private players did not enter the sector, as the SEBs, who were to transmit and distribute the power generated by the private players, were still running into losses and private

players were uncertain about their returns. The annual commercial losses of the SEBs increased consistently from Rs 45.60 bn in 1992-93 to Rs 106.84 bn in 1997-98. The power plants continued to work at a low PLF.

#### ▪ Common Minimum National Action Programme (1996)

Due to these factors, private participation in transmission was considered necessary and a new law was drafted to provide a legal framework for enabling reforms and restructuring the power sector.

▪ *The Electricity Act 2003*

This Act replaced the earlier laws and acts governing the Indian power sector and sought to provide a legal framework for enabling reforms and restructuring the power sector. It created a liberal framework for development of the power industry, encouraging competition, protecting interests of consumers and supply of electricity to all areas, rationalisation of electricity tariff and ensuring transparent policies and promotion of efficiency. Regulatory commissions were required to regulate the tariff and issues of license. This Act focused on generation, transmission, distribution, trading, and uses of electricity.

**Generation:** While generation was opened to private players in 1991 it did not substantially increase the capacity enough to meet the growing demand. The new Act sought to increase private participation by introducing several measures like de-licensing generation of power, dispensing with the requirement of techno economic clearances from the CEA for thermal power plants. It also removed restrictions on captive power generation. Captive units could thus sell their surplus power to customers of their choice. This also resulted in competition among generators.

**Transmission:** As explained above, the new Act gave generators open access in the transmission of electricity. The buyer had the option to choose the generator using the transmission network, while the transmission utility was not allowed to refuse use of the transmission network except in case of capacity limitation. Power Grid which was a central transmission utility could provide open access at the national level, while state transmission utilities could do the same in states.

**Distribution:** The Electricity Act 2003 introduced measures to improve the performance of the distribution sector which was till now running into losses. This included permitting more than one distribution license in the same area thereby increasing competition among licensees. As a result three distribution companies NDPL, BSES and BRPL came into existence in Delhi. This is the best example of multiple licenses which improved operational efficiency, reduction in AT&C losses and reduced incidents of load shedding. The concept of distribution franchisees was also introduced under the 2003 Act, under which a distribution licensee could distribute electricity through another player within the distribution area (eg: Bhiwandi - distribution license granted by Mahavitaran to Torrent Power).

**Segment-wise Impact of Electricity Act 2003 in Different Segments of Electricity**

Segment	Objective	Impact
Generation	<ol style="list-style-type: none"> <li>De-licensing of generation</li> <li>Liberalisation in captive power policy</li> </ol>	<ol style="list-style-type: none"> <li>More players attracted towards generation</li> <li>Captive generation increases</li> </ol>
Transmission	<ol style="list-style-type: none"> <li>Open access to transmission and distribution lines</li> </ol>	<ol style="list-style-type: none"> <li>Choice to choose customer/ efficient transfer of power</li> </ol>
Distribution	<ol style="list-style-type: none"> <li>Open access in phase manner</li> <li>Stringent penalties for power theft</li> <li>Transparent subsidy management</li> </ol>	<ol style="list-style-type: none"> <li>Choice for buyer to choose supplier</li> <li>Reduction in losses</li> <li>Equal benefit to all</li> </ol>

Source: D&B Industry Research Service - 'India's Energy Sector' a D&B report

# SUSTAINABILITY REPORTING REQUIREMENTS FOR THE POWER SECTOR IN INDIA



There are no requirements in India (mandatory or recommendatory) for sustainability reporting specific to the power sector. However, there are frameworks commonly used globally by companies across various sectors to report on sustainability matters which can also be used by power sector companies. Some of these are:

**Environment Impact Assessment**

The International Association for Impact Assessment (IAIA) defines an environment impact assessment (EIA) as 'the process of identifying, predicting, evaluating and mitigating the bio-physical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made.' EIA concentrates on problems, conflicts and natural resource constraints which may affect the viability of a project. It focusses on how the project can harm people, their land and livelihoods, and related developmental activities.

An EIA also identifies measures to minimize the impacts and suggest ways to improve a project's positive impacts. EIAs began to be used in the 1960s globally as part of a rational decision-making process that would enable informed decision-making.

The momentum for EIA in India began in the early 1990s which covered only a few selected industrial developmental activities. In 2006, a more comprehensive mechanism was introduced by the Ministry of Environment and Forests which covered several more developmental sectors. The earlier guidelines for EIA were issued only for river valley projects which required studies on impacts on forests and wildlife in the submergence zone, water logging potential, upstream and downstream aquatic ecosystems and fisheries, water related diseases, climatic changes and seismicity.

Since then, the list of projects requiring environmental clearance from the central government has grown to cover most industrial, mining and other commercial activities including building harbors and airports.

EIA in the power sector encompasses nuclear power and related projects, river valley projects and major irrigation projects and thermal power plants. However, EIA is required to be made only at the initial stage of a project. It is not a regular or recurring feature of a running power company as a tool for measuring and reporting on impact.

**Hydropower Sustainability Assessment Protocol ("Protocol")**

Hydropower can be classified as 'run of river' (where power is generated through the flow of a river), 'reservoir' (where power is generated through the release of stored water) or 'pumped storage' (where stored water is recycled). According to the World Energy Council's "2010 Survey of Energy Resources", development of (hydro) projects, especially in the less- developed regions such as Africa and Asia, will rely heavily on the availability of long-term funding mechanisms and partnerships. Further development of hydropower within the UN Framework Convention on Climate Change's Clean Development Mechanism (UNFCCC CDM) and recognition of the role it will play in climate change adaptation-driven funding will be important if these regions are to receive the required support. The report states that a cross sector forum, comprising governments, financial institutions, environmental/social NGOs and the hydro industry, has been reviewing a hydropower sustainability assessment protocol. This protocol assessed project performance in four stages of development: planning, design optimisation, construction and operation. The three pillars of sustainability are comprehensively addressed by a series of topics. Beyond the quality of

environmental and social impact and management plans, two topics that have received particular attention are downstream sustainability flows and physical/economic resettlement.

The Hydropower Sustainability Assessment Protocol has thus come about and is the result of intensive work from 2008 to 2010 by the Hydropower Sustainability Assessment Forum, a multi-stakeholder body with representatives from social and environmental NGOs, governments, commercial and development banks, and the hydropower sector, represented by IHA (International Hydropower Association) and is also managed by the IHA.

The Hydropower Sustainability Assessment Protocol 2010 was developed at a time of a resurgence of interest in hydropower as a result of increasing requirements for a low carbon economy, energy security and improved water management. The Protocol is a sustainability assessment framework for hydropower development and operation which enables the production of a sustainability profile for a project through the assessment of performance within important sustainability topics.

Some of the Protocol Topics address issues specific to the hydropower sector. They include:

- evaluation and determination of project siting and design options, including the dam, power house, reservoir and associated infrastructure;
- the level of understanding of the hydrological resource availability and reliability to the project;
- infrastructure safety including seismic, geotechnical, dam or generation unit failure, electric shock, hydrological risk;
- ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the facility;
- management of erosion and sedimentation issues associated with the facility;
- the planning for and management of environmental, social and economic issues within the reservoir area;
- flow regimes downstream of hydropower project infrastructure in relation to environmental, social and economic impacts and benefits.

The Protocol is intended to be a globally applicable sustainability assessment tool for hydropower regardless of type, scale or other reservoir uses. It can be used for storage, run of river or pump storage schemes.

### **Business Responsibility Report and National Voluntary Guidelines**

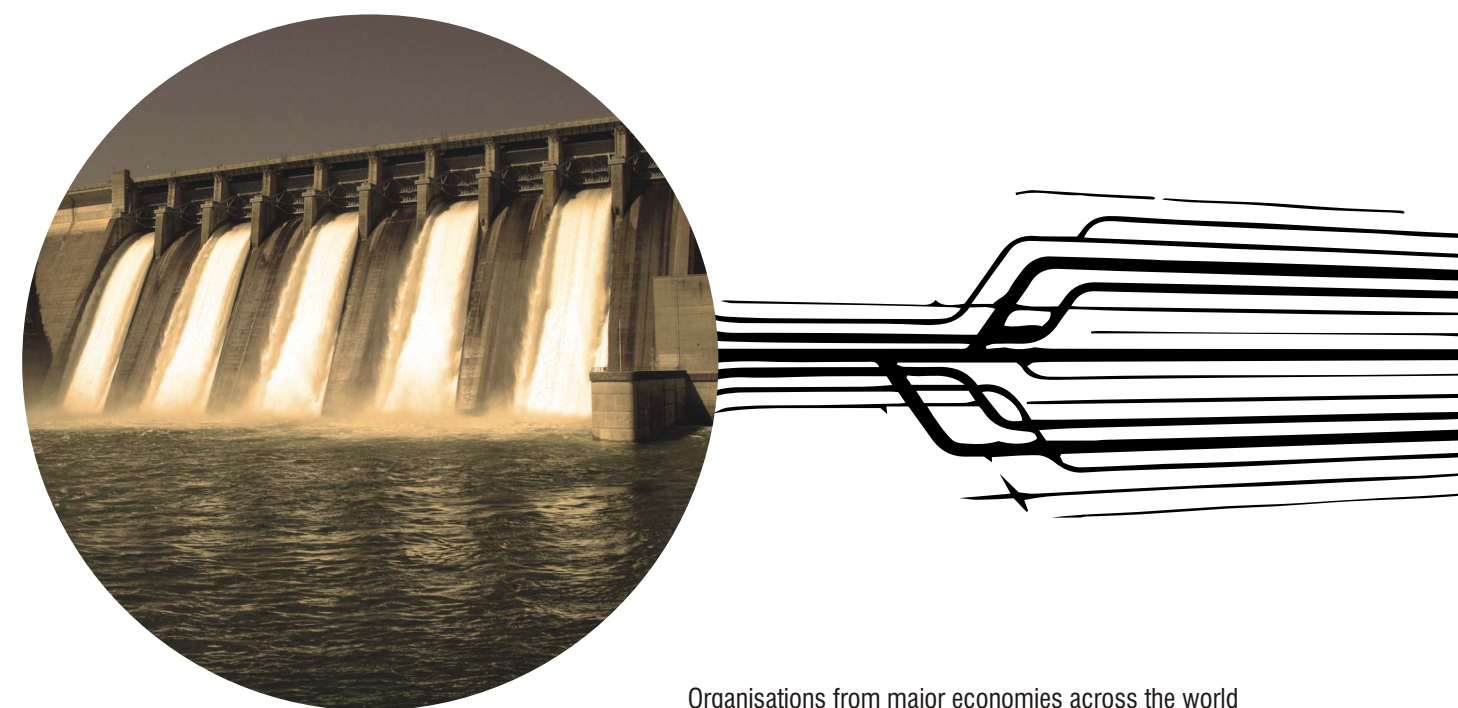
In 2011 the Ministry of Corporate Affairs issued the National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVEG) to be used by all businesses irrespective of size, sector or location. These guidelines entail adoption of the triple bottom line approach by businesses whereby financial performance can be harmonized with the expectations of the society, the environment and other related stakeholders in a sustainable manner.

In August 2012, the Securities & Exchange Board of India (SEBI) mandated inclusion of Business Responsibility Reports (BRR) in the annual Reports of specified listed companies with a view to encouraging them to adopt responsible business practices in the interests of the larger society which is also its stakeholder. These reports require entities to describe the initiatives taken by them from an environmental, social and governance perspective along the lines of the key principles enunciated in the NVEGs referred to above. The BRR has been included in the Listing Agreement through clause 55. They are mandatory for the top 100 listed entities based on market capitalization at BSE and NSE as on March 31, 2012, and are applicable for financial years ending on or after December 31, 2012. Other listed companies may voluntarily disclose BRRs. Those listed entities that have been already submitting sustainability reports to overseas regulatory agencies or stakeholders based on internationally accepted reporting frameworks are not required to prepare a separate report for compliance with these guidelines, but need to provide these to the stakeholders along with details of the framework under which they have been prepared and a mapping with principles contained in these guidelines.

### **UN Global Compact and CoP filing**

The United Nations Global Compact (UNGC) has issued ten principles in the areas of human rights, labour, environment and anti-corruption, which enjoy universal consensus, and it asks companies to embrace, support and enact, within their sphere of influence, a set of core values in these areas. It requires explicit commitments from participant companies to produce an annual public Communication on Progress (CoP).

A CoP is a public communication to stakeholders (consumers, employees, organised labour, shareholders,



media, government, etc.) on the progress that the company has made in implementing the ten principles in their business activities and, where appropriate, in supporting broader UN goals through partnerships.

The purpose of the CoP requirement is to ensure the commitment of Global Compact participants and to create a rich repository of corporate practices that serves as a basis for continuous performance improvement. This is an annual statement shared publicly with stakeholders.

The UN Global Compact has signatories not only from the industry and corporate sector, but also not-for-profit and educational institutions. Global Compact Network (GCN) India was established in 2003 as a non-profit society and functions as the Indian local network of the Global Compact Programme. GCN India does not mandate any reporting or disclosures. UNGC has a principles-based disclosure requirement with a leadership expression of commitment.

Being a signatory to UNGC Principles is the first step for a company to demonstrate its commitment towards sustainability issues. The ten principles help to focus a reporter's attention on a series of sustainability issues and allow it to progress further towards measurement of indicators for preparing a sustainability report under GRI framework.

### **Carbon Disclosure Project (CDP)**

CDP is an independent not-for-profit organisation registered in England and holds the largest database of primary information on corporate climate change in the world.

Organisations from major economies across the world measure and disclose their greenhouse gas (GHG) emissions, water use and climate change strategies through CDP.

An annual questionnaire from CDP is sent inviting disclosures on GHG emissions and climate change parameters to select companies based on their market capitalisation in the chosen countries and the relevant information on climate change is put out for increasing transparency in areas of climate related investment and other risks. Since 2006, CDP has been inviting top NSE-listed companies to respond to their questionnaire. It started with a request to 110 companies in the first year and then expanded the sample to NSE 200 from 2007 onwards.

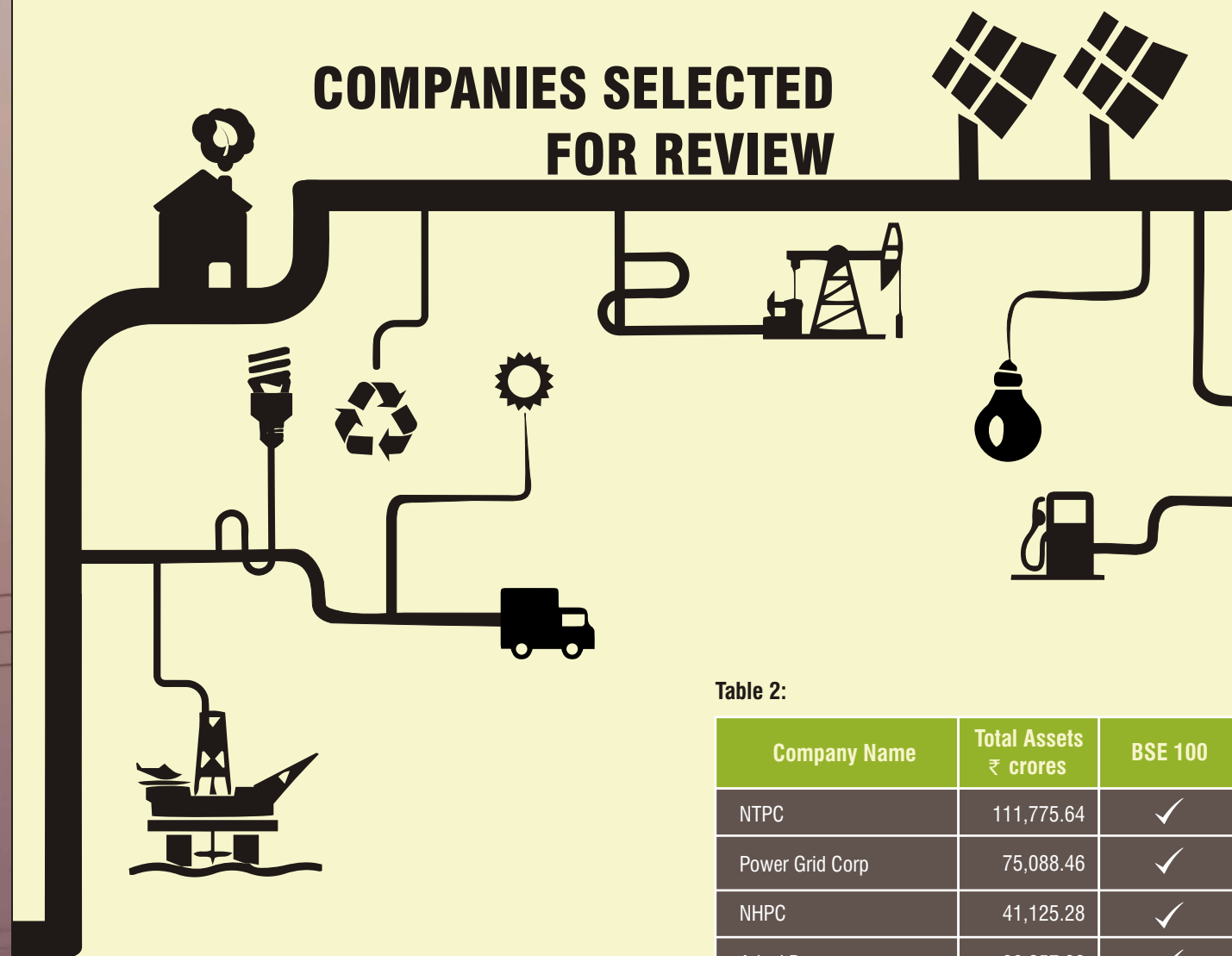
### **GRI Framework**

The GRI Sustainability Reporting Framework provides guidance on how organisations can disclose their sustainability performance. The Reporting Framework sets out principles and standard disclosure items, including performance indicators that organisations can use to measure and report their economic, environmental, and social performance. It is hitherto the most comprehensive framework covering specific performance indicators on ESG issues.

There are around 80 Indian companies from various sectors that have been reporting and there are about 60 companies that publicly declare that they use the GRI Guidelines, although only 24 sustainability reports are registered on the GRI database. Most of these reports disclose information on almost all aspects of performance indicators ranging from environment, social and governance, although the rigour and details vary.



## COMPANIES SELECTED FOR REVIEW



For the purpose of this study we have selected 17 power distribution and generation companies whose total assets are above Rs 2,000 crores. For the companies so selected we have identified those that fall under the BSE 100 to assess (based on publicly available information) and analyse their preparedness for compliance with clause 55 of the listing agreement referred to above. These are:

Table 2:

Company Name	Total Assets ₹ crores	BSE 100
NTPC	111,775.64	✓
Power Grid Corp	75,088.46	✓
NHPC	41,125.28	✓
Adani Power	30,257.82	✓
Reliance Infra	26,203.12	✓
Tata Power	20,954.12	✓
Jaiprakash Pow	18,541.50	
Reliance Power	15,898.75	✓
Neyveli Lignite	15,305.78	
JSW Energy	10,916.29	
SJVN	8,967.18	
Torrent Power	8,931.15	
CESC	8,576.94	
IndiaBPower	4,543.07	
KSK Energy Vent	3,480.50	
GVK Power	2,934.05	
Guj Ind Power	2,271.84	

The fuel mix of the above companies is given below:

Table 3:

Company Name	Installed capacity			Total
	Thermal Generation (MW) Coal & Gas	Hydro Generation (MW)	Other (MW)	
NTPC	37,014	-	-	37,014
Power Grid	-	-	-	-
NHPC	-	5,295	-	5,295
Adani	4,620	-	-	4,620
Reliance Infra	933	-	9	942
JaiPrakash	-	1,700	-	1,700
Reliance Power	1,500	-	40	1,540
Neyveli	2,740	-	-	2,740
JSW	2,600	-	-	2,600
SJVN	-	1,500	-	1,500
Torrent	1,647.5	-	49.6	1,697
CESC	1,225	-	-	1,225
KSK	862	-	-	862
GVK	914	-	-	914
Guj Ind	810	-	5	815
	<b>54,866</b>	<b>8,495</b>	<b>104</b>	<b>63,464</b>

## ANALYSIS OF SUSTAINABILITY DISCLOSURES BY INDIAN POWER COMPANIES



### Type of Reporting

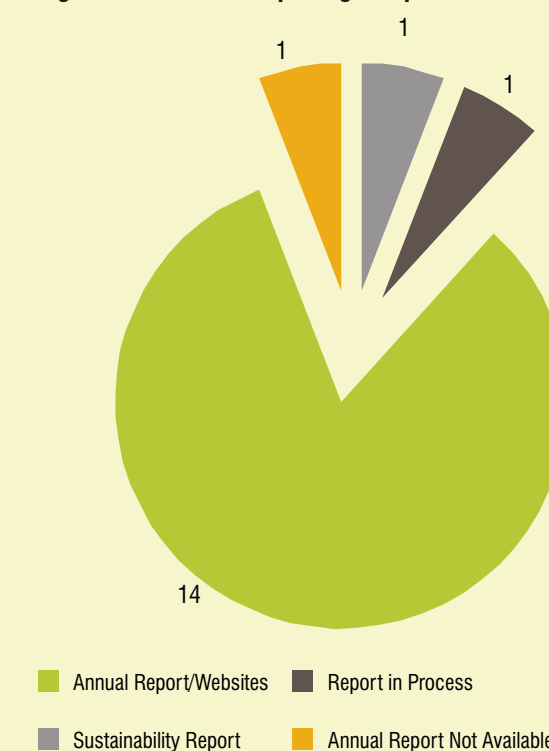
The period under review for this report is the year 2011-12. Amongst the 17 companies selected by us for this study none of them has issued/prepared a separate Sustainability Report for the said year. One company has prepared a report for the year 2010-11 based on the G3 Guidelines of GRI in accordance with its plan to publish a report every two years. The Company's first report was published for the year 2008-09 and its next report is due for 2012-13.

The remaining 16 companies have not published/prepared sustainability reports. The first public sector undertaking (PSU) in the power sector to publish its maiden Sustainability Report was Power Grid Corporation in 2008-09. National Thermal Power Corporation (NTPC) (a PSU) has announced in its Annual Report for 2011-12 that it is in the process of preparing its "Corporate Sustainability Report" covering Economic, Environmental and Social aspects with the "triple bottom line" approach based on the widely accepted and updated GRI Guidelines, it does not however state when the report is expected to be published and for which period. NTPC is also a member of the Global Compact since 2001 and has confirmed its involvement in various CSR activities in line with the 10 Global Compact Principles and has shared its experience through the 'Communication on Progress' (CoP).

For the purpose of this study therefore, we have reviewed the **Annual Reports** as well as the **websites** of these 16 companies, to assess the kind of disclosures that have been made with respect to sustainability and corporate social responsibility. However of these 16 companies the Annual Report of one company is not publicly available (India Bulls Power), for financial year 2011-12 (the last

available report is for 2010-11), hence we have excluded it from our review, bringing down the number to a total of 15.

Figure 7: Number of reporting companies

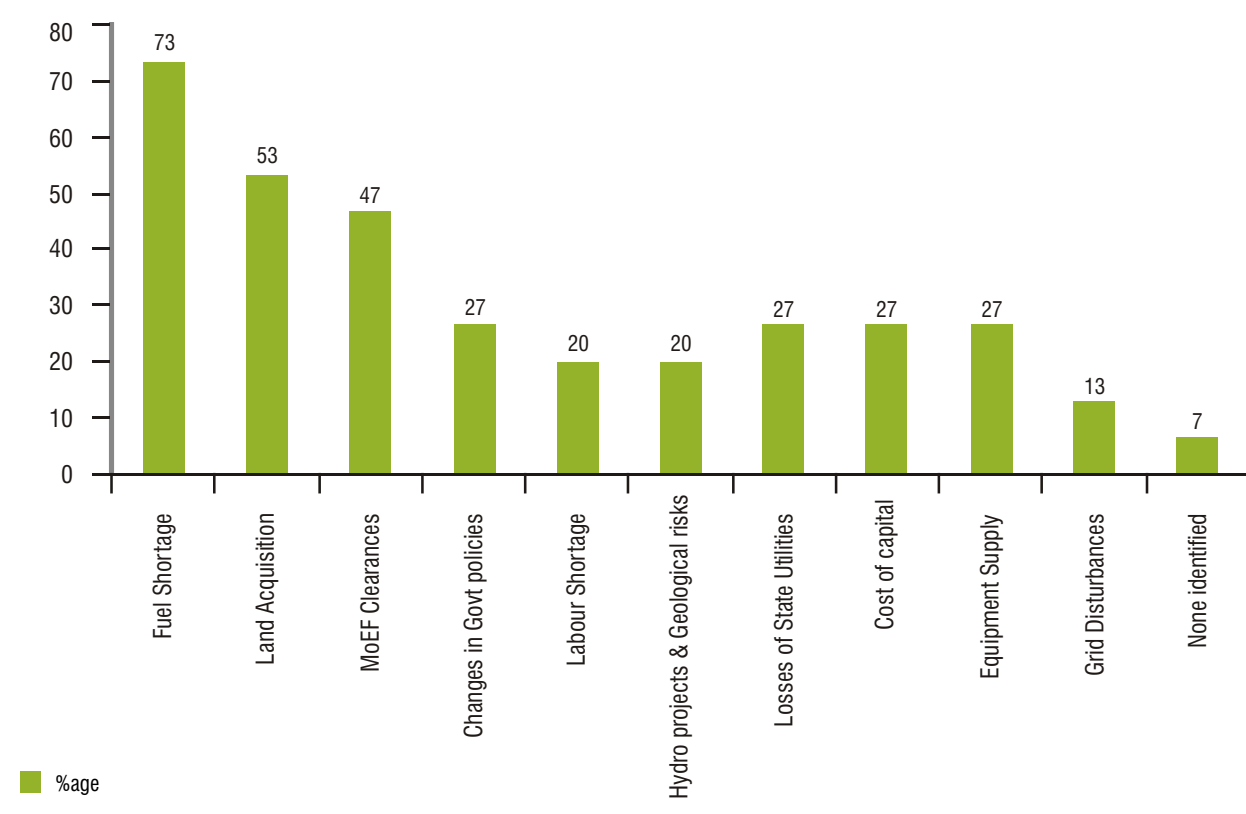


### Analysis of Disclosures of the Single Company with Separate Sustainability Report

As indicated in the previous section, the only company among those included in this study that has published a sustainability report has prepared the report based on the GRI G3 guidelines. The report is externally assured and has been certified A+.



Figure 8: Risks identified by companies



As required by the G3 guidelines the report has been structured in a manner to provide comprehensive disclosures on all parameters of the reporting framework. These include:

The company has made all G3 profile disclosures. It has reported on each core G3 and Sector Supplement indicator providing disclosures on Management Approach for each Indicator Category with due regard to materiality by either reporting on the indicator or explaining the reason for its omission. Considering the extent of application of the GRI reporting framework and the fact that the report has been externally assured by a third party it fulfills the A+ application level criteria and has also been GRI checked.

### Sustainability Matters Reported by Companies in the Sample

This section describes in detail the matters related to governance, sustainability and corporate social responsibility identified and discussed by the remaining 15 companies in their Annual Reports or company websites. Information has been sourced from the Directors' Report, Management Discussion and Analysis (MD&A) and Report on Corporate Governance.

Declarations are analyzed into the following categories:

- Risks and opportunities identified and methods of mitigating these risks
- Governance Commitments & Engagement
- Commitment to the Environment and conservation of energy and efficient technologies
- Training and education
- Improvement of livelihood, rehabilitation and resettlement of project affected people

### Risks and opportunities identified and methods of mitigating these risks

Risk in corporate terms is defined as the probability that an actual return on an investment will be lower than the expected return. All listed companies, in order to comply with the requirements of Clause 49 of the equity Listing Agreement are required to disclose the company's risk assessment and minimisation procedures and are also required to include a discussion on (among other things) their risks and concerns. This usually forms part of the Management Discussion and Analysis.

As indicated in figure 8, 73% of the companies included in this study identified **fuel shortage** (coal and gas) as a risk. The time taken for **acquiring land**, and **delayed environmental and forestry clearances** from the Ministry of Environment & Forests (MoEF) is a cause of concern for 53% and 47% of the companies respectively. 27% companies recognized adverse changes in **government policies**, the **high cost of capital** for developing power projects, various issues related to **supply of equipment** and the **poor financial health of state utilities** as risks. Recruitment and **retention of skilled labour** was a concern cited by 20% of the Companies as also risks associated with Hydro power projects (eg: geological risks). For 13% companies grid disturbances and such other factors in load management in the grid were a cause for concern while 7% did not list down any risks, concerns/threats.

Some of the more significant risks are discussed below in a little more detail

### Inadequate domestic quality fuel supply:

Coal fired plants are the leading source of power in India and India is expected to remain reliant on coal for achieving its power needs for a long time to come. The power sector however is reeling under a shortage of coal. Furthermore domestically available coal is considered poor quality with a high ash content. Inadequate domestic supply of quality coal and gas results in higher costs of generation. The domestic coal deficit can only be covered partially by imported coal due to transportation bottlenecks at ports, high prices of imported coal, volatility in exchange rates and lack of demand for such expensive power. The price of imported coal has been vastly affected by changes in policy and regulations in coal exporting countries. The increase in the prices of imported coal is a matter of serious concern and there is an urgent need to undertake a review of the mechanism for passing on the increasing costs to end-consumers.

In the past year, the government has announced some policy changes and initiatives in coal mining. Currently coal blocks are awarded to private sector Companies through a Screening Committee. The government has amended the Mines and Minerals (Development and Regulation) Act, 1957 so that the allocation process by the Screening Committee is replaced by a transparent bidding process.

### Land acquisition and delays in obtaining Environmental & Forest Clearances:

Power projects are highly capital intensive and have a long development and construction phase. This exposes them to various macroeconomic and project specific risks. One of the biggest grievances of the power sector has been the long process of clearances and delays in land acquisition. Resistance to land acquisition and associated issues related to rehabilitation and resettlement of land evictees including demands for employment are great causes of concern. The enhanced compensation for land acquisition in the proposed Land Acquisition Bill is also a matter of concern. Projects get affected in case of delays in obtaining forest clearances from the Ministry of Environment & Forest under Forest (Conservation) Act, 1980 for the passage of transmission lines through forest areas. MoEF guidelines require written consent of the concerned Gram Sabha under Forest Rights Act, 2006 for all proposals for diversion of forest land. Apart from the legislative framework, social issues like Right of Way may cause delays in the commissioning of projects. Capacity addition programmes also get affected due to the stringent norms and cumbersome procedures involved in obtaining clearances from the National Board for Wild Life. All these delays result in time overrun of projects.

The Government has taken several steps to mitigate these risks in the power sector. Various initiatives have been taken by the Ministry of Power and Prime Minister's Office to address the issues concerning land acquisition and environment clearances (especially for coal mines).

### Changes in government policies & regulations:

Power is a highly regulated sector which exposes companies to risks of changes in policies and regulations. Adverse changes in the government policies or regulations, the taxes levied by central or state governments or removal of tax concessions, exemptions or incentives, or claims by tax authorities may affect the financial condition and operational results of various companies in the sector. Further, the Govt. of India is mulling imposition of customs duty on foreign equipment, which shall further increase the cost of generation.

However, the tax holiday to the power sector is anticipated to be extended in an effort to scale up the country's power generation capacity to meet its power needs.

**Hydro projects & Geological risks:**

Hydro power constitutes 18.64% of the total installed capacity in the country. The major constraints in the exploitation of the vast hydropower potential available in the country are the highly capital intensive nature of these projects, the requirement of huge investments and the long gestation periods involved. Since water is a state subject, state governments usually demand a higher share of free power and other incentives, which leads to higher tariffs. Furthermore, these projects also face hydrological and geological risks. In spite of extensive surveys and investigations, various components of hydro projects such as head race tunnels, underground power houses, pressure shafts and surge shafts face geological surprises especially in the young Himalayan region. Even with extensive experience, expertise and state-of-the art technology there is a possibility that such surprises may result in time and cost over-runs on a project.

**Cost of capital:**

Availability and cost of capital both equity and debt, are one of the risks identified by some of the companies selected for our study. Considering the highly capital intensive nature of power projects and the proposed capacity addition, high level of debt financing will be required. Due to the high financial stake involved financing such large projects is always a critical constraint. The company, sector and group level exposure limits of various banks and insurance companies would therefore need to be increased in order to adequately fund the proposed capacity addition.

In case of external commercial borrowings, any adverse movement in the value of the Indian Rupee is likely to increase a company's liability on account of foreign currency denominated debts in rupee terms. For this purpose, companies would have to adopt conservative foreign exchange risk management policies.

**Losses of state discoms:**

The health of state utilities is a matter of concern threatening the very viability of the power sector. There are a number of factors that have contributed to this such as high degree of commercial losses, tariff not determined on the basis of economics and increasing cross subsidies. The inability of discoms to generate adequate resources affects their ability to make capital investment, borrow funds at competitive rates and make timely payments. Such huge losses put pressure on cash flows resulting in increasing

instances of disruption of electricity supply to consumers. This limits the progress in strengthening and augmenting state networks and also reduces bankability of projects. In order to emerge strong out of this dire situation regular tariff hikes need to be allowed in line with increase in costs with suitable incentives for improving operational efficiency.

**Equipment Supply:**

Being a capital intensive industry there is the risk of delayed supply of equipment. According to one company, the equipment industry lacks standardisation in practices with respect to commercial terms, technology and performance standards. Shortages also occur in supply of core components such as turbines, boilers and generators. Capacity addition gets hampered when supply of power equipment by manufacturers is delayed due to limited availability of such manufacturers and overbooked orders.

**Shortage of skilled manpower:**

Shortage of manpower is another concern facing the power sector which is competing with several other growing sectors from the same manpower pool. The flow of talent into this sector has been gradually slowing down because of increased automation of the sector that requires lower human interface and therefore potential candidates seek an alternative lucrative career opportunities which further reduces the attractiveness of the sector as a large employer.

**Other risks identified:**

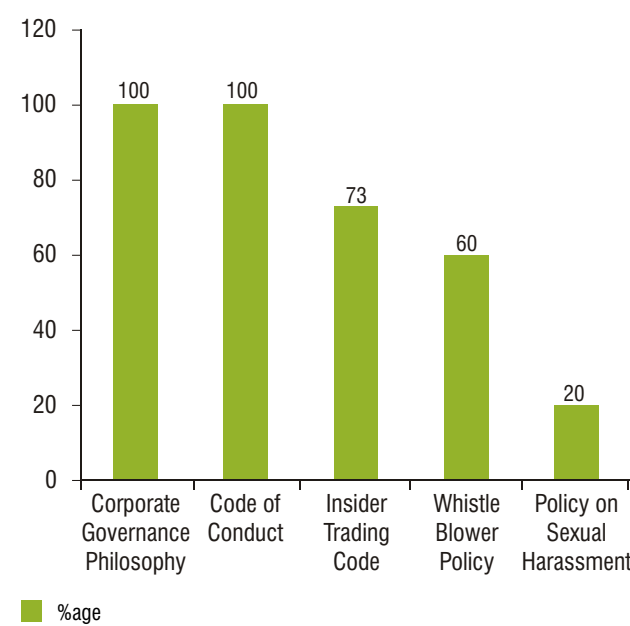
- Inter-state disputes regarding river water sharing result in delays or abandonment of hydro projects. Projects situated in border areas could affect India's international relations.
- Adverse changes in the tariff structure could have an impact on power companies.
- The risk of rising competition in the supply of electricity in the licensed area of the company.
- Transmission & distribution losses.
- Environment, health and safety factors/project operations & maintenance.
- Power Evacuation: Demand-Supply fluctuations and transmission network availability, government policy on open access and inter-state sales impact evacuation of power.
- Renewables sector: The rollback of Accelerated Depreciation benefit and the non-extension of Generation Based Incentive (GBI) can keep power developers at bay and could reduce renewable

- capacity addition in FY 2012-13 and beyond.
- Transmission congestion is one of the biggest challenges hindering development of the short term power market and therefore the merchant power rates.
- Competitive bidding: There are risks associated with projects if the bidder does not cover/hedge and would be exposed to a potential downside over a 25/35 year period (which is the period during which the companies would be able to recover their costs at reasonable tariffs).

**Governance, Commitments & Engagement and Corruption**

All the companies selected for our analysis are listed companies that have to make certain mandatory disclosures under Clause 49 of the equity Listing Agreement with the Securities & Exchange Board of India. As the following chart indicates, requisite disclosures have been made by all the companies, while certain non-mandatory requirements/disclosures have been complied with by only a few of the companies.

**Figure 9: Governance related disclosures**



Companies are required to include a brief statement in their reports on corporate governance explaining the company's philosophy on the subject.

**All the companies included in our study have complied with this requirement, although the degree of explanations offered varies among them.**

Similarly, to comply with Clause 49, the Board of Directors is required to lay down a code of conduct for all Board members and senior management of the company who are required to affirm compliance with the code on an annual basis. The Annual Report of the company is required to contain a declaration to this effect signed by the CEO. **All companies in our study as indicated above have made disclosures about their respective codes of conduct.**

Listed companies are required to maintain a model code of conduct for prevention of insider trading in accordance with the SEBI (Prohibition of Insider Trading) Regulations, 1992. This is not a requirement of Clause 49. The Compliance officer under the code is responsible for complying with procedures, monitoring adherence to the rules for the preservation of price sensitive information, pre-clearance of trades, monitoring of trades and implementation of the Code of Conduct under the overall supervision of the Board. **73% of companies in our study have disclosed the existence of a code of conduct for prevention of insider trading.**

The Whistle Blower mechanism/policy is one of the non-mandatory requirements of Clause 49. This mechanism also provides for adequate safeguards against victimization of employees who avail of the mechanism and also provide for direct access to the Chairman of the Audit committee in exceptional cases.

**60% of the companies in our study have disclosed that they have a whistle blower policy which enables employees to report to the management, concerns about unethical behaviour, actual or suspected fraud or violation of the company's code of conduct or ethics policy.**

Neither the mandatory nor non-mandatory requirements of clause 49 suggest establishment of a policy on sexual harassment at the work place. Indicator protocol HR 4 of the GRI G3.1 Guidelines requires disclosure on the total number of incidents of discrimination and corrective actions taken. The guidelines define discrimination to also include harassment, defined as a course of comments or actions that are unwelcome, or should reasonably be known to be unwelcome, to the person towards whom they are addressed.

**Only 20% of companies in the study have disclosed that they have a policy in place for protection of employees against sexual harassment at the work place.** They declare that they are committed to creating a healthy and conducive working environment that enables employees to

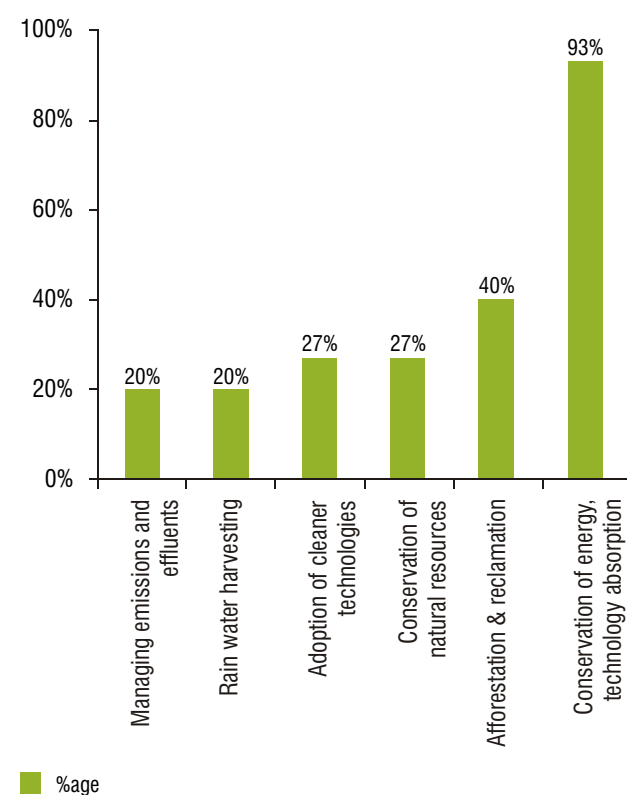
work without fear of prejudice, gender bias and sexual harassment in implicit or explicit form.

**Corruption: 33% of the companies in the study have disclosed that they have a vigilance department that oversees the promotion of transparency and ethics throughout the organization.** The Vigilance Departments usually emphasise on preventive vigilance through various workshops by issuing circulars and guidelines based on inspections/intensive examinations. Vigilance audits of different departments are conducted resulting in a large number of system improvements.

**Commitment to the environment and conservation of energy and efficient technologies**

The activities undertaken and disclosed by companies in the area of environment conservation and conservation of energy are shown below.

**Figure 10: Activities under environment protection**



Almost all of the companies have disclosed information related to their efforts towards conservation of the environment and technology absorption. This is primarily a

requirement of the Companies Act, 1956 and disclosed in pursuance of Section 217(1)(e). These measures include installation of CFL lamps, energy audits, installation of energy efficient lighting technologies, evaluation and optimization of equipment efficiencies.

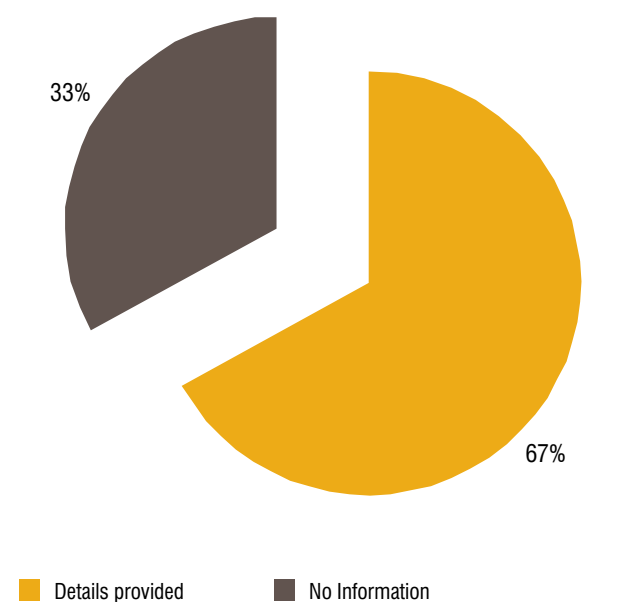
**40%** of the companies included in our study have been involved in afforestation measures by undertaking massive planting drives with saplings of species of plants/trees in areas affected by projects as well as surrounding areas, in consultation with the forest department. Efforts are being made to make mined out land suitable for agriculture, horticulture crops and development of forestry and pasture land.

**Less than 30%** have described or discussed their efforts towards managing emissions and effluents, water conservation, adoption of cleaner technologies and conservation of other natural resources.

**Training and education**

In terms of labour practices and decent work, most companies emphasized that training and development of employees was crucial for their continued growth and the growth of the industry. **67%** of companies in our study discussed various measures undertaken to fulfill the training needs of their employees

**Figure 11: Training & Education**



■ Details provided ■ No Information

Disclosures included:

- Number of training programmes conducted during the previous year
- Number of employees covered under these programmes or number of man hours involved
- Locations where training programmes have been conducted
- Categories of trainings - General Management , technical training, safety , quality training, etc
- The varied forms, formats and technologies of learning adopted like virtual classrooms, learning management systems, web-based training mechanisms
- Types of collaborations i.e. between in-house training institutes and external institutions

**Improvement of livelihood, rehabilitation and resettlement of project affected people**

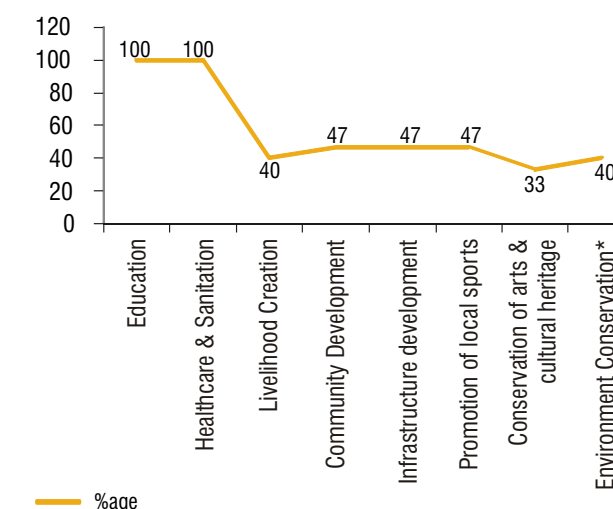
There is a strong debate in India on what constitutes corporate social responsibility. The government has been making efforts to make it mandatory for companies to spend a certain percentage of their net profits on CSR and CSR measures are a part of the new Companies Bill, 2012 . However, there is little clarity, let alone consensus, among Indian companies about what constitutes CSR; without a clear definition, CSR means different things to different companies.

A perusal of annual reports reveals that companies fulfill their corporate social responsibility by making contributions in the following areas:

- Education
- Healthcare & Sanitation
- Livelihood Creation
- Community Development
- Infrastructure development
- Promotion of local sports
- Conservation of arts & cultural heritage
- Environment Conservation

The emphasis is on overall development of the area and communities around its projects and establishments through a varied range of activities. The chart below shows that contribution towards education and healthcare and sanitation are most common. Not more than 50% of the companies were involved in livelihood creation, community development, infrastructure development and promotion of sports. Only 33% also contributed to conservation of art and cultural heritage and environment conservation:

**Figure 12: Areas of CSR**



\*discussed separately

**Education:** In the field of education companies have contributed towards building schools, providing scholarships for meritorious students, distribution of awards to deserving teachers, appointment of local youth as teachers, distribution of note books at concessional rates and providing study materials to students on a merit and need basis, sponsoring hygienic mid-day meals at government schools, providing school uniforms, providing financial support to educational institutions, sponsoring equipment and facilities like projectors, computer laboratories with internet etc.

**Healthcare & sanitation:** Healthcare and sanitation initiatives includes conducting immunization programmes, medical check-ups for children, health camps for women, children, disabled and the aged, other free medical facilities, providing artificial limbs to the physically impaired, running a school for hearing impaired, occupational health services, up gradation of government run health care centres, sanitation drives, provision of mobile health vans, etc..

**Livelihood creation:** Towards creation of livelihoods, companies have been involved in building vocational / industrial training and capacity building and skill development centres to improve employment opportunities. Self-help groups for local women have been encouraged resulting in individual and group enterprises. Support for mentally challenged girls by helping them to develop livelihood generating skills such as hand-made greeting cards, candles, etc.

**Community development:** Community development works include consulting with all individuals whose land has been acquired and duly compensating the affected persons for their land as decided by District Administration. Resettlement and rehabilitation assistance is also provided within the social entitlement framework and various community developments works are undertaken in villages adjoining substations. Other activities include vet camps for cattle stock, rural development and poverty alleviation programmes that take an integrated, holistic approach to the welfare of rural communities, enhancing individual assets and capabilities and strengthening community collectives where the companies operate

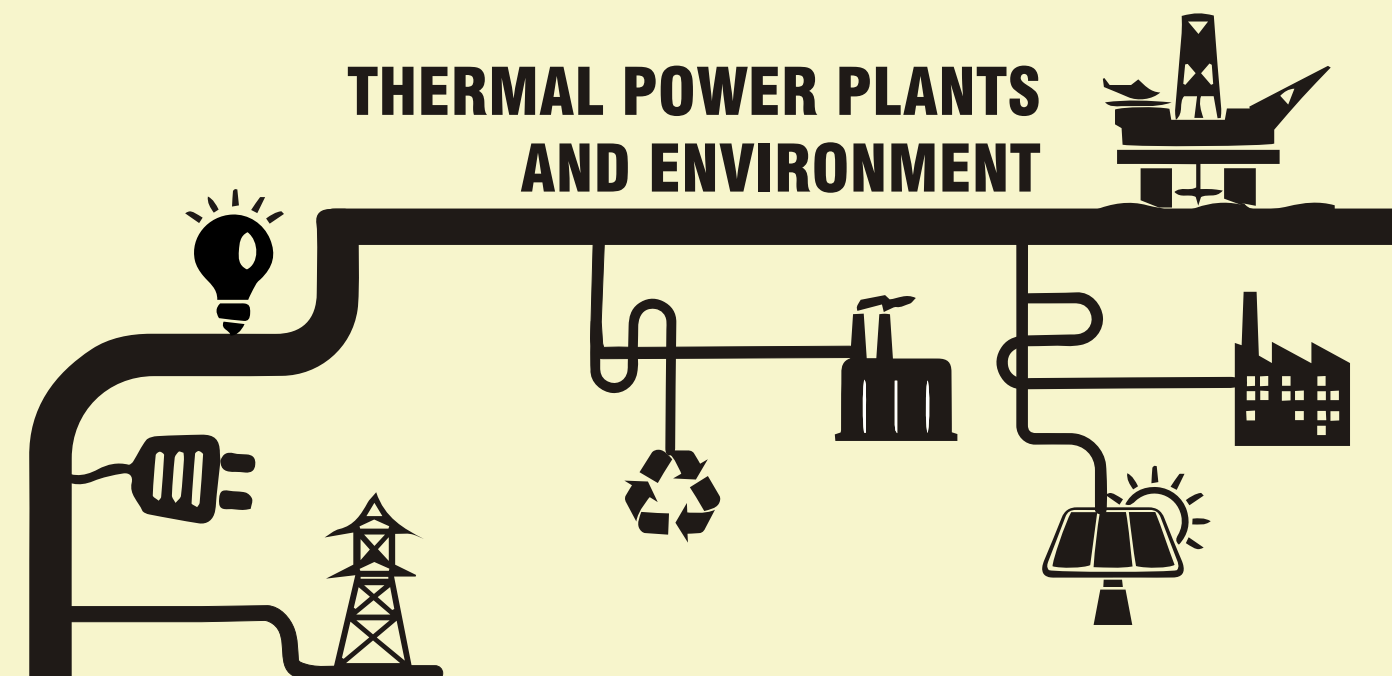
**Infrastructure development:** Companies have supported development of infrastructure critical for the rural economy and also those that improve the local community's access to basic services and livelihood opportunities. Infrastructure development includes construction of roads, culverts,

community centres, garbage disposal systems, hospitals, bridges, drainage systems, check dams, water tanks, co-operative society buildings and Panchayat houses.

A white paper by KPMG and the Associated Chambers of Commerce and Industry of India (ASSOCHAM) presented at the first International Summit on CSR held in New Delhi in 2008 puts it quite succinctly: "CSR is comprehended differently by different people." The report noted that until the 1990s, CSR was dominated by the idea of philanthropy and that business efforts were often limited to one-time financial grants. Moreover, businesses never kept the stakeholder in mind while planning such initiatives, thereby reducing the efficacy and efficiency of CSR initiatives. However, over the past few years, the concept of CSR has been changing. There has been an apparent transition from giving as an obligation or charity to giving as a strategy or responsibility. (Report titled: "CSR: Towards a Sustainable Future")



## THERMAL POWER PLANTS AND ENVIRONMENT



The share of thermal power in India's energy mix is over 57% and is expected to remain as the major source in the years to come. One of the biggest environmental effects of the operation of a thermal power plant is the production of fly ash as a by-product of the process. The quantity of fly ash generated is accentuated due to the high quantity of ash content in Indian coal; this requires a large area of land for disposal of fly ash. The land required is approximately one acre for one MW of installed capacity. It is estimated that by 2014-15, 1000 sq km of land will be required for ash disposal.

(Technical EIA Guidance Manual for Thermal Power Plants, prepared for MoEF GOI by IL&FS Ecosmart Limited, August 2010, page 55)

There are strong policy guidelines and measures in place to regulate the use and disposal of fly ash in India.

### Fly Ash and its Gainful Utilisation in an Eco-friendly Manner

In the industrial context fly ash is usually referred to as the ash produced during combustion of coal which is the primary source of thermal power in India. In addition to carbon and silica, fly ash may also contain toxicants such as dioxins, lead, and mercury. India has some of the largest coal reserves in the world, is one of the largest producers of coal and also one of the largest consumers. However the quality of the coal is poor due to the high ash content of up to 40% (Source: Ministry of Power Annual Report 2011-12) in comparison with imported coal which has ash content of only around 10-15%. Coal and lignite based thermal power generation are the backbone of power generation in India due to their abundant availability compared to other fuels. Consequently large quantities of ash are also generated resulting in a major source of air and water pollution. Considering the continued dependence on coal for capacity addition safe and gainful utilisation of fly ash in an eco-friendly manner has to be ensured.

### Uses of fly ash

Disposal of ash (fly ash and bottom ash) traditionally required large areas of land, where they would be disposed off in ash ponds as waste material. This has resulted in air and water (ground and surface) pollution. Thus utilisation of fly ash an eco-friendly sustainable manner became a matter of concern.

Under the aegis of the Fly Ash Mission of the Government of India since 1994, new technologies were developed for gainful utilisation and safe management of fly ash. From being described as 'hazardous industrial waste' in 2000, it moved to the category of 'waste material' in 2009 and became a saleable commodity capable of being utilised in most civil construction activities in an eco-friendly manner. The most significant areas of utilization of fly ash are:

- Manufacturing of Portland Pozzolana Cement;
- As a part replacement of cement in concrete;
- In making fly ash based building products like bricks, blocks, tiles, road blocks, kerb stones, etc.;

- Construction of roads, flyovers, embankments, ash dykes, etc.;
- Construction of Roller Compacted Concrete Dams in the hydro-power sector;
- Reclamation of low lying areas and raising ground level;
- Back filling and stowing of mines;
- Agriculture and wasteland development.

### Ash generation and utilisation in 2010-11

The Central Electricity Authority (CEA) monitors the generation and utilisation of fly ash on behalf of the Ministry of Power. The CEA obtains related data on an annual basis from the thermal power plants.

Data received from the power plants in 2010-11 is tabulated below:

**Table 4:**

Particulars	MW
Number of coal/lignite TPPs from which data received	88
Installed Capacity (MW)	80,458
Coal consumed (million tonnes)	407.61
Average Ash content	32.165
Total Ash generation (million tonnes)	131.09
Total Ash utilised (million tonnes)	73.13
Percentage utilisation	55.79%

Source: Ministry of Power

According to the Report of The Working Group on Power for Twelfth Plan (2012-17) (Ministry of Power), ash generation by coal/lignite based thermal power stations is estimated to reach 300 million tonnes per year by the end of 12th Plan i.e. 2016-17.

The need to increase ash utilisation and various measures required to achieve this has been deliberated at various forum and at all levels of the Central and States Governments, power utilities, thermal power plants and all other stakeholders.

In order to achieve 100% ash utilisation a lot of concerted efforts are required from all stakeholders concerned. All power utilities therefore need to systematically plan &

implement ash utilization targets keeping in view long term strategies on sustainable basis.

### Modes of utilisation of fly ash

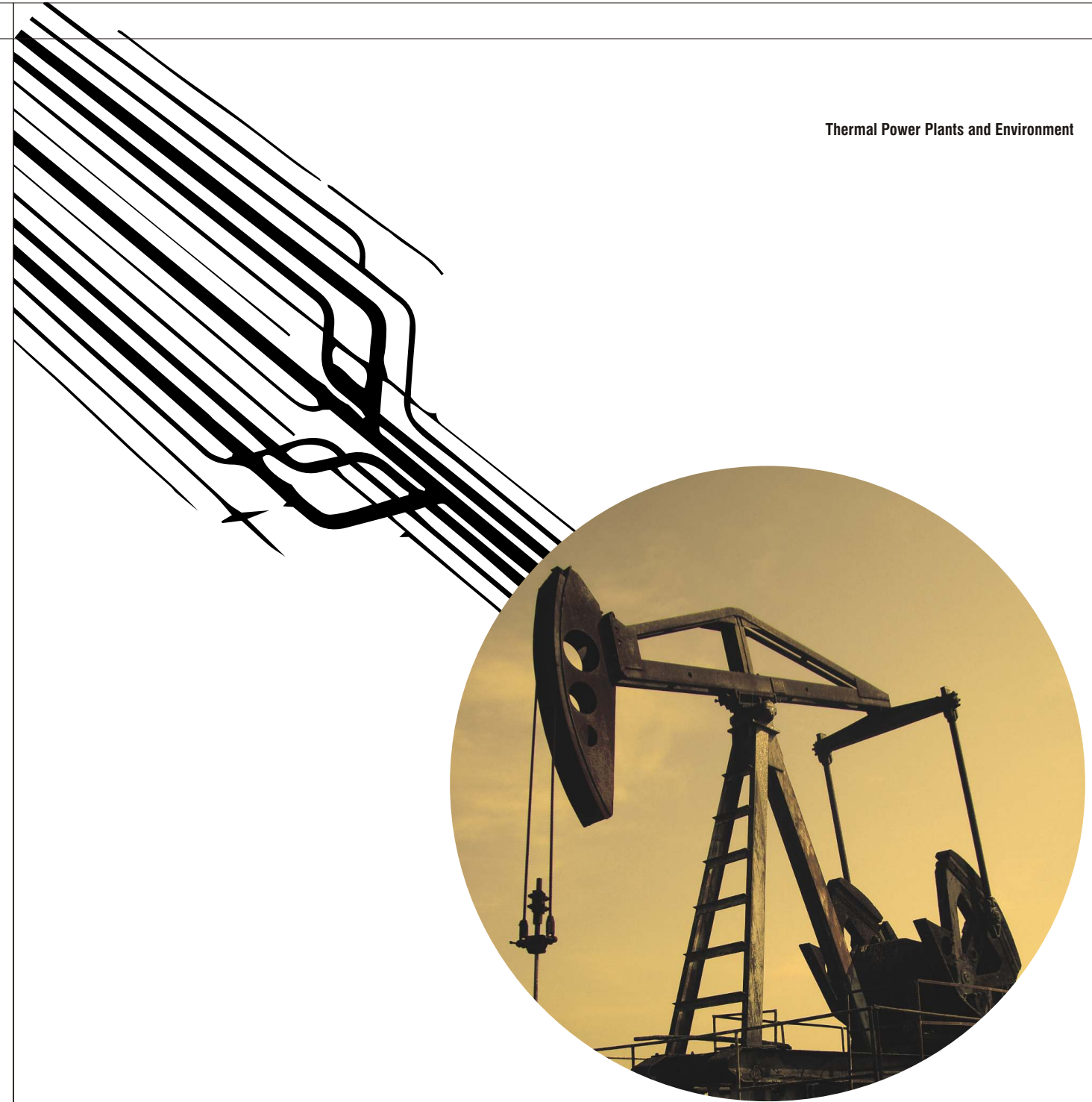
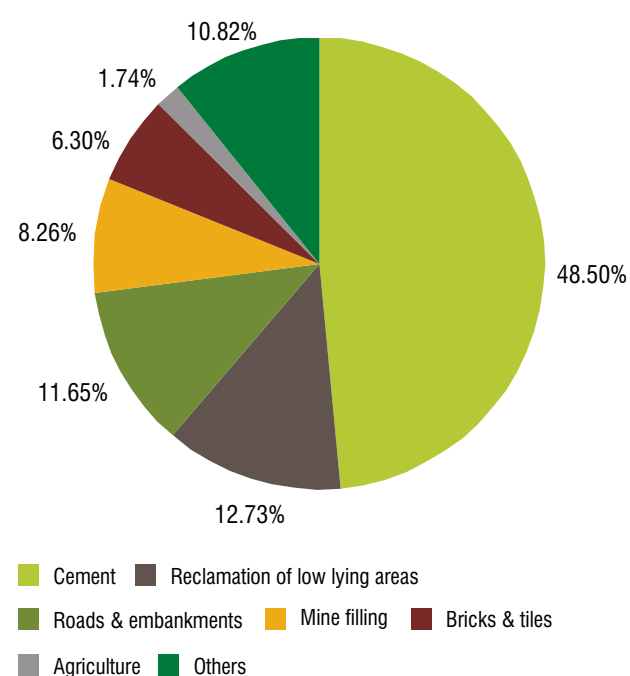
The table below shows the various modes in which fly ash has been utilised during the year 2010-11 with the maximum utilisation being in the cement sector. This is followed by reclamation of low lying areas and construction of roads and embankments.

**Table 5:**

Mode of utilisation	Utilisation in mtpa	Percentage utilisation
Cement	35.47	48.50%
Reclamation of low lying areas	9.31	12.73%
Roads & Embankments	8.52	11.65%
Mine filling	6.04	8.26%
Bricks & tiles	4.61	6.30%
Agriculture	1.27	1.74%
Others	7.91	10.82%
<b>Total</b>	<b>73.13</b>	<b>100.00%</b>

Source: Ministry of Power

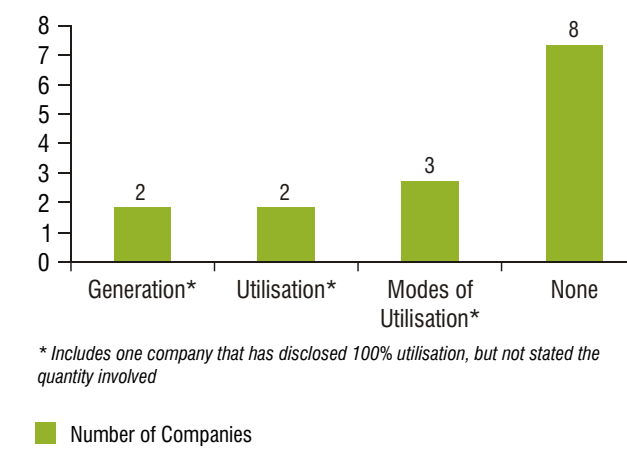
**Figure 13: Modes of Ash Utilisation (2010-11)**

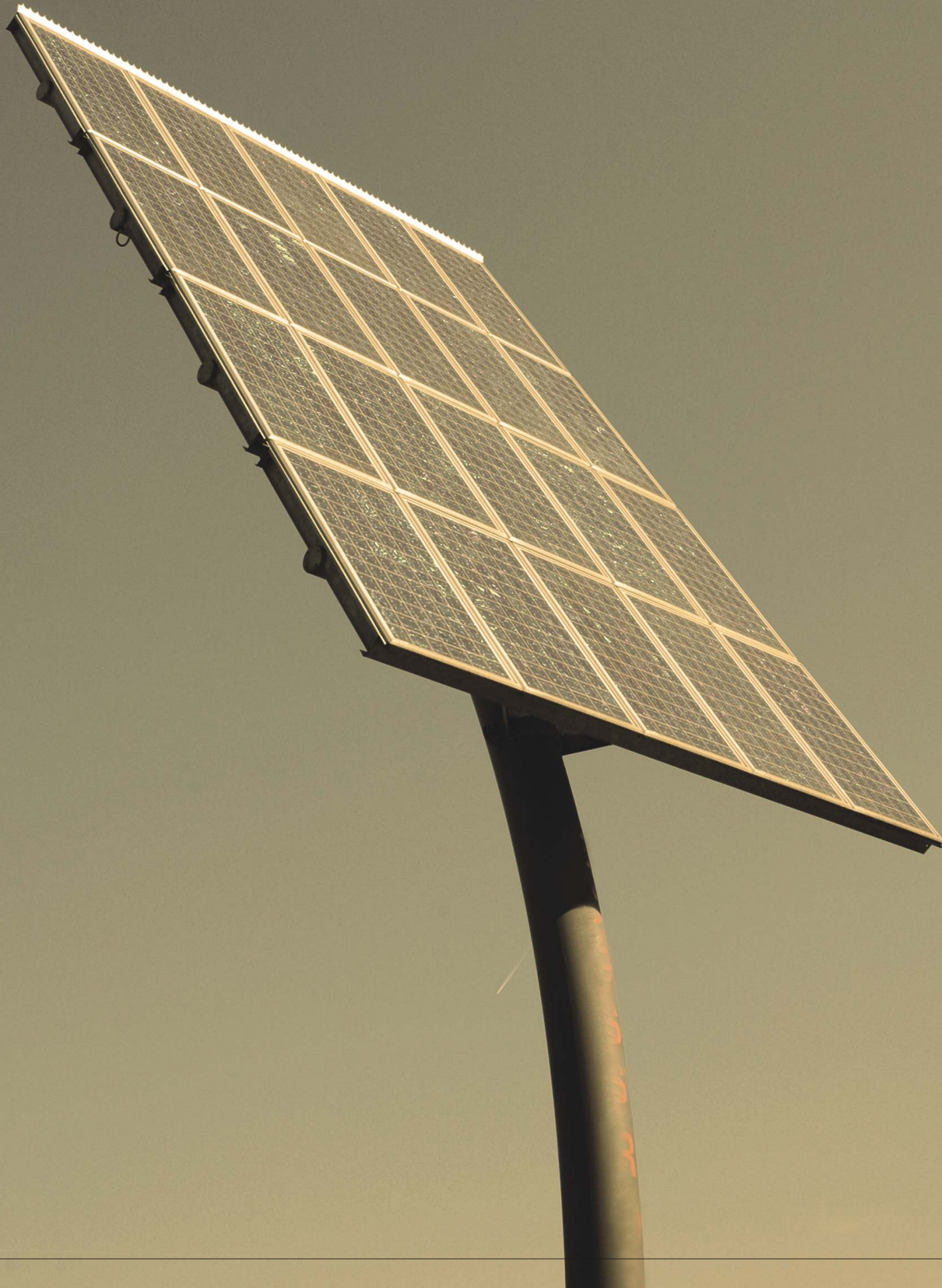


### Disclosures in target companies

Disclosures with regard to the generation, utilisation and modes of utilisation of fly ash are very limited. Only 3 of the 11 companies in the sample in this study that are involved in generation of thermal power have provided information on the subject. While one company has disclosed the quantity of fly ash generated and utilised along with the areas of utilisation, another company has only disclosed the areas in which fly ash will be used as part of the sustainability development projects it plans to undertake. One company has disclosed that it has been achieving 100% utilisation of fly ash in an environment friendly manner for the past 12 years.

**Figure 14: Extent of disclosures on fly ash**





## GLOBAL POWER UTILITIES

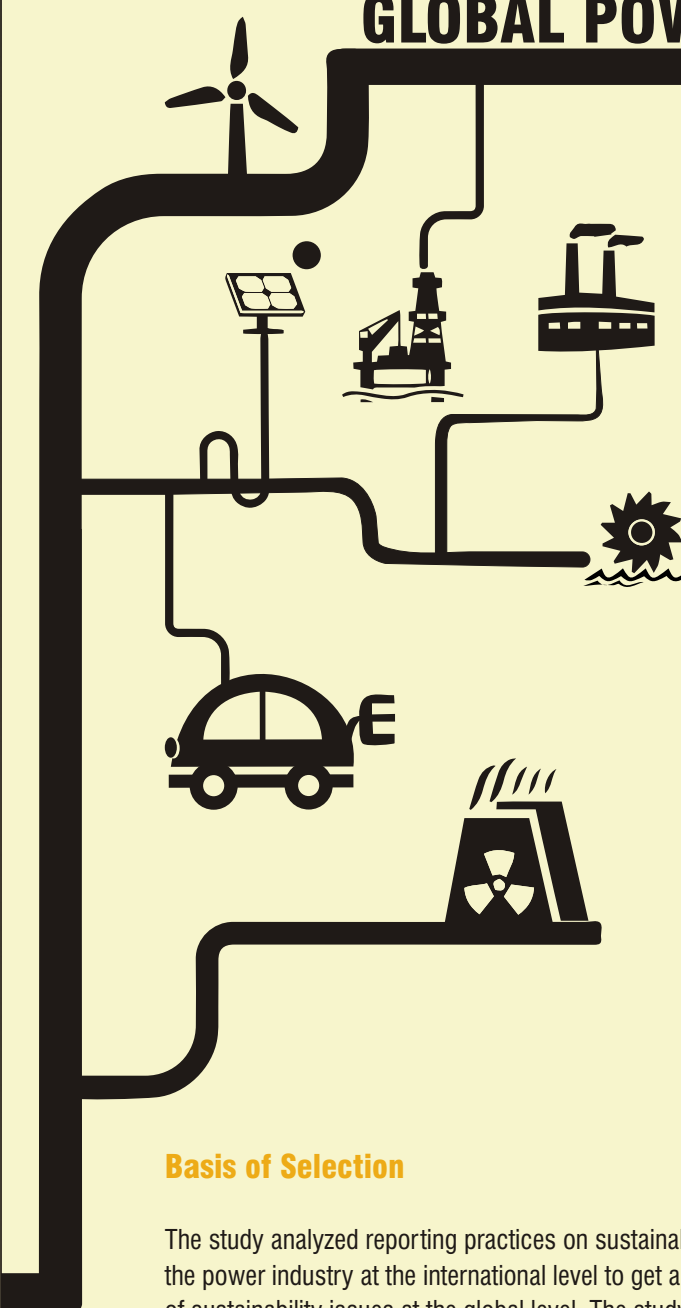
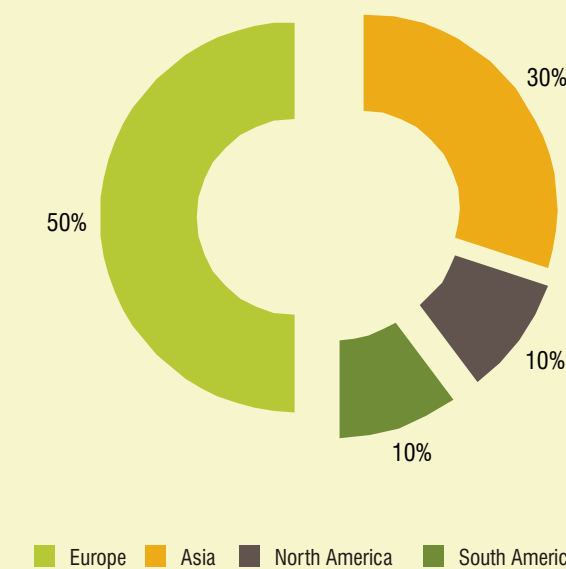


Table 6:

Company	Country	Assets	Forbes Rank
EDF	France	\$297.5 B	73
GDF Suez	France	\$275.2 B	47
E.ON	Germany	\$198.1 B	409
Tokyo Electric Power	Japan	\$178.5 B	822
Iberdrola	Spain	\$119.9 B	131
RWE Group	Germany	\$116.9 B	143
Korea Electric Power	South Korea	\$114.1 B	580
Eletrobrás	Brazil	\$86.8 B	320
Kansai Electric Power	Japan	\$84 B	260
Duke Energy	United States	\$62.5 B	276

Figure 15: Geographic location of global companies



### Basis of Selection

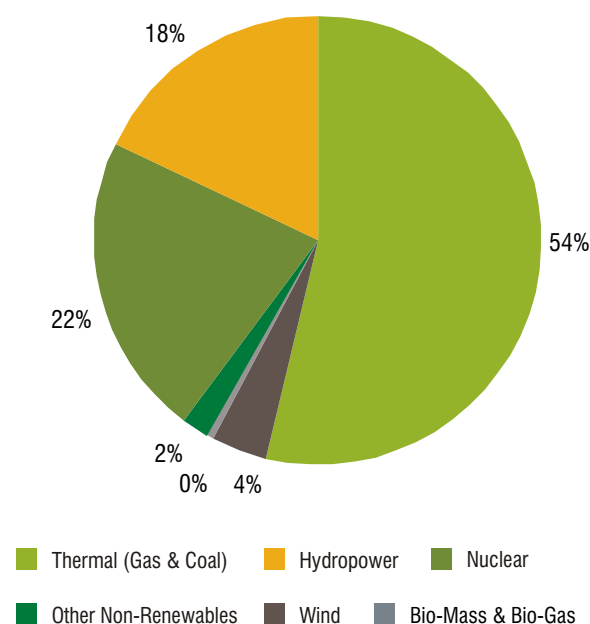
The study analyzed reporting practices on sustainability in the power industry at the international level to get a sense of sustainability issues at the global level. The study referred to the Forbes magazine's Global 2000 list of the largest companies in the world as a reference point for selection. That data was sorted for the top ten utilities companies based on their total assets.

### Profile of Global Companies

The companies selected for the study from the electric utilities sector cuts across continents. A majority of the top ten companies (refer chart below) are European, followed by Asia and the Americas.

In terms of installed capacity, thermal electricity contributes 54% of the total installed capacity. This is followed by nuclear energy—22% and hydropower which is 18%.

Figure 16: Total fuel mix of global companies



The fuel mix of these companies' shows that in 80% of the companies thermal electricity is the largest fuel source. In only one company nuclear energy is the largest contributor i.e. 65% of the total installed capacity—it is the world's leading nuclear operator (Source: Nuclear Power Reactors in the World, International Atomic Energy Agency, 2010 edition).

Hydropower finds primary importance in one company—88% of its total installed capacity. Considering the fuel mix and that these companies all operate in multiple geographies, the risks and concerns that need to be addressed will be of a varied nature.

### Type of Reporting

Out of the ten target companies nine have a published report on sustainability development, while one company has published its sustainability initiatives related to social contributors, ethical management, environmental management and sustainability management on the company website. 6 out of the 10 target companies are signatories to the United Nation's Global Compact initiative.

3 of the nine companies with published reports has applied the GRI framework and obtained GRI checks of A+ or B+. 3 have applied the framework with a self-check of B+. One company has applied AccountAbility's AA1000 Assurance Principles - principles-based standards that help organisations become more accountable, responsible and sustainable. One company has agreed to and signed the Women's Empowerment Principles, guidelines for women's social participation established by UN Women UN Global Compact. One company has declared in its report that all the published indicators follow the recommendations of the Global Reporting Initiative and has cross-referenced the indicators used by the Company with the equivalent GRI indicators.

### Risks Reported by Companies in the Sample

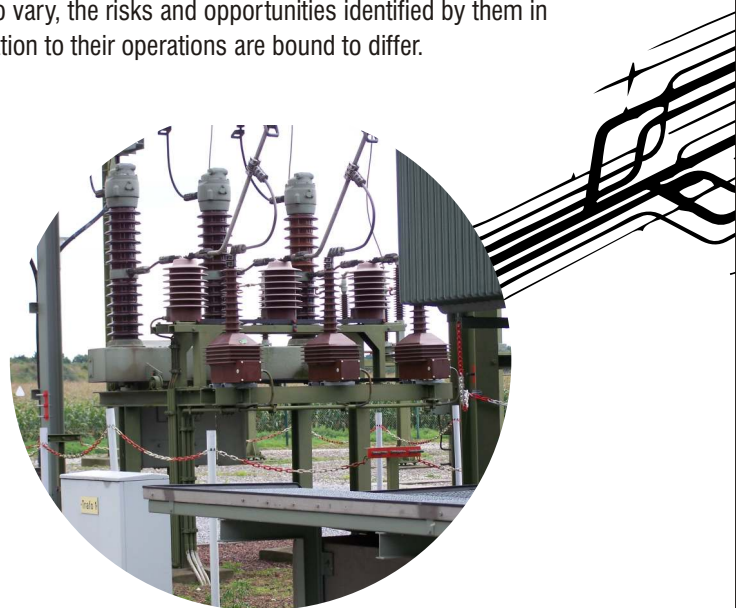
For the purpose of this report, apart from reviewing the sustainability development reports of companies, we have also referred to their annual reports. This section describes nature of risks identified and discussed by target companies in their Sustainability Development Reports / Corporate Responsibility Reports, Annual Reports or company websites.

Declarations are analysed into the following categories:

- Risks identified by companies
- Risks specific to nuclear power

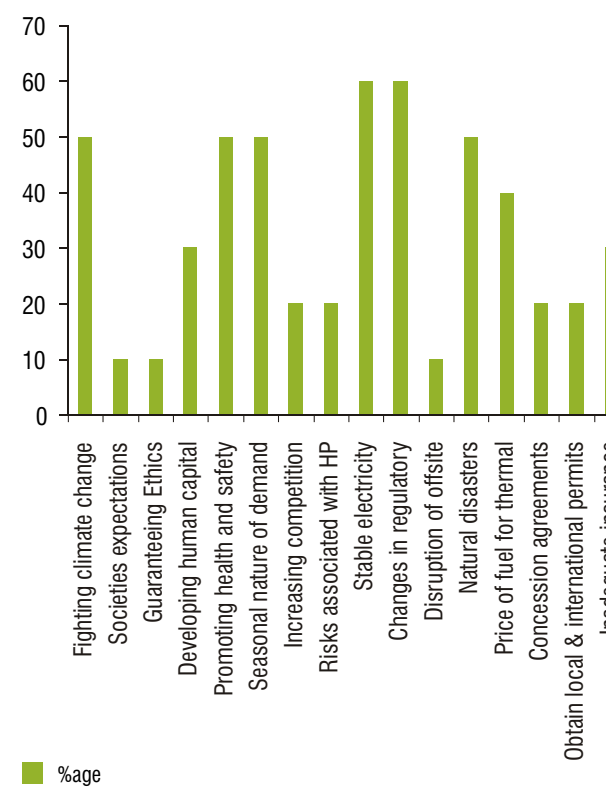
### Risks identified by companies

Each of these companies operates in multiple economic environments, further more considering their fuel mixes also vary, the risks and opportunities identified by them in relation to their operations are bound to differ.



The chart below shows some of the more significant risks identified by these companies in relation to their operations either in the sustainability reports or in their annual reports.

Figure 17: Global Companies: Risks



60% of the companies have identified changes in the regulatory environment in which they operate as a significant risk, as well as unanticipated power failures/blackouts/breakdowns and stable electricity supply. This is followed by climate change, promotion of health and safety, seasonal nature of demand and risks of natural disasters, accidents, sabotage which is reported as a risk by 50% of the target companies. Developing human capital, pricing of fuel for thermal power and inadequate insurance coverage have been cited as a risk by 30% of the companies. Some of these are discussed below:

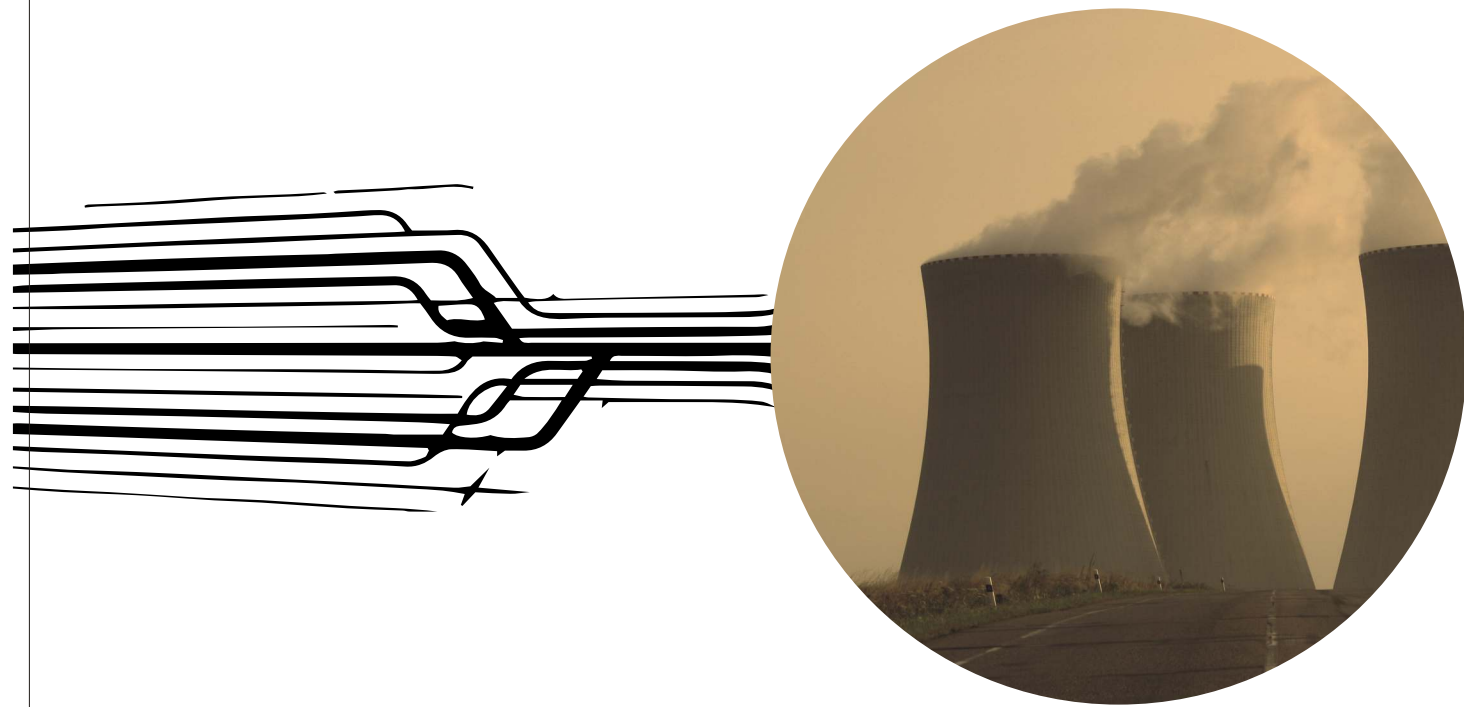
**Changes in the regulatory environment:** Most of these companies operate in multiple jurisdictions therefore the political landscape, legal and regulatory environment (including a tightening of regulations related to global warming and including air emissions - such as reducing NOx, SO2 mercury and greenhouse gas emissions, water quality, wastewater discharges, solid waste and hazardous waste) in which these companies do business in is a

source of risk and could lead to considerable uncertainty with regard to plans. These laws and regulations and related uncertainties can result in increased capital, operating, and other costs and further prevent the formulation of long-term energy plans that are capable of ensuring profitability and suitability of investments. Changes in the regulatory environment though could also create opportunities.

**Stable electricity supply/breakdowns:** Unanticipated power failure, blackouts, breakdowns and stable electricity supply are significant risks reported by the companies. Repeated or widespread blackouts may have consequences for a company's activities, results and image. The risk of blackouts, shutdowns or disruptions in supply occur due to longer transmission paths or even accidents and natural disasters; however in spite of shorter paths or measures taken to prevent accidents unanticipated operational or other problems could occur leading to power failures or shutdowns. Companies may also be liable for direct and indirect damages resulting from inadequate supply of electricity to distribution companies.

**Natural disasters, accidents, sabotage:** Due to the nature of the industry, companies operate facilities that may cause significant harm to the natural or human environment or for which accidents, natural disasters or external attacks may have serious consequences. Such companies are exposed to, among other risks, malfunctions, explosions, fire, toxic spillages or polluting emissions at its plants. They could also be adversely affected by sabotage (including terrorist attacks and cyber-attacks), adverse meteorological conditions or force majeure. Any of these risks could cause damage or destruction to the facilities, as well as injuries to third parties or damage. Accidents subsequent to the Tohoku-Chihou-Taiheiyou-Oki Earthquake are a prime example. All the units of TEPCO's Fukushima Daiichi and Daini Nuclear Power Stations and Kashiwazaki-Kariwa Nuclear Power Station had to suspend operations, bringing down supplying capacity.

**Seasonal nature of demand:** In most of these companies, weather conditions and seasonal variations have been cited as a risk. Electricity consumption depends to a great extent on weather conditions and is accordingly higher in the winter months. Available power may also depend on the weather. Hence low water levels or heat waves may limit nuclear power generation due to the requirement that rivers downstream of facilities not exceed maximum temperatures. Power generated by wind-power or solar plants also depends on wind conditions or hours of sunshine at the sites where such facilities are installed. In



such situations companies may have to compensate the reduced availability of economical power generation means by using other means with higher production costs, or by having to access the wholesale markets at high price.

**Inadequate insurance coverage:** Companies may face significant liability due to incidents and accidents, security breaches, malicious or terrorist acts, aircraft crashes, natural disasters such as floods or earthquakes, equipment malfunctions or problems in the course of storing, handling, transporting, processing or packaging nuclear substances and materials. While many of these risks are unpredictable, companies mitigate them by carrying out the necessary investment, conducting operation and maintenance procedures and programmes, appropriate training, and taking out the required insurance covering both material damages and civil liability. However insurance does not completely eliminate these risks since it is not always possible to transfer it to the insurance companies and the cover is always subject to limitations.

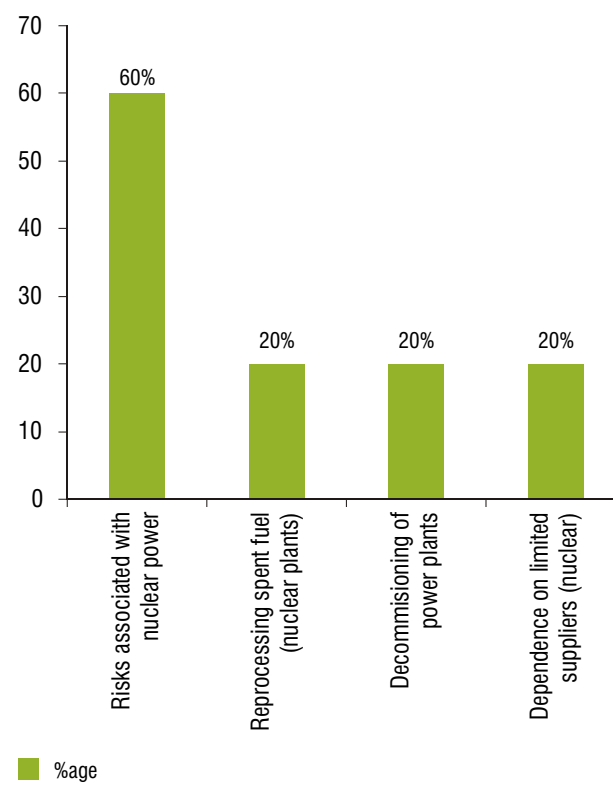
Some of the other risks identified by companies are:

- responding to society's expectations;
- guaranteeing ethics principles;
- disruption of offsite activities;
- increasing competition;
- risks associated with hydropower generation;
- changes in terms of concession agreements; and
- delays in obtaining local and international permits for setting up of power plants.

#### Risks specific to nuclear power

Nuclear power forms part of the fuel mix of all the companies in the sample and is the second largest source of power.

Figure 18: Risks specific to nuclear power



**Risks associated with Nuclear Power:** The risks associated with nuclear power are many. 60% of the sample companies have listed them as one of the risks in operating their business. These include:

- the risks associated with storage and handling of radioactive materials
- liability in the event of nuclear accidents, as a result of which companies have to take out nuclear civil liability insurance policies to the tune of millions. The liability further varies from country to country
- a serious nuclear accident anywhere in the world may have significant consequences in terms of turning public opinion against nuclear power thus leading to tightening of operating requirements by the authorities, or refusal to provide authorisations for extensions
- environment contamination
- the nuclear business is subject to particularly detailed and restrictive regulations that could become more stringent from country to country. They could include norms relating to nuclear safety, environmental and public health protection and national safety considerations (terrorist threats in particular).

**Reprocessing of spent fuel:** Nuclear power plants are legally responsible for spent fuel from the time it leaves the power plant for radioactive waste processing and long-term management operations. Even if these are handled, transported, kept, warehoused or stored by contractors, the power companies may be held liable in case of an accident or damage to third parties or the environment from spent fuel or waste.

**Decommissioning of power plants:** Decommissioning of power plants presents a significant technical and financial challenge. The costs involved may also be significantly more than anticipated.

**Dependence on limited suppliers:** Two companies have cited dependence on limited number of suppliers for their raw materials as a risk. Companies are generally entirely dependent on third parties (who have the necessary qualifications and experience) for the supply of uranium for their plants. In the event that supplies of these raw materials become unavailable for any reason and companies do not have alternative supply sources the

ability of these plants to generate electricity would be adversely affected, which may materially affect the Company's financial condition and results of operations.

#### Disclosures Related to Fly Ash and its Disposal

90% of the companies in the sample of global companies have made some (though limited) disclosure related to fly ash and its disposal. As indicated above, thermal power is the largest contributor to power in these companies, the raw material being coal, lignite, oil or natural gas. They also include combined cycle power plants. Unlike coal available in the domestic Indian market ash content in coal sourced from other countries is limited to around 10-15%. It is still however a significant pollutant.

According to one of the companies in the sample, fly ash and gypsum, which are fully recycled, are considered as by-products and are therefore not counted within the indicator "Conventional industrial waste" and therefore, no further disclosures on the matter have been made.

Disclosures related to main applications of fly ash without mentioning the quantities involved have been provided by three of the sample companies. While four companies disclose the quantities that have been generated and/or reused.

The major methods of application have been roadbed materials, cement raw materials, other construction materials and filling of open cast mine pits.

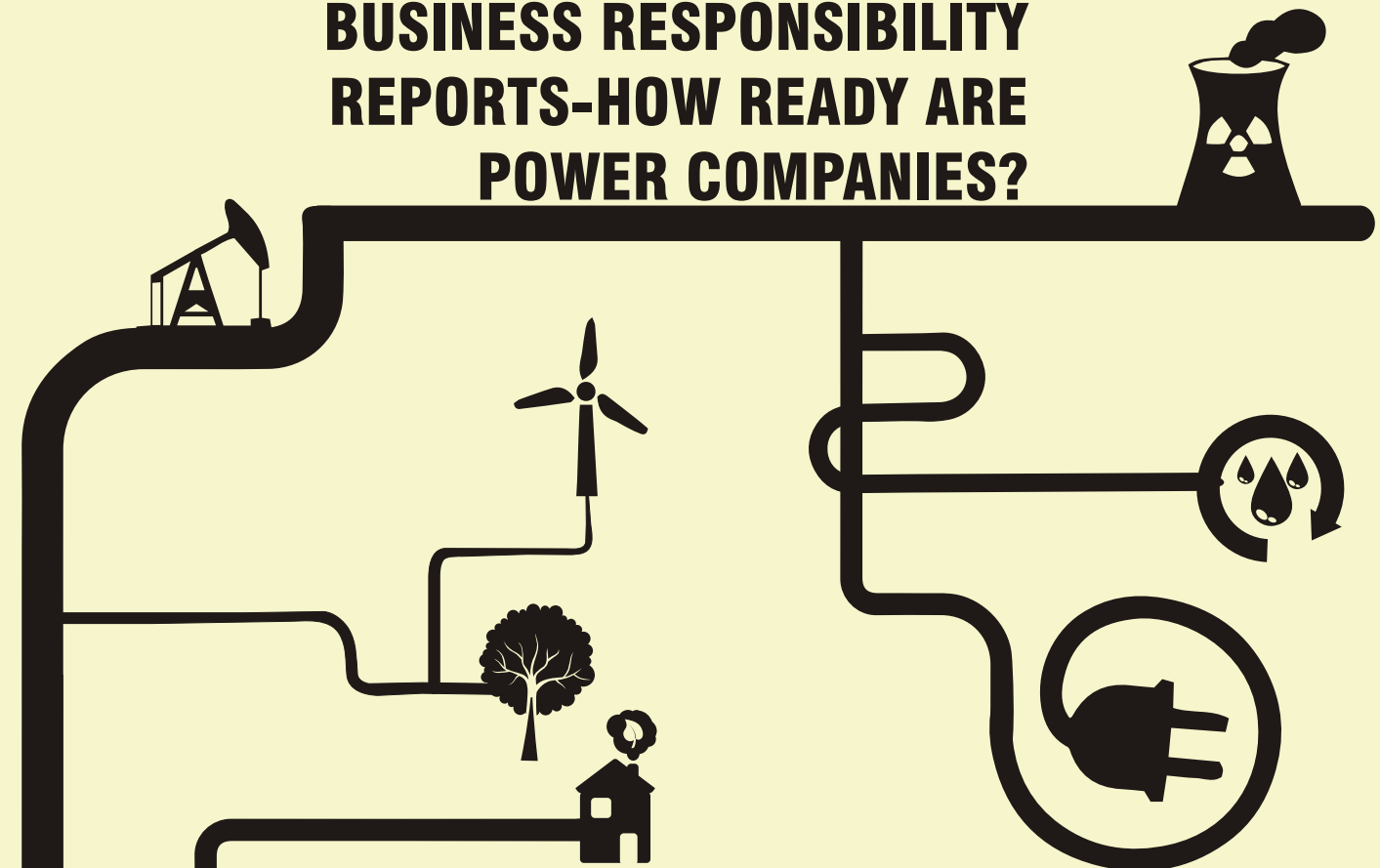
One company has achieved 100% utilization of ash from lignite fired power stations by using it to fill abandoned open cast mine pits in specially designed deposits for power plant residues. Another company describes promotion of a programme for respiratory protection against (amongst other things) ash. However although it gives detailed disclosures of the quantity of waste generated and disposed (along with modes of disposal), it does not specifically disclose the quantity of ash or other types of waste in particular.

Toxic release inventory disclosure of one of the company's simply states that less ash could be beneficially used due to the decreased demand for construction materials. No further details have been provided.





## BUSINESS RESPONSIBILITY REPORTS-HOW READY ARE POWER COMPANIES?



The top 100 listed companies are required to submit Business Responsibility Reports (BRR) as part of their Annual Report for financial years ending on or after 31 December 2012 as per the SEBI notification (referred to above) by inserting these requirements in clause 55 of the equity listing agreement.

Nearly 50% (7 companies) of the companies selected by us for this study are among this top 100. For this purpose, the study has therefore analyzed the preparedness of these companies in complying with the new clause 55.

The study has mapped the principles forming part of the BRRs with those enunciated in the globally recognised sustainability reporting guidelines such as GRI, UNGC, CDP. We have then analysed each company for readiness/compliance with the BRRs.

Below is the analysis of the readiness of the power companies selected for this study that fall among the top 100 listed companies in complying with the BRRs:

Of the 7 companies that fall within this category, 1 company has already prepared its Sustainability Report in accordance

with the GRI guidelines (for the year 2010-2011). According to the SEBI notification with respect to clause 55 of the Listing Agreement, those listed entities that have been already submitting sustainability reports to overseas regulatory agencies or stakeholders based on internationally accepted reporting frameworks are not required to prepare a separate report for compliance with these guidelines, but need to provide these to the stakeholders along with details of the framework under which they have been prepared and a mapping with principles contained in these guidelines. Therefore our analysis below is for only the remaining 6 companies.

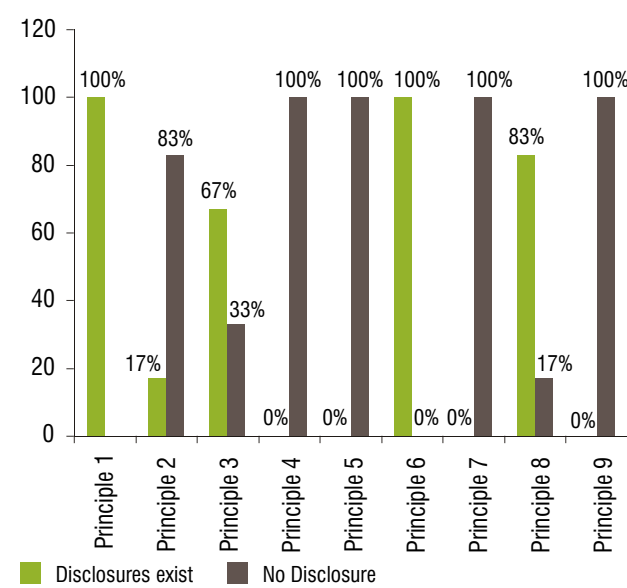
Business Responsibility Reports under clause 55 are based on nine principles which have been derived from the 'National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business' of 2011 of the Ministry of Corporate Affairs. These guidelines contain comprehensive principles to be adopted by companies as part of their business practices and a structured business responsibility reporting format requiring certain specified disclosures, demonstrating the steps taken by companies to implement these principles.

The table below identifies the number of companies making disclosures in their annual reports under each of the principles enunciated in the BRRs:

**Table 7:**

BRR principles	Disclosures exist	No disclosure
<i>Principle 1</i> Ethics, Transparency and Accountability	100%	0%
<i>Principle 2</i> Goods and services that are safe and contribute to sustainability throughout their life cycle	17%	83%
<i>Principle 3</i> Businesses should promote the well-being of all employees	67%	33%
<i>Principle 4</i> Respect the interests of, and be responsive towards all stakeholders, especially those who are disadvantaged, vulnerable and marginalized.	0%	100%
<i>Principle 5</i> Respect and promote human rights	0%	100%
<i>Principle 6</i> Respect, protect, and make efforts to restore the environment	100%	0%
<i>Principle 7</i> Influencing public and regulatory policy	0%	100%
<i>Principle 8</i> Inclusive growth and equitable development	83%	17%
<i>Principle 9</i> Engage with and provide value to their customers and consumers	0%	100%

**Figure 19:**



Although we see that in respect of a number of companies some disclosures already exist, it would be pertinent to note that the extent or depth of disclosures is not sufficient and in accordance with the requirements of the BRRs or the NVGS.

**Principle 1:** Being listed companies, **all** of them have codes of conduct which the management and board subscribe to, however the details of that code, the policies relating to ethics, bribery and corruption, including extent of coverage (i.e whether applicable to the company only or associates, suppliers, contractors, NGOs, others) are not listed out.

**Principle 2:** The majority of the power plants in India (and in the sample) are thermal coal-fired power plants. The primary purpose of a life cycle assessment would be to quantify and analyse the environmental aspects of producing electricity in these plants. **Only one** company has

disclosed that life cycle environmental impact assessment will be part of the initiatives planned by the company for the next year. Furthermore it has also discussed matters related to water conservation and recycling of ash ponds with the help of Ash Water Recirculation System. **None** of the other companies has made any related disclosure.

**Principle 3:** **66%** of the companies in our sample have any disclosures related to employees. However, these are also not completely in accordance with the requirements of the BRR. A few have disclosed the number of employees, but do not provide additional details like categorization on into temporary, permanent, women, physically challenged. Only 33% have briefly mentioned the existence of a sexual harassment policy, but there is no mention of whether any complaints have been received or not. None of the companies has mentioned whether or not they have received any complaints related to child or forced/involuntary labour either.

**Principle 4:** This principle refers to identification of and engagement with all stakeholders where we found that **none** of the companies have any disclosures. Reference to stakeholders has been made throughout the reports and the fact that 'multi-stakeholder' consultations have been made. However no information has been provided on the method adopted for identification of stakeholders, mapping internal and external stakeholders, identification of disadvantaged, marginalised or vulnerable stakeholders and the manner of engagement with the stakeholders so (if) identified.

**Principle 5:** **None** of the companies has disclosed their policy (if any) on human rights and whether any complaints have been received from stakeholders on violation of these rights. According to this principle businesses must integrate respect for human rights in their management systems, in particular through assessing and managing human rights impacts of operations, and ensuring all individuals impacted by the business have access to grievance mechanisms.

**Principle 6:** **All** companies have provided some information related to their strategies to address global environmental issues and their commitment to the preservation of the environment, however details are scanty. These measures include afforestation in and around project affected areas,

conservation of natural resources, wildlife conservation, green belt development, fishery management, rainwater harvesting and use of cleaner technologies etc. Only one company has provided details of emission parameters in each state in which it operates along with its own contribution to emissions. It may be noted however that all have them have disclosures related to conservation of energy, technology absorption pursuant to the requirement in Section 217(1)(e) of the Companies Act, 1956

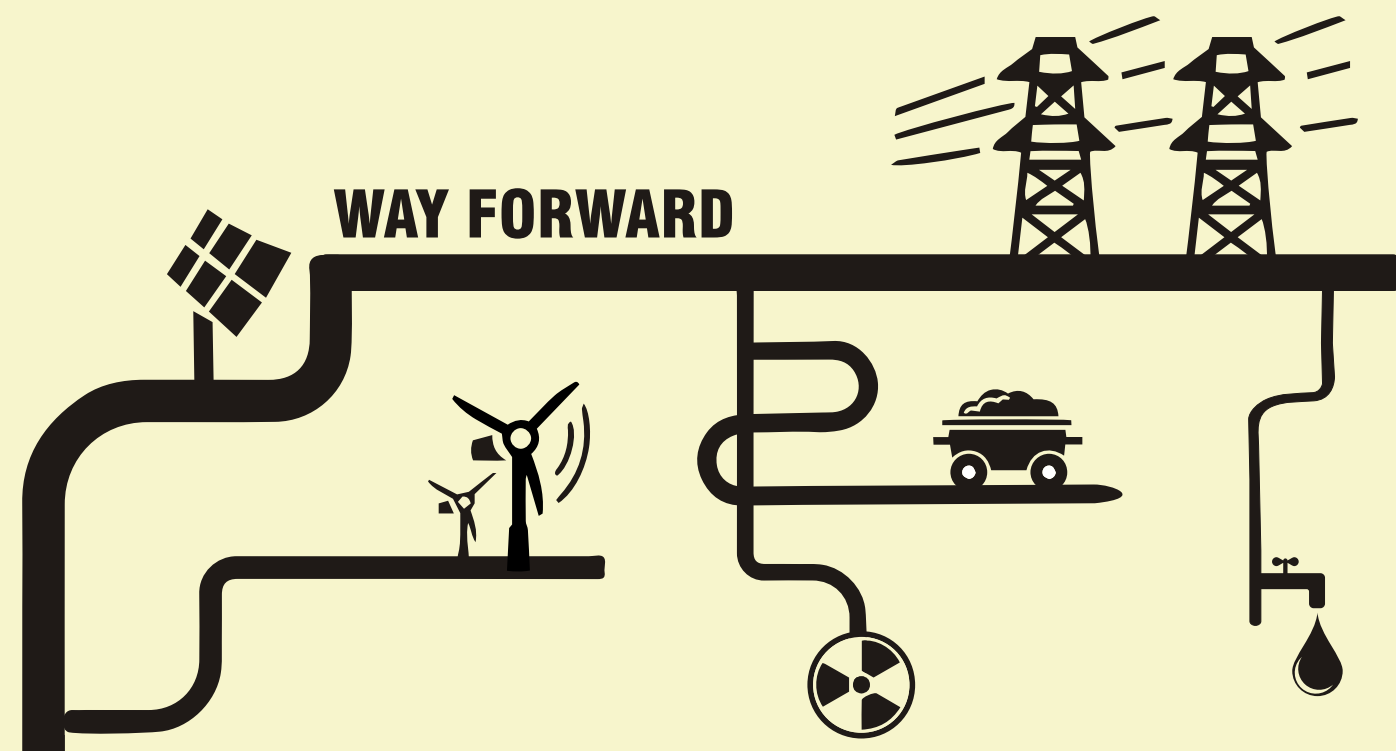
**Principle 7:** **None** of the companies appears to be a member of any trade organization or association in which they may have advocated/lobbied for advancement or improvement of public good (Principle 7).

**Principle 8:** **All but one** company have disclosed the programmes, initiatives and projects undertaken by them in support of inclusive growth and equitable development. These have primarily been disclosed under the head 'Corporate Social Responsibility' describing the various initiatives these companies have undertaken for the rehabilitation and resettlement of people affected by the setting up of power plants, initiatives related to health of the stakeholders and their education and training, empowerment of women etc.

**Principle 9:** Businesses should engage with and provide value to their customers and consumers in a responsible manner and for this purpose the BRR requires disclosures on whether any stakeholder has filed any case against the company regarding unfair trade practices, irresponsible advertising and/or anti-competitive behaviour during the last five years and the number of cases/complaints pending. It also requires the company to disclose whether they have carried out any consumer survey or customer satisfaction survey. **None** of the companies within the purview of this study has made any of these disclosures.

**Conclusion**

Clearly the above analysis shows that there is still a long way to go for these companies to comply with detailed disclosures as required by clause 55 of the listing agreement. Although certain disclosures exist, the quality of disclosures that do exist are wanting.



Sustainability reporting in India is still in an early stage across all sectors and only a limited number of organisations exhibit a continued commitment for disclosures.

There are several issues that need attention and action in order to increase the quantity and quality of sustainability information of reporters.

### Information Needs

- **Increasing awareness:** Companies need to identify sustainability initiatives as a likely source of increased efficiencies. Integration of sustainability issues with business issues will help create these linkages. Companies also need to work with various stakeholder groups to increase awareness of sustainability matters
- **Reporting frameworks aligned to Indian conditions:** Countries are in various stages of economic evolution and what may be standard practice in one country may be totally alien in another. Therefore, reporting frameworks have to be grounded in local context to increase adoption of sustainability reporting

### Role of Stakeholders

- **Government:** as a catalyst for ensuring speedy adoption of sustainability through policy initiatives
- **Civil society:** Activism is both a risk factor and a driver for sustainability efforts by companies. Civil society and business organisations have to adopt a collaborative approach towards sustainability

- **Investors:** Dedicated ESG indices operate on all major stock exchanges globally. Such indices help investors take decisions based on holistic risk measurements. Investor pressure is a major consideration for companies to adopt sustainability practices.

### Industry commitment

- **Capacity building:** There is an acute paucity of in-house and external expertise to deal with the challenge of business sustainability. Companies need to develop capabilities to assess the impact of operations in an objective manner, and measure and monitor such capabilities, as mitigation strategies are implemented
- **Raising credibility of data:** Most sustainability communication among Indian companies reflect the aspirations and strategies with little hard data to back the claims. It is imperative that processing of the quantitative information in sustainability disclosures be done with care and be defensible. Third party assurance of sustainability information is an indicator of the robustness of such data

The reporting trend is on the upswing, particularly due to the regulatory impetus. In the coming years we can expect to see a rise in the number of reporters and the reinforced belief that sustainability is integral not only to the running of a successful business but also to the society and the world we live in.

### Impact on sustainability due to the rapid growth of the power sector

The current (2009-10) annual per capita power consumption in India has increased to over 717 kilo watt hours (kWh). While it has shown an increasing trend in the recent past, it is still one of the lowest in the world when compared with the estimated per capita annual consumption of over 1,200 kWh in China and nearly 13,300 kWh in the United States of America. The National Electricity Policy of the Government of India stipulates that this is to be increased to over 1,000 units per annum in 2012 (Source: Report of The Working Group on Power for Twelfth Plan (2012-17)- Ministry of Power). Data for the target achievement for 2013 is not available.

India currently suffers from a major shortage of electricity generation capacity, even though it is the world's fourth largest energy consumer after United States, China and Russia in terms of capacity (Source: US Energy Information Administration - Independent Statistics & Analysis). In July 2012 there was a blackout, affecting the north of the country which is the largest power grid failure in history considering the number of people affected. The International

Energy Agency estimates India needs an investment of at least \$135 billion to provide universal access of electricity to its population.

The International Energy Agency also estimates India will add between 600 GW to 1200 GW of additional new power generation capacity before 2050. Around 404 million people in India do not have access to electricity. Providing electricity to these people while moving to low-carbon electricity generation is a social imperative. Indian electricity supply and demand are projected to increase fivefold to six fold between now and 2050. The technologies and fuel sources India adopts, as it adds this electricity generation capacity, may make significant impact to global resource usage and environmental issues. This will require huge investments and also create unique opportunities to transform the country's CO2 intensity. (Source: Technology Development Prospects for the Indian Power Sector 2011-IEA Report)

Earth's climate is a fundamental part of our life support system and shapes the way we live on this planet. With a target of 6% to 8% GDP growth in the coming years, migration from agriculture to industry and service sectors, increasing urbanization and changing consumption patterns, India's emissions are set to increase dramatically. These issues become risk factors for businesses which have to be integrated into business strategies. Measuring and reporting on all aspects of business including sustainability matters thus become very important for businesses to remain relevant.

**'Whatever you do will be insignificant but it is very important that you do it'**

Mahatma Gandhi

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