

RENEWABLES TO POWER GROWTH



SUSTAINABILITY REPORT FY 16 -18

Lighting up Lives!

ABOUT THE REPORT

(GRI 102-51, 52, 201-1)

REPORTING PERIOD	01 April 2016 to 31 March 2018
IN ACCORDANCE WITH	GRI Standards reporting framework Electric Utilities Sector Supplement (EUSS)
OTHER GUIDELINES FOLLOWED	<ul style="list-style-type: none">• Integrated Reporting guidance by IIRC• National Voluntary Guideline (NVG) by MCA, GoI• Carbon Disclosure Project (CDP)• United Nations Global Compact (UNGC)• Sustainable Development Goals (SDGs) of the UN
Reporting Cycle	VIII (Eighth)
Date of recent previous report	December 2017 (https://www.tatapower.com/pdf/sustainability/sustainability_report-15-16.pdf)

BOUNDARY & SCOPE

(GRI 102-1, 2, 3, 4, 5, 10, 46)

Operations of Tata power, viz. Generation, transmission and distribution of power in India

- Eight generating stations namely Trombay; Coastal Gujarat Power Limited (CGPL), Mundra; Maithon Power limited (MPL), Maithon; Jojobera; Haldia; Industrial Energy Limited (IEL), Jamshedpur (Plant 5 and Power House 6), Kalinganagar and 3 generating stations (Hydro), namely Khopoli, Bhira and Bhivpuri.
- The wind and solar generation are not in the scope of the report.
- The Strategic Electronics Division (SED) has been divested in March 2018 and therefore not a part of reporting boundary.
- There have been no significant changes in the structure or ownership, data measurement method, etc. during the reporting period. Therefore, the reporting does not contain any change, nor affects the comparability.

This Report excludes all International Operations, Joint Ventures (JV), Associates and Upcoming projects.

During the reporting period, the following change occurred in the Company's holding structure:

- Chemical Terminal Trombay Limited, an erstwhile subsidiary of the Company merged with the Tata power during this year.
- The Company incorporated Tata Power Ajmer Distribution Limited and Far Eastern Natural Resources LLC.
- Tata Power Renewable Energy Limited (TPREL) acquired Welspun Renewables Energy Private Limited (WREPL).

The table present in Annexure I consists of all JVs and Associates and main Divisions of Tata Power.

There are no other major changes or restatements in the report. (GRI 102-45, 102-48, 53)

The report is reviewed and approved by the Chief Sustainability Officer. Tata Power appreciates feedback from its stakeholders to improve any aspect pertaining to the report. To aid this, a form is attached at the end of the report to collect feedback which can be sent to sustainability.reporting@tatapower.com or mailed to,

Chief Sustainability Officer
The Tata Power Company Limited 34, Sant Tukaram Road,
Mumbai, 400009

MESSAGE FROM TATA POWER LEADERSHIP TEAM

“
Innovating to harness energy market disruptions
”

(GRI 102-14, 54)

Dear Stakeholders,

It is our pleasure to present to you Tata Power Company Limited's eighth Sustainability Report for 2016-18. The year marks 150th anniversary of the Tata Group and Tata Power was seeded 103 years back with a vision to provide reliable and clean power to India.

According to the World Bank, India's GDP will grow by 7.3% in 2018-19 and by 7.5% for the next two years. The Central Electricity Authority (CEA) states that the electricity demand in the country will grow at 7.1% (CAGR) between FY17 and FY22, driven primarily by industrial demand. Further, the demand is expected to increase on account of grid connectivity reaching rural households which do not have access to power today. There is a substantial government push to establish renewable power generation capacity to meet the 175 GW target by 2022. At the same time, coal being an abundant resource in India, is expected to remain a significant fuel source in the country's quest for providing power to all.

The Indian power sector is at a very critical juncture with stressed assets up for M&A opportunities on one side and exciting growth of renewables propelled by foreign capital flow and growing interest in smart grids, micro grids and decentralised generation, on another. In spite of eased coal linkages and improved fuel supply domestically, conventional power plants are facing tough challenge of debt servicing and long-term survival. With Government initiatives like UDAY (Ujwal DISCOM Assurance Yojana), Integrated Power Development Scheme and the Deendayal Upadhyaya Gram Jyoti Yojana and focus on village electrification after 100% connectivity promise, we see huge opportunities ahead. Based on our understanding of the sector and our exposure globally, we are best positioned to capture the market.

While the Indian power industry continues to witness challenging times, the performance of Tata Power has been better in the Financial Year 2017-18. This has been largely due to Company's relentless focus on operational improvements and excellence. We are committed to pursue a well charted growth strategy by demonstrating a high level of commitment towards cleaner sources of generation. The key growth areas for the Company have been identified in generation capacity with a focus on renewables, transmission, distribution and new and value-added businesses including Rooftop Solar, Smart Metering, Micro grids in rural areas and setting up the Electric Vehicle charging units.

At Tata Power, we believe that growth and development are imperatives for a developing economy. However, it needs to be sustainable and must benefit the stakeholders in the long run, with least impact on the environment. Tata Power has set a standard in adopting sustainable practices in its core business domain over the 100 years of its existence. We have developed the Sustainability model which has evolved over the years encompassing and ensuring the element of 'Care' for the stakeholders. We continue our sustainability journey guided by our values and steered by 'Leadership with Care'. In line with our commitment to lighting up lives, the company has been focusing on improving the overall stakeholder experience and ease of accessibility for better services for our consumers.

In line with our commitment to the Paris Agreement and Strategic Intent 2025 of having 40-50% generation capacity from non-fossil fuel sources, we have made significant progress (with present capacity of 3,417 MW and 32% of present installed capacity) and will continue to grow exponentially. Company plans to increase its clean-energy capacity to 12,000 MW by 2028.

This report presents progress made on the material aspects including challenges faced and lessons learned. The report is prepared according to the Global Reporting Initiative (GRI) Standards (including the Electrical Utility Sector disclosure) with conformance to the 'In accordance: Comprehensive option'. Further, guided by the Integrated Reporting framework, this report depicts the value creation that encompasses various aspects of governance, strategy, operations and performance.

Tata Power was recognized by the coveted CII-ITC Sustainability Awards for its significant achievement on Biodiversity for the second consecutive year. The Company was also ranked 3rd in the Responsible Business Ranking for Sustainability and CSR released in September 2017.

While the company continues to create value through strategic actions, the success of this journey is contingent upon partnerships and engagement with stakeholders. Stakeholder feedback and suggestions on our endeavor to enhance sustainability performance is welcome and will be acted upon.

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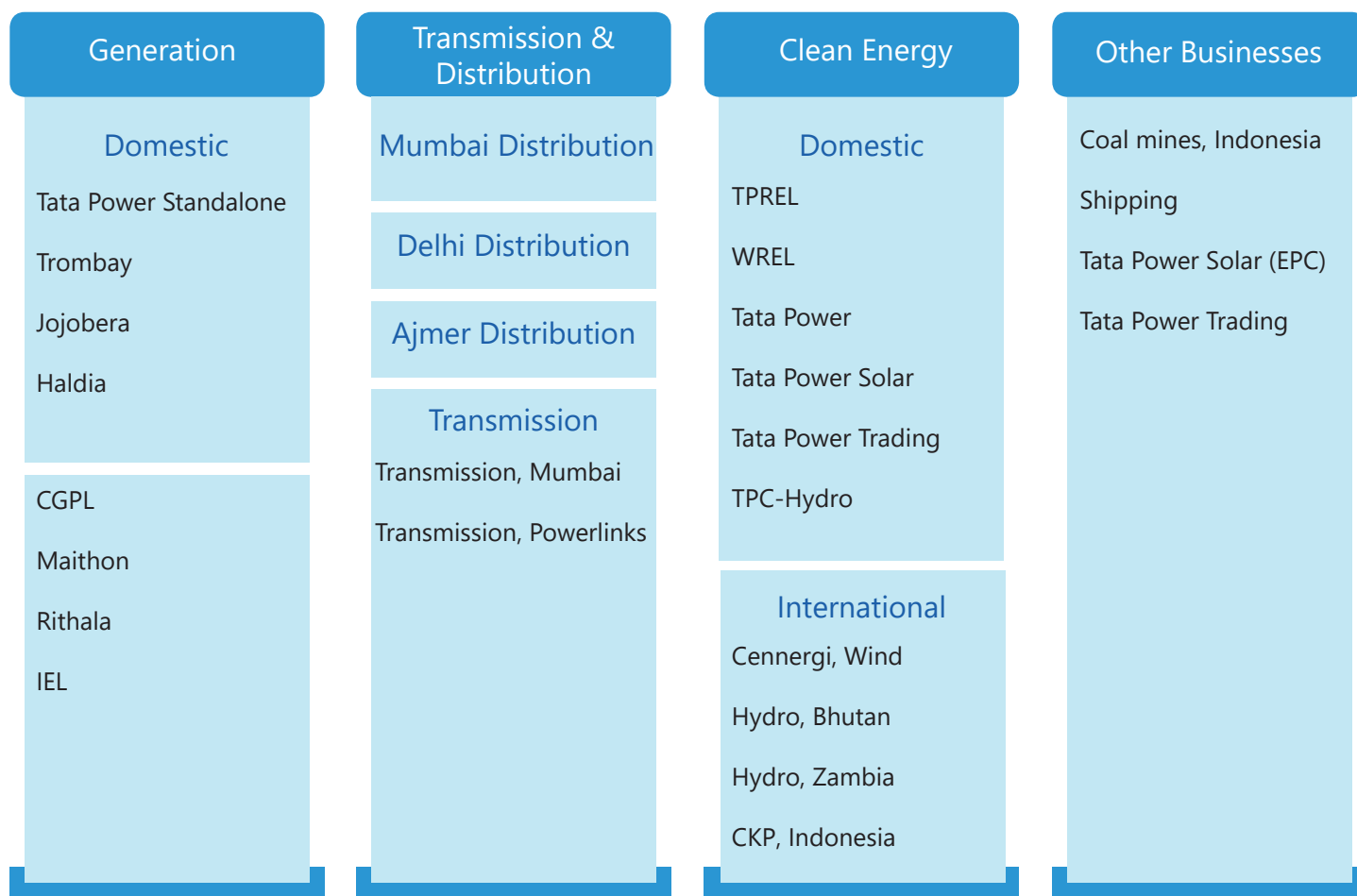
1.0 OVERVIEW

1.0 OVERVIEW

Tata Power's journey over a century has been a fascinating saga of pioneering initiatives; responsible business practices that have minimal impact on the environment; and initiating several socio-economic changes in our community.

In its quest to deliver sustainable energy, Tata Power is spreading its footprint nationwide, setting new benchmarks for operational efficiencies, investing in global resources and redefining paradigms. Its focus on building lasting and trusting relationships with its customers, partners and employees and the legacy of caring for its communities, remains the bedrock of its continued sustainability. The Company aims to energise consumer lifestyles by providing sustainable power. It hopes to inspire efficient use of energy and endeavor to educate our customers, and the world, about the benefits of implementing energy conservation practices. It is committed to developing its business in a way that adds value to its local communities. Also, it aims to set higher benchmarks in terms of development standards, and in the implementation of cutting-edge eco-friendly technologies and processes of energy management.

Tata Power Business Overview





1.1 Business Overview

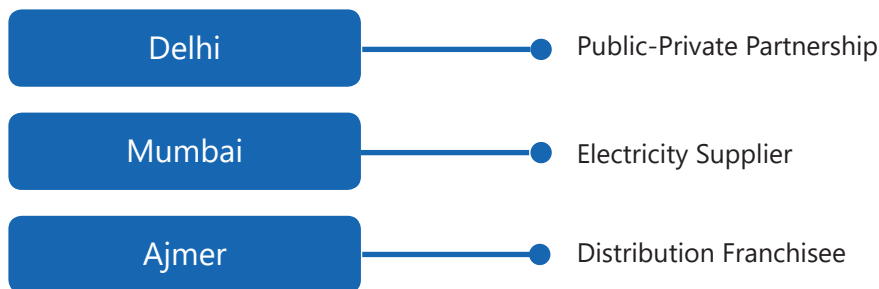
(GRI 102-6, 7)

Major business activities of the Company are in Generation, Transmission, Distribution-cum-Retail, Power Trading and services, Coal Mining and Logistics, Solar Photovoltaic (PV) manufacturing and associated project management services (Engineering, Procurement, and Construction).

Tata Power presently generates electricity from Thermal, Hydro, Wind, Solar, as well as from Waste heat recovery. Tata Power has gross power generation capacity of 10,757 MW (as of 31 March 2018) with assets for ensuring fuel supply and has a balanced mix of operating and under execution projects.

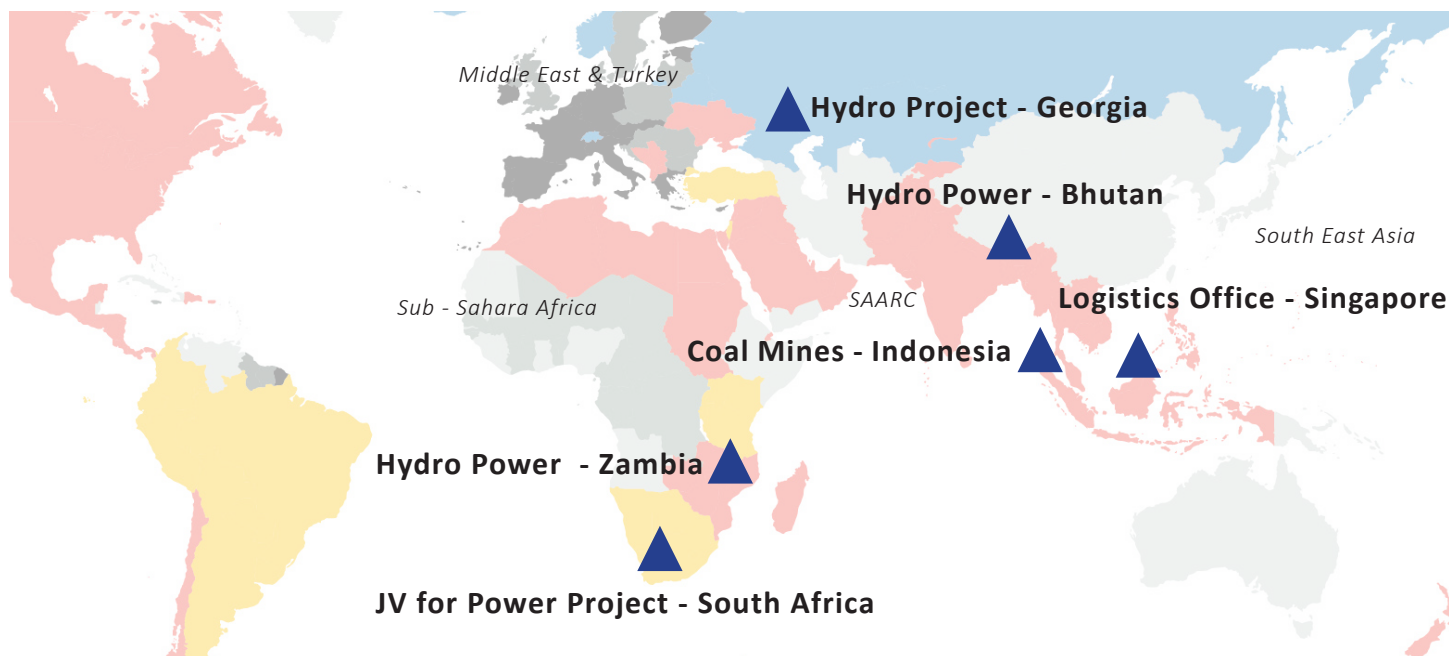
Further, the generated power is diverted through a broad mix of tariff models including regulated returns, captive, Independent Power Producer (IPP), Ultra Mega Power Project (UMPP) and merchant sales. Tata Power is diversifying from only conventional energy generation to new and renewable energy. With wind and solar operational capacity of 2,349 MW and approx. 100 MW under construction, Tata Power is one of the largest non-conventional energy players in the country.

Presently, Tata Power is in the distribution business in three cities—Mumbai, Delhi and Ajmer and in all these places it has a different business model.

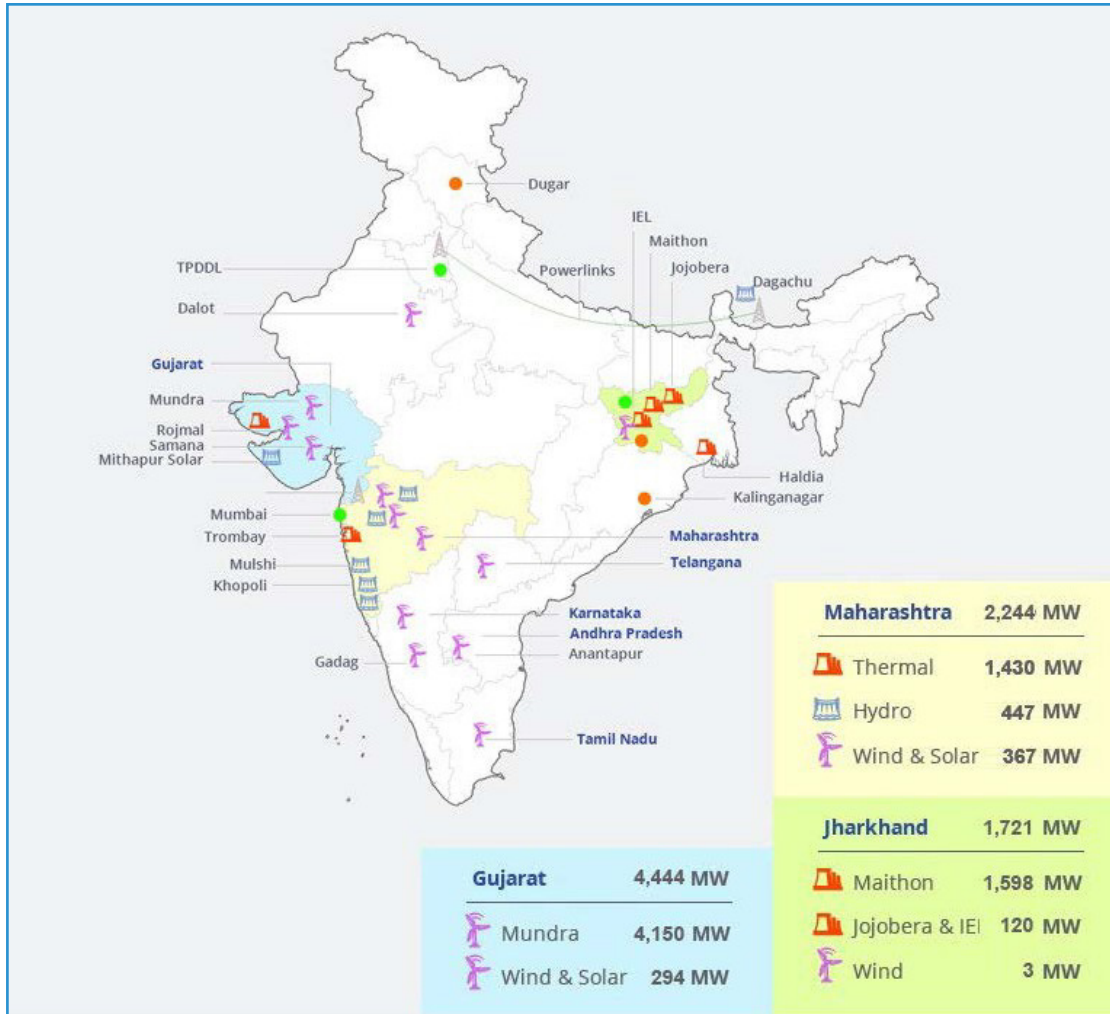


1.2 Global portfolio of Assets

Tata Power has an International presence in Indonesia, Bhutan, Georgia, South Africa and Zambia. These projects are under various stages of execution and development.



India Footprint



1.3 Activities across Value Chain of Power

Fuel

Tata Power has secured the supply of fuel for its operations through long-term contracts. Tata Power will continue to tap new fuel assets from across the globe as and when the need arises for sustainable supply for its operation. The details of fuel supply are given below:

Project	Requirement	Source
Trombay	3 MTPA coal Oil 1 MMSCMD of Gas	Coal Mines, Indonesia Nearby refineries GAIL
Mundra	12 MTPA coal	Coal Mines, Indonesia
Maithon	4.5 MTPA coal	Coal India Ltd.
Jojobera	Coal	West Bokaro Coal Fields and Mahanadi Coal Fields Mahanadi Coal Fields
Haldia	Flue gas	Tata Steel, Haldia
IEL	Furnace & Coke oven gas Coal	Tata Steel, Jamshedpur West Bokaro Coal Fields

Fuel Transportation

Tata Power's Trust Energy Resources is a wholly owned subsidiary in Singapore. Trust Energy's scope of business is to securitize regular coal supply and the shipping of coal for Tata Power's thermal power generation operations.

Generation

Tata Power's present portfolio in power generation is 10,757MW and has over 287 MW projects in various stages of execution and development. Tata Power's Hydro generating stations are in Khopoli, Bhivpuri and Bhira. The thermal power generating stations are at Trombay, Mundra, Maithon, Jojobera, Haldia, Kalinganagar and Jamshedpur. In this reporting year, there was an addition of 294 MW to the generation capacity from thermal, hydro, wind and solar power. The details of installed capacity are provided in the table below.

Details of Installed Capacity (EU 1)

Fuel Source	Generating plant	State/ Country	Installed Capacity (MW)	Total Capacity (MW)
Thermal	Trombay	Maharashtra	1,430	7,232
	Mundra	Gujarat	4,150	
	Maithon	Jharkhand	1,050	
	Jojobera	Jharkhand	428	
	Indonesia	Indonesia	54	
	IEL Unit-5	Jharkhand	120	
Oil/Gas	Rithala*	New Delhi	108	108
Thermal Waste/ Heat Recovery	Haldia	West Bengal	120	375
	Jamshedpur (unit 6)	Jharkhand	120	
	Kalinganagar (unit 1 & 2)	Odisha	135	
Hydro	Bhira	Maharashtra	300	693
	Khopoli	Maharashtra	72	
	Bhivpuri	Maharashtra	75	
	Dagachhu	Bhutan	126	
	Itezhi	Zambia	120	
Renewable	Wind Farms	Andhra Pradesh	100	1,161.60
		Gujarat	193.6	
		Karnataka	50.4	
		Madhya Pradesh	44	
		Maharashtra	238.6	
		Rajasthan	185	
		Tamil Nadu	120	
		South Africa	230	
	Solar	Andhra Pradesh	105	1,188
		Bihar	40	
		Delhi	1.65	
		Gujarat	100	
		Haryana	1	
		Jharkhand	3	
		Karnataka	314	
		Madhya Pradesh	130	
		Maharashtra	128	
		Punjab	34	
		Rajasthan	65	
		Tamil Nadu	250.25	
		Telangana	15	
		Uttar Pradesh	1	
Total			10,757	

*not operational



Renewable Portfolio

Tata Power has 32% of installed capacity i.e. 3,417 MW (as on 31st March 2018) from clean generation sources (includes renewables, waste heat recovery units, hydros), in keeping with its strategic intent to generate 40-50% of total installed capacity from non-GHG sources by 2025. To achieve the set target, various domestic, as well as international projects, are under execution and development stages.

The company has following projects under execution:

- TPREL's 100 MW solar project at Anantpuram in AP
- 187 MW hydro project in Georgia

Transmission (EU 4)

Tata Power continuously pursues the expansion of its transmission network in the Mumbai License Area. It also keenly tracks any growth opportunities in the transmission sector and reviews each such opportunity for risks and rewards. The Company also plans to pursue viable M&A opportunities through its investment platform.

The current portfolio in the transmission business include:

Over 1,188 C km of transmission lines, connecting generating stations to 21 receiving stations (TPC-T) 2,328 C km of 400 kV transmission lines to evacuate power from Eastern/ North Eastern region to Northern Region (PTL).

Highlights

- The Transmission assets (Mumbai License Area) had a grid availability of 99.48% as against the MERC norm of 98%
- 110 kV GIS, 33 kV GIS and 250 MVA ICT has been commissioned along with station auxiliaries at Versova, Mumbai.
- In PTL, the availability of the lines was maintained at 99.83% for Eastern Region in FY18 and 99.95% for Northern Region against the minimum stipulated availability of 98.5%

Distribution and Supply (EU 3)

Tata Power has 4,730 km of distribution network with approximately 920 customer substations and 32 distribution sub-stations across Mumbai Distribution License Area. The customer base of more than 6.86 lakhs in Mumbai and some of its bulk customers include Port Trust, BARC, Refineries, Metro, data centers and multiple residential projects are the recent addition to the list of Tata Power's esteemed consumers.

In FY18, TPDDL had a registered base of 16.39 lakh consumers spanning across an area of 510 sq. km. in Northern and North-Western part of Delhi. The AT&C losses of TPDDL stood at 8.40% against 8.59% last year. TPDDL also met a peak demand of 1852 MW in FY18 vs 1791 MW in FY17. TPDDL, in its strive to enhance reliability, has been able to reduce the System Average Interruption Duration Index (SAIDI) to a level of 29.16 hours against 43 hours in previous financial year.

TPADL, a wholly-owned subsidiary of The Tata Power Company Ltd. was formed as a Special Purpose Vehicle (SPV) to take-over the supply and distribution of power in Ajmer city. TPADL entered into an agreement with AVVNL for distribution of power supply for 20 years and started operation from July 2017. The total area under the franchisee is around 190 sq. km. The total consumer base is around 1.38 lakh and total peak demand is 110 MW.

Highlights

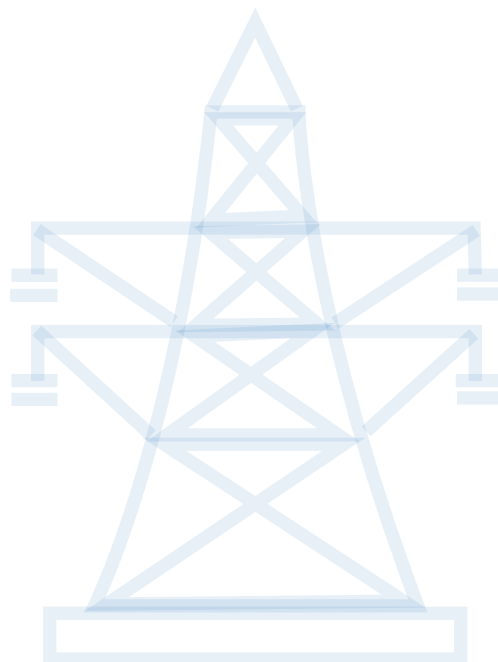
- Total consumer base increased to 6.86 lakhs with the addition of 19,001 consumers to the Company's network (direct) and 7,003 consumers transferring from other networks (welcome consumers), during FY 17-18.
- In FY 17 -18, 270 km of the network was added in Mumbai license area, which comprised of 87 km High Tension (HT) and 209 km Low Tension (LT) network. In addition, more than 50 consumer substations capacity addition - 60 MVA were com-missioned.
- Maharashtra's first solar rooftop net metering solution was operationalized for a Tata Power consumer.

New and Value-added businesses

Tata Power is looking at scaling up its value-added businesses, i.e., businesses with little or no capital investment (power trading, O&M services, solar EPC), and is also evaluating opportunities in emerging business areas such as Decentralized Distributed Generation (DDG), rooftop solar, utility-scale storage solutions and battery charging solutions for electric vehicles.

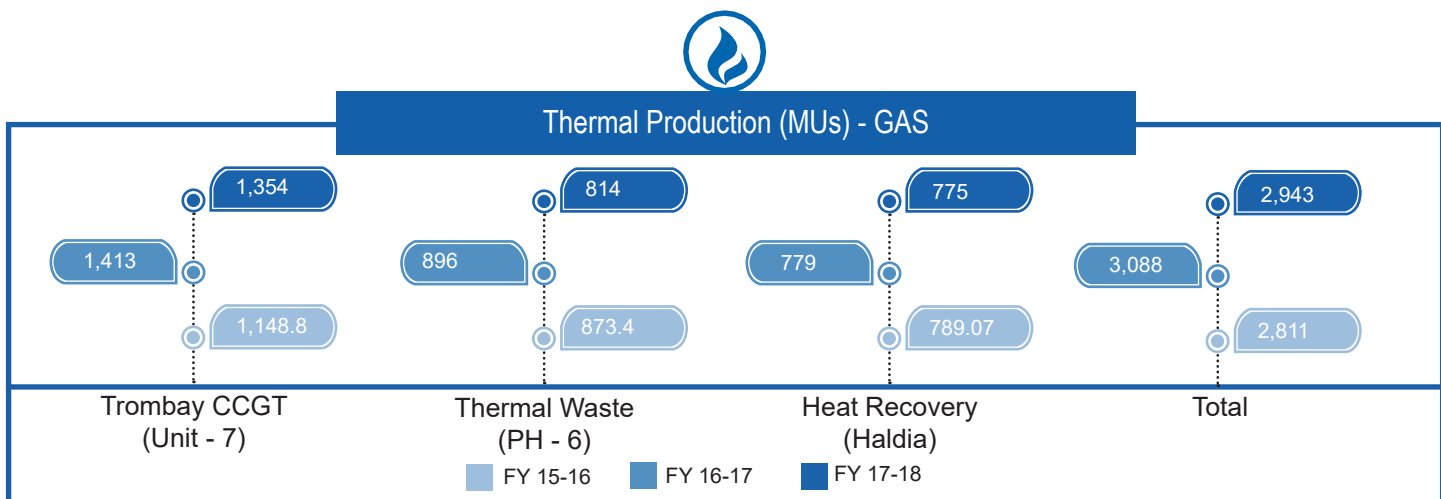
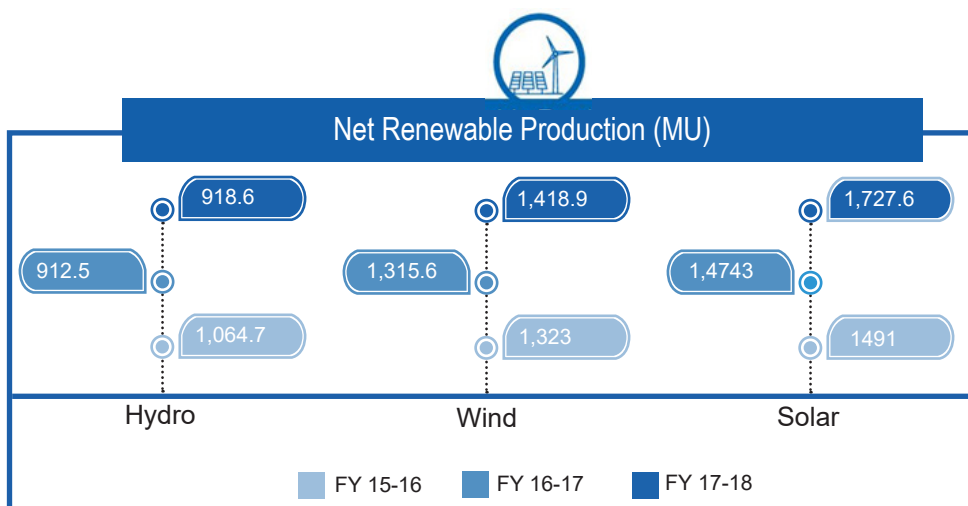
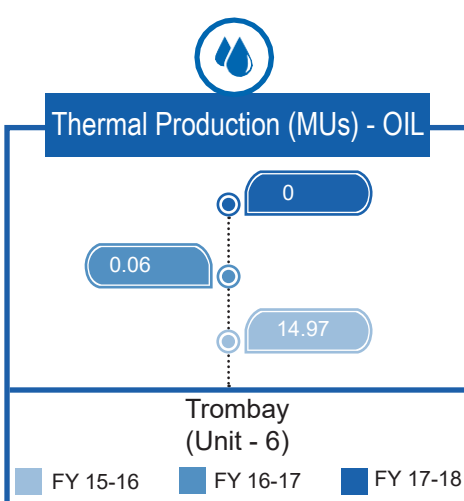
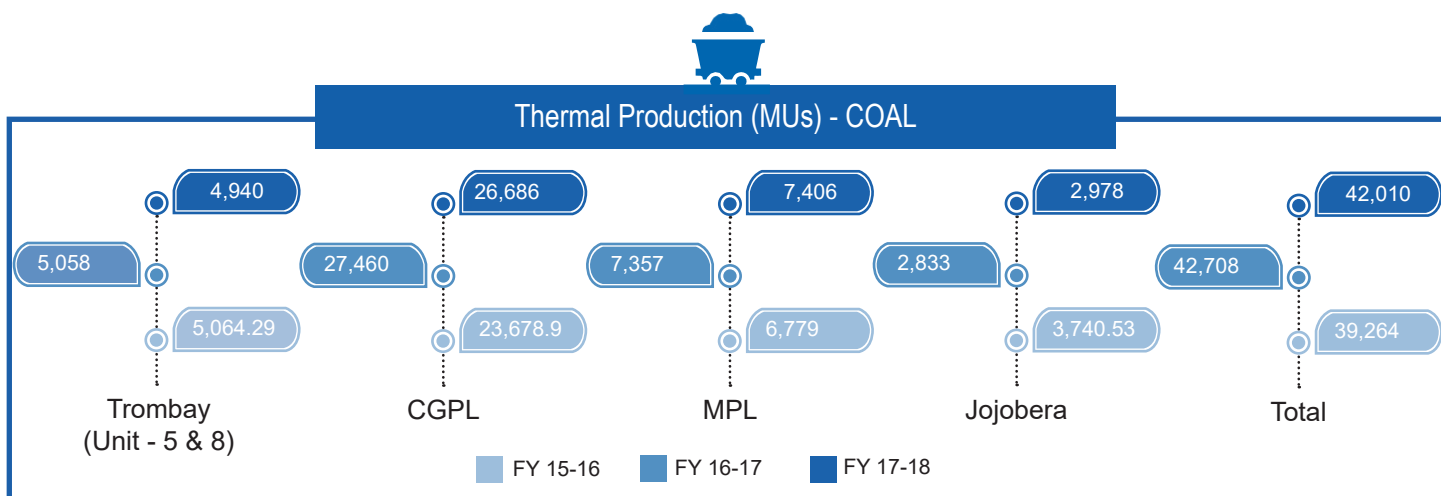
Tata Power installed Mumbai's first EV charging station at Vikhroli, Mumbai in 2017. This was followed up by further installations which helped make the city 'EV Ready' for the future. The Company also intends to pursue opportunities for putting up charging facilities in identified cities to cater to future demand from EVs.

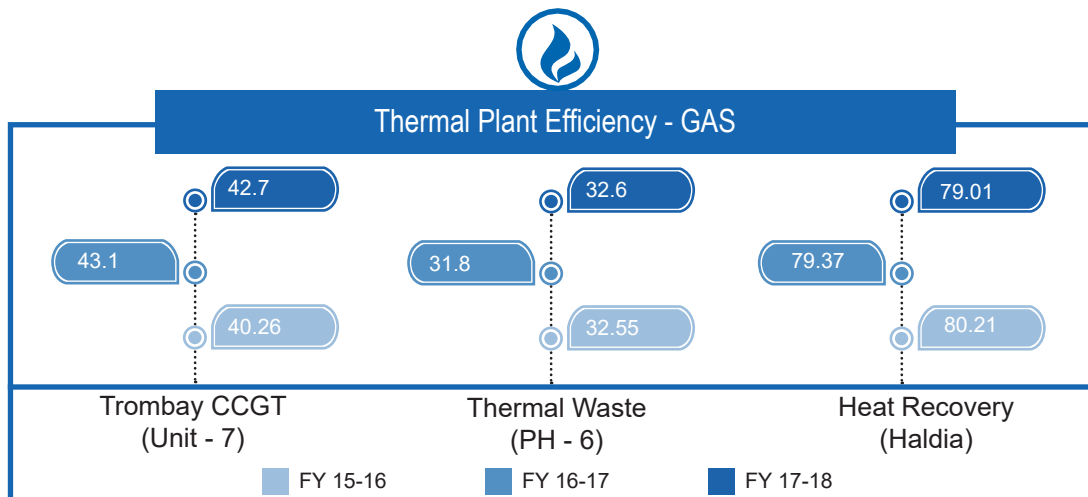
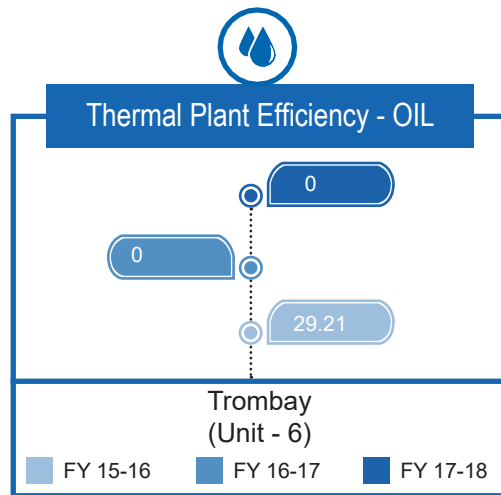
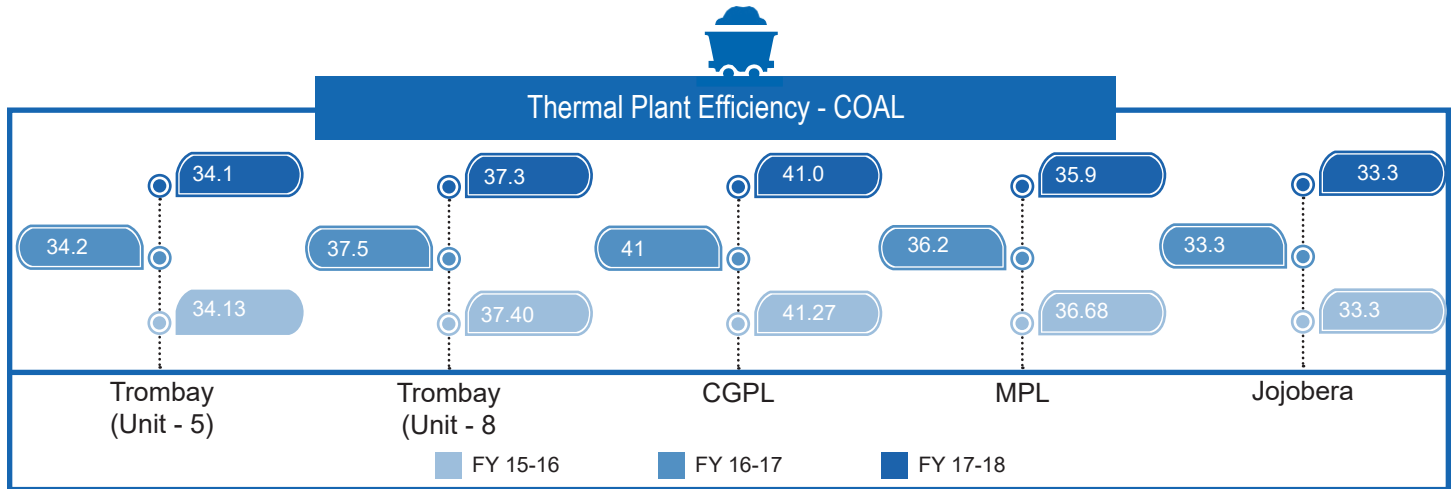
Tata Power is doing R&D in micro-grids, venturing in smart metering infrastructure and exploring home automation services. The company is exploring all potential growth avenues opened by disruptions in the market in the allied business areas to retain its leadership position.



1.4 Energy Availability and Reliability

Tata Power, as a sustainable power utility, endeavors to operate its stations efficiently, have non-interrupted energy supply or acceptable levels of energy interruptions to generate a consistent electrical output and is available to meet predicted peaks in demand. The Generation (Thermal/ Renewables), Average Generation Efficiency (%) of Thermal Station based on the Energy Source and Average Plant Availability factor of Thermal Stations by energy source areas follows. (EU 2)

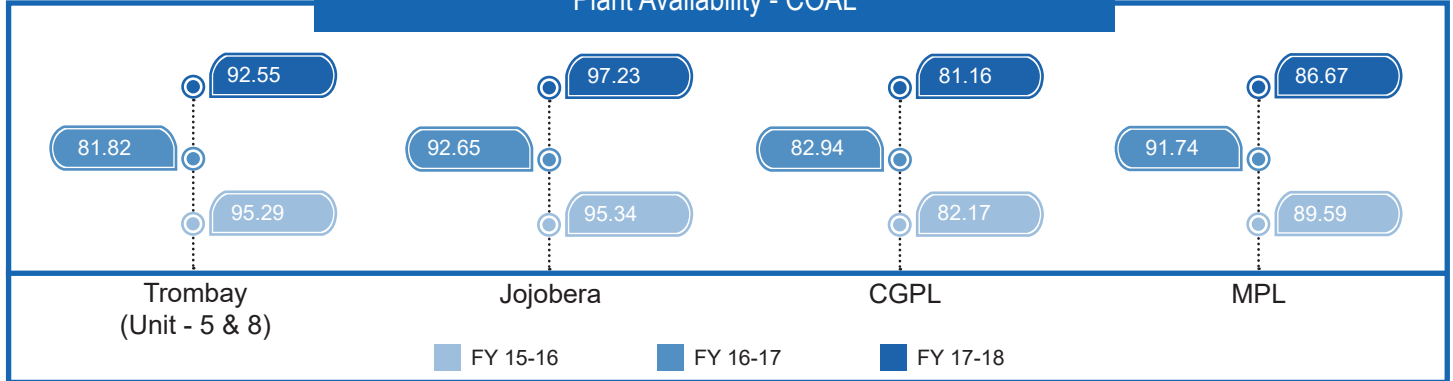




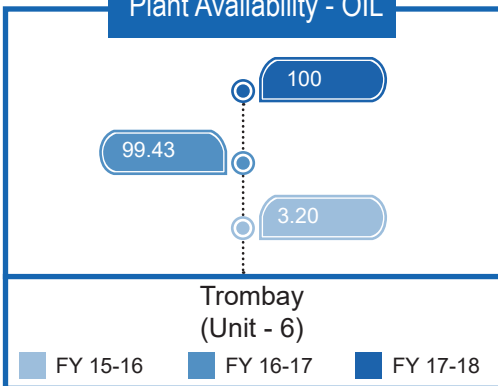
Average plant availability factor of thermal Stations by energy source (%) (EU 30)



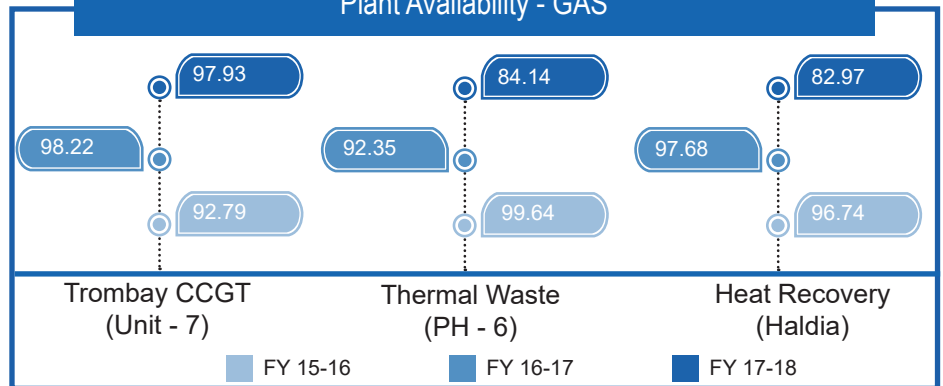
Plant Availability - COAL



Plant Availability - OIL



Plant Availability - GAS



The rise of Solar Business

Tata Power Solar has witnessed an increase in its net sales by 52% to touch a new height of ₹2,262 crore in FY17 as compared to ₹1,490 crore in FY16. The company increased its revenue by more than two and a half times in just two years. The profit after tax also increased by 330% during FY17, a remarkable achievement despite solar EPC being an extremely low margin activity and the pressures faced by the domestic manufacturing sector. A key strategy that drove this change was shifting from product focus to service focus (EPC).

Subsequently, the company significantly increased focus on EPC, where it had built strong competencies, in a short span of time. The Company became a strong contender in the utility as well as rooftop space and today Tata Power Solar is the leader in EPC for large utility projects. It has also been the biggest rooftop player for 4 years in a row. By bringing together the core strengths in domestic manufacturing from over the last 27 years and EPC services, Tata Power Solar commissioned many major projects in FY 16-17, including a 100MW plant under DCR in Andhra Pradesh for NTPC and carry forward a healthy pipeline as EPC for utility-scale projects for multinationals as well as central PSUs.

The profitability of renewable portfolio – Making case for new business models

Tata Power's renewable portfolio in India has registered a healthy consolidated PAT of ₹ 142.18 crore in Q1 of FY18, a 329% increase from Q1 of FY17. The renewable business capacity of Tata Power crossed 2,000 MW and non-fossil fuel portfolio stood at 3,144 MW, a 92% increase from the corresponding quarter last year. Another 500 MW of capacity is under construction by (TPREL), The operating renewable portfolio of TPREL has grown to 1,457.2 MW, comprising 530.2 MW wind and 927 MW solar respectively. Tata Power will continue to work towards ensuring its renewable business remains the largest renewable in the country. WREL, a fully owned subsidiary of TPREL and has one of the largest operating solar portfolios spread across India. It has an operating capacity of 1,010 MW, out of which 864 MW is solar and 146 MW is wind power.



1.5 Value Creation Model

(GRI 102-16)

Tata Power’s value creation model is centered around the strategic intent 2025 and underpinned by its mission, vision and set of defined values (SACRED). Apart from achieving operational excellence, Tata Power’s approach to business lays great emphasis on enhancing human capital and innovation to harness disruptions. Concerted efforts have been exerted in driving technological advancements to enhance competitive positioning while minimizing operational footprint. Overall, the Company implements an integrated approach for the effective management of all capitals to create value.

The value creation at Tata Power is built upon its Vision, Mission and Values; key relationships across the value chain based on mutual trust; strengths and competency of its personnel and diverse portfolio. The pursuit to reinforce critical success factor further contributes to value creation. Tata Power creates value through generation, transmission, distribution and other New and Value-added businesses. While the trust of stakeholder’s drives access to suitable capital, its (i) diverse portfolio of assets; (ii) ability to retain and nurture the best talent (iii) innovate to harness disruptions and (iv) stewardship for environment and community symbiotically act to generate outputs and outcomes. The output and outcome of our business processes include shareholder returns; affordable, accessible, reliable and cleaner power; stakeholder trust; innovation; retention of best talent and protection of the environment. As the short, medium and long-term trends and developments can significantly impact its’ value creation abilities, Tata Power has identified such risks and opportunities and has articulated its strategic intent to mitigate such risks and harness opportunities.

Vision

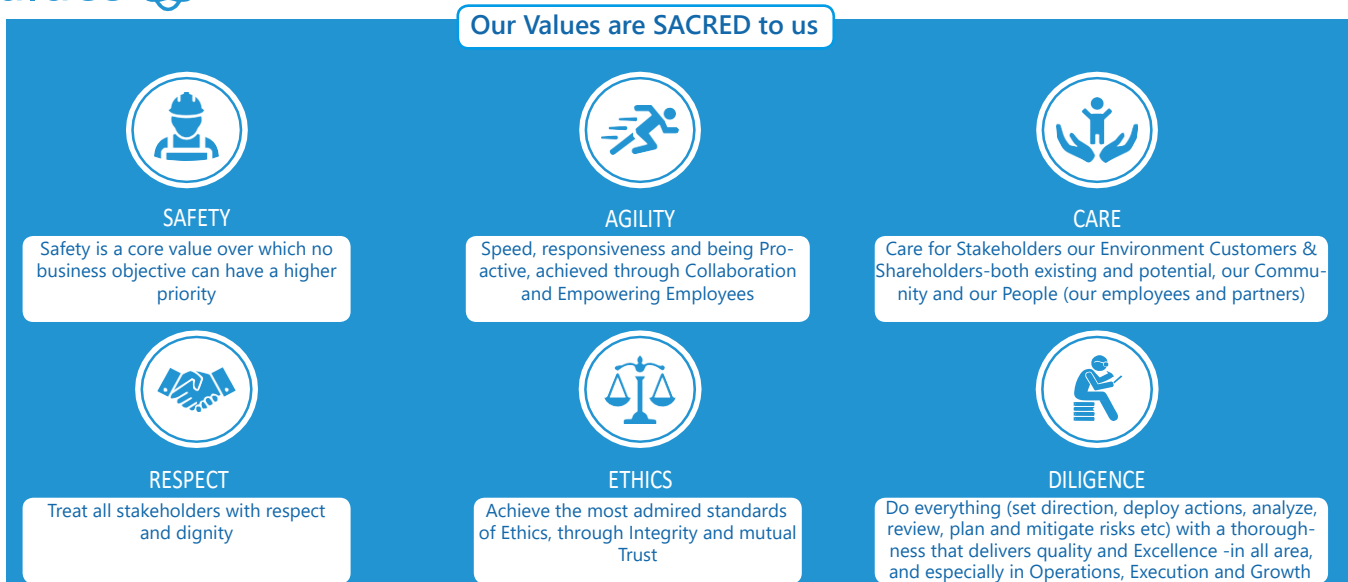
To be the most admired and responsible Integrated Power Company with an international footprint, delivering sustainable value to all stakeholders.

Mission

Tata Power aims at becoming the most admired and responsible power Company delivering sustainable value by

- Operating assets at benchmark levels
- Executing projects safely, with predictable benchmark quality, cost and time
- Growing the Tata Power businesses, be it across the value chain or across geographies, and also in allied or new businesses
- Driving Organizational Transformation that will make the Company have the conviction and capabilities to deliver on the strategic intent
- Achieving the Company’s Sustainability intent of ‘Leadership with Care’, by having leading and best-in-class practices on Care for Environment, Community, Customers, Shareholders and People.

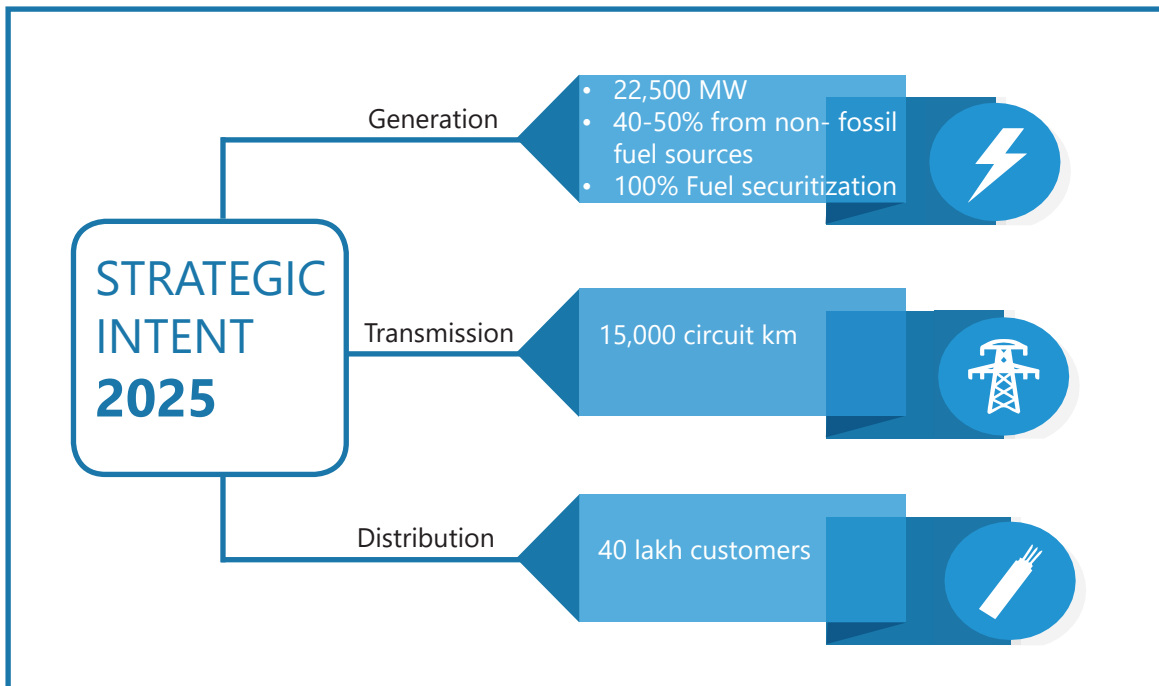
Values



Strategic Intent

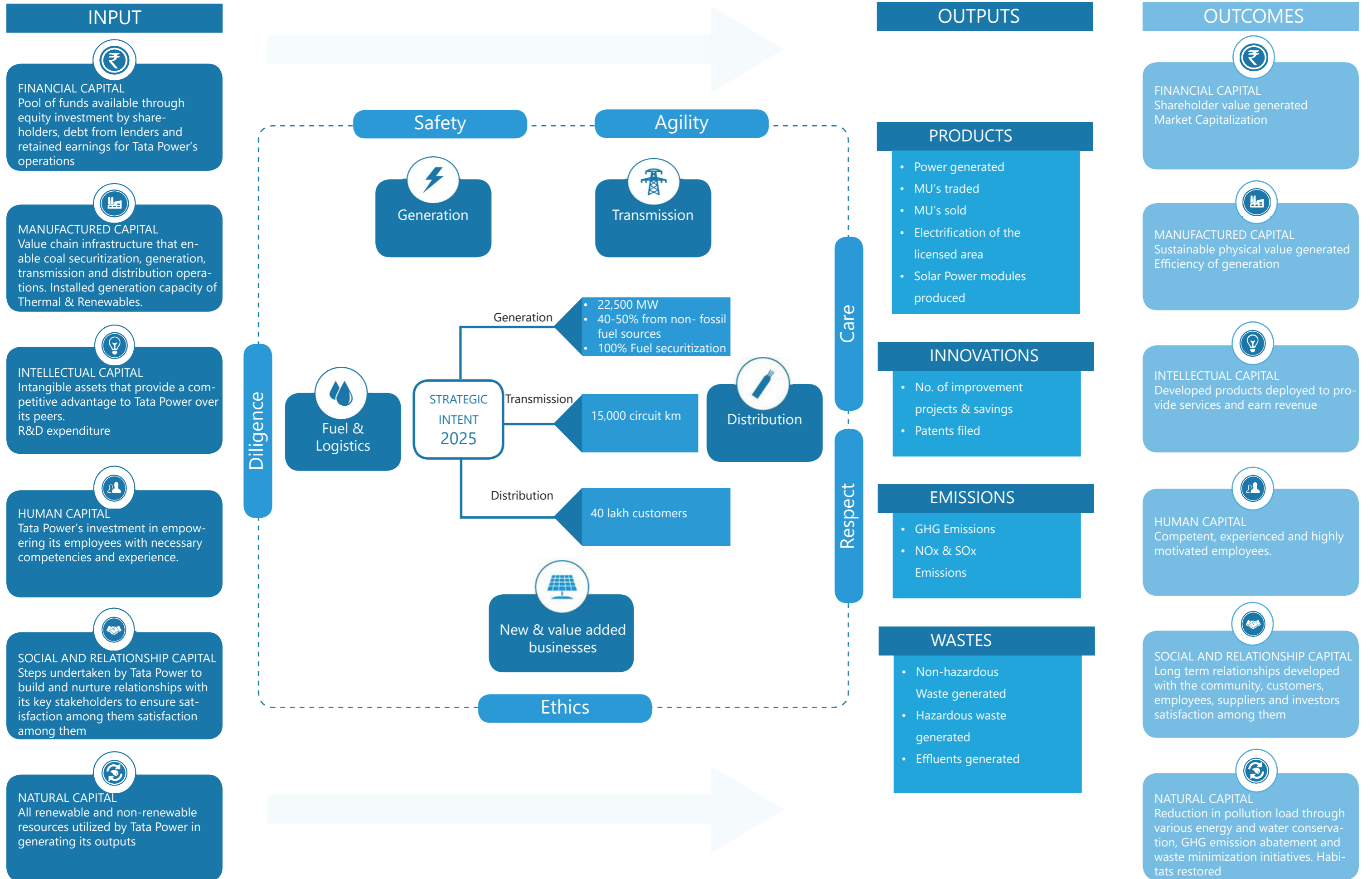
The strategic intent provides an insight into the Company's goals across its business activities for 2025 and is driven by Tata Power's focus on sustainability. The Company firmly believes that its ability to create value for itself and its stakeholders is highly influenced by its resources and key enablers. It has identified these key enablers as corporate governance, quality controls, risk management, customer satisfaction, finance, safety, technology, sustainability and human resources. The resources act as inputs across the six capitals of <IR> to the business activities, supported by key enablers to provide business outputs and generate outcomes across the six capitals. The Company's business activities are implemented with a view to creating a positive value for its stakeholders.

TATA POWER STRATEGIC INTENT 2025



The Company's business is primarily driven by strong performance by regulated businesses, renewables and cost optimization. The large section of the portfolio being under the regulated framework demonstrates the strong and reliable fundamentals of the Company's finances. Also, the balance between regulated return businesses and market-linked businesses in the Company's portfolio aids the Company in capitalizing on favorable market conditions while ensuring stable returns.

VALUE CREATION MODEL

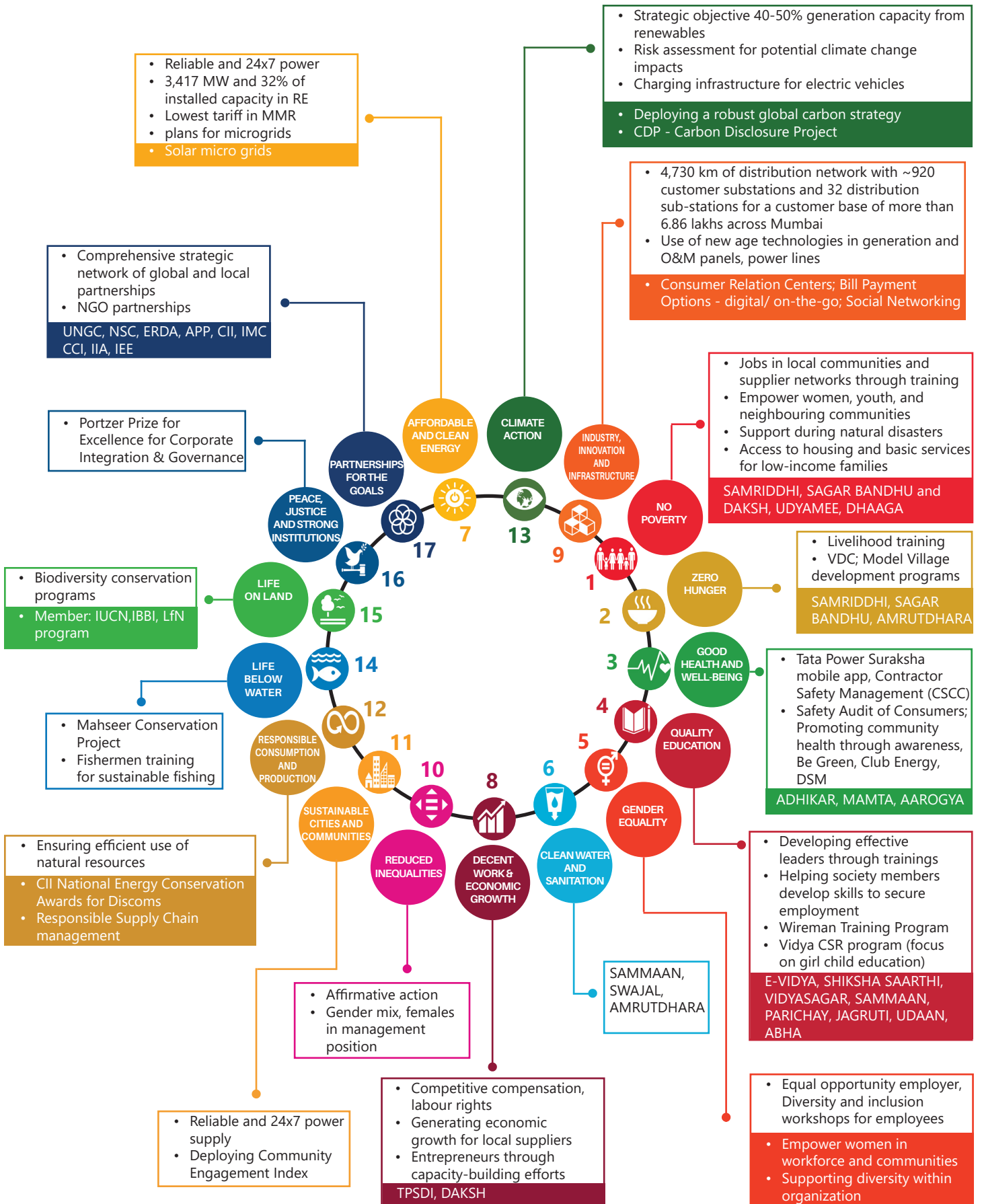




2.0

PERFORMANCE HIGHLIGHTS

2.1 Alignment to United Nations Sustainable Development Goals





MULTI CAPITAL VALUE CREATION

2.2 Financial Capital

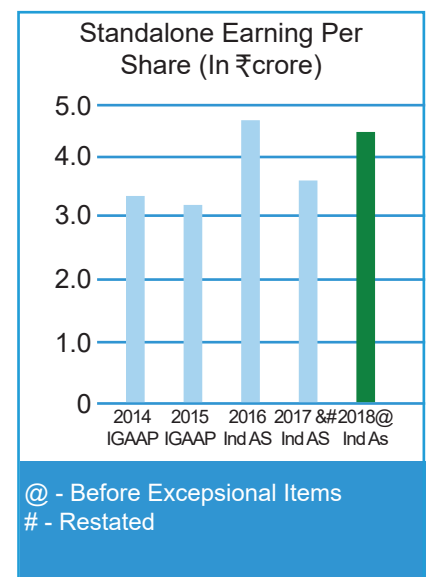
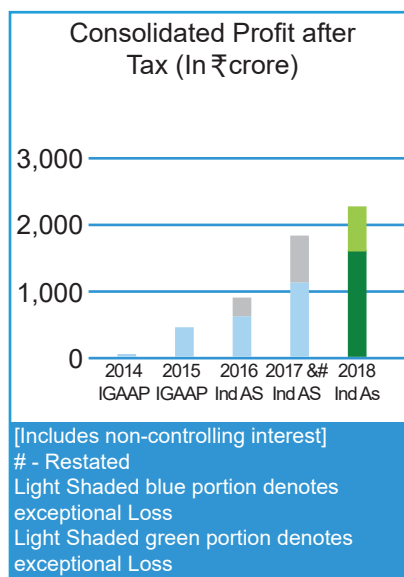
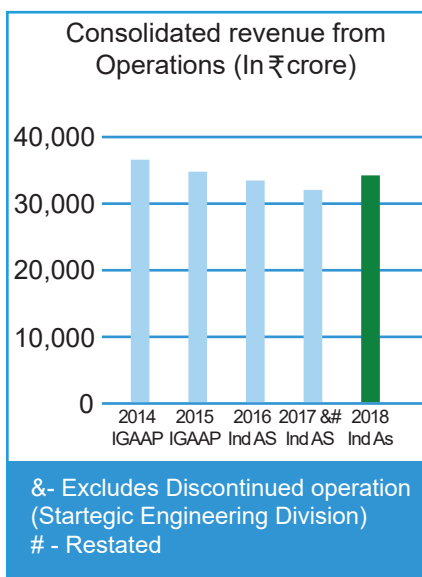
The Company's mission statement "Growing profitably across the power value chain and allied areas, in focus geographies" overarches its approach towards financial capital management. Tata Power puts in concerted efforts for forging a stable long-term relationship with all stakeholders by enhancing financial and operational performance, maintaining optimal capital structure and abiding by a prudent risk management framework thereby improving shareholder returns. Tata Power's operations are categorized under 2 segments: Power and Others. The Company's primary business is power generation, transmission, and distribution. The core business portfolio is based on assured returns through regulated business.

Highlights FY 17

- Consolidated PAT stood at ₹ 386 crore (before one-off impacts of ₹152 crore) as compared to ₹427 crore the corresponding period last year.
- Consolidated PAT stood at ₹ 386 crores (before one of the impacts of ₹152 crore) as compared to ₹427 crore in Q2 FY17 which includes ₹52 crore PAT of PTMP in Q2 FY17.
- Tata Power's renewables business profits jumped up by 200% as compared to Q2 FY17. Most other operations, besides CGPL, have done better & reported strong performance.
- MPL, IPTC (Zambia), and Coal Companies reported higher profits as compared to the corresponding quarter last year.

Highlights FY 18

- Group's consolidated revenue increased to ₹ 28,921 crore, an increase of over 6% over the previous year
- PAT was up 144% at ₹ 2,679 crore
- Underlying business EBITDA including companies was up 17% at ₹10,104 crore mainly due to a 46% increase in renewables business and strong all-round performance.



2.3 Manufactured Capital

Tata Power's mission "**Competitiveness by operating its businesses at benchmark levels**" drives operations at the Company and draws focus on adequate management of manufactured capital vital to its performance. This focus is also embedded within its Strategic Intent 2025 which targets 22,500 MW of generation capacity to be commissioned with presence across geographies and across technologies, which includes organic and inorganic opportunities. The production capacity for Tata Power for during FY 18 has been 10,757 MW with assets under construction in Georgia (187 MW) and in Ananthapuramu (100 MW). This streamlined focus showcases the importance of this capital to the overall sustainability of the business which leads to maximizing stakeholder returns. [\(EU 10\)](#)

Critical Success Factors

Tata Power has identified certain actions to be taken which are critical for its success in short, medium and long terms.

- Increase sales in TPC-D
- Operating the assets at benchmark levels
- Making inroads into allied value-added businesses
- Being proactive in anticipating, responding to and shaping the regulatory environment
- Investing in projects in select international geographies with focus on managing country related risks Developing a balanced pipeline for profitable growth
- Relentless cost focus across businesses and functions in a way that is sustainable

Highlights

- 01 10, 757 MW Total Generation Capacity
- 02 32% Percentage of Clean Energy Generation
- 03 53,500 MUs Generation
- 04 Clean energy Portfolio grew by 8.78% to 3,417 MW from last year
- 05 TPDDL achieved a benchmark reduction in AT & C losses at 8.40% as against 8.59%.
- 06 Tata Power's consumer base crossed 2.6 million mark across the country.
- 07 Launched EV Charging infrastructure in Mumbai
- 08 First power utility to introduce QR code for bill payments in India
- 09 Along with its subsidiaries and associates have 294 MW of generation capacity in its portfolio, in which 276 MW is Renewable and 18 MW is Thermal.
- 10 Distribution arm-TP ajmer Distribution Limited Signed Distribution Franchisee Agreement (DEA) with Ajmer Vidyut Vitran Nigam Limited.

2.4 Human Capital

Tata Power's mission statement "**Enable employees and associates to achieve and unleash their full potential to deliver outcomes in a sustainable way**" guides on the development of its most important asset, its people. Tata Power believes that its human capital forms the core of its business operations and the caliber of its people is a key ingredient to the Company's success. People's skills, experience and diversity enable the Company to provide competitive and reliable services and ultimately achieve broader goals. The Company has invested in infrastructure to provide world-class training, welfare initiatives and a safe working environment for all of its work-force. This investment thereby leads to enhanced efficiency and well-being of Tata Power's employees.

Highlights

- Tata Power Skill Development Institute (TPSDI) has successfully trained over 11,000 people since its inception.
- Over 900 employees have registered as Green Heroes since the inception of Greenolution programme, with over 250 green initiatives having been undertaken by them.

2.5 Intellectual Capital

The Company's mission "**Being the Lead Adopter of Technology with a spirit of pioneering and calculated risk-taking**" enables adoption of advanced and disruptive technologies. It also supports the development of some products and technological processes through a structured short, medium and long-term technological roadmap. The Company has a dedicated Clean Tech & Applied Research department to develop solutions that provide a competitive advantage over peers.

Strengths and Competencies

Tata Power continues to generate, retain and distribute value based on its strengths and competencies. The most significant strengths and competencies and act to continuously build upon these factors.



Strengths

- Efficient execution, operation and maintenance of power plants, transmission and distribution network
- Understanding and leveraging technological developments



Competencies

- Understanding new geographies
- Managing a renewables portfolio with considerable scale and spread
- Leveraging our understanding and sensitivity towards climate change, biodiversity and social development for business continuity and future generations

2.6 Social and Relationship Capital

The Company's mission statement "Practicing 'Leadership with Care' by pursuing the best practices on Care for our Environment, Community, Customers, Shareholders, People and creating a culture that will enforce our values " lays down the fundamentals for its approach to enhancing its relationship with its key stakeholders.

Highlights

- Tata Power joined hands with Labour Commissioner Office to implement 'JanshreeBimaYojana' for SHG members in Mumbai
- Tata Power's Maithon Power Ltd supports Jharkhand Government's sanitation project in villages of Maithon, Jharkhand
- Tata Power launches a nationwide public campaign '#PowerHerUp' to empower women and girl children of India

Key Relationships

The ecosystem of our business and the trust we enjoy with various stakeholders is an important competitive strength and we intend to reinforce it and base our growth on the foundation of stakeholder relationships. Our key relationships are outlined below:

Business/ Function	Product / Service	Key Partners
Generation	Fuel supply (coal, fuel oils and natural gas)	Coal (Adaro, Kideco, KPC, BSSR, Tat Steel, Mahanadi Coalfields, BCCL and CCL)
		Oil and gas: BPCL and GAIL Logistics companies: Coal: Pallonji and Indian Railways, Tata NYK, TERPL, EEPL
Distribution	Sale of power	TPTCL
	Power purchase	TPTCL, Tata Power-G
	Service support, Application processing, Meter reading, Billing and revenue collection for retail customers	TBSS, Yashmun Engineers, ICICI Bank and Standard Chartered Bank
Projects / Engineering	Equipment and spares supply	BHEL, ThyssenKrupp, K CK Cottrell, Inox, Gamesa, Thermax, Doosan, Toshiba, Siemens, ABB, CGL, Universal Cables, Schneider
TPSSL	Solar EPC Project	ABB, First Solar, Polycab, Tata Modules OEM in China
	Solar Roof Top	Growatt, Delta, Polycab
	Solar Pumps	Kirloskar, Shakti, Lorentz, Rotomag

2.7 Natural Capital

Tata Power's sustainability philosophy of 'leadership with Care' underpins its approach towards management of natural capital. Environmental management is a key aspect of Tata Power's operations. The significance given to environmental management within the organization is also showcased by its alignment with the strategic intent of the Company which endeavours to generate 40-50% share of generation capacity to be non-fossil (including hydro) by 2025.

Highlights

- Tata Power continues to work on minimisation of its operations' environmental impacts going beyond compliance
- Many environmental and energy efficiency initiatives implemented have saved natural resources like coal, gas, water, flora and fauna
- Club Energy organizes impactful awareness initiatives across India
- Club Energy organizes a rally to raise awareness for a plastic-free environment
- Over 1,500 Fish Knights from Lovely Professional University join Tata Power's Act for Mahseer conservation movement
- Initiated a natural capital valuation for hydro power assets





3.0 CORPORATE GOVERNANCE

3.1 Governance Guidelines

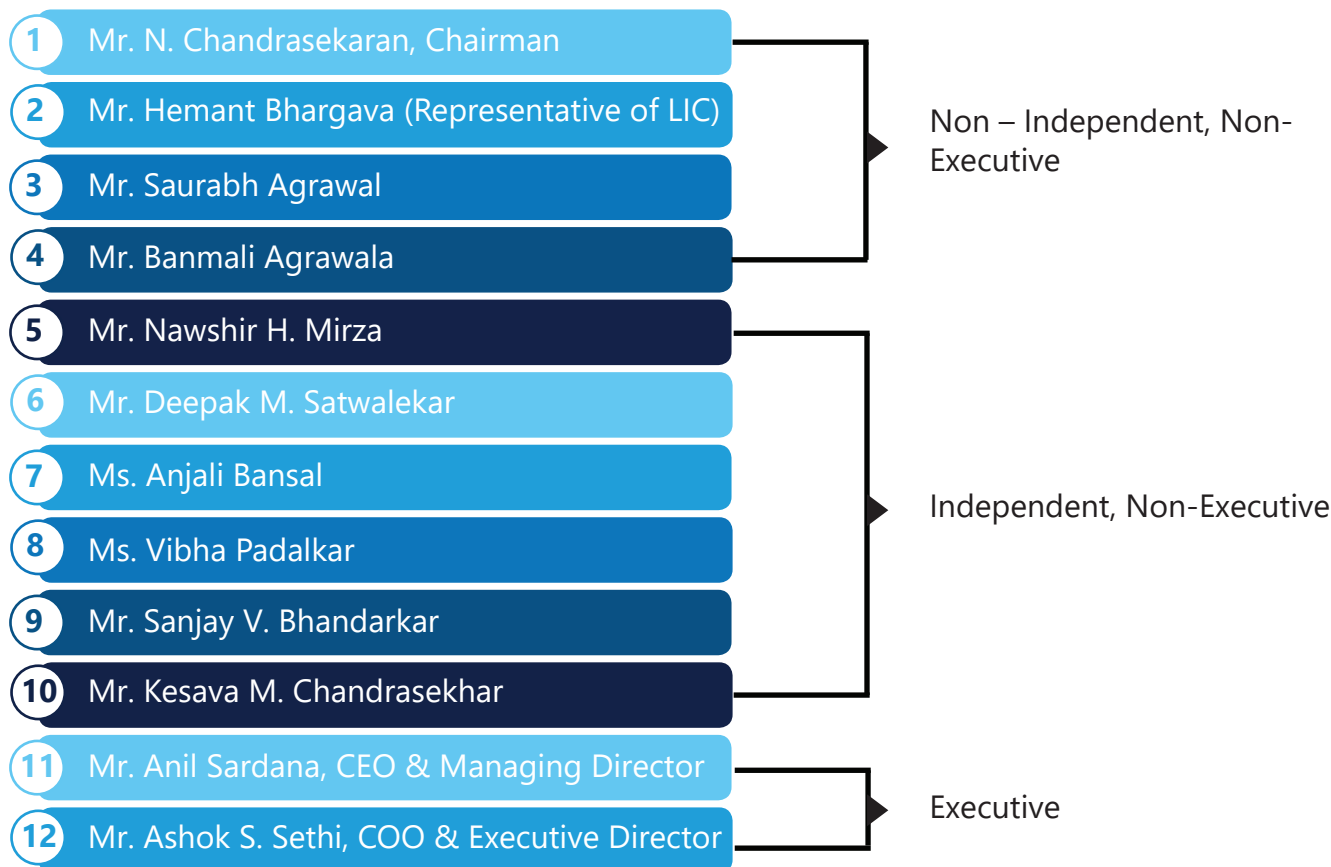
The Company has adopted Governance Guidelines to help fulfil its corporate responsibility towards its stakeholders. The Governance Guidelines cover aspects related to composition and role of the Board, Chairman and Directors, Board diversity, the definition of independence, Director's term, retirement age and committees of the Board. It also covers aspects relating to the nomination, appointment, induction and development of Directors, Director's remuneration, subsidiary oversight, Code of Conduct, Board effectiveness review and mandates of Board Committees. These guidelines ensure that the Board will have the necessary authority and processes to review and evaluate our operations when required. Further, these guidelines allow the Board to make decisions that are independent of the management. The Company has adopted the requirements of Corporate Governance as specified under the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 (Listing Regulations).

3.2 Board Structure and Oversight

Size and composition of the Board

(GRI 102-18, 19, 20, 22-39)

As of 31st March 2018, the Tata Power's Board of Directors consisted of 12 members, out of which 2 were Executive Directors and 10 as Non-Executive Directors (NEDs). Of these 10 NEDs, 6 were Independent Directors.



The information about Shareholding Pattern, Committees of the Board, its memberships and roles-responsibility has been provided in the latest Annual Report. (available on www.tatapower.com.)

The board constitutes various committees such as the Remuneration Committee, Audit Committee, Risk Management Committee, CSR committee etc., determines the terms of reference and reviews its activities and recommendations. The ratio of remuneration of the highest paid employee (CEO&MD) to the median annual total compensation of all employees for the year 2017-18 was 0.59. The percentage increase of annual total compensation of the highest paid individual is 5.5% and the percent increase in the annual total compensation of all employees is 5.58%.

3.3 Corporate Governance Policies

The board has adopted a number of policies, provides oversight and guides the management in deploying these policies. Corporate Governance policies cover areas ranging from Business Dealings to Media Policy, from Human Rights to Responsible Supply Chain. These policies help in making the governance mechanism more robust. All the policies are reviewed as per the need. Few of these policies are:

- Tata Code of Conduct for Prevention of Insider Trading
- Code of Corporate Disclosure Practices, Code of Conduct for NED and Code of Conduct for Business Dealings
- Whistle Blower Policy
- Policy of Information Security
- Customer Service Policy
- Business Continuity
- Risk Management

In addition to the Corporate Governance policies, Tata Power is also governed by other policies covering Sustainability, Environment, Community Relations, E-Waste Management, Health and Safety, Human Rights (HuR), Prevention of Sexual Harassment (POSH), Responsible Supply Chain Management (RSCM), Advocacy, Affirmative Action (AA), Corporate Communication, Energy Conservation, Customer Satisfaction and Media. The links to all these policy statements are available on Tata Power’s website.

Sustainability Policies

(GRI 102-12; 412)

Further, the company has articulated a set of policies, listed below. Please see a list of all the Corporate Policies at www.tatapower.com/corporate/policies-and-code-of-conduct.aspx



3.4 Risk Management

GRI (102-11)

Based on the Risk Management Policy a standardized Risk Management Process and System has been implemented across Tata Power. Risk plans have been framed for all identified risks and uploaded in the system with mitigation action, target dates and responsibility. This has enabled continuous tracking of the status of mitigation action and monitoring of Risk Mitigation Completion Index (RMCI). The Risk Register contains the mitigation plans for eleven categories of risk. Eight Functional Risk Management Committees (FRMCs) closely monitor and review the risk plans. Tata Power has obtained a copyright for its web-based Risk Management System.

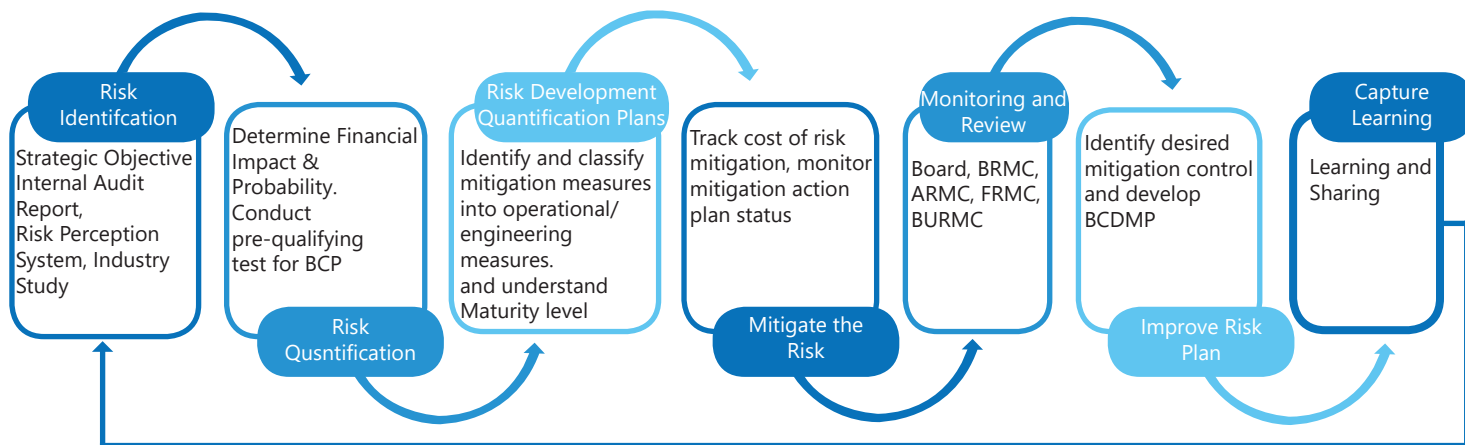
All risks have been classified into strategic, tactical and operational risks. Apex Risk Management Committee (ARMC) meets every quarter to review major strategic and tactical risks, identify new risks and assess the status of mitigation initiatives.

As per the Securities and Exchange Board of India (SEBI) (Listing Obligations and Disclosure Requirements) Regulations 2015, a Risk Management Committee (RMC) was constituted comprising of 3 Independent Directors, one Executive Director, one Chief Financial Officer and one Chief Risk Officer. The RMC meets regularly to review critical strategic risks and summary of top risks of each of the eleven categories and their status in terms of mitigation actions.

The Company has renewed its risk quantification method which helps identify key risks to the organisation and reduce subjectivity in the assessment of the residual value of each risk. This will further help to implement appropriate controls in business processes. Also, a grouping of risks has been undertaken for better management control.

The Company was also awarded ISO 31000:2009 Statement of Compliance for Enterprise Risk Management System from British Standards Institute for its Enterprise Risk Management System. The British Standards Institution (BSI) has audited and awarded ISO 22301:2012 - Societal Security and Business Continuity Management System to Tata Power and its major subsidiaries viz CGPL, MPL, TPDDL, TPTCL, TPSSL, TPREL, PTL, CTTL and IEL.

Tata Power bagged two prestigious awards at the CRO Leadership Summit and awards conducted by UBS Transformation. The Company won the 'Risk Management Team of the Year' and Tata Power's Chief Risk Officer was awarded 'CRO of the Year in the power sector'. Tata Power was pronounced as the joint winner in the category – 'Best Risk Management Framework & Systems – Power', at the 4th Edition of CNBC-TV18 'The India Risk Management Awards'.

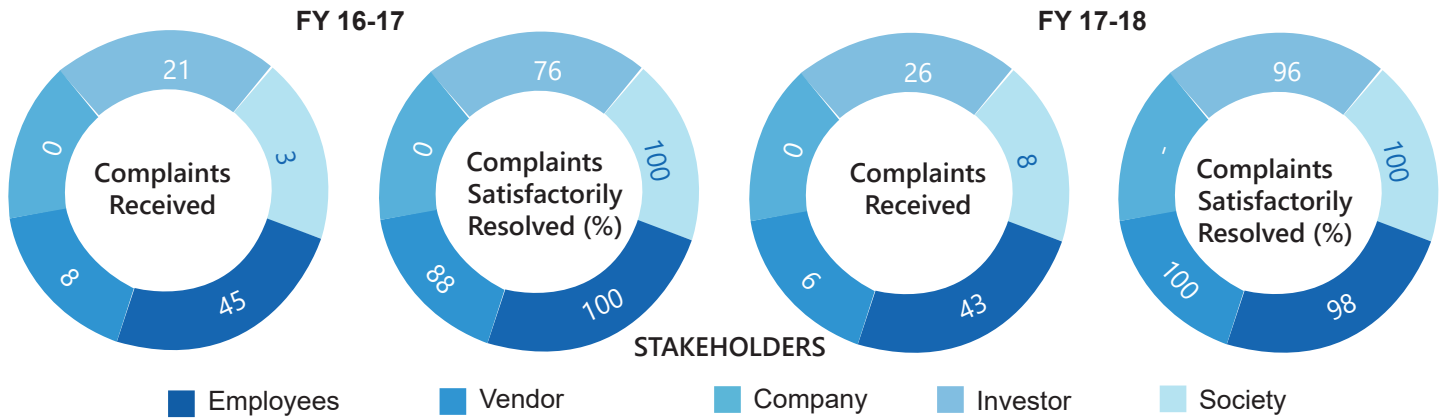


3.5 Ethics

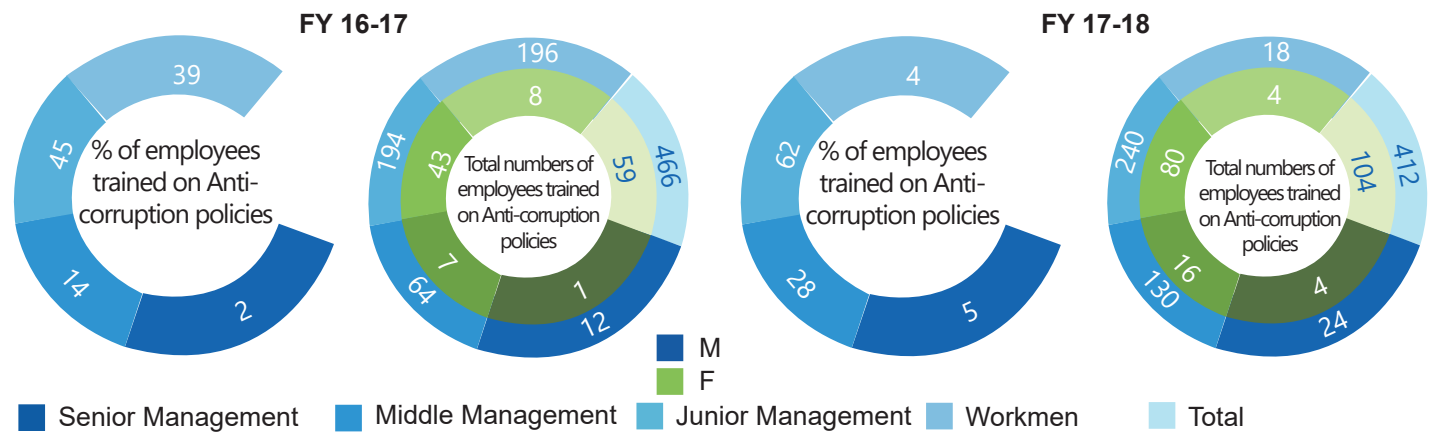
(GRI: 102-17, 44)

Tata Power believes in the conduct of the affairs of its constituents in a fair and transparent manner by adopting the highest standards of professionalism, honesty, integrity and ethical behaviour. In line with the Tata Code of Conduct (TCoC), any actual or potential violation, however insignificant or perceived as such, would be a matter of serious concern for the Company. The role of the employees in pointing out such violations of the TCoC cannot be undermined. Thus, TCoC complaint boxes are made available at many accessible locations across major facilities of the company. Further, the Vigil Mechanism provides a mechanism for employees of the Company to approach the Chief Ethics Counsellor (CEC)/ Chairman of the Audit Committee of the Company for redressal. There are no legal actions for anti-competitive behaviour, anti-trust, and monopoly practices on the company.

Stakeholder complaints received and resolved



Anti-corruption training for employees



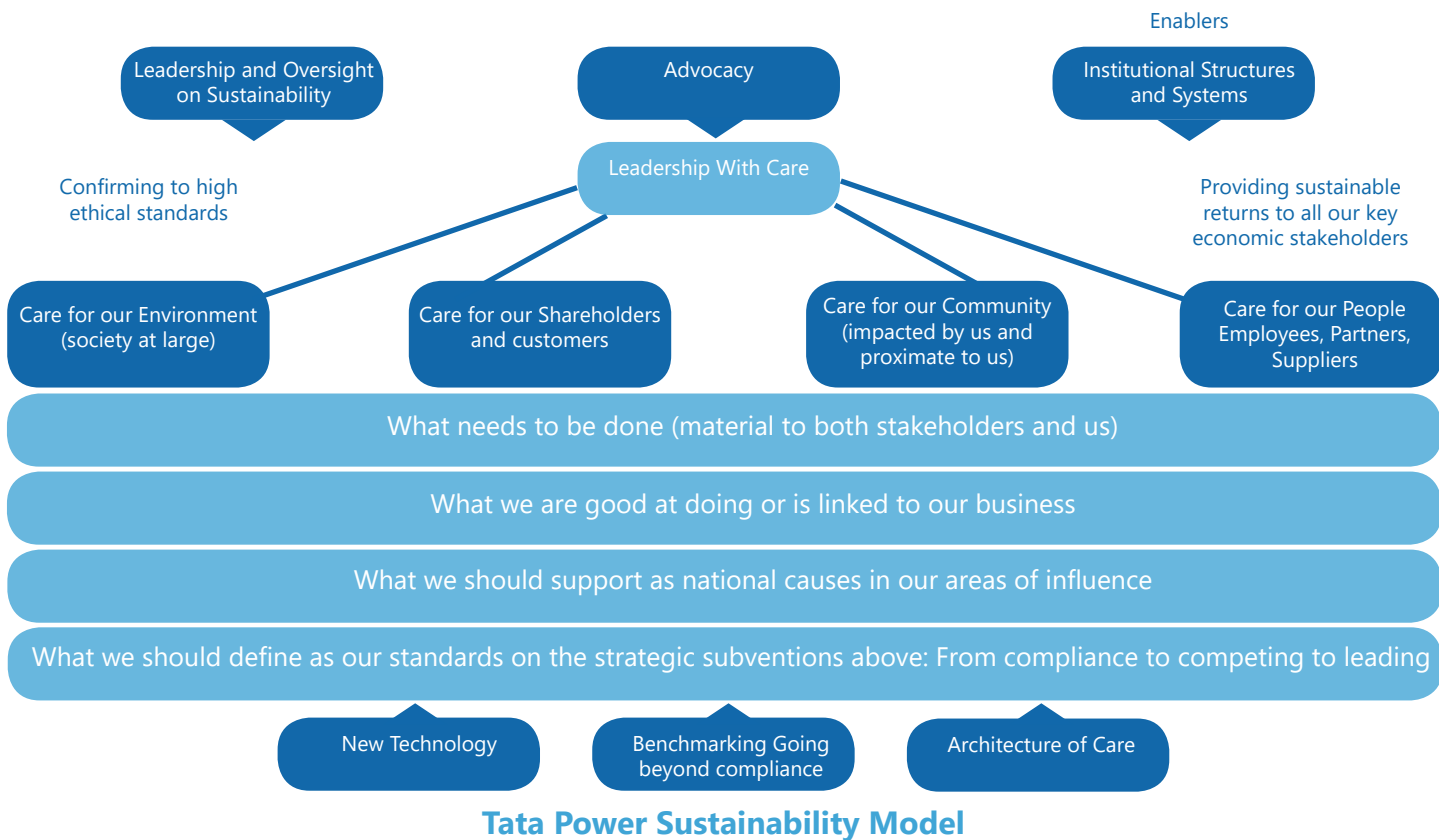
3.6 Sustainability Governance

(GRI 102-16)

Tata Power has a unique governance system for Sustainability as a strategic theme. This is guided by the Sustainability Advisory Council (SAC) comprising eminent experts from diverse fields like environmental protection, biodiversity conservation, climate change and community relations. The SAC's role is to challenge the organisation's strategies on sustainability issues and also guide the Company to formulate improved approaches.



Tata Power embodies the Tata Group's philosophy of building a strong Sustainable business that is firmly rooted in the concept of benefit sharing and demonstrates Leadership with Care. Tata Power has instituted 'Care' as one of the core values which entrust Care for Environment, Care for Community, Care for Customers, and Care for People, i.e. employees, shareholders, suppliers, partners, etc. in the sustainability model. The Sustainability Model aims at strengthening structures and processes for environmental performance, stronger engagement with community, customers and employees, by using enablers like new technology, benchmarking and going beyond compliance with key operational parameters.



Within each of the sustainability focus areas, the following issues are found to be material by the business and its stakeholders. The stakeholder engagement Study was conducted by a third party in FY 16. For further details on the method of engagement and analysis of results, please refer the sustainability report of Tata Power for 2015-16.

(GRI 102-47, 48)





4.0
OUR CAPITALS
JOURNEY

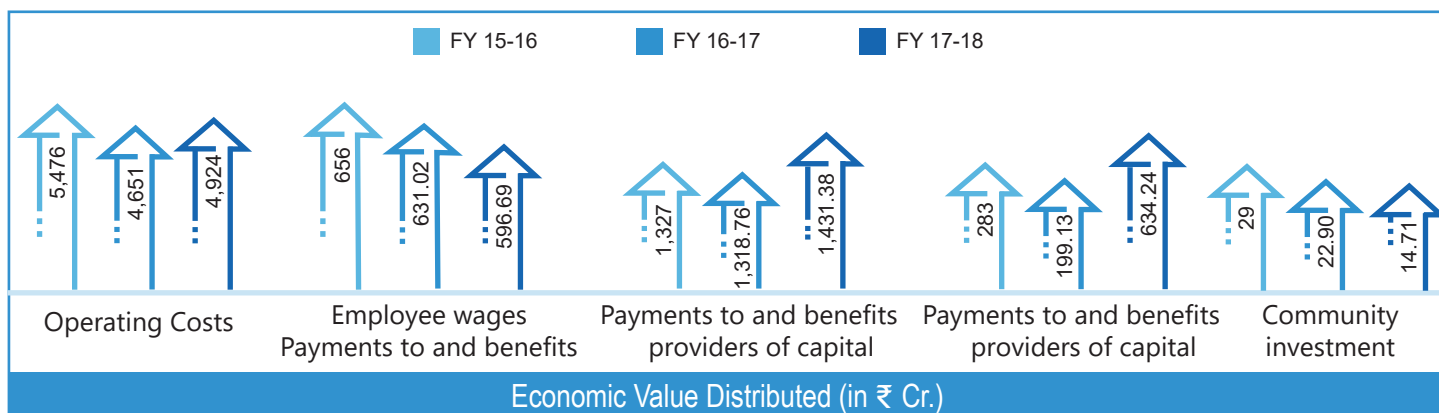
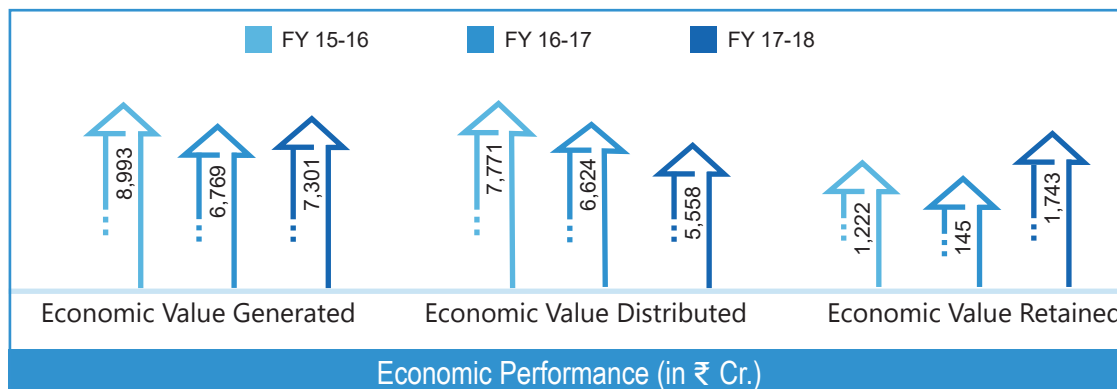
4.1 Financial Capital

Sustainable return to providers of capital and delivering net positive (added value) to the economy

Tata Power is committed to reinforce the long-term relationship with all stakeholders especially its investors and strive to maintain optimal capital structure and prudent risk management framework to deliver long-term shareholder returns. For the Company's foray into the domestic and international markets, adequate assessment of the risks and returns associated with each investment is carried out and appropriate mitigation measures are put in place.

While the Indian power industry continues to witness challenging times, Tata Power and all its entities have reported healthy financial performance. The recovery in 2017-18, over the previous year, indicates that the company has taken steps in the right direction. The company has been able to meet all the obligations to providers of capital and optimised its operating costs.

(GRI 201-1, 102-7, 401-2)



The total market capitalisation for FY 18 was ₹ 64,984.98 crore with 74.21% net debt. The company did not receive any financial assistance from the Government during reporting period.

During this period, Tata Power turned around the solar business to become India's largest integrated solar company. For the financial year 2018, Tata power solar's PAT stood ₹100 crore. During the same period, Tata Power's subsidiary completes sale of its 50% stake in OTP Geothermal Pte Ltd

Divestment from non-core areas & improvement in leverage ratios

Considering the fact that the Company is looking for significant growth in the years ahead, mobilization of resources is a critical activity. One source for such mobilisation is divestment of investments that are non-core to power and allied areas of company's operations. The Company continues to evaluate its investments in the non-core businesses and depending on market situation and opportunity, divest them. These initiatives will be undertaken with the objective of achieving an optimum Debt-to-Equity and Debt-to-EBITDA ratio while at the same time providing enough headroom for capitalising on growth opportunities. Tata Power is actively pursuing steps needed to achieve this objective in a time-bound manner.

4.2 Manufactured Capital

Effective choices and efficient management of manufactured capital makes us efficient, responsive and green.

At Tata Power, the 'manufactured capital' refers to access to fuels, generation, transmission and distribution capacities and other infrastructure owned, leased or controlled by an organisation that contributes to production or service provision. Manufactured capital is considered important for the sustainability of the business in two ways. Firstly, the effective choices and efficient use of our assets and infrastructure enable the company to be competitive, affordable and responsive to market or societal needs innovative and agile. Secondly, the choice and location of manufactured capital and technology can reduce resource use and focus more on human creativity, thus enhancing both efficiency and sustainable development.

Tata power adheres to the following approach in governing and managing manufactured capital:

- Develop flexible or customized production techniques that reduce resource use
- Work towards zero-accident, zero-waste and zero-emissions production systems
- Use industrial ecology – looking at synergistic production systems where one's waste streams are another's raw materials
- Form partnerships within the supply chain and customer base to make more efficient use of resources, improve the local economy and develop or improve products and services
- Apply sustainable construction techniques when looking at new infrastructure or offices
- Ensure adequate levels of investment, research and maintenance of infrastructure.

Through its mission, Tata Power focuses on driving competitiveness by operating its businesses at benchmark levels. This focus is also inculcated within its Strategic Intent 2025 which targets 22,500MW of generation capacity commissioned with presence across geographies and across technologies, which includes organic and inorganic opportunities. The production capacity for Tata Power for during 2017-18 has been 10,757MW. and in Ananthapuramu (100MW). This streamlined focus showcases the importance of this capital to the overall sustainability of the business which leads to maximizing stakeholder returns. The distribution Projects have been certified under the Integrated Management System (IMS) (ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007), a globally accepted and recognized system.

Param Sankalp

Param Sankalp or Reliability Centred Maintenance (RCM) is an initiative taken up in Nov. 2016 by Tata Power to transform O&M process. During the first year (Phase A), Param Sankalp has laid a foundation to adopt the RCM way of working on the ground. As a part of this exercise, multiple processes were standardized, e.g.

- Codification and classification, affecting overall over 32,000 equipment across 7 sites at Tata Power
- 65 equipment Failure Mode and Effect Analysis (FMEAs) were created as a proactive measure to improve equipment reliability
- 7 process FMEAs were created to minimize process losses including Coal management, SHR, APC, Water management, Ash management, Start-up management and Billing.

Based on the outcomes of codification / classification and FMEAs, maintenance tasks were optimized for top 10 out of 65 equipment. Data management and cleansing remained a continuous enabler during Phase A to accelerate the changes through IT systems like SAP. The focus of ongoing Phase B is to sustainably adopt the newly defined RCM ways of working while capturing defined value targets. Changing the operating model from Phase A, Phase B has an increasing role being played by the respective sites which have been defined in the site handover documents. Tata Power continued its cost-saving activities under the cost-saving initiatives under Business Excellence. The cost-saving initiatives saved an amount of nearly ₹ 112.92 crore during the year.

Operational excellence and culture building:

- Sankalp - This is a program to bring in operational excellence, delivery excellence and cost efficiency using the Total Operational Performance methodology. During the year 2017-18, 22 projects were undertaken, and 100+ officers participated in these projects.
- Six Sigma - This methodology has been used for 30 projects so far. Trainings of employees have been conducted resulted in obtaining 12 Black Belts, 63 Green Belts and 175 Yellow Belts.

Tata Power Renewable Energy Ltd. commissions 100 MW Solar plant in Karnataka

Tata Power Renewable Energy Ltd. (TPREL) has commissioned its 100 MW solar plant (50MW X 2) at Pavagada Solar Park in Karnataka. The project was won by the Company in May 2016 under the National Solar Mission Phase-II Batch-II Tranche-I State Specific Bundling Scheme. With this development, TPREL's total installed operating capacity now stands at 1,614 MW. The two 50 MW solar plants have been built over 533 acres. Sale of power from the solar plant has been tied up under a 25-year Power Purchase Agreement with NTPC Ltd. at a tariff of ₹ 4.79/ unit. TPREL recently commissioned 25 MW solar plant in Charanka, Gujarat Solar Park, Gujarat, and 30 MW solar plant in Palaswade in Maharashtra. Tata Power's vision is to have 35-40% of the Company's total generation capacity from non-fossil fuel sources by 2025. Tata Power's renewable energy capacity this year crossed 2,000 MW and green generation portfolio crossed the 3,000 MW mark.

186 MW Georgia Hydro Project synchronized in record time

Tata Power through Adjaristsqali Georgia LLC (AGL), its joint venture with Norway's Clean Energy Invest AS Norway (Clean Energy) and IFC InfraVentures (IFC), a member of the World Bank group, synchronized its 186 MW Shuakhevi Hydro Power Project (HPP) in record time. Further, Tata Power has commenced stabilization procedures to ensure smooth operations. The construction of the plant started in the fall of 2013 and has been synchronized in August 2017, in a record time of fewer than four years. Shuakhevi HPP is the largest hydropower plant to be built in Georgia over the past 50 years, and its project investment cost exceeded USD 420 million. Around 730 Georgian citizens were employed in the plant construction. The project will significantly contribute to Georgia's path toward energy independence. The power generated by the project will be exclusively sold within Georgia throughout the winter, which is a period of energy deficit. As a part of this project, one weir and two dams, with their respective reservoirs and connecting tunnels, have been constructed to divert water for power generation. The water conductor system consists of three tunnels with a cumulative length of 33.48 km and 3.75 km of construction adits. Shuakhevi HPP is the first hydropower project in Georgia to have been certified by the UN Framework Convention on Climate Change to reduce carbon emissions. It will generate about 470G Wh of clean energy while lowering greenhouse gases emissions by more than 2,00,000 tonnes per year.

Tata Power Ajmer Distribution Limited signs distribution franchisee agreement for Ajmer

Tata Power, through its subsidiary Tata Power Delhi Distribution Limited has signed a Distribution Franchisee Agreement (DFA) with Ajmer Vidyut Vitran Nigam Limited (AVVNL) to cater to the power requirements of customers in Ajmer for a period of 20 years. To serve the purpose, Tata Power has formed a Special Purpose Vehicle (SPV) "TP Ajmer Distribution Limited" (TPADL), which will be responsible for operating and maintaining the distribution network in Ajmer City, which includes City Division-I and City Division-II areas. It will also be responsible for managing the billing and collections in the said areas. TP Ajmer Distribution Limited will work closely with the existing employees of AVVNL, Government of Rajasthan, and its elected representatives, officials in electricity department as well as law enforcement agencies to serve customers with efficiency and ensure superior customer care that is synonymous with Tata Power. Tata Power has a vast experience in Distribution in Mumbai and Delhi and has been a benchmark performer in Delhi since the last 15 years where losses have been brought down from a high of 53% in 2002 to approximately 8.8% in March 2017. At Ajmer also, similar strategy is being worked on where Tata Power will work on all the areas to improve overall improvement in the Distribution system by adapting to Tata culture of customer orientation.

New initiatives:

- Extra High Voltage Over-Head (EHV OH) line inspection using drones - a UAV (Unmanned Aerial vehicle) was deployed for the 1st time by Tata Power to inspect inaccessible transmission towers and lines
- Use of Asset Tracking LoRA (Low Range) sensors helped in reducing the efforts required for tracking of assets movement. The solution comprises mounting a LoRA tracker on the asset which would periodically update its location on GIS through the LoRA network

4.3 Intellectual Capital

The intellectual Capital constitutes intangibles that provide a competitive advantage, including Intellectual property, such as patents, copyrights, Software and organizational systems, Procedures and protocols.

Knowledge Fair is a Tata Power initiative for sharing of best practices, knowledge, innovations and solutions implemented at sites. The intangibles that are associated with the brand and reputation, are not included as intellectual capital in this report. The Company has a dedicated Clean Tech & Applied Research department to develop solutions that provide a competitive advantage over peers. In the year FY 17-18, the Company filed a patent on geopolymer plant with fly ash and an individual patent on painting robot.

Two patents were granted in the field of floating solar. Management systems driving continuous improvement across all the operations and sites deliver efficiencies and adaptability. The investment and efforts in Research and Development enable in venturing into new businesses along the value chain (transmission and distribution), new technologies (wind and solar) and new business models (microgrids, electric vehicle infrastructure, IoT based Asset Tracking and solar roof-top).

To enhance safety, to ensure care for the environment and to overcome the challenges of the paucity of space, Tata Power has commissioned:

- India's first Natural Ester filled power transformer and the first compact, Natural Ester based self-protected Pad Mounted substation has been commissioned
- Distribution transformers with Natural Ester for life and capacity enhancement
- India's first compact, pre-fabricated, plug and play 33/11 kV substation, E-house (Electrical House) was commissioned

Making Mumbai Electric Vehicle Ready

Tata Power has installed Mumbai's first Electric Vehicle charging station in Vikhroli, Mumbai and has been covering strategically located areas where EV users wish to have outlets. The company has set up additional electric vehicle charging stations at strategic locations thereby making Mumbai truly ready to usher in the Electric Vehicle wave. The latest Electric Vehicle charging stations by Tata Power have been set up in Lower Parel, and Kurla; and two more coming up at BKC and western express highway at Borivali. Tata Power's aim is to build a seamless network of electric charging stations to make it easier for people to adopt EVs and be future ready. The setting up of smart charging infrastructure at parking area of Malls would enable users to make best use of their time while their car charges. Tata Power is all set to offer customers e-charging with convenience.

Decentralized Generation

Tata Power has developed a decentralized micro steam-based power plant targeted mainly for rural applications, replacing the DG Sets. The unique aspect of this development is that it is fuel agnostic and can combust any solid combustible material. In places (rural or urban), the unit serves the purpose of power generation using biomass or agri-waste, heat supply and bio-methanation. The unit comprises of natural draft boiler furnace, where the fuel is burned and water is boiled to obtain superheated steam. This steam is then used to drive a reciprocating single cylinder double acting engine to generate rotary mechanical energy. This, in turn, can be used to drive an electric generator to produce the power of about 4 kW at 220V, single phase. The exhaust steam from the engine and the flue gas from the furnace are at about 100°C and 220°C, respectively. In this way, the heating application can be met with this product in addition to power generation. One major advantage of this product is that it is more tolerant to the fuel type, quality and size variation with respect to gasification based system and therefore does not require any fuel preparation and conditioning. The alpha model has been developed and is under testing for performance, emissions and fuel characterization. Tata Power has the complete rights for sale of this unit in India and its neighbouring countries (except Pakistan). Tata Power has also been offered the complete fabrication of the unit and the export market will be catered by the international technology partners.

Digitalisation Initiatives

Tata Power has embarked upon digitalisation agenda and several digitalisation initiatives organised under four strategic pivots viz. Materials & Asset, Customer, Employee and Vendors & Associates, are being pursued across various Locations. Some of the key digitalisation initiatives implemented in FY18 are:

- Use of UAV & image analytics in Thermal & Renewable Generation, T&D
 - Coal Stockpile volume measurement at CGPL: Traditional ground-based surveying methods are used to calculate coal stockpile volumes. Drone technology is deployed for a cost-effective and safer alternative without sacrificing accuracy.
 - Overhead transmission line monitoring: UAV inspection of 110 kV lines was carried out for detecting anomalies and monitoring the physical condition of transmission hardware. The process eliminates the need for routine foot patrolling of the transmission corridors, greatly improves site safety, reduces the time taken for inspection and creates time-based image repository of the site conditions.
 - Design of Solar panels for customer sites: The UAV is used to carry out site survey for new installations replacing the manual inspection method of capturing the sketches and photographs required for designing the solar array which greatly increased the speed and effectiveness of the survey process. The turn-around-time for an enquiry to quotation has been greatly minimized. Sites, where access by survey personnel may be hazardous or demand enormous time-consuming effort, are now being surveyed by drones.
- IoT (Internet of Things) based asset tracking solutions - The solution captures real-time location of assets deployed across the distribution license area using LoRA network deployed by Tata Communications Ltd. It provides Geo Fence breach alert whenever an asset moves from its normal location along with the movement trace.
- Digital Customer Interactions - Implemented Chatbot for responding to customer queries. The solution offers consumers a facility to register complaints or raise a query through multiple channels like Facebook Messenger, Web Portal, mobile phone application and Twitter handle and get a quick response without any need to interact with a call centre agent.

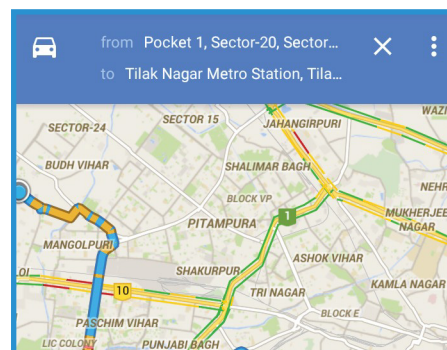
New technology adoption in Transmission

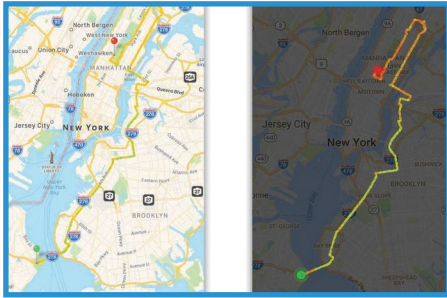
Extra High Voltage Over-Head (EHV OH) line inspection using Drone First time a UAV (Unmanned Aerial vehicle) was deployed to inspect inaccessible Transmission towers and lines.



Introduced **Travelling Wave Fault Locator** in TATA Power System. The SEL-T400L detects power system faults and sends trip signals 4–10 times faster than present-day phasor-based relays. The main objective of Traveling Wave Fault Locator would be easy to displays to help direct line crews to the faulted line section, thus enabling faster restoration of power

Use of Mobile Google Map for Asset Monitoring of Transmission Line. Sites can be reached much faster by using the alternate option on google map in a real-time rather than keep on using the traditional route and getting stuck in traffic





Mobile App for Tracking cable route patrolling, Vendor performance and report the potential threats to cable damage by the external party has been developed. Patrolling Activity through Mobile Apps (FDC & RT) has helped in reduction of Cycle time of the report and effective pro-active actions. Explored PD testing with a non-destructive methodology for cable diagnostics. (i.e. Damped AC)

Fly Ash based Paint

Tata Power has undertaken various initiatives and workshops to educate and spread awareness about the utilization of Fly Ash from thermal coal –based plants for construction. Tata power’s Jojobera thermal power plant has started manufacturing fly ash bricks. The technology adopted for making fly ash bricks is eco-friendly. This does not require steaming or auto-caving as the bricks are cured by water only. Since the firing process is absent, there is no emission and no effluent discharge.



Before application of Paint



After Application of Paint

Permeable Pavement

Tata Power manufactures Pavement surface (PaveSurf) through usage of spherical fly ash aggregates and bonding agent. Aggregates used for making perforated surface are made from 100% fly ash with very little amount of bonding agent. Size of the aggregates is varying from 5 mm to 20 mm. Through the manufacturing of PaveSurf, Tata Power deploys PaveSurf on walkways and pathways wherein rainwater is allowed to percolate into the ground and recharge water. PaveSurf is a next step of making the company more sustainable and eco-friendly. It is a step towards social commitment and safety.



4.4 Human Capital

Human capital incorporates the health, knowledge, skills, intellectual outputs, motivation and capacity for relationships of the individual. In an organisational context, it includes the elements needed for people to engage in productive work and the creation of wealth, thereby achieving a better quality of life. Human capital is also about dignity, joy, passion, empathy and spirituality. Human Capital management at Tata Power is geared to enable our employees to realize their full potential while contributing to the company to generate value. Human Capital and concomitant intellectual and manufactured capital are critical to the sustainability of its business.

- Provide employees with training, development and life-long learning and maintain an enabling environment for learning, innovation and sharing of knowledge.
- Retain, nurture and develop employees and plan for succession in critical roles. Respect human rights in all operations.
- Maintain diversity, access variety of human talent and eliminate discrimination. Ensure the health and safety of all employees.
- Provide fair remuneration for employees and business partners and adopt fair labour standards, including avoidance of forced or child labour.

HR Strategy of Tata Power is shaped & influenced by and draws inputs from organization's VMV, Strategy, PESTLE Context & People Purpose Statement [PPS]. 'People Purpose Statement': enables employees and associates to achieve and unleash their full potential to deliver outcomes in a sustainable way. The twin objectives of HR Strategy of Tata Power are 'enabling the organization to deal with the emerging changes & challenges' (of business to protect the core & participate in future) and 'to meet the aspirations of the people of the organization'. HR Strategy aims & aspires to align the collective efforts of employees in meeting the Growth & Operational plans of the organization with fulfilment & meaning in their job while fostering learning & professional growth.

Diversity and Equal Opportunity

(GRI 202-1, 2, 405-1, 2)

Tata Power is an equal opportunity employer and embraces diversity and inclusivity. The Company has employees from various backgrounds with a vast variety of experience and knowledge. Tata power is able to retain its competitive advantage and access new markets with the help of the skill set of this diverse workforce.

Regardless of gender, and all other parameters being equal, female employees are paid the same as Males employees across different employee categories. The ratio of entry level wage offered to all employees is 1:1 and same is as per the government regulations. All employees gradually grow through a fair evaluation and promotion program.

In line with Tata Group's vision to create 1,000 women leaders by 2020, Tata Power has been ensuring the promotion of gender diversity. Regular interventions focused around gender diversity are conducted.

Employee Engagement and Srijan

Policies at Tata Power are co-created to embody the core values of the company. Through 'Srijan', employee inputs are taken and incorporated in the policy building process. These inputs along with internal (with other Tata group companies) and external benchmarking form the pillars of policy formation and ensure that our policies remain on the cutting edge in the industry and act as role models for emulation. Policies are designed to ensure that employee feedback, industry norms and the legal norms were not only met in their true spirit, but exceeded.

HR policies and processes (EPM) cover the entire spectrum of the employee lifecycle. Policies are being standardized across the subsidiaries and JV companies of Tata Power to enable seamless mobility and pollinate best practices across group companies. Srijan 2.0 is live as an online platform on Xpressions for officers to provide ongoing suggestions, feedback and rating on any policy at any time. Suggestions and feedback from officers are monitored and responded to through the portal itself, enabling an open channel for two-way communication. Policy familiarization is driven through webinars (Tarang sessions) and reader-friendly email communication ('Policy Snapshots' through HR100+) to ensure that officers are aware of the services and benefits that they can avail of.

Culture Building

(GRI 408, 409, 410)

The Company continued its efforts in culture building through the various initiatives, which include Leher (an organisational transformation program for officers), LASER (an organisational transformation program for shop floor employees), We Care (umbrella program for strengthening organisational values embedment), Spandan (organisational transformation and safety programs for shop floor employees), Workers Development Program (organisational transformation for contract employees), and Idea Crucible (platform to churn ideas, from internal resources and academia, to arrive at commercially viable innovative business solutions for Tata Power). We have not identified any of our operations and suppliers in which employee rights to exercise freedom of association or collective bargaining and child labour requirements may be violated or at significant risk. All (100%) of our security personnel, including those supplied by third party, are trained in the human rights policies and identification, prevention of child labour.

Employee Turnover

(GRI 202, 401-1, 405-1,2)

In line with the Organization Vision, Capability development plays an integral role by evaluating the current skill sets along with the performance levels of the employees and thus providing development opportunity to all Tata Power employees to enhance performance thereby enabling the organization to meet its strategic objectives & business goals and enable employees to learn & grow. Tata Power intends to keep high employee engagement and retention while leveraging and nurturing internal talent available for effective management of knowledge and experience gathered over the years.

Tata Power		FY 16-17						FY 17-18						
Parameter	Workforce Level	Senior	Middle	Junior	Workmen (Union)	FDA	Total Employees	Senior	Middle	Junior	Workmen (Union)	FDA	Total Employees	
Turnover	Gender	Male	9	10	74	1	10	104	7	9	79	2	14	111
		Female	0	1	24	0	3	28	0	2	18	0	2	22
	Age	<30	0	0	63	0	8	71	0	0	45	0	5	50
		31-50	3	11	34	0	5	53	4	9	49	1	9	72
		>50	6	0	1	1	0	8	3	2	3	1	2	11
	Overall	9	11	98	1	13	132	7	11	97	2	16	133	
Turnover %	Gender	Male	3.9%	2.5%	3.9%	0.1%	12.2%	2.9%	3.3%	2.3%	4.5%	0.2%	18.7%	3.3%
		Female	0.0%	5.4%	10.7%	0.0%	8.2%	9.0%	0.0%	11.1%	8.9%	0.0%	5.8%	7.8%
	Age	<30	0.0%	0.0%	9.3%	0.0%	18.2%	9.8%	0.0%	0.0%	9.4%	0.0%	19.2%	9.8%
		31-50	2.9%	3.4%	2.7%	0.0%	7.2%	2.4%	4.7%	3.0%	3.7%	0.3%	11.5%	3.3%
		>50	4.3%	0.0%	0.6%	0.2%	0.0%	0.8%	2.1%	1.9%	1.8%	0.2%	36.4%	1.1%
	Overall	3.7%	2.6%	4.6%	0.1%	11.0%	3.4%	3.1%	2.7%	4.9%	0.2%	14.6%	3.7%	
Average Tenure of employees leaving (in years)		7.11	5.98	4.68	25.96	2.33	4.89	4.67	7.81	6.18	18.39	3.34	6.08	

Total Workforce

(GRI 102-7, 102-8, GRI 404-1)

The details of the total workforce by employment categories for Tata Power (including IEL, CGPL, TPCDT and MPL) is given as follows

Tata Power	FY 16-17						FY 17-18					
	M	F	<30	30-50	>50	Total	M	F	<30	30-50	>50	Total
Senior Management	226	12	0	98	140	238	202	11	0	72	141	213
Middle Management	403	18	0	318	103	421	379	18	0	289	108	397
Junior Management	1,825	214	575	1,302	162	2,039	1,701	191	378	1,349	165	1,892
Workmen	930	18	3	383	562	948	901	13	9	339	566	914
FDA	81	35	35	75	6	116	69	34	17	81	5	103
TOTAL	3,465	297	613	2,176	973	3,762	3,252	267	404	2,130	985	3,519

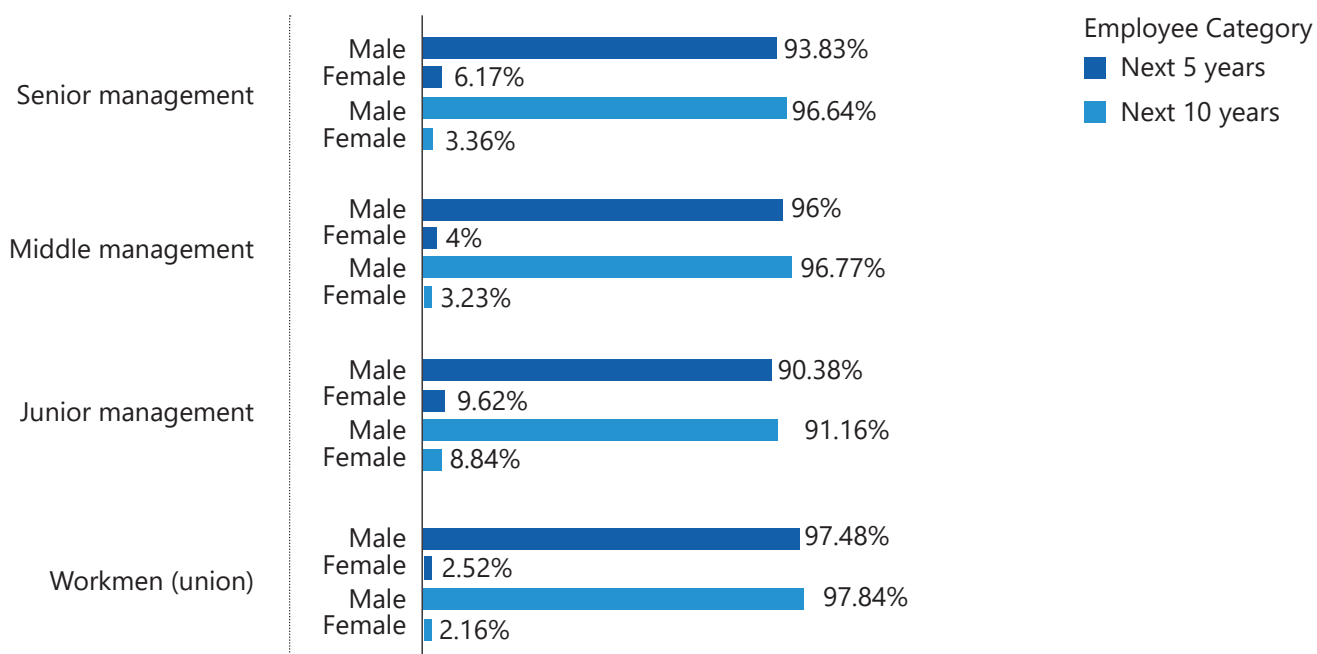
Employees Hired

(GRI 401-1)

Tata Power	FY 16-17						FY 17-18					
	M	F	<30	30-50	>50	Total	M	F	<30	30-50	>50	Total
Senior Management	13	-	-	7	6	13	5	-	-	1	4	5
Middle Management	-	-	-	-	-	-	8	1	-	7	2	9
Junior Management	32	11	26	16	1	43	23	6	19	7	3	29
Workmen	-	-	-	-	-	-	23	-	4	10	9	23
FDA	-	-	-	-	-	-	7	3	1	9	-	10
TOTAL	45	11	26	23	7	56	66	10	24	34	18	76

Employee Retirements EU 15

The employees superannuating in the next 5 to 10 years respectively is provided below

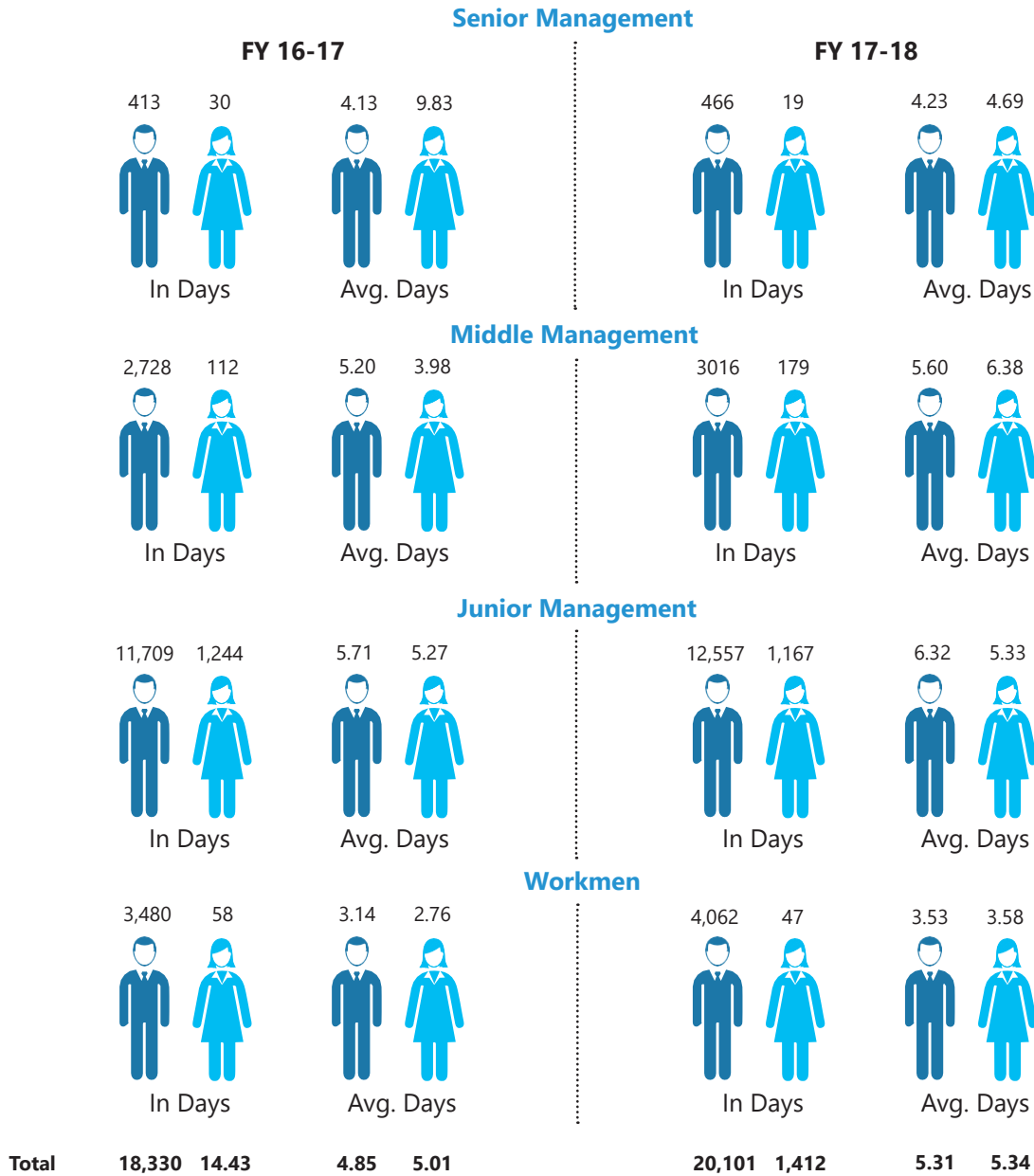


Employee Training

(GRI 404-1, 2)

In Tata Power, capability development is aimed at all employees with an enhanced thrust on development of top & senior management and employees who are part of the talent pool as Hi Pots and identified successors. Capability development aims at addressing organization-wide capability requirements which emanate from inputs received from employee engagement surveys, TBEM assessments, organization's strategy & business goals, changes in technology & industry scenario, various review discussions at apex levels, strengthening ethics & governance, statutory compliances, sustainability requirements, focus on health & safety.

● Male ● Female



Various mechanisms are being utilized at Tata Power to develop its people competencies to bridge the identified gaps, namely:

- **Training via internal trainers:** 72 internal trainers are empanelled at Tata Power to facilitate training to all employees. Further process of empanelment is being done to empanel more trainers in the organization.
- **Training via retired employees:** Tata Power is associated with the company's alumni, who share their knowledge with the current employees via workshops like "The Tata Way".
- **External agencies:** Tata Power provides training to the employees to bridge the identified gaps with the help of external agencies worldwide depending on the training needs identified. Tata Power has tie-ups with external agencies like NTPC, PTI, TNTC for training.
- **External training:** Employees are nominated for external training at various institutes for the niche programs in consultation with the Manager and L&D team.
- **E-training:** With a view of the recent trends of digital self-paced learning, Tata Power has successfully launched various E-Learning programs for the benefit of its employees. Training programs on organisational thrust areas such as Ethics, Safety etc. are hosted on the learning platform.
- **Tarang (technical acumen rejuvenation – aspire, nurture and grow):** In this initiative, sessions which are conducted online through webinars, which enables interested employees to log in the system irrespective of geographical location. The recorded sessions are also made available on intranet site under Tarang Recordings Archive. The sessions are held every alternate month on the fourth Friday covers topics which are relevant to the organization like Ethics, Environment Awareness, Finance, Safety, Organizational Practices and Policies.

Employee Benefits

(GRI 401-2)

Policy framework of Tata Power acknowledges and address the diversity amongst others in gender, age, life-stage, child-rearing preference or career orientation. For example, the Integrated Leave Policy addresses the leave requirements of employees in various employee segments by providing leave for marriage, paternity, adoption, surrogacy, higher education, compassionate circumstances and even sabbatical. It acknowledges the life stage requirement of our women employees and provided for a 6-month maternity leave along with provisions for extended maternity before the same became a law. The Health & Wellness policy embodies the value of care by providing benefits like disbursement of medicines for chronic illnesses for family members too, including parents, which ensure that needs of the older and younger workforce are taken care of. Provision to include parents-in-law in the Mediclaim scheme is the sensitiveness to the need to take care of one's elders and the cultural nuance of catering to expectations from family on few lady colleagues. The Medical Fund Scheme which provides for unlimited coverage of medical expenses in excess of the eligibility under Mediclaim scheme is one amongst many industry benchmarks retained in the area of employee benefits.

Parental Leave & Return to Work

(GRI 401-2, 3)

Parental leave & return to work	FY 17-18		FY 17-18	
	Male	Female	Male	Female
Employees entitled to parental leave	All employees			
Employees that availed parental leave	39	9	147	12
Employees who returned to work after the end of parental leave	39	9	147	10
Employees returning from parental leave taken in the prior reporting period	-	14	-	9
Employees retained for 12 months after resuming from parental leave (consider employees who resumed in the previous FY)	-	13	-	8
Employees due to return to work after taking parental leave	-	0	-	0

Parental Leave & Return to Work

(GRI 402), (GRI 102-41), (GRI 404-3)

Some of the initiatives taken by Tata Power for the development and maintaining relations with employees are as follows:

- **Employee Engagement:** Engagement Live was conducted in FY18 to utilize multiple means of involvement like large group interactions, Focus Group Discussions (FGDs), roundtable discussions and leadership interaction along with the online module to harness the collective knowledge of our employees for co-creation of engagement questionnaire which is sharper, more relevant, futuristic and more aligned to the organisational imperatives. The notice period for operational changes is four weeks in line with the applicable Regulations.
- **Industrial Relations:** Tata Power, since its inception, supported working collaboratively with all stakeholders to maintain cordial Industrial Relations at all locations. Job rotations and transfers are done to give the staff exposure to the renewables sector and to provide cross-skills. With the changing business scenario, it is imperative that the staff re-skills itself to meet the emerging demands of consumers and, hence, the steps have been initiated in the appropriate direction. Necessary support was provided to the staff and union committee for the initiatives driven in FY18.

Tata Power has a systematic process for assessing the key elements which affect the engagement and satisfaction of the workforce. Tata Power subscribes to the Aon model of engagement. This model determines employee engagement based on outcomes of 'Say', 'Stay' and 'Strive'. Focus group discussions/interviews are held with a cross-section of employees in order to finalize the engagement drivers on which the survey questionnaire is based. Currently, these drivers are People, Performance, Work, Basics, Company practices & Brand.

Action plans are formulated based on satisfaction results through the VOICES workshops, conducted separately for the management and unionized categories. Engagement action plans & VOICES action plans co-created through these workshops by employees, managers and leadership involved in the workshop are implemented. These are then periodically monitored and reviewed by managers and respective business HRs to help keep the teams on course. Loopback sessions are conducted with individual teams of respective Managers and HoDs to communicate the progress on engagement action planning and VOICES action planning before the rollout of the next engagement survey. This exercise has been carried out rigorously and has led to a steady increase in engagement scores.

Strategic HR risks are identified on a periodic basis through external and internal review and audit mechanisms. We have an internal audit tracking system in place whereby the various risks related to all HR processes are identified and tracked. Regular updates to minimize risks.

Career progression for all officers is designed based on the Performance Management System (PMS) process. Additionally, Senior Leadership reviews are conducted for employees who have stagnated in their current roles to identify development and career progression opportunities. Management Planning Discussions are conducted for senior officers to reaffirm their career aspirations & next moves and identify successors for their positions. High potential officers are identified through assessment centres from a pool of high performers. Individual Development Plans are created for the high potential officers which are then tracked with the guidance of senior leadership. The fast-track young leader development programme called Accelerated Career Enhancement (ACE) has been running successfully to identify high potential young officers and meet career aspirations by providing them challenging opportunities in the organisation.

Human Rights

(GRI 406-1)

The Company respects Human Rights and has a dedicated Policy on Human Rights. This policy is aligned with the UN Human Rights Declaration, International Labour Organisation (ILO) fundamental conventions and other fundamental labour principles. Through the policy, the Company ensures conformance to fundamental labour principles including the prohibition of child labour, forced labour, freedom of association and protection from discrimination in all its operations by imparting relevant training and aligning the conduct of its employees. No complaints on Human Rights were received during the reporting years.

Defined Benefit Plans

(GRI 201-3)

The Company makes Provident Fund contributions to defined benefit plans for eligible employees. The cost of providing benefits under the defined benefit plan is determined using the projected unit credit method. Remeasurements, comprising of actuarial gains and losses, the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability) and the return on plan assets (excluding amounts included in net interest on the net defined benefit liability), are recognised immediately in the balance sheet with a corresponding debit or credit to retained earnings through other comprehensive income (OCI) in the period in which they occur.

The Company has a defined benefit gratuity plan. The gratuity plan is primarily governed by the Payment of Gratuity Act, 1972. Employees who are in continuous service for a period of five years are eligible for gratuity. The level of benefits provided depends on the member's length of service and salary at the retirement date. The gratuity plan is funded plan.

For employees, unfunded/funded defined benefit schemes are operated by Tata Power. These schemes are Ex-Gratia Death Benefits, Retirement Gifts, Post-Retirement Medical Benefits, Health Care Insurance and Pension along with a funded defined benefit plan-Gratuity, which is administered by the Trustees Tata Power Gratuity Fund. The distinct contribution plans of Tata Power such as Provident Fund (PF) and Superannuation is in place for eligible employees. Under these schemes, the Company is required to contribute a specific percentage of salary to retirement benefit schemes to fund the benefit, as stipulated by Government of India. The Defined Benefit Obligation in FY 17-18 and FY 16-17 was 716.37 Crore and 730.25 Crore respectively.

Communication between Employees and Management

Senior leaders communicate with the workforce through open dialogues, focus group interactions, corporate communication messages, communication meetings, web cast, town halls, intranet portal and monthly newsletters. New mechanisms for two way communication with the CEO&MD include - 'MD Online', 'Phone Your MD' and 'Lunch with MD'. During all workforce interactions, leaders actively seek feedback and endeavour to resolve issues raised. One such example is 'Srijan', an initiative for the management to co-create people practices, with the workforce. Other communication channels provided to employees to raise issues/voice opinions include emails, one to one interactions and the 'Voices' feedback sessions on employee satisfaction. Twitter and Facebook are also used as communication channels to create a positive buzz about the company and as forums to network with employees on key issues. An internal networking platform of Xpressions has been created which allows for immediate recognition and provides a repository for organizational policies and announcements. Also, the opinion poll started on the intranet site (Sangam) is used to assess the effectiveness of important communication as well as encourage feedback. Important decisions, news, achievements are communicated to employees at the above forums and divisional/departmental meetings. Leaders engage with workforce during Performance Review Discussions (PRD) wherein the individual's progress and career development plans are discussed.

Tata Power has a culture of rewarding and recognizing the efforts of employees at various levels. The company has an internal online recognition platform that enables recognition across all employee segment. The company also following categories of awards:



Occupational Health and Safety

(GRI 403)

Safety is a core value of Tata Power where it has been given the top priority. Tata Power ensures zero harm to all those associated with the operations directly or indirectly. The company has developed and implemented standards and procedures, in order to achieve world-class safety practices.

Safety culture at Tata Power is guided by its Safety vision, pledge and policy. This was reinforced through a guiding statement as "Be Pro-active Be Safe". Each employee of Tata Power is committed to adhering to the Safety commandments. A dedicated team for safety and health is involved in developing safer work practices across all the work sites. An online permit to work and positive isolation system is there to ensure safety rules and procedures as well as awareness and compliance at all levels. Every job carried out at the site has its own set of safety hazards and hence specific job safety analysis in line with the company's safety procedures for these have been prepared and practised at the site.

Each divisional head gets personally involved in taking safety initiatives in his/her respective area. Each plant/division has a central safety committee drawing representation from the various departments/work areas. In this safety committee equal participation from management and workers are ensured. All the workers are covered in the provisions of the formal joint management-worker health and safety committees of respective plants and sites.

The company continually strives to perform beyond compliance whilst positively influencing its value chain members to improve their safety standards. There is an increased focus on areas like training and awareness, safety observations, audits etc. to drive a positive safety culture.

At Tata Power, a healthy workforce is an important contributor to its competitiveness and Sustainability. Each workplace maintains a favourable work environment meeting Indian / International standards on hygiene, lighting, ventilation and effective controls on noise and dust. Stations are provided with occupational health centres with adequate medical staff to monitor occupational health and provide immediate relief when required. Adequate numbers of first aiders are trained in various in-house sessions; such sessions are conducted periodically by well-known specialists/medical practitioners on the occupation related health hazards.

The safety systems and practices are guided by Safety Management System (SMS) to ensure that both employees and contractors adhere to good safety practices and procedures continuously. Risk assessments are carried out for each activity and corrective and preventive actions are developed for these. Further, to handle unforeseen events or disasters, Business continuity and Disaster Management Plan (BCDMP) is in place at all generating stations. These BCDMPs are location specific and are reviewed on a regular basis through internal as well as external audits. The company is certified for Business Continuity and Disaster Management System ISO 22301. [EU 21](#)

To keep the operations accident-free, Tata Power drives the safety through annual safety target setting by top management and cascaded down up to individual level. These safety targets are well communicated to all level and being reviewed to ensure effective achievement on a periodic basis.

The performance against safety targets of the reporting year are provided below.

Sl. No	Main KPI	Derived KPI	Plan	Actual FY 18
1	Safety	Performance Management Index (Target ≥ 85 %)	≥ 85 %	91.81
	1.1	Aligning with the Tata Group Safety Management system by closing action items to bridge identified gaps	4	3.04
	1.2	% JSA Field Audits for high-risk Jobs	100%	98%
	1.3	Reporting of Safety Observations	42,000	49,551
	1.4	Reporting of "safety observation" through Mobile App by Tata Power Officers	70%	71%
	1.5	Closure of action items for very high and high-risk safety observations in stipulated time	100%	91%
	1.6	Closure of action items for medium risk safety observations in stipulated time	80%	87%
	1.7	Safety capability score against the plan for Tata Power employees	25%	61%
	1.8	Certification (L1+L2+L3) of Contractor employees (EU 18)	8,797	13,645
	1.9	Severity Index of Field Safety Audit	≤2 to 3.5	2.23
2	Work Environment	Index (Target ≥ 85 %)	≥ 85 %	78%
	2.1	Achieve 3S for Division / Function (audit score against plan)	100%	76%
	2.2	Fire Preparedness Index ≥95 to 100	100%	98%
3	Safety Performance	Index (Target ≥ 85 %) (GRI 403-2)	≥ 85 %	85
	3.1	LTIFR	0.11	0.16
	3.2	Fatality	0	0
	3.3	% Reduction in repeat near misses & first aid cases with reference to FY'17 **	75%	75%
	3.4	Incidents of Major (L2 and L3) Fires	0	0
4	New Parameters	(GRI 403-2)	≥ 85 %	85
	4.1	Total Injury Frequency Rate (TIFR)	2.07	3.42
	4.2	Vehicle Incident Frequency Rate VIFR (No. of incidents per Million KM travelled)	For creating baseline	3.45

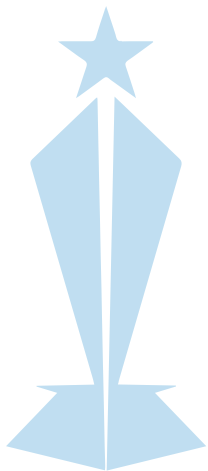
Involvement of contractors is ensured at various safety movements and initiatives. They are Provided hands on training starting from the safety briefing at toolbox talk session to emergency planning and mock-drills. Various Health and Safety topics are covered in the formal agreements with Trade Unions. Tata Power has its own established Contractor Safety Management System (CSM) under which all the contractor related activities are governed. CSM ensures contractor safety starting from contractor selection to contractor safety performance evaluation.

Tata Power also has a Consequence Management Policy which sets out the general approach to managing the safety deviations and establishes processes for corrective counselling. It discusses the disciplinary actions in response to safety misconducts or violations as described in the Industrial Employment Standing Orders Act 1946 or such other Acts/Rules applicable to the Company.

Safety Reward and Recognition

Tata Power has a reward and recognition policy for safety action, initiatives and achievements. There are fixed criteria for selection. Starting from the individual level to divisional level safety awards are given to motivate for striving better safety culture. Safety Maestro award, ED Safety award, CEO's Safety award are some of the prestigious awards in our organization. On the other hand, Tata Power has been recognised by various external parties from time to time for its safety initiatives and achievements.

The list of awards received by Tata Power on Safety are enumerated below:



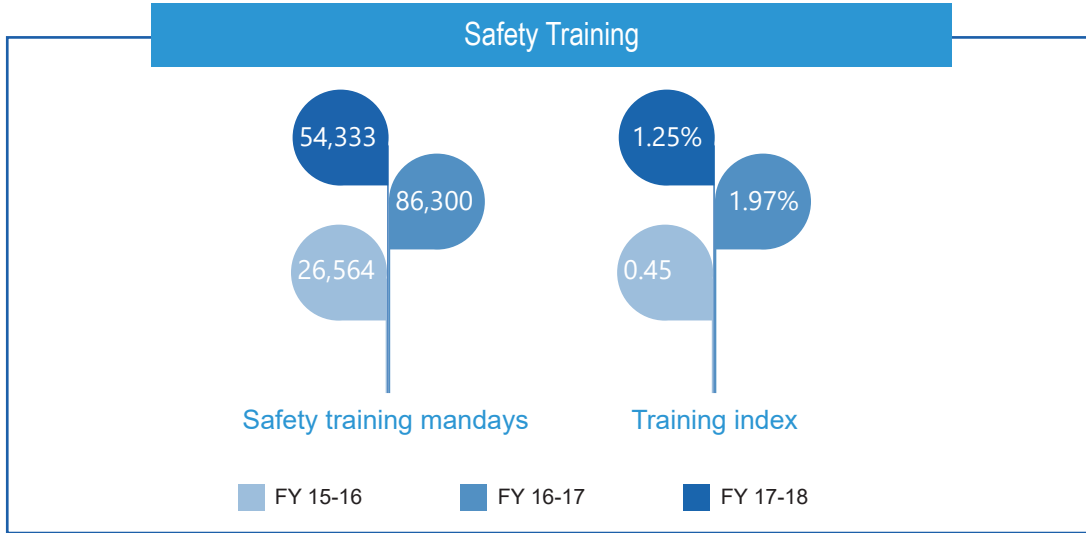
Name of Award	Awarding Agency
Surakshya Puraskar to Maithon	National Safety Council of India
Certificate of Appreciation to Haldia	National Safety Council of India
Certificate of Appreciation to Tata Power for Safety initiatives	Chief Electrical Inspector
Memento to Tata Power for active participation in Electrical safety week	Govt. of Maharashtra

Safety Statistics

(GRI 403-2) (EU 17,25)

Name of Award	Permanent employees	Contractor and subcontractor workforce	Permanent employees	Contractor and subcontractor workforce
	FY 16-17		FY 17-18	
Total Days Worked	43,77,147		61,71,175	
Total Hours Worked	71,83,602	2,78,33,574	2,21,13,497	2,72,55,908
Lost Days (Man-days Lost)	6,085	6,030	224	35
Fatalities	1	1	0	1
Total recordable injuries	2	3	5	3

Tata Power has a structured way of reporting, investigating, and monitoring incidents. All incidents are reported through SAP-EHSM (an SAP-based reporting system). A Safety alert is immediately generated (through the system) for high severity incidents (LTI etc.) and brought to the immediate notice of the senior leadership team for issuing necessary instructions/further line of action. A system generated report, of all other incidents (Daily Incident Report), is also shared with select senior leaders which gives details of the incidents across the organisation occurring during the day. All incidents are investigated using standard root cause analysis checklists to establish the root causes. Implementation of the recommendations is verified for closeout through an online system and the Divisional Head (where the incident has occurred) is responsible for ensuring timely close out. As a standard practice, a 'Lesson Learnt' presentation is shared as a 'Safety Pause'. These incidents are also shared company-wide through communication templates.



To improve the quality of safety training, third-party agencies and Tata Power Skill Development Institute (TPSDI) is providing training and certifying the employees. Under TPSDI, safety training is ensured at various levels and the coverage during the last financial year was more than 20,000 employees and associates. Employees training is also monitored through the performance management system based on individual training need identification. Safety training is an integral part of individual training need identification process.

Key Initiatives

FY 16-17

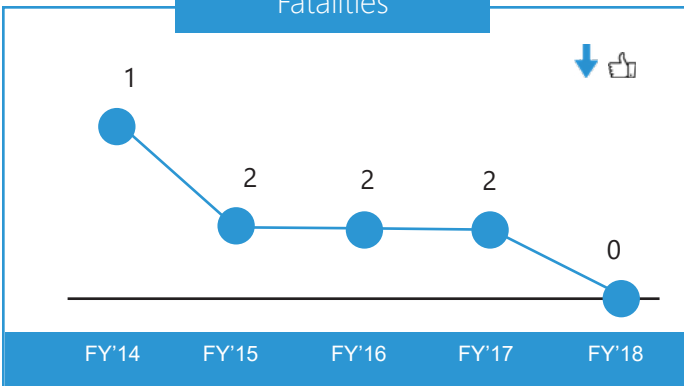
- Collaborative safety leadership coaching
- Safety Culture Survey
- Leadership involvement to S+5S walk through
- Cold eye review for safety in design
- SAP-EHSM and SAP-PM implementation
- Capability building program L1 for contractor employees
- Implementation of contractor safety code of conduct

FY 17-18

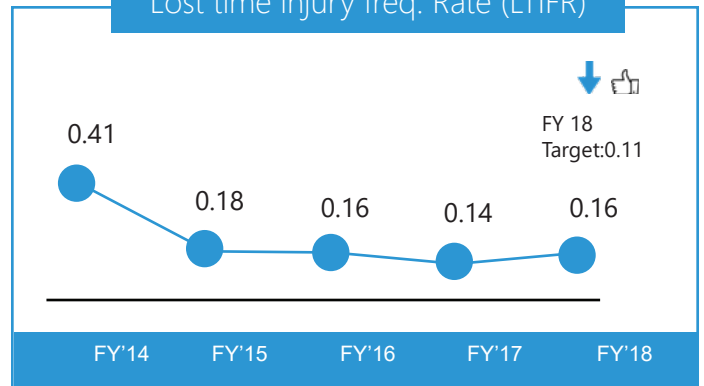
- New year resolutions signed by Sr. Leadership Team
- Felt leadership survey
- Benchmarking with Indian/Global Industry peers -SAHBHAG
- Integration of safety KRAs in PMS
- Capability building (L2, L3) for contractor employees
- Stakeholder app 'SURAKSHA' to improve workforce involvement

Safety Performance Trends

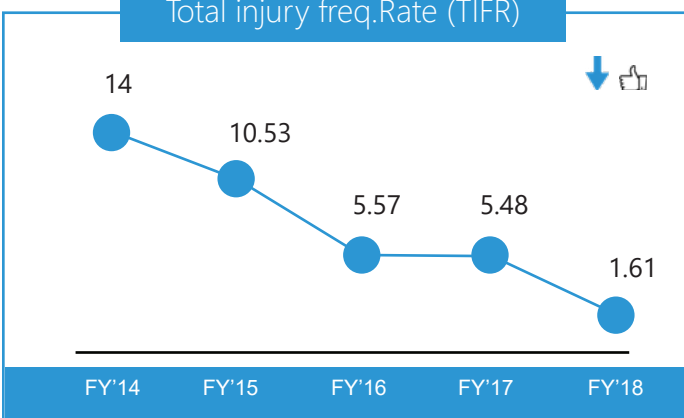
Fatalities



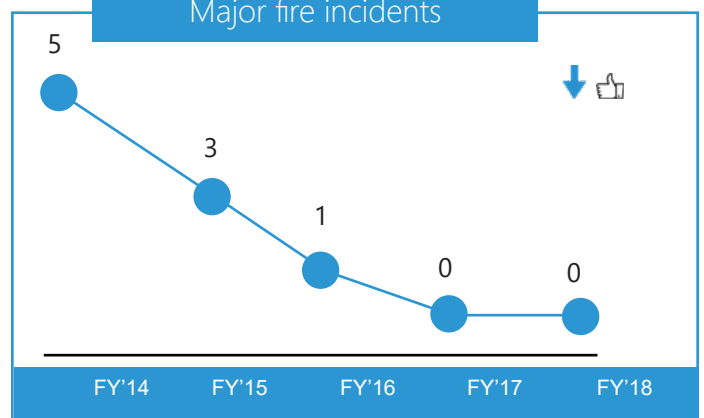
Lost time injury freq. Rate (LTIFR)



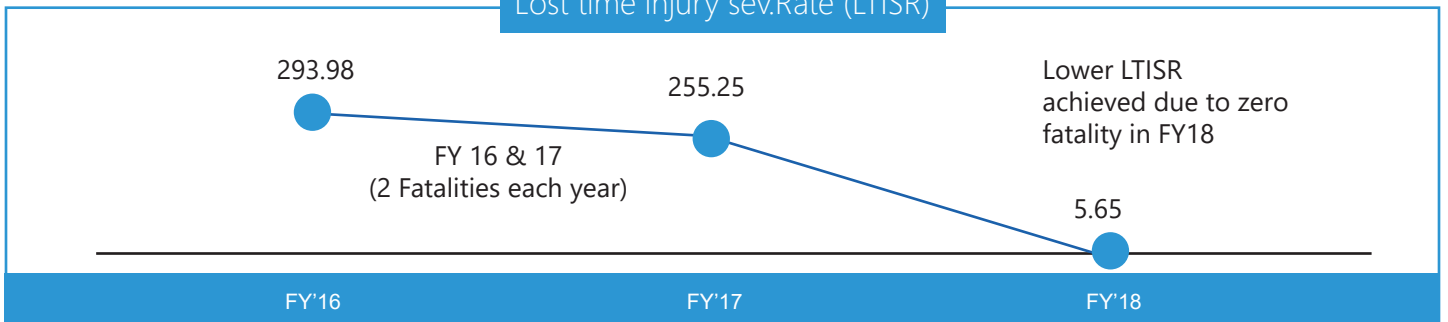
Total injury freq. Rate (TIFR)



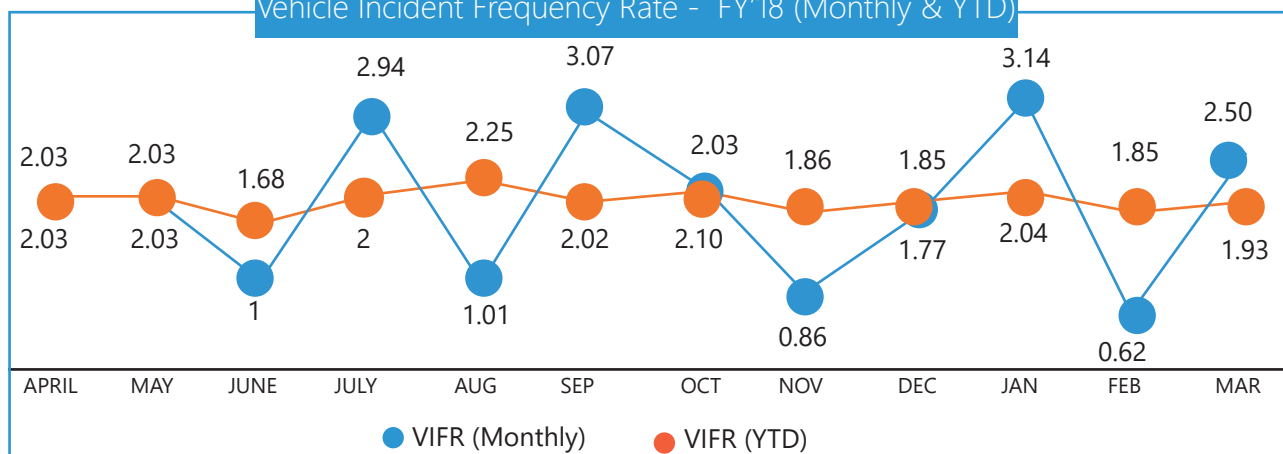
Major fire incidents



Lost time injury sev. Rate (LTISR)



Vehicle Incident Frequency Rate - FY'18 (Monthly & YTD)



Safety initiatives in Transmission

To spread awareness on safety across the state of Maharashtra, Tata Power Transmission has actively participated in “Electrical Safety Week” organized by Chief Electrical Inspector as per direction of Government of Maharashtra. Tata Power sponsored for printing of posters, pamphlets, printing safety messages on bills and a rally. Also for Transmission lines 4,000 meters of Safety ladders installed on 80 overhead line towers during the year as a Initiatives for Working Safely at Height other Initiatives includes:

- Scaffolding with ladder facility.
- Safe work platform made for power transformer
- Scissor lift for Safe working at height.
- Tree Trimming Procedure in Transmission Lines.

The Company organized special awareness programs during pre-monsoon, Ganapati festival and Sankranti season in the vicinity of High Tension (HT) lines in Mumbai, under its Jan Jagruti Abhiyaan initiative. The objective is to reduce electrical accidents that may be caused by unauthorized living in areas which are close to high voltage transmission lines. This is fifth year of success where no line tripping or human suffering was there due to kites during Sankranti season. Around 40,000 people were sensitized in various sessions throughout the year.



4.5 Social & Relationship Capital

Tata power believes that delivering value to society is the purpose of its business.

Social relationships and interactions with the stakeholders and others help Tata Power to achieve its objectives. "Social capital" includes human relationship, partnership and co-operation e.g., networks, communication channels, families, communities, businesses, trade unions, schools and voluntary organizations as well as cultural and social norms, values and trust.

Within Tata Power, social capital takes the form of shared values, trust, and communication and shared cultural norms that help people to work cohesively and operate effectively. Externally, social structures help create a climate of consent and understanding, or a license to operate, create a stable society to work, operate and develop e.g. government and public services, effective legal systems and security arrangements, trade unions, schools and other organizations. Tata power enhances social capital by:

- Supporting the communities in which the organization operates, including economic opportunities
- Ensuring the ethical sourcing of materials and fair treatment of suppliers, customers and citizens.
- Respecting and complying with the local, national and international law.
- Offering reasonable pricing, accessibility of products and services, and fair and accurate claims in promotional material.
- Minimizing the negative social impacts of products and services and maximizing the positive.
- Contributing to policy formulation and strengthening of public institutions.

Care for Community

(GRI 203-1, 2, 413-1, 2)

Tata Power strives to preserve its CSR legacy towards 'Sustained Inclusiveness' and being a 'Neighbour of Choice'. Based on the Need Assessment undertaken, Tata Power revised its CSR interventions in FY17 to include 7 focus areas for community development initiatives across its locations. While Financial Inclusivity was based on mobilizing resources under various Government schemes to ensure entitlements of marginalized community in particular without any resource requirement, rest focus areas had budget allocation.

Details of some of Tata Power's CSR initiatives undertaken

Education

- In total, 1.6 lakh students covered under Education Excellence Initiative.
- In locations where education programs are ongoing, learning levels are showing positive trends amongst primary schools.
- Special focus for improvements is being provided through remedial classes, e-learning and teacher training programs.
- 21000 women covered under literacy training program

Livelihood and Employability

- More than 32000 farmers and youth covered under Livelihood and Employability.
- Integrated agriculture initiatives at Maithon on a covered area of 225 acres under WADI.
- As a benefit due to the programs, farmers in Maval recorded increase in yield through 'Root Intensification' technique.
- In Jojobera, a profit of Rs 1.47 lakh was made on a 37-acre plot of land through collective farming in 2 cycles.
- Overall, TPSDI trained a total of 16205 youth out of which 53.3% were from SC/ST background.
- A total of 7234 youth trained under skill development training.
- 70% placements were recorded for the trained youth with a median salary of Rs 10193.

Social Capital and Financial

- More than 300 SHGs were formed covering 3800 SHG members from 200 villages and a gross funding of Rs 68.1 lakhs was mobilized.
- In Trombay area, Project Anna Suraksha covered 4000 beneficiaries by enrolling under Right to Food Act.
- 3400 women members of SHG were trained in income generation activities.

Health

- Jojobera - 8486 Sanitation units constructed to date. However, in FY 18, 3600 toilets constructed.
- Mundra - Mandvi Block declared as Open Defecation Free.
- Maithon - 2 Mobile Medical vans covering 24 villages plying, 15,357 patients treated.
- Transmission- In association with L&T, organized 17 free medical check-up camps covering 1818 beneficiaries.
- Distribution- Integrated health care supporting ANC, PNC, immunization, anaemia reduction and institutional deliveries. HB testing conducted for 1500 girls in schools.
- Trombay- 3000 beneficiaries covered in Mother and Child Health.
- Trombay- Adolescent health initiative shown significant improvement in Hb amongst adolescents by 66% against pre-test.
- Maithon- Adolescent awareness arranged. Street plays and wall writings done.
- Maval- School health sessions for adolescent girls conducted.
- Mulshi- Anaemia prevention conducted in 13 villages
- Distribution-Waste management- 6 compost beds established and 350 kg compost sold scaling their income by ₹ 43,000

Tata power attains its mission "Practicing 'Leadership with Care' by pursuing the best practices on Care for our Environment, Community, Customers, Shareholders and People and creates a culture that will enforce the company's values which lays down the fundamentals for the approach for enhancing the relationship with key stakeholders.



Stakeholder Interface Management

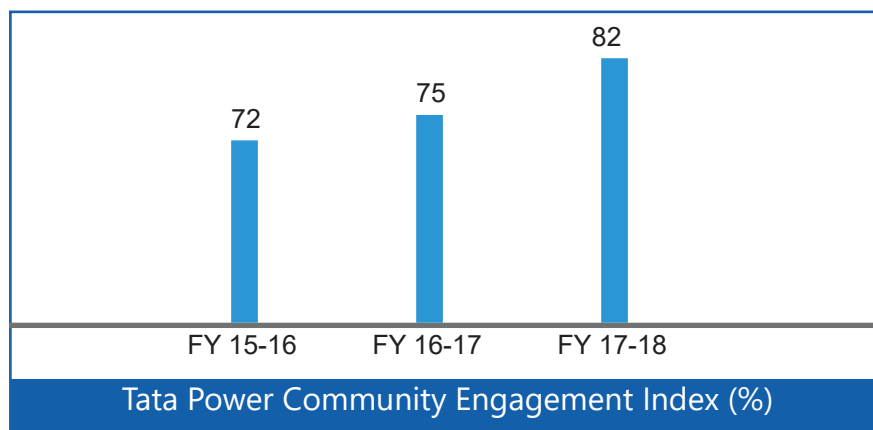
The Company undertakes initiatives under seven Focus areas. Tata Power has reached out to over 5.5 lakh beneficiaries through its initiatives



The CSR initiatives were extended to the geographies where the new solar and wind plants are located. The standalone CSR spend for FY18 stood at ₹14.71 crore against the Companies Act, 2013 requirement of ₹13.71 crore. Additionally, as a part of disaster relief operations, the Company contributed towards relief efforts in Gujarat. Independent monitoring, effectiveness of implementation and impact assessment were undertaken to provide feedback and to refine, realign the programs so that the extent and effectiveness of the initiatives could be improved in pursuance of the Company's objective to improve the quality of life of the community and to get the community's tacit or implied acceptance of the Company's co-existence with them.

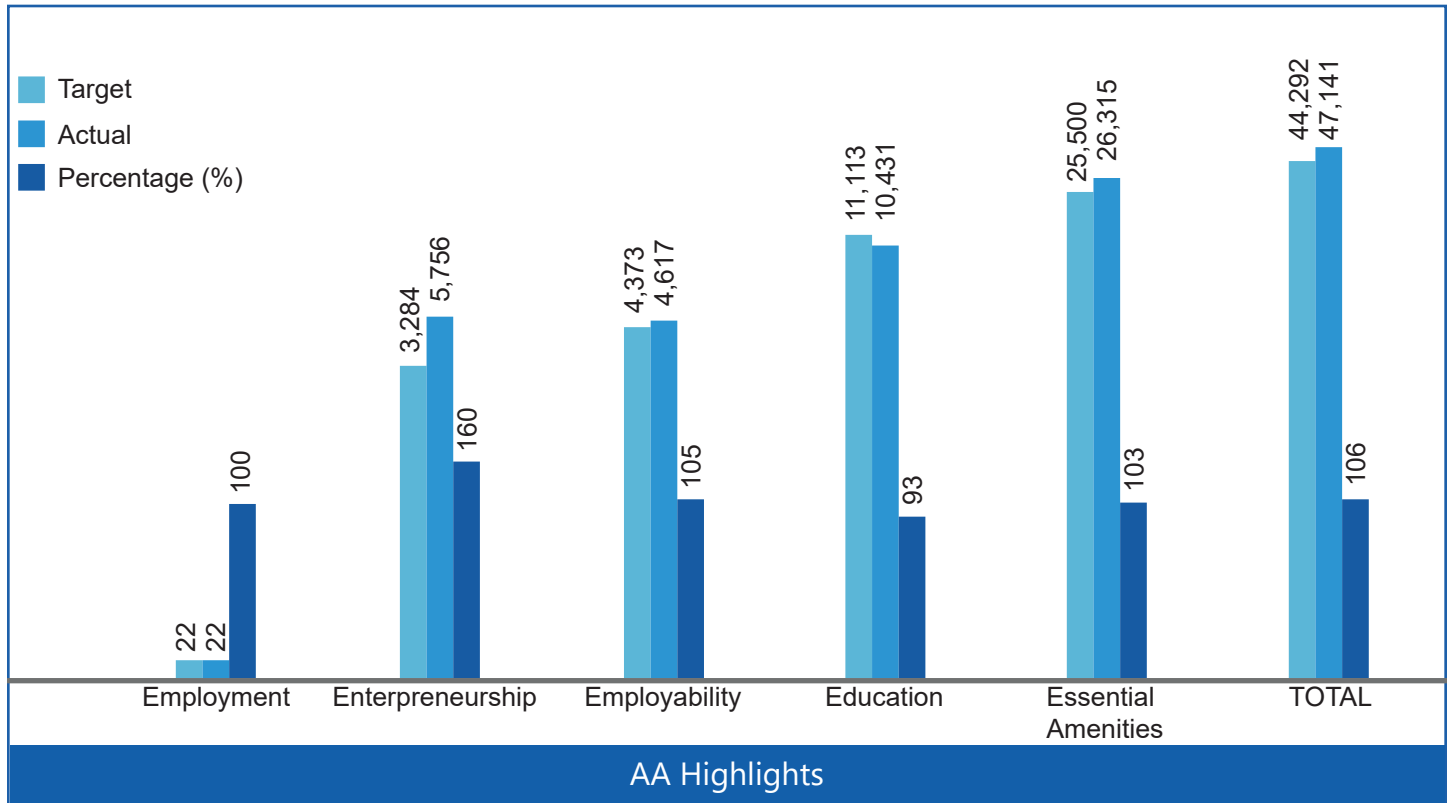
CSR Investment	% Spent	
	FY 16-17	FY 17-18
Education VIDYA	11.85	12.31
Health and Sanitation-AROGYA	13.47	6.27
Livelihood-SAMRIDDHI & Employability-DAKSH	29.34	45.09
Renewable Energy- AKSHAY	35.59	0.75
Social Capital and Institution Building- SANRACHNA	9.75	8.48
Water (Irrigation and Drinking)- SWAJAL	-	0.89
Affirmative Action and Others	-	26.21

The overall impact of CSR initiatives was measured through the Community Engagement Index (CEI) tool which was used to determine engagement levels of the various stakeholders across the stages of the CR intervention. In the reporting year RASCI Model (Responsible, Approve, Support, Consulted and Informed) was customized to determine engagement levels of the various stakeholders across stages of CSR intervention.



Affirmative Action (AA)

Tata Power has endeavoured to positively empower the lives of communities around its areas of operation. The company believes that addressing the social needs have traditionally disadvantaged groups is the 'right thing to do' and as part of our nation building endeavour, the company has carved out a focused approach for the upliftment of these communities through Affirmative Action (AA). Tata Power has aligned its AA programs to Employment, Education, Essential Amenities, Employability and Entrepreneurship, 5 Es for the development of deprived communities particularly SCs & STs.



The Company worked with the marginalized and disadvantaged communities which include, tribal villages, vulnerable children who are in great need of care, protection and improvement in the quality of life. The initiatives focus on 5Es - Education, Employability, Employment, Entrepreneurship & Essential amenities. The initiatives are in addition to the initiatives under the 7 thrust areas of CR program. Some major AA program details are below:

- 1,192 SHG members from Dalit and tribal communities were supported for income generation activities including poultry, handicraft, garment making, vermicomposting.
- 5,228 youths from Dalit and tribal communities trained by TPSDI under various power sector skilling courses and 53% placement ensured.
- Out of total 2,200 trained youths under various other vocational courses, 633 youths trained were from Dalit and tribal communities including courses like beautician, nursing, hospitality, BPO etc.
- 10,431 students were covered under education program across all locations who were from Dalit and tribal communities and their overall academic performance improvement was 5% more than previous year and enrolment rate improved, and dropout rates were reduced. Extra coaching classes, Spoken English, sports promotion programs are conducted in schools to improve interpersonal skills and personalities of the students.
- Supported 1,539 Dalit and tribal farmers in systemic rice intensification, improved varieties of seeds, advanced technology and integrated watershed management practices.
- Sponsoring high performing students through scholarships like Foundation for Academic Excellence and Access (FAEA) at Tata group level for X and XII standard students. Supporting Kalinganagar Institute of Social Science (KISS) School which is offering educational services to Tribals.

- Collaboration with local administration for Water, Sanitation and Hygiene issues were undertaken to make Open Defecation Free (ODF) Villages as a part of Swaccha Bharat Abhiyan by sensitizing through Community Lead Total Sanitation (CLTS) campaigns. Till date, 51 villages have been covered to sensitize communities on sanitation as a long-term initiative.

Apart from the above, the Company signed MoU with Government of Maharashtra for undertaking 5 flagship programs:



Model Village



Education



Employability



Livelihood



Skill Building



Earthen dam constructed under integrated watershed management intervention, Kadachimate



Employability-Nursing course for Tribal girls, Jawhar

Tata Power's Skill Development Institute (TPSDI)

Tata Power has been undertaking initiatives to improve the quality of life and uplift the economic conditions of its surrounding communities. In line with this, Tata Power inaugurated TPSDI Skills on Wheels, a mobile concept to make skill training more accessible to people. Through this 'Mobile' training and assessment centre, TPSDI will provide Recognition of Prior Learning (RPL), Motor Rewinding, Solar Skills; training and accreditation to neighbourhood electricians etc. The objective of launching Skills on Wheels is to provide training to neighbourhood electricians by making training opportunities more accessible to them. On the sidelines of Skills on Wheels initiative, TPSDI further celebrated the graduating ceremony of the 3rd batch of Neighbourhood Electricians, a program launched in collaboration with IMC Chamber of Commerce and Industry to recognise the existing skills and validate and certify their competence. Certificates were also distributed to the graduates of the course. A Welding Simulator Laboratory was inaugurated and dedicated for the use of training people on welding skills. The welding simulators will reduce the learning cycle and enhance the quality of learning before trainees are put on the actual welding machine.

TPSDI sees 83% record placement within 6 months. 68 TPSDI trainees got placement offers with Welspun India Limited (Textiles) Tata Power's Skill Development Institute (TPSDI) has been bestowed with Global HR Skill Development Award 2018 at the 8th World PetroCoal Congress, held in New Delhi. The institute was awarded under 'Gold' category for outstanding achievement in adopting innovative strategies for Human Resource Management and Skill Development towards excellence. The event was supported by the Ministry of Petroleum & Natural Gas, Ministry of Coal and Ministry of Power. TPSDI has set up five training hubs in five locations in the country leveraging the facilities of Tata Power which includes Shahad – Mumbai, Maharashtra; Trombay – Mumbai, Maharashtra; Maithon – Dhanbad, Jharkhand, Mundra – Kutch, Gujarat and Jojobera – Jamshedpur, Jharkhand. In FY 18, 13,527 persons were trained under various skill development programmes and 54% percent of eligible people have received placements post the training. TPSDI has impacted over 27,000 people since its inception.

Women Empowerment- Jharkhand

Tata Power in empowering the women of East Singhbhum district of Jharkhand. In 2016, an SHG group named Gulachi Baha Urja Mahila Samuh was formed with the association of 10 members (women) of the Khairbani Samutola Village (a small village in the Jugsalai cum Golmuri block). In the year 2017 They received the training for the vermicomposting production (very effective biological manure), after which they received 2 plastic vermi bags from the State government. Currently, they have 10 vermi beds. With time they have expanded their business and now proceeding towards being a successful entrepreneur. With this business activity, they are able to earn ₹ 4,500 – ₹ 8,000 per month. And overall till now, they have earned ₹12,500.

Maithon's- Build A Class

Maithon's - Build a class is an education programme being implemented by Tata Power under the Thrust area of (Vidya) in the periphery of MPL covering 21 villages. 33 government schools (5,000 school going children) are being covered under this programme. In the FY 15-16, Tata Power has been successful in bringing the below standard students into mainstream by conducting the remedial classes. In FY 16-17, Tata Power has started intervention to e - learning through establishing 33 e-classrooms.

The objective of the programme:

- Increase child participation in the learning in the learning process of school Improve learning outcomes for children
- Improve teaching learning environment in schools
- Increase parental and community participation to create enabling environment for learning

Data coverage:

- Total number of village covered: 30
- Total number of school covered: 33
- Total number of primary school: 20
- Total number of secondary school: 13
- Total number of boys covered: 2,539
- Total number of girls covered: 2,718

The program has been developed for children to understand their academic levels and gradually customize

solution for each, so as to bridge the academic gap and gradually bring the students at par with their grade specific curriculum. The programs like Nano Vyagyanik and Ganit Sahej Hain are developed which ensure science learning, developing mathematical understanding etc.

There is also activity based learning kit, library and sports club with sports kits which make children study interesting and make learning environment in school. School Management Committee, parent's teacher meeting are the regular activities with community and parents so that they support in overall success.

Financial Inclusivity (SAMARTH)

Tata Power has undertaken Financial Inclusivity as a key focus area in which the major objective is to link marginalized communities with various government schemes as well financial services across all locations. This intervention is self-sustaining with minimal resource implications and potential for scalability. The coverage includes 1.5 lac community with resources monetization worth ₹56 Crores across 5 states.

Right to Food Act- Tata Power championed the cause of enabling access to public distribution system for marginalized communities of Mumbai. In collaboration with Govt authorities and community stakeholders, about 5,000 people were provided with ration cards. As a result of this, these people are now able to access the free and subsidized government services under Right to Food Act which has reduced their economic burden and empowered them to channelize such efforts to enhancing the coverage to many such deprived people in and around the Tata Power neighbourhood.

Care for Customers

The customer affection statement "To earn the affection of customers by delivering superior value and superior experience thereby making them our ambassadors" is rooted deeply in Tata Power's routine operations. The "Customer Promise" listed below drive "Care for Customers" within the Company:

- Develop insights into customer needs
- Deliver quality products and services
- Delight customer with a great experience

Tata Power has improved its customer services to reduce the carbon footprint of the customers as it will significantly reduce travel time for Customer Relationship Centres to get assistance on complaints/ queries. Some of the initiatives are as follows:

- Enabling utility bill payments through digital initiatives Dynamic UPI, Bharat QR & BBPS, E-NACH, ECS, different wallets. First utility in power sector to implement Dynamic UPI, for bill payment. The launch of ATPM for bill payment
- Introduced Chatbot (TINA) for various consumer services
- Introduced push-pull SMS services for customer services (Power failure)
- Roll out of 24*7 WhatsApp and Twitter services for handling queries and complaints. Incentive plans for E-Bill and NACH registration.
- Online applications roll out for various customer services like name change load enhancement, load reduction etc. Customer portal for LEC/Developer
- The launch of a mobile app

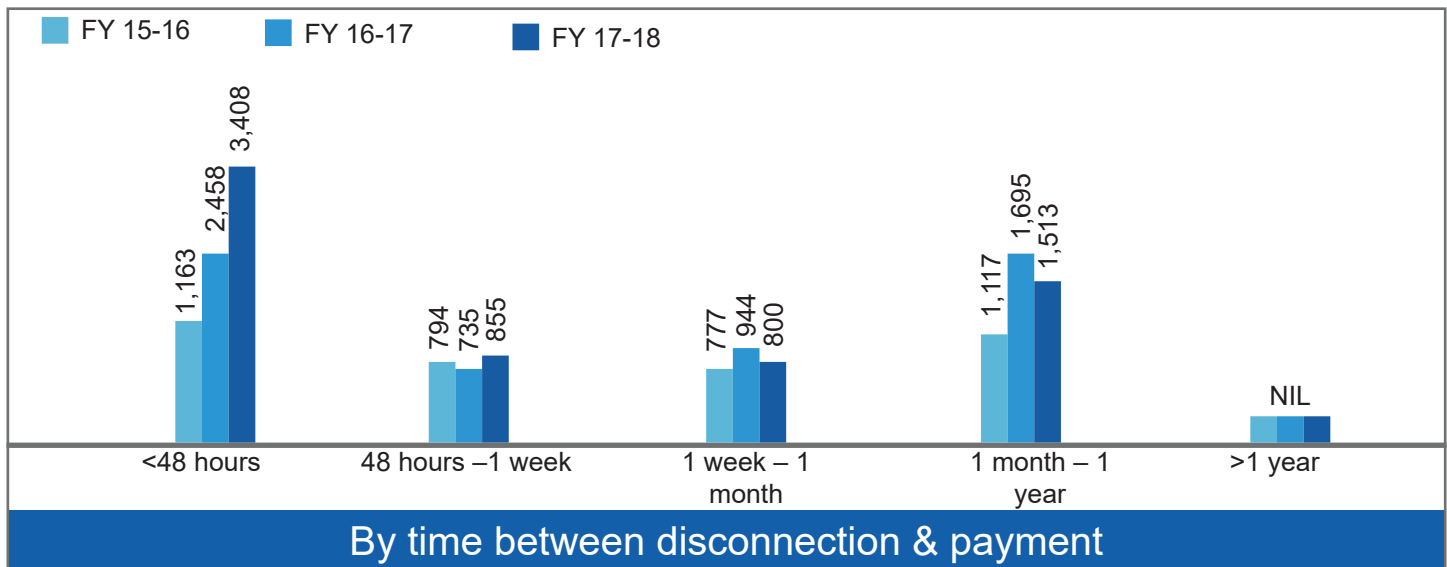
Transmission Length (EU 12)

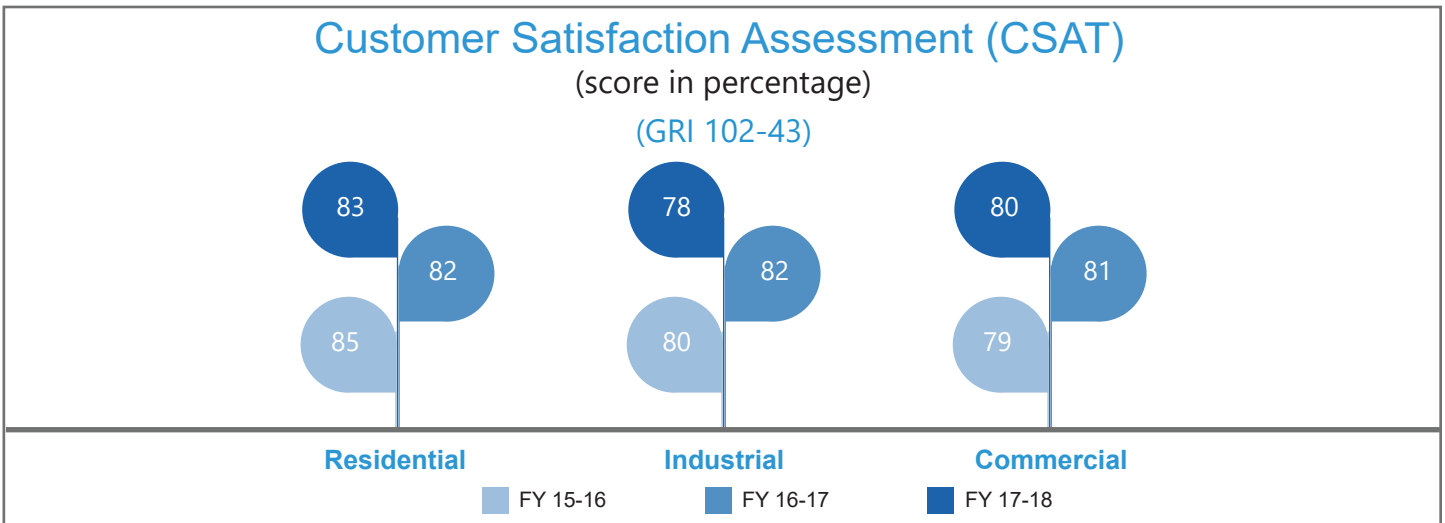
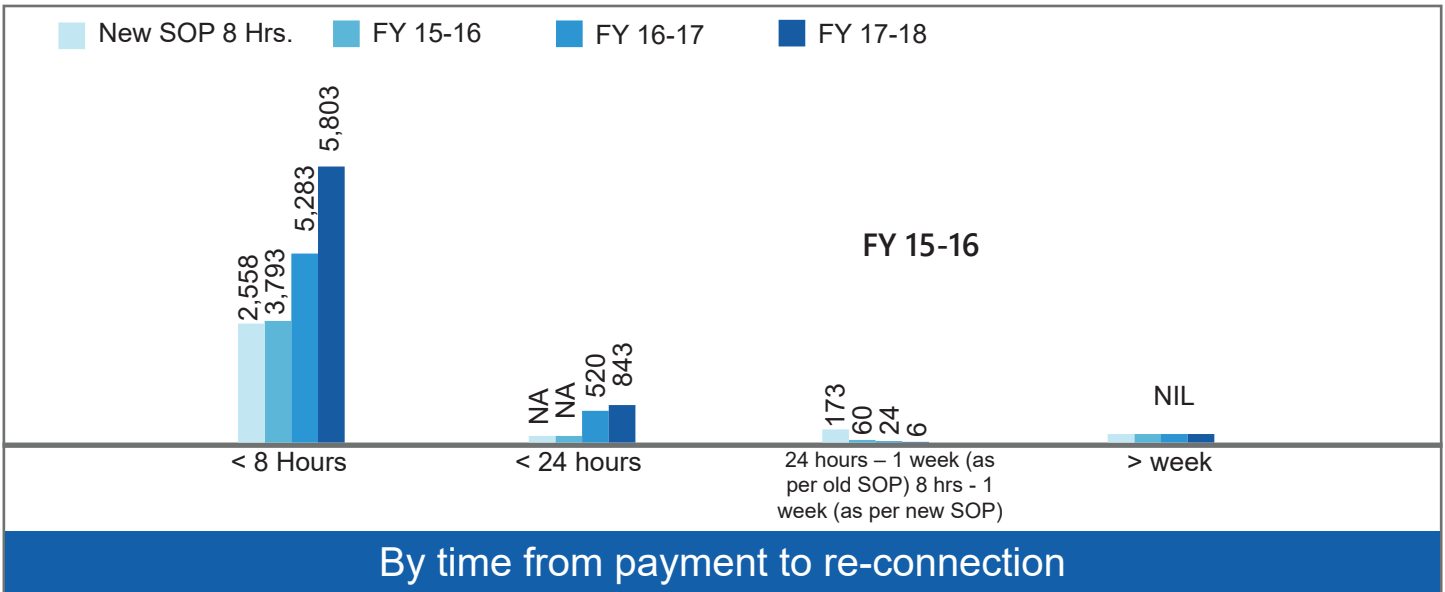
Length and Efficiency of Transmission	FY 15-16	FY 16-17	FY 17-18
Length overhead (km) (220 kV and 110 kV)	1044.67 CKT km	1036 CKT km	1.038 CKT km
Length underground (km) (220 kV and 110 kV)	154 CKT km	150 CKT km	150 CKT km
Transmission loss (%)	1.97	1.62	1.23
Length and Efficiency of Distribution			
Length overhead (km)	102.4	102.4	102.4
Length underground (km)	HT- 2200 km approx. LT- 1700 km approx.	HT- 2400 km approx. LT- 1900 km approx.	HT- 2500 km approx. LT- 2100 km approx.
Aggregated Technical & Commercial loss (% of energy loss)	0.64%	1.20%	0.90%

Power Outages (EU 29) (EU 28)

Power outage frequency and average power outage duration	FY 15-16	FY 16-17	FY 17-18
Average number of interruptions that a customer would experience, measured in units of interruptions per customer (SAIFI)	0.8 times	0.7	0.7
Average outage duration for each customer served, measured in units of time, often minutes or hours. (SAIDI)	13.7 minutes	13.3	13.6
Average time taken for restoration of power supply measured in terms of minutes per affected customer. This is a Benchmark for this parameter (CAIDI)	16.6 minutes	18.2	18.7

Disconnection and Re-Connection of Power Supply (EU 26, 27)





TPDDL attained Customer Happiness & Delight Index of 90% against 84% in the previous measurement (conducted once in two years) on account of strengthening the network to enhance power reliability and initiatives taken to ease the process of metering, billing and payment along with customer satisfaction initiatives. This is also reflected in a reduction in complaints per 1,000 by 6.5% from 15.76 to 14.72. [\(EU 25\)](#)

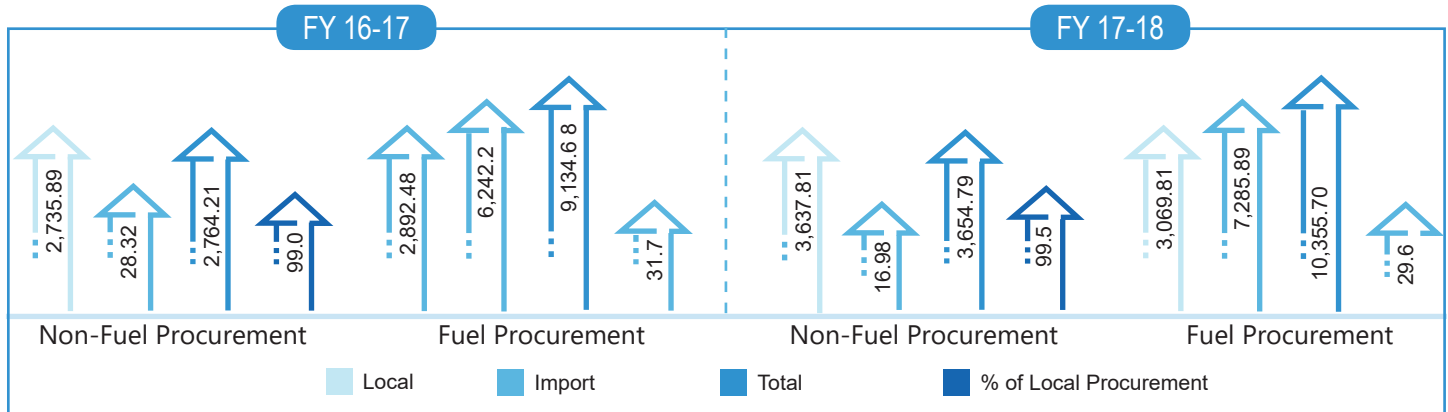
Mobile app for all stakeholders & consumers in Mumbai & Delhi

Tata Power introduced its digital interface by launching a universal Mobile Application for all its stakeholders along with employees and consumers of Mumbai & Delhi. The Tata Power Mobile App is specially designed to be an exclusive platform to help customers and other stakeholders to connect and directly engage with the company. The app is aimed at fostering high-level of customer engagement and provide a user-friendly experience to all its stakeholders. One of the primary features of the mobile app is the specially designed section for consumers. It includes key features such as Account overview; Bill Payment at fingertips; Meter Reading details; Monthly Consumption trend; Bills and Payment history of previous 12 months, Notifications alerts; Zone-wise Outage/Shutdown information; Registration for e-bill and e-services etc.

Care for Suppliers

(GRI 102-9, 202-1, 204 ,308-1, 2, 407, 408, 414, 419)

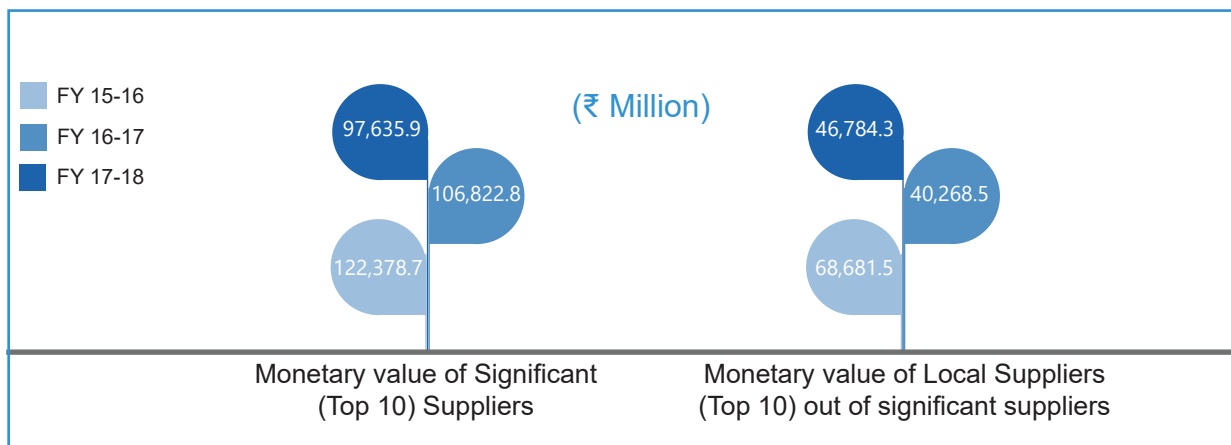
Tata Power conforms to responsible sourcing and requires its suppliers to be responsible for emissions, safety, human rights and ethics as per the Responsible Supply Chain Management policies, apart from the economic considerations as part of the sourcing procedure. Safety evaluation and qualification have been made an integral part of the award process and a part of the online vendor registration process. The Company has taken step towards 100% digitisation of its sourcing processes and to make it transparent.



#Exclusive of taxes & duties

#Value in ₹ in Crores and Inclusive of Taxes

A significant spend of Tata Power is confined to the local sourcing; i.e. Suppliers and service providers having facilities and/or manufacturing bases within the Indian geography.



As a part of Affirmative Action, the Company continued in its journey of working with local vendors and promoting inclusion of Dalits and tribal in the business opportunities. This is driven by Corporate Contracts Department with a single point of contact at the Corporate level, as well as at Division/ Site level (Procurement Heads at Division) to facilitate inclusion of Dalit and tribal vendors. It also made them compete with positive discrimination element by offering a price preference of 5% over the L1 bidder and also gives an incentive of 1% of contract value for engaging 50% workforce from the Dalit and tribal community. The Company also promoted entrepreneurship at the community level by supporting enterprise development. It also supports more than 3,200 Self-Help Group (SHG) members by imparting income generation activities and supported more than 7,900 farmers through training to demonstrate an overall increase in income level per acreage to make the community members self-reliant.

The neighbourhood community at operation sites is engaged as indirect workforce through contractors under different categories based on their skill set. The Contractor workforce is trained at the four TPSDIs in Maharashtra, Jharkhand and Gujarat to develop/upgrade the skills of the workforce to ensure safe and efficient work practices. Thus, the Company contributes to capacity building of the contractors and their workforce to ensure that the workforce is adequately trained to safely perform the job efficiently with higher productivity and quality standards. The Company also signed MoU with Government of Maharashtra (Maharashtra State Skill Development Society) to train youths, particularly from Dalit communities.

4.6 Natural Capital

Tata Power harnesses energy from both renewable and non-renewable natural resources. Tata Power is aware of the limits to use the natural Resources and recognizes the impact that they can have on it in the short and longterm, and make sure to operate within such limits. Tata Power maintained a good reputation for maintenance and enhancement of its natural capital through these below measures:

- Reducing dependence on fossil fuels and use renewable resources instead.
- Eliminating waste and adopting re-use, recycle or re-manufacture techniques where it is possible.
- Preventing the physical degradation of nature and protecting and enhancing the biodiversity and ecosystem functions
- Drawing renewable resources only from well-managed and restorative eco-systems.
- Adopting the precautionary principle in any situation that may result in the modification of nature.
- Tata Power is in the process of minimizing atmospheric pollution by installing Flue Gas Desulphurization Systems at all coal-fired power plants by 2021-22.
- The company has achieved a significant reduction in water consumption, which is also a thrust area.
- The company bagged CII-ITC Sustainability Awards 2017-'Commendation for Significant Achievement in Biodiversity' and is the only company to win the award for the 2nd consecutive year

Material Consumption

(GRI 301-1, 302-1)

Generating station	Raw material (tons)	FY 15-16	FY 16-17	FY 17-18
Trombay	Coal	2,704,951	2,492,710	2,452,206
	Low Sulphur Heavy Stock (LSHS)	2,321	415.33	1,474
	Gas	206,828	223,497.87	233,401.46
Jojobera	Coal	2,587,908	2,541,411	2,505,848
CGPL	Coal	9,970,026	10,803,979	10,799,102
MPL	Coal	4,092,996	4,288,939	4,240,175
PH # 6	Blast Furnace Gas (MNm ³)	2,483	2,386	2,209

Air Emissions

(GRI 305-1, 7)

At Tata Power, Air Pollution control is achieved by the selection of efficient generation technology, generating minimal pollutants, efficient controller (control at source) and then releasing in the atmosphere through tall stacks for wider dispersal (control in release). This is achieved by following abatement measures:

- Efficient boiler technology - Sub-critical technology used in Trombay, Jojobera and Maithon units while Super-Critical technology is used in Mundra UMPP plants
- Bag Filters to minimise dust at Coal Junction Towers and Bunker Galleries.
- Environment friendly Diesel Generator sets
- PM10 & PM2.5 control by choice of low ash coal for burning, efficient operations of combustion and Electro Static Precipitators (ESP).

Air Emissions by Weight (Tonnes)

Parameter	Year	Trombay	Jojobera	CGPL	MPL
SO ₂	FY 15-16	5,577	16,433	51,647	25,149
	FY 16-17	5,315	18,667.2	129,552	21,962
	FY 17-18	5,896	22,837.9	129,589	20,794
NO _x	FY 15-16	5,234	3,182	34,874	13,634
	FY 16-17	4,985	6,797.5	3,042	20,164
	FY 17-18	3,808	10,274.5	4,150	22,673
PM	FY 15-16	1,171	824	2,737	1,324
	FY 16-17	1,269	1,387.7	308	974
	FY 17-18	1,222	1,628.4	292	1,253

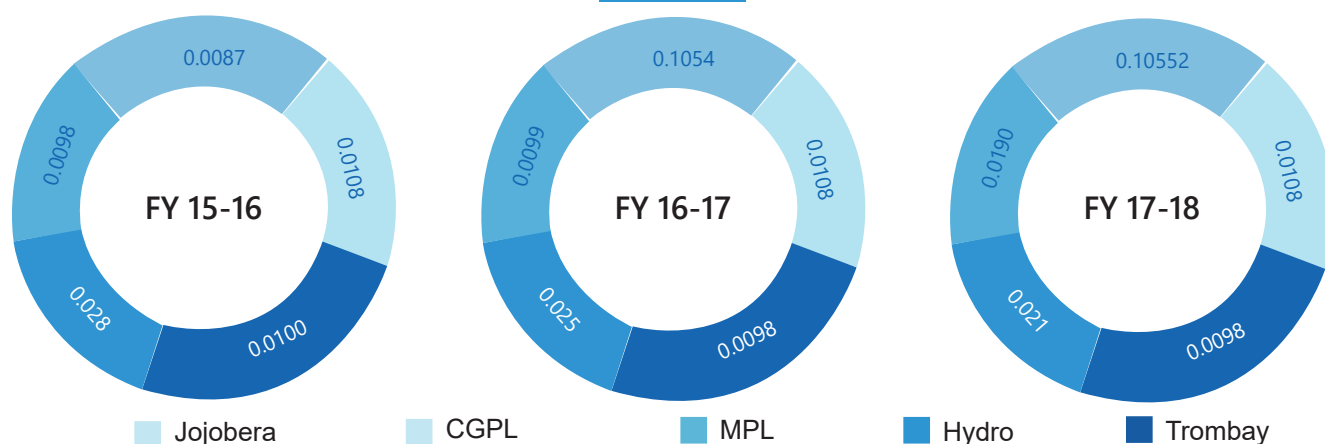
- Tata Power's Trombay unit has adopted sea water based flue gas desulphurisation (FGD) technology for SO₂ control well ahead of the national regulatory stipulation.
- Other units are at various stages of adoption of SO₂ emission control.
- Low NO_x burners are installed on unit 7 of Trombay to control NO_x emission.
- All the gaseous emissions are kept significantly below such that the emission limits/standards for ambient quality are adhered to.

Auxiliary Energy Consumption (MWh)

	FY 16-17	FY 17-18
Trombay	3,60,820	3,44,823
Jojobera	3,32,806	3,45,028
CGPL	2,158	2,087
MPL	400	408
PH #6	59,584	54,754
Haldia	61,980	62,816
Kalinganagar	400	408
Hydro	36,614	31,461
TOTAL	8,54,761	8,41,785

Energy Intensity Ratio (GJ/kWh)

(GRI 302-3)



The energy intensity performance has a significant impact on financial capital as also natural capital. Considering the wide variety of technologies that we operate with and the varying demand pattern, the consistent energy intensity performance reflects our efforts at continual operational improvement and environmental stewardship.

Reduction in Energy Consumption

(GRI 302-4)

With its priority of generating clean power, the long-term focus areas of Tata Power is re-powering and replacement of old units, the introduction of ultra-supercritical technology, modifying the fuel portfolio with a higher share of renewable, clean coal technologies.

	Energy saving due to	Unit	FY 16-17	FY 17-18
Trombay	Retrofitting of equipment	kWh	3,463.2	1,099,867.7
	Retrofitting of equipment	Mkcal	12,690.1	3,445.34

Club Energy

Tata Power's nationwide resource and energy conservation movement, Club Energy, has been constantly spreading awareness about resource conservation across the country, with a strategic focus on nation building. Continuing with this momentum, in FY 16-17, Club Energy, sensitised around 35,808 citizens in Bengaluru through primary contact programme as well as secondary sensitisation, and saved 31,498 units of energy in the city. Tata Power's Club Energy movement in Bengaluru currently has 761 Energy Champions and 698 Energy Ambassadors across schools. Tata Power's 'Energy Conservation Programme' introduced in 10 schools in the city, aims at creating the maximum impact by educating and creating awareness amongst citizens on the effective management and conservation of energy in our everyday life. In 2016, the initiative launched a new online module on disaster management to spread widespread awareness around precautionary measures against calamities. As part of its initiatives, Club Energy also organises activities for the school students like nature trails and visits to Tata Power Mahseer hatchery in Lonavala to increase awareness on its conservation projects and also provide practical knowledge about the environment. Today, Club Energy has become a holistic movement to save energy and natural resources. Club Energy banks on the youth of the nation and have essentially worked towards curbing energy wastage, thereby mitigating the emissions of green- house gases that lead to global warming and climate change.



Conservation of Energy

Tata Power has taken various initiatives at each of its plants, for the energy conservation through adoption of new technologies and improved processes. These have led to the improved heat rate and reduced auxiliary power consumption.

1 TROMBAY:

- Achieving higher generation on diffusion mode at low gas supply pressure
- Modification in Gas Turbine SADC & increasing the GT exhaust temperature (OTC) set point
- Installation of VFD for LP BFP
- Refurbishment of Unit 5 Condenser
- Stopping of one Unit 5 CW pump by opening of Unit 5 - 6 CW interconnection
- Stopping of one CW pump In Unit 8 to avoid sub cooling
- Unit 5 MBFP NRV and STBFP 5C recirculation valve replacement

2 JOJOBERA:

- The plant has taken many initiatives and resulted in 8-10% energy savings compared to baseline year in each project
- New service air installation for reduce ash plant aux power consumption
- Smart planning during ASD process
- Coal & Air flow Optimization as per design Feed
- control station valve wide open operation. Pre
- monsoon planning for Coal mill breakdown. CT fan blade angle optimization.
- RAPH soft seal used during ASD to minimized short circuiting of air. Coal/air flow optimization.
- IA compressor optimization.
- High energy drain passing attended. Duct joint repairing to stop air leakages.

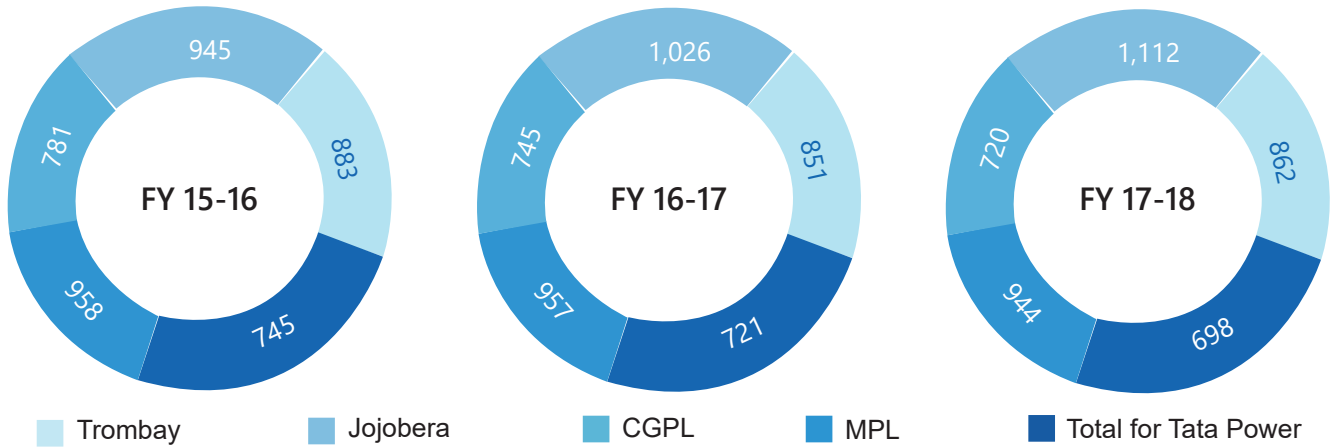
3 CGPL:

- Installation of VFD in CEP (condensate extraction pump): VFD with changeover facility has been installed in three units resulting in APC reduction of ~ 300 kW per unit
- Reduction in specific energy consumption from 4.17 kWh/m³ to 4.13 kWh/m³ in water treatment plant
- Fly ash evacuation line has been modified resulting in unit evacuation time reduction by 60-90 minutes, leading to aux power reduction of 0.81 MWh per evacuation.
- Reduction in process time of LP clean-up cycle from 28 hrs to 20 hrs by implementing double dozing system resulted in start-up power reduction of 80 MWh per start-up
- APC tracker for shut down resulting in reduced running time during outages. Reduction of 500 MWh has been achieved in each shutdown.
- Automation of coal bunker ventilation system resulting in aux power reduction of 459 MWh per annum for station

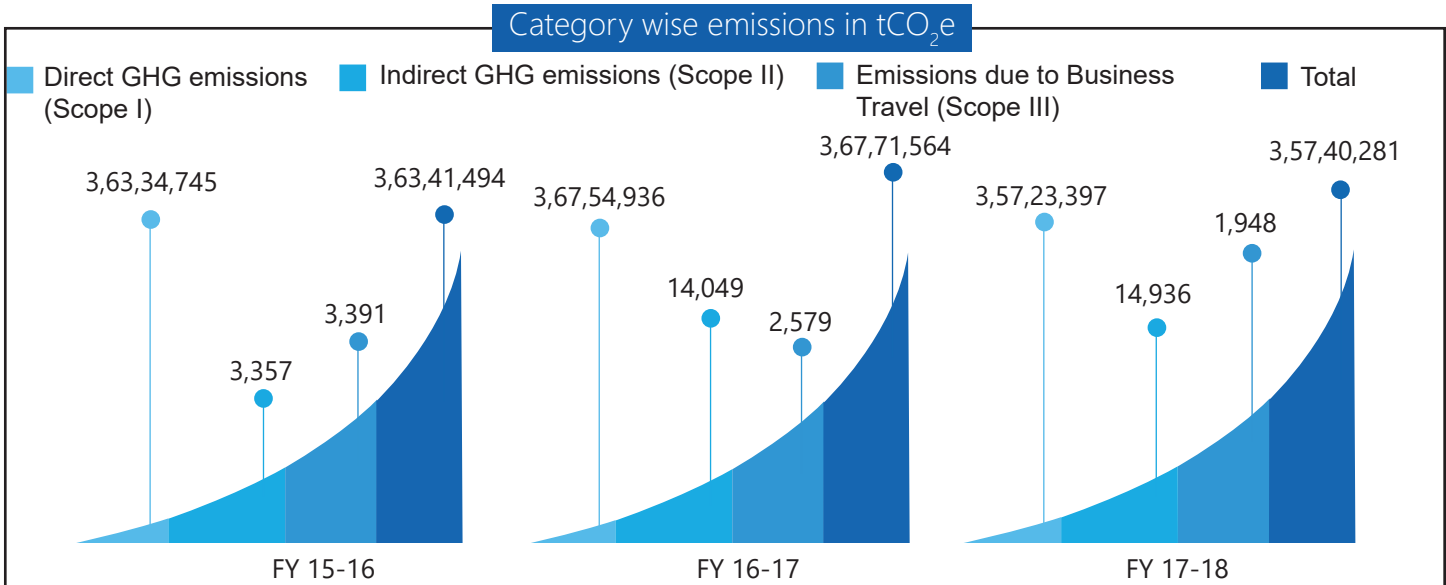
CO₂ Emissions

(GRI 305-1-6)

CO₂ Intensity (g/kWh)



The total CO₂ emission intensity at the company level has reduced due to an increased share of renewables in the total generation portfolio. The scope wise (Scope 1, 2 and 3) GHG emissions are shown in the table below.



Tata power does not use any Ozone Depleting Substances (ODS) in any of its operations.

Water Management

Tata Power gives utmost importance to sustainable water management and implementation of best management practices for minimisation of specific water consumption, maximising reuse and recycle, addressing site-specific water-related issues at each of the operating sites. All major effluents (like service water effluents, coal handling plant effluents, ash pond overflow) are being treated as per statutory norms of respective State Pollution Control Boards before recycling/disposing of. The Cooling tower blowdown is cooled further and used as make-up for the service water system, coal handling plant water system, ash water system, fire-fighting, etc. The treated water is reused internally for horticulture/plantation/greenbelt development, as well as used for control of fugitive emissions from coal yards. Thus all power plants are operating with a "minimum water requirement and minimum effluent generation" system.

Sources of water used

(GRI 303-2)

- Tata Power's Trombay Thermal Power Station (TTPS) uses fresh water (i.e. supply from municipal corporation) for processes and services, while seawater is used for cooling purposes.
- CGPL uses sea water for the process as well as for cooling. It has installed Desalination plants and uses desalinated water for processes and services. It is the only TPP in India which generates fresh water for itself. Haldia gets water from the Hooghly River and the source of water for Kalinganagar is the Kharsua River.
- Maithon withdraws water from the dam, whereas the source for Jojobera is the Subarnarekha River.
- All TPPs of Tata Power have cooling towers except TTPS and CGPL where they have sea water-based once-through cooling system. Groundwater is not used in any of the generating plants of Tata Power for power generation

All the plants have implemented various water saving initiatives resulting in a significant decrease in the specific water consumption. Further, all the effluents along with the boiler blowdown are treated in ETP and all the water is reused. Along with these initiatives, many plants and few receiving stations have also initiated rainwater harvesting through rooftop collection systems. There were no adverse impacts on protected or water bodies and habitats having biodiversity value from the company's water discharge and runoff.

Water Recycled and Reused

(GRI 303-3)

Tata Power in all its operations makes effort to the extent feasible and practicable to recycle wastewater and use the same, as exemplified by our performance year-after-year.

Stations	FY 16-17			FY 17-18		
	Total wastewater generated	Water Treated & recycled	Water Reused	Total wastewater generated	Water Treated & recycled	Water Reused
Trombay	33,157	-	16,836	19,855	-	19,870
Jojobera	273,070	0	273,070	495,112	0	495,112
CGPL	-	-	300	-	-	300
MPL	83,212	83,212	0	39,204	39,204	0
Kalinganagar	46,376	46,376	0	267,606	267,606	0

Excludes cooling water as neither consumed, not mixed with any pollutants, all values in m3

Water Consumption

(GRI 303-1, 306-1)

Generating Stations	Source & Use	FY 15-17		FY 16-17		FY 17-18	
		Specific water consumption (m3/MWh)	Absolute water consumption (Mm3)	Specific water consumption (m3/MWh)	Absolute water consumption (Mm3)	Specific water consumption (m3/MWh)	Absolute water consumption (Mm3)
Trombay	Municipal Water consumption (Process+ Domestic Water)	0.217	1.40	1.93*10 ⁻⁴	1.23	1.47*10 ⁻⁴	0.92
	Seawater consumption (Condenser Cooling water)	142.91	-	0.133	852.4	0.133	837.3
Jojobera	Surface water (wetlands, rivers, lakes)	3.0	11.14	0.0029	10.94	0.0029	10.95
CGPL	Sea Water Withdrawal (Process & Domestic after RO treatment + Make up for Condenser Cooling)	172.17	44,21.35	0.1625	4,412	0.1628	4,309.88
MPL	Surface Water Withdrawal (Process + Domestic + Make up for Condenser Cooling)	2.36	16.94	0.002	16.89	0.002	16.79
PH # 6	Municipal Water consumption (Process+ Domestic + Make up for Condenser Cooling)	2.61	-	-	-	-	-
Haldia	Municipal Water consumption (Process+ Domestic + Make up for Condenser Cooling)	3.5	2.98	0.0034	2.66	0.003	2.77
Kalinganagar	Surface water (wetlands, rivers, lakes)	-	-	0.025	0.55	0.18	2.72

Specific water consumption across our operations has been decreasing due to our relentless efforts in water conservation including recycling and reuse

Waste Management

(GRI 306-2, 3, 4, 5)

There were no significant spills during the reporting period. Tata Power does not transport any hazardous wastes categorised under the Basel Convention. There have been no discharges of untreated water to any water bodies and no water bodies have been affected by discharges and /or run-off.

	Trombay		Jojobera		CGPL		MPL		Haldia		Kalinganagar	
	FY16-17	FY17-18	FY16-17	FY17-18	FY16-17	FY17-18	FY16-17	FY17-18	FY16-17	FY17-18	FY16-17	FY17-18
Hazardous Waste disposed												
Solid (Discarded Container)	11.44	0	0	0	11.25	8.84	0	0	0	0	0	0
Waste Containing residue (oil soaked cotton waste)	52	0	13,860	0	0.29	18.171	134 (kl)	6.93 (kl)	0	0	0	16.46
Liquid (Used/ waste oil)	0	29.22	0	2,310	64.89	2.24	0	1,5010(kl)	3,990 (l)	1,890 (l)	7.2	9.6
Total hazardous waste generated	41,481.37	0	844,292	-	70.86	28.5	0	-	0	0	0	26.06
Total Non-Hazardous Waste-Flyash generated	41,624.37	42,423.97	674,610	798,160	7,87,534	786,192	1,759,983	1,702,686	0	0	0	0
Non-Hazardous Waste - Flyash disposed	3.49	42430.97	0	702,966	630,853	630,913	1,935,853	1,808,400	0	0	0	0
e-waste disposed	11.44	18.6	0	0	1.11	0	0	0	0.05	0	0	0.05

All values are in tons, except specified otherwise.

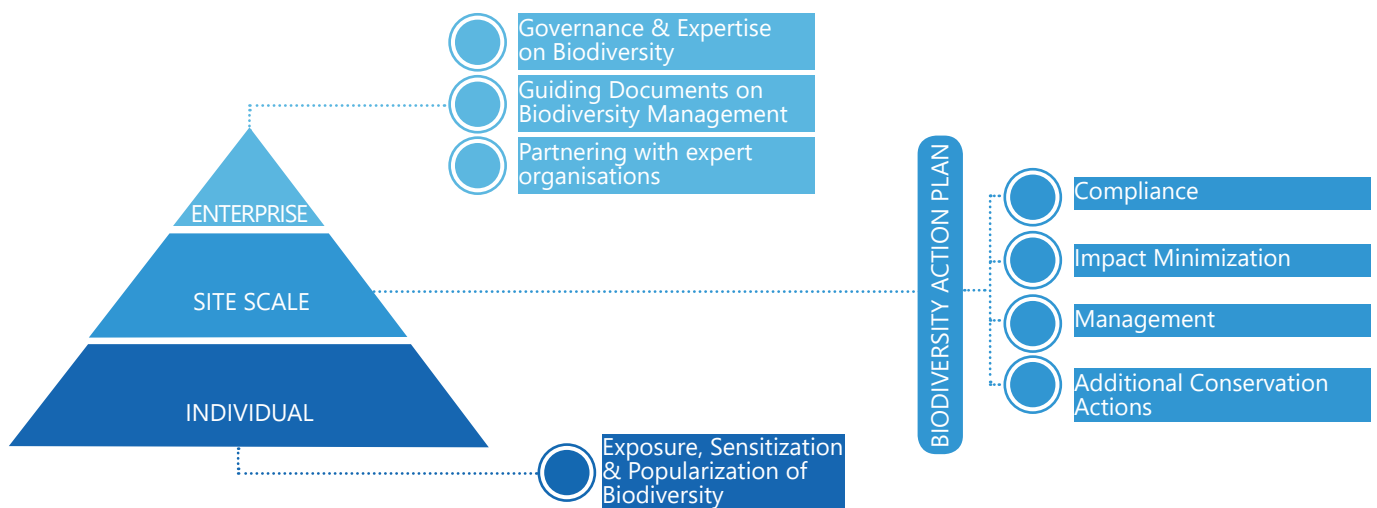
Hazardous wastes are small in quantity and are stored in properly identified locations. As per the regulations, hazardous wastes (non-recyclable) are to be sent to the State Pollution Control Board (SPCB) approved common treatment, storage and disposal facility (TSDF), and is adhered to at Tata Power Stations. E-wastes are disposed of through authorised vendors for reuse or reprocessing in a responsible manner. Tata Power does not transport, import, export or treat any hazardous waste, which can be classified under terms of Basel Convention, and no waste is being shipped internationally. There are no significant fines and non- monetary sanctions for non-compliance with environmental laws or regulations.

(GRI 307-1)

Biodiversity Management

(GRI 304- 2, 3, 4) (EU 13)

Tata Power is committed to nature preservation and has undertaken nature conservation projects of varying scales around its areas of operations. A formal governance structure is in place that allows for systematic biodiversity management across the organization. Tata Power’s Sustainability Advisory Council (SAC) includes experts from the field of Biodiversity, among others. The experts not only guide but also challenge the company on these matters. The Council is a platform unique to Tata Power and includes senior leadership of the company along with eminent personalities from the fields of environment, CSR as well as Biodiversity.



Tata Power has a dedicated Biodiversity expert team within its Corporate Sustainability Department. The team is responsible for planning and execution of biodiversity management projects across the organization. For its biodiversity management practices, the company is guided by its Biodiversity Strategy which works on three principles. Projects on biodiversity at Tata Power revolve around these base areas:

- Integrating Biodiversity into company operations,
- “Beyond the Fence” projects i.e. biodiversity conservation projects outside our area of impact
- Creating a Culture of Care for biodiversity

Integrating biodiversity into company operations

The company has created Biodiversity Action Plans (BAPs) for some of its generating sites using an internally developed model with a holistic approach. BAPs include impact mitigation measures, day-to-day management protocols and additional conservation actions. Additionally, Tata Power partnered with the International Union for Conservation of Nature (IUCN) to develop best practices in Biodiversity Management in the power sector. Under the partnership, a Biodiversity Management Plan (BMP) for one of the company’s sites has been developed.

The company’s Hydro operations are in the northern Western Ghats and the catchment area is contiguous with Reserve Forests. Tata power works closely with the State Forest Department to protect and conserve forests around the reservoirs and conduct massive afforestation activities.

A number of lesser and greater flamingos (*Phoeniconaias minor* and *Phoenicopterus roseus*) visit the mahul mudflats adjoining the Trombay power plant. There has not been any significant negative impact of the bird numbers and the population seems to be thriving in the vicinity of the plant. None of the operations has any significant impact on biodiversity in protected areas or areas of high biodiversity value outside protected areas. No IUCN Red-Listed species and national conservation list species are affected by the operations. The temperature of thermal water discharge from the power plants is kept well within the regulatory limits.

Beyond the Fence Projects

The Humpback Mahseer Program

Tata Power's flagship biodiversity program is more than 4 decades old. The Tata Power pioneered the breeding of an endangered freshwater fish species, the mahseer, found in the catchment area of its Hydro operations. The mahseer program covers three main areas of work: breeding, conservation and awareness raising. The first successful record of captive breeding of this fish is from the hatchery developed by the company in the 1970s. Through its Act for Mahseer program, the company raises awareness among its internal and external stakeholders about the fish and related ecosystems. Tata Power launched the humpback mahseer program in 2018 and began a new phase in the journey of mahseer conservation. The program aims to conserve the endemic humpback mahseer in its native habitat, the Cauvery river basin. Recognizing the dire need to conserve the species irrespective of not having direct operations in these areas, makes this a "Beyond the Fence" project.

Aiding community-led nature conservation in the Kutch landscape

Tata Power's Coastal Gujarat Power Limited (CGPL) helped local communities of the Kutch landscape protect their unique biodiversity and reap benefits from the ecosystem services rendered by it. Using the framework set by the Biological Diversity Act (2002), the company aided the creation of about 16 village-level Biodiversity Management Committees and People's Biodiversity Registers. The Committees have identified plant and animal species that are in need of conservation such as the endemic white napped tit (*Machlolophus nuchalis*), white-rumped vulture (*Gyps begalensis*), a herb species called *Oxalis nana*, among others. The company has not carried out any biodiversity offset projects in the reporting year (EU13).

Aiding community-led nature conservation in the Kutch landscape

The company believes that biodiversity conservation should permeate to all levels of the organization. Under its umbrella of Creating a Culture of Care, Tata Power runs Biodiversity awareness programs for its employees. Some programs work on the principle of Citizen Science, wherein site personnel send photographs of flora and fauna to the Biodiversity team. Updates on the phenology of plants and migration of birds are received by the biodiversity team in this manner. Site-level Biodiversity Clubs have been initiated that organize field-visits, awareness lectures, workshops and local plantation drives. The model of Biodiversity Clubs has worked in creating the impetus for biodiversity conservation work at sites. Besides these, multiple online contests are held for employees to spread awareness about biodiversity and ecosystem services.

Estimating the value of natural capital arising from a hydroelectric power plant

Tata Power ran a pilot study to estimate the net value of natural capital arising from our Hydro operations in Lonavla, Maharashtra. The pilot focused on estimating the value of impacts and dependencies of the unit at Bhira, situated in the northern Western Ghats in India. The site includes a reservoir, forested catchment area along with the power generating station. The study helped gain clarity on Tata Power's natural capital impacts and dependencies such as land submergence, diversion of water & presence of a healthy forest cover in the catchment area. While it was challenging to obtain data for a site that is close to 100 years old, the Company obtained insights on how the right mix of site management measures can prove to be beneficial for business as well as the surrounding ecosystems. Restoration of degraded forests in the catchment area over the past 30 years has helped to reliably supply water for business and provide a wealth of ecosystem services. The study confirmed the value of the ecosystem services provided by the forest in the catchment.

Highlights

Tata Power presented its Biodiversity Management Practices at the Business and Nature Forum, Singapore in November 2017.

Tata Power won the CII-ITC Sustainability Award 2017 for Biodiversity in Commendation for Significant Achievement.

Over 1,500 Fish Knights from Lovely Professional University join Tata Power's Act for Mahseer conservation movement.



5.0 GRI EUSS CONTENT INDEX WITH CDP, NVG, BRR, UN SDG MAPPING




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United Nations Sustainable Development Goals Index



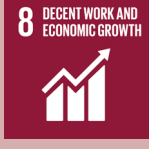



With the launch of SDGs, the businesses are expected to align their core business to the SDGs to achieve a sustainable future. Tata Power has embarked on this journey and the company's business initiatives already in alignment to Sustainable Development Goals (SDGs) of United Nations' has been mapped. Our strategic intent is aligned with the UNSDG 7, 9 and 13 as also many of our other activities directly or indirectly contribute to some of the UNSDGs

UN SDG	Goal objectives	Business activities that contribute to SDGs	CSR / other Programs that contribute to the Goals
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	Ensure access to affordable, reliable, sustainable and modern energy for all	<ul style="list-style-type: none"> Reliable and 24x7 power supply for infrastructure and reliable functioning of the customers' services On way to the renewable clean energy mix in the total generation capacity contributing to NAPCC and Paris Climate Agreement objective: 3,417 MW from clean energy production assets (operational as on 31 Mar 2018) Lowest tariff in Mumbai Metro Region Major plans for the development of microgrids 	<ul style="list-style-type: none"> Solar micro grid programs under CSR
 <p>13 CLIMATE ACTION</p>	Take urgent action to combat climate change and its impacts	<ul style="list-style-type: none"> The Strategic objective to have 30-40% generation capacity from renewables Putting risk assessment processes in place for potential climate change impacts (GRI 201-2) 	<ul style="list-style-type: none"> Deploying a robust global carbon strategy that reflects our mitigation commitment Supporting development of public policy in the transition to a low-carbon, climate-resilient economy CDP – Carbon Disclosure Project
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	<ul style="list-style-type: none"> Reliable and 24x7 power supply for infrastructure and reliable functioning of the customers' services 4,730 km of distribution network with ~920 customer substations and 32 distribution sub-stations for a customer base of more than 6.86 lakhs across Mumbai Use of new age technologies in generation and operations, maintenance of infrastructure (drones for inspection of solar panels, power lines) 	<ul style="list-style-type: none"> Sanrachana CSR program Consumer Relation Centers; Bill Payment Options – digital/ on-the-go; Social Networking





Non-core business activity contribution

UN SDG	Goal objectives	Business activities that contribute to SDGs	CSR / other Programs that contribute to the Goals
 <p>1 NO POVERTY</p>	End poverty in all its forms everywhere	-	<ul style="list-style-type: none"> • Creating jobs in local communities and supplier networks through training • Developing high-impact social programs to empower women, youth, and neighbouring communities • Providing support during natural disasters • Enabling access to housing and basic services for low-income families through our inclusive business models
 <p>2 ZERO HUNGER</p>	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	-	<ul style="list-style-type: none"> • Livelihood training (Wireman Training Program, BPO, SHGs) – Samriddhi and Daksh CSR programs • VDC; Model Village development programs – 56 villages covered
 <p>3 GOOD HEALTH AND WELL-BEING</p>	Ensure healthy lives and promote well-being for all at all ages	-	<ul style="list-style-type: none"> • Ensuring health and safety is our company's top priority—our Safety commitment; Tata Power Suraksha mobile app, Contractor Safety Management (CSCC); Arogya CSR program • Safety Audit to Consumers; Promoting community health through awareness and educational programs for those in the vicinity of HT lines (no tipping and human suffering). Be Green, Club Energy, DSM(GRI 416)
 <p>4 QUALITY EDUCATION</p>	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	-	<ul style="list-style-type: none"> • Participating in forums, coalitions, and initiatives to support responsible growth and promote sustainable practices • UNGC, NSC, ERDA, APP, CII, IMC CCI, IIA, IEE(GRI 102-13)

Non-core business activity contribution

UN SDG	Goal objectives	Business activities that contribute to SDGs	CSR / other Programs that contribute to the Goals
 <p>5 GENDER EQUALITY</p>	Achieve gender equality and empower all women and girls	<ul style="list-style-type: none"> Equal opportunity employer, Diversity and inclusion work-shops for employees 	<ul style="list-style-type: none"> Implementing programs to empower women in both our workforce and our communities Supporting diversity within our organization through initiatives such as flexible time for mothers, private breastfeeding facilities, and salary equality, among others
 <p>6 CLEAN WATER AND SANITATION</p>	Ensure availability and sustainable management of water and sanitation for all	-	<ul style="list-style-type: none"> Swatch Jal CSR program
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	<ul style="list-style-type: none"> Providing competitive compensation to our employees while protecting their labour rights in a safe, respectful work environment (Healthy Workplace Award?, Srijan and other employee engagement programs and survey results) 	<ul style="list-style-type: none"> Generating economic growth for local suppliers Enabling community members to become entrepreneurs through our capacity-building efforts
 <p>10 REDUCED INEQUALITIES</p>	Reduce inequality within and among countries	-	<ul style="list-style-type: none"> Affirmative action Gender mix, females in a management position Akshay CSR program
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	Make cities and human settlements inclusive, safe, resilient and sustainable	-	<ul style="list-style-type: none"> Reliable and 24x7 power supply for infrastructure and reliable functioning of the customers' services Deploying a Community Engagement Strategy in all of our operations, considering environmental and social impacts
 <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	Ensure sustainable consumption and production patterns	<ul style="list-style-type: none"> Ensuring efficient use of natural resources in our generation (continuous improvement on CO2 emissions, water consumption and waste generation per unit electricity generated) 	<ul style="list-style-type: none"> Sustainable Plus Platinum by Confederation of Indian Industry; National Energy Conservation Awards for Discoms Extending our sustainability approach through our Supplier Sustainability Programs (RSCM – community entrepreneurship ventures; outsources products and services)

Non-core business activity contribution

UN SDG	Goal objectives	Business activities that contribute to SDGs	CSR / other Programs that contribute to the Goals
 <p>14 LIFE BELOW WATER</p>	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	-	<ul style="list-style-type: none"> • Fisheries programs – Mahseer Conservation Project • Fishermen training for sustainable fishing
 <p>15 LIFE ON LAND</p>	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Biodiversity conservation programs	<ul style="list-style-type: none"> • Member: IUCN LfN program
 <p>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</p>	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	-	<ul style="list-style-type: none"> • Portzer Prize for Excellence for Corporate Integration & Governance
 <p>17 PARTNERSHIPS FOR THE GOALS</p>	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	<ul style="list-style-type: none"> • Building a comprehensive strategic network of global and local partnerships and alliances to multiply our sustainability efforts and move forward towards our targets • NGOs under CSR programs 	<ul style="list-style-type: none"> • Participating in forums, coalitions, and initiatives to support responsible growth and promote sustainable practices • UNGC, NSC, ERDA, APP, CII, IMC CCI, IIA, IEE(GRI 102-13)



6.0 ANNEXURES

Annexure 1

List of Subsidiaries, Joint Ventures and Associates

SUBSIDIARY		
NDPL Infra Ltd.	Walwhan Urja India Ltd.	Industrial Energy Ltd.
Af-Taab Investment Co. Ltd.	Solarsys Renewable Energy Pvt Ltd.	DugarHydo Ltd.
Tata Power Solar Systems Ltd.	Chirastahyee Saurya Ltd.	Powerlinks Transmission Ltd.
Tata Power Trading Co. Ltd.	Nelco Network Products Ltd.	Resurgent Power Ventures Pte Ltd.
Tata Power Green Energy Ltd.	Vagarai Winfarm Ltd.	LTH MilcomPvt. Ltd.
Nelco Ltd.	TP Ajmer Distribution Ltd.	
Tatanet Services Ltd.	Far Eastern Natural Resources LLC	
Maithon Power Ltd.*		
Industrial Power Utility Ltd.	JOINT VENTURES	
Tata Power Renewable Energy Ltd.	Cennergi Pty. Ltd.	Yashmun Engineers Ltd.
Coastal Gujarat Power Ltd.*	Tsitsikamma Community Wind Farm (Pty.) Ltd.	Panatone Finvest Ltd.
Bhira Investments Ltd.	Amakhala Emoyeni RE Project 1 (Pty.) Ltd.	Dagachhu Hydro Power Corporation Ltd.
Bhivpuri Investments Ltd.	PT Mitratama Perkasa	Tata Projects Ltd.
Khopoli Investments Ltd.	PT Mitratama Usaha	The Associated Building Co. Ltd.
Energy Eastern Pte. Ltd.	PT Arutmin Indonesia	Brihat Trading Private Ltd.
Trust Energy Resources Pte. Ltd.	PT Kaltim Prima Coal	Nelito Systems Ltd.
Tata Power Delhi Distribution Ltd	Indocoal Resources (Cayman) Ltd.	Tata Communications Ltd
Tata Power Jamshedpur Distribution Ltd.	PT Indocoal Kassel Resources	
PT Sumber EnergiAndalan Tbk	PT Indocoal Kaltim Resources	
Tata Power International Pte. Ltd	Tubed Coal Mines Ltd.	
Tata Ceramics Ltd.	Mandakini Coal Company Ltd.	
Supa Windfarm Ltd.	Gamma Land Holding Ltd.	
Poolavadi Windfarm Ltd.	Solace Land Holding Ltd.	
Nivade Windfarm Ltd.	Beta Land Holdings Ltd.	
Indorama Renewables Jath Ltd.	Ginger Land Holdings Ltd.	
Walwhan Renewable Energy Ltd.	Candice Investments Pte. Ltd	
Walwhan Urja Anjar Ltd.	PT Nusa Tambang Pratama	
Walwhan Solar AP Ltd.	PT Marvel Capital Indonesia	
Walwhan Solar Raj Ltd.	PT Dwikarya Prima Abadi	
Northwest Energy Pvt. Ltd.	PT Kalimantan Prima Power	
Walwhan Solar Energy GJ Ltd.	PT Citra Prima Buana	
Dreisatz My Solar 24 Pvt Ltd.	PT Guruh Agung	
MI My Solar 24 Pvt. Ltd.	PT Baramulti Sukessarana Tbk	
Walwhan Energy RJ Ltd.	PT Antang Gunung Meratus	
Walwhan Solar MP Ltd.	Adjaristsqali Netherlands BV	
Walwhan Solar MH Ltd.	Adjaristsqali Georgia LLC	
Walwhan Solar KA Ltd.	Indocoal KPC Resources (Cayman) Ltd	
Walwhan Solar PB Ltd.	Koromkheti Netherlands BV	
Walwhan Solar RJ Ltd.	Koromkheti Georgia LLC	
Walwhan Wind RJ Ltd	Indocoal KPC Resources (Cayman) Ltd	
Walwhan Solar TN Ltd.	Koromkheti Netherlands BV	
Walwhan Solar BH Ltd.	Koromkheti Georgia LLC	
Clean Sustainable Solar Energy Pvt Ltd.	Itezhi Tezhi Power Corporation	

*Entities included for reporting

Annexure 2- Memberships

Tata Power has articulated its position on advocacy. Tata Power interacts with various institutions/non-government organisations, industry associations, and chambers, etc. to be updated with the current scenarios related to industry as and also put across its position. The Company is a member of various institutions some of which are provided below.

National Safety Council (NSC)
Electrical Research and Development Association
Association of Power Producer (APP)
Confederation of Indian Industry (CII)
IMC Chambers of Commerce and Industry
The Institute of Internal Auditors
Indian Energy Exchange
Indian Wind Power Association (IWPA)
Central Power Research Institute (CPRI)

Annexure-3- Awards

- CII-ITC Sustainability Awards 2017 & 2016 - Commendation for Significant Achievement in Biodiversity
- Skill Development Institute wins accolades at the Indo Global Skill Summit and Expo 2017
- 'Risk Management Team of the Year, 2017' and 'CRO of the Year, 2017' at CRO Leadership Summit
- 'Best Risk Management Framework & Systems – Power', at the 4th Edition of CNBC-TV18 The India Risk Management Awards.
- 3rd rank in the Responsible Business Ranking for Sustainability and CSR, September 2017
- Quality Circle teams win 'Gold' award at International Convention on Quality Control Circles 2016
- Corporate Centre, Carnac office was awarded IGBC Gold rating under 'Green Existing Buildings' category
- CII awards Maithon Power Plant for its excellence in Operation Management and People Management
- SAP ACE Award 2016
- Maithon Power Plant awarded with Global Energy Management Award 2017; SURAKSHA PURASKAR (Bronze trophy) from National Safety Council of India; CBIP Award for the 'Best Performing Utility in Thermal Power Sector'
- TPSDI conferred with an award for 'Capacity Building and Training' at the Central Board of Irrigation & Power (CBIP) Awards 2017
- Tata Power-DDL: Tata Volunteering Week (TVW) award for highest volunteers' participation and SPOC- Hero Award in TVW7 and TVW8 respectively, TAAP Jury Award 2017, FICCI CSR Leadership Award 2017, ABP News CSR Leadership Awards for Women Empowerment 2016, SKOCH Order of Merit and Silver Award 2016 under Blue Economy for "Empowering Women Beyond Boundaries".
- Club Enerji & Greenolution were presented at IIM - Ahmedabad in February 2017 in a TEDx IIM - Ahmedabad event held on the topic: "Driving Conservation by shaping the future generations" under the theme 'Renaissance 2.0: Inspiring a better tomorrow'
- SED: first place at Business Excellence Awards 2016 (organized by Business World) and HR Game Changer Awards (2017); "100 Best Companies for Working Women in India"



7.0

ABBREVIATIONS

Abbreviations

₹	Indian Rupees	DCR	Domestic content requirement
		DSM	Demand Side Management
<IR>	Integrated Report	EBITDA	Earnings before interest, tax, depreciation and amortization
AA	Affirmative Action	ECS	Electronic Clearing Service
ABB	Asea Brown Boveri Limited	EEPL	Energy Eastern Pte. Limited
AC	Air Condition	EPC	Engineering Procurement Contract
ACE	Accelerated Career Enhancement	EPM	Enterprise Performance Management
AP	Andhra Pradesh	ERDA	Electrical Research and Development Association
APC	auxiliary power consumption	EU	Electric Utilities
APP	Associate of Power Producers	EUSS	Electric Utilities Sector Supplement
AT & C	Aggregate Technical and Commercial	EV	Electric Vehicles
BARC	Bhabha Atomic Research Centre	FDA	Fixed Duration Associates
BCCL	Bharat Coking Coal Limited	FMEAs	Failure Mode and Effect Analysis
BCP	Business Continuity Processes	FRMC	Functional Risk Management Committee
BHEL	Bharat Heavy Electricals Limited	FY	Financial Year
BPCL	Bharat Petroleum Corporation Limited	GAIL	Gas Authority of India Limited
BPO	Business Process Outsourcing	GHG	Greenhouse Gas
BRMC	Board Risk Management Committee	GIS	Gas Insulated Switchgear
BRR	Business Responsibility Report	GJ	Gigajoules
BSI	British Standards Institution	Gol	Government of India
BSSR	PT Baramulti Suksessarana Tbk	GRI	Global Reporting Initiatives
BURMC	Business Unit Risk Management Committee	GW	GigaWatt
CAGR	Compounded Annual Growth Rate	HR	Human Resources
CBIP	Central Board of Irrigation & Power	HT	High Tension
CCGT	Combined Cycle Gas Turbine	HuR	Human Rights
CCL	Central Coalfields Limited	IBBI	India Business Biodiversity Initiatives
CDP	Carbon Disclosure Project	ICT	Interconnecting Transformers
CEA	Central Electricity Authority	IEE	Institute of Electrical Engineering
CEO	Chief Executive Officer	IEL	Industrial Energy Limited
CGL	Crompton Greaves Limited	IFC	International Finance Corporation
CGPL	Coastal Gujarat Private Limited	IIA	Institute of Internal Auditors
CII	Confederation of Indian Industries	IIRC	International Integrated Reporting Council
CO2	Carbon Dioxide	IPP	Independent Power Producers
COO	Chief Operational Officer	ISO	International Organization for Standardization

CR	Community Relations	IT	International Technologies
CSAT	Customer Satisfaction Assessment Total	IUCN	International Union for Conservation of Nature
CSR	Corporate Social Responsibilities	JSA	job safety analysis
CTTL	Chemical Trombay Terminal Limited	PM	Particulate Matter
JVs	Joint Ventures	PMS	Performance Management System
kg	Kilograms	POSH	Prevention of Sexual Harassment
Kms	Kilometres	PSUs	Public Sector Undertaking
KPC	PT. Kaltim Prima Coal	PTL	Powerlinks Transmission Limited
kV	kilo Volt	PTMP	PT Mitratama Perkasa
LASER	Learn, Apply, Share, Enjoy, Reflect	PV	Photovoltaic
LIC	Life Insurance Company of India	R & R	rehabilitation and relocation
LSHS	Low Sulphur Heavy Stock	R&D	Research & Development
LT	Low Tension	RE	Renewable Energy
LTIFR	Loss Time Injury Frequency Rate	RMC	Risk Management Committee
MCA	Ministry of Corporate Affairs	RO	Reverse Osmosis
MD	Managing Director	RSCM	Responsible Supply Chain Management
MERC	Maharashtra Electricity Regulation Commission	SAC	Sustainability Advisory Committee
MMR	Mumbai Metro Region	SAP	System Application & Products
MMSCMD	Million Standard Cubic feet per day	SDGs	Sustainable Development Goals
MNm3	Million Newton Meter Cube	SEBI	Securities Exchange Bureau of India
MoU	Memorandum of Understanding	SED	Strategic Engineering Division
PM	Particulate Matter	SHGs	Self Help Groups
MPL	Maithon Power Limited	SHR	Station Heat Rate
MTPA	Million Tons Per Annum	SMS	Safety Management System
MU	Million Unit	SMS	Short Message Services
MVA	Mega Volt Amp	SO2	Sulphur Dioxide
MW	Megawatts	SOP	Standard Operating Procedure
MWh	Megawatts hour	T&D	Transmission and Distribution
NAPCC	Naction Action Plan on Climate Change	TBEM	Tata Business Excellence Model
NEDs	Non-Executive Directors	TBSS	Tata Business Support Services
NGOs	Non-Government Organizations	TCoC	Tata Code of Conduct
NOx	Nitrogen Dioxide	TERPL	Trust Energy Resources Pte Limited Singapore
NSC	National Safety Council	TPC	Tata Power Company
NSC	National Safety Council	TPC-D	Tata Power Company - Distribution
NTPC	National Thermal Power Corporation	TPCDT	Tata Power Community Development Trust
NVG	National Voluntary Guidelines	TPC-T	Tata Power Company Transmission
O&M	operations and maintenance	TPDDL	Tata Power Delhi Distribution Limited

ODS	Ozone Depleting Substances	TPREL	Tata Power Renewable Energy Limited
OEM	Original Equipment Manufacturer	TPREL	Tata Power Renewables Energy Limited
PAT	Profit After Tax	TPSDI	Tata Power Skill Development Institute
PD	power distribution	TPSSL	Tata Power Solar Systems Limited
PESTLE	Political, Economic, Sociological, Technological, Legal, and Environmental	VMV	Vision, Mission, Values
TPTCL	Tata Power Trading Company Limited	VOICES	Voices of Internal Customer Engagement & Satisfaction
UMPP	Ultra-Mega Power Plant	WREL	Welspun Renewables Energy Limited
UN	United Nation	WREPL	Welspun Renewables Energy Private Limited
UNGC	United Nation's Global Compact	YTD	Year To Date
VDC	Village Development Committee		

8.0

FEEDBACK FORM

8.0 Feedback Form

Your few minutes in responding the queries can go long way in improving our disclosures and engagement with all stakeholders to deliver sustainable value.

Is the information provided in the report adequate to assess that we deal with all stakeholders' in a fair and ethical manner and do our best to add value to economy, environment, and society?

It's more than enough

Yes, it is precise, not too much; not too little

No, more details could have been provided

What do you think about the structure of the report in terms of the content organisation making it interesting to read and easy for locating relevant information?

The report is well structured with a flow linking the chapters

The report structure is good but could have been better

The report is not well structured; the content has no flow

After reading the report, what do you think about Tata Power's efforts in Sustainability?

I think Tata Power is doing a lot in Sustainability

I think Tata Power is doing a lot, but a lot more can still be done

No, I don't think Tata Power is doing much in Sustainability

Can you suggest areas in which we could further improve ourselves in Sustainability?

Rate the report in terms of design and layout

Excellent

Very Good

Good

Poor

Name : _____

Designation : _____

Organization : _____

Contact Address : _____

E-mail : _____

You can also email your feedback at sustainability.reporting@tatapower.com or write to: Chief Sustainability Officer

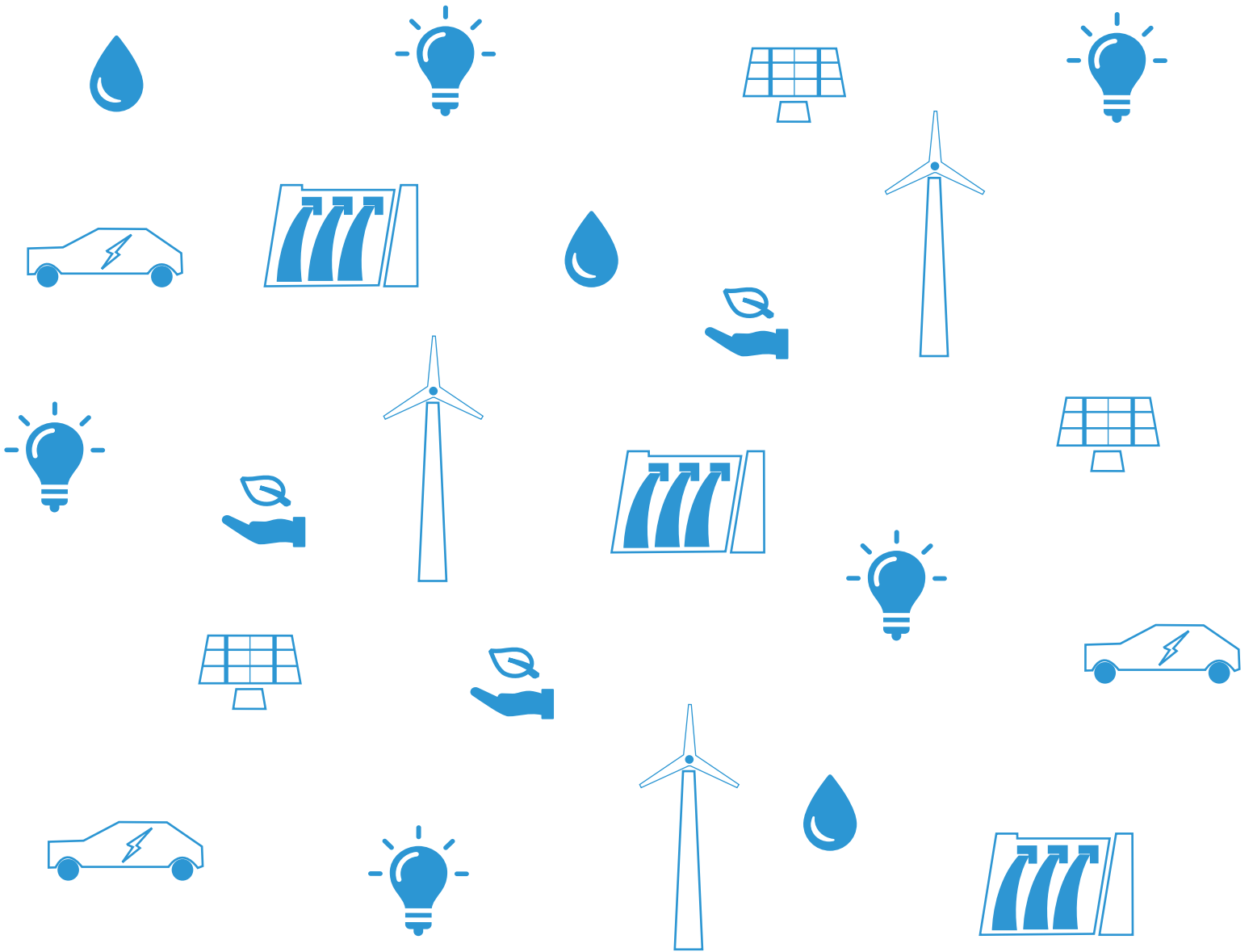
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Carnac Bunder Mumbai – 400 009

Suggestion to improve sustainability programs and reporting: _____

Please rate the following for this report:

Coverage in the report	Excellent	Good	Average	Poor
Clarity of contents				
Data availability				
Data representation				
Coverage of topics				
Presentation of contents				



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