Rating Rationale

NTPC Limited (NTPC)	Rating Symbol*	Rating Score	Rating Action
ESG Rating	CareEdge-ESG 1	74.3	Assigned

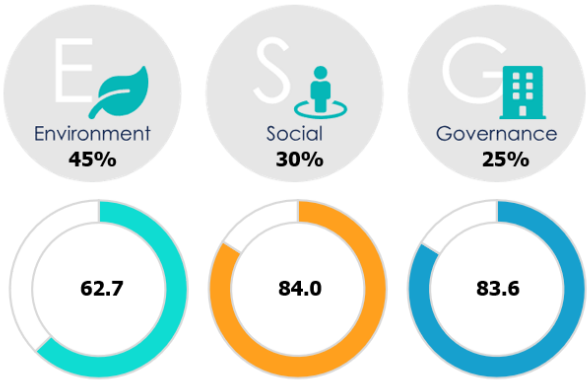
** Please refer www.careedgeesg.com for detailed understanding of CareEdge-ESG's rating symbols and definitions.*

***Leadership** position in managing ESG Risk through **best-in-class** disclosures, policies, and performance*

ESG Score

Data Transparency Level: **High**
Data Reporting Boundary: **Standalone**
Overall Transition Pathway Trajectory: **Strong**
Environment Transition Pathway Trajectory: **Strong**
Social Transition Pathway Trajectory: **Leadership**

Pillar Weights & Scores



All scores are on the scale of 0 – 100

Rating Scale

CareEdge-ESG Rating Assessment Criteria

India & globally aligned	Physical and Transition risk evaluation	Comprehensive analysis

NTPC's Policy Analysis

Comprehensive	Few Board approved	Regularly reviewed

NTPC's Initiatives Impact
Mitigation

ESG Disclosures		
BRSR Report	2024-2025	2023-2024
Integrated Annual Report	2024-2025	2023-2024

Rating Rationale

The ESG rating of 74.3 assigned to NTPC Limited reflects a relatively balanced performance across environmental, social, and governance pillars within a structurally high-impact thermal power sector. The rating is supported by strong institutional frameworks, scale-driven community impact, and established governance mechanisms, while being moderated by inherent sectoral challenges such as carbon intensity, water dependency, and evolving execution depth across certain ESG dimensions. NTPC's position as a large, state-owned power producer introduces an additional layer of operational complexity, requiring the balancing of sustainability objectives with national priorities of energy security, affordability, and reliability. As a result, the company's ESG profile is characterised by a combination of compliance-driven maturity and gradual transition towards more performance-oriented sustainability practices.

On the environmental pillar, which carries the highest weight for the sector (45%), NTPC performs above the industry median with a score of 62.7 compared to the sector median of 50.2, supported by relatively strong performance in energy efficiency and waste management, along with implementation of environmental management systems aligned with ISO 14001 across its operations. The company has implemented a range of operational and technological measures to optimise plant performance, including deployment of higher-efficiency thermal technologies, auxiliary power optimisation, and structured energy management systems aligned with ISO 50001. These efforts contribute to incremental improvements in operational efficiency, although Scope 1 emissions intensity at 876.9 tCO_2e/GWh remains above the industry median, reflecting continued reliance on coal-based generation. Scope 2 emissions remain limited at 0.17 tCO_2e/GWh, supported by captive power usage and energy efficiency initiatives.

NTPC has undertaken large-scale investments in environmental compliance and emissions control infrastructure,

including installation of flue gas desulphurisation systems, retrofitting of electrostatic precipitators, and implementation of continuous emissions monitoring systems across its fleet. The company is also expanding its renewable energy portfolio, with a target of achieving 60 GW of capacity by 2032, alongside pilot initiatives in green hydrogen and energy storage. However, the pace of transition remains gradual relative to the scale of thermal operations, and the contribution of renewable energy to overall generation continues to be limited. Water management continues to be an important area of focus, with consumption intensity at 2800.5 KL/GWh currently above the industry median. The company has already taken proactive steps by adopting recycling practices, implementing zero liquid discharge systems, and deploying alternative cooling technologies to improve water efficiency. Overall, NTPC's environmental performance reflects a compliance-driven supported by operational improvements and environmental management systems but constrained by structural dependencies.

From a social perspective, NTPC demonstrates above-median performance, supported by strong institutionalisation of community development programmes, structured safety systems, and broad-based stakeholder engagement. The company's CSR framework is characterised by scale and inclusivity, with 92.5% of beneficiaries drawn from vulnerable and marginalised groups, reflecting alignment with social equity objectives. CSR initiatives span healthcare, education, livelihoods, and infrastructure, and are supported by Board-level oversight and periodic impact assessments. These efforts contribute to strengthening the company's social licence to operate and mitigating community-related risks across project locations.

Occupational health and safety practices are supported by frameworks aligned with ISO 45001/OHSAS 18001 standards, along with system-driven monitoring through digital tools and safety protocols. However, performance outcomes remain broadly aligned with industry levels. Human capital development reflects a mixed profile, with high coverage of ESG-related training (89% of employees trained on BRSR principles) but relatively low skill upgradation levels (15.2% of employees and 7.7% of workers), indicating gaps in workforce capability development. Diversity outcomes also remain constrained, with low female representation and disparities across workforce categories, despite incremental improvements in employee-level pay parity. Overall, NTPC's social performance is supported by strong community engagement and governance frameworks but moderated by gaps in workforce development and inclusion.

On governance, NTPC demonstrates a high level of compliance maturity supported by well-defined policies, structured Board oversight, and integration of ESG considerations into risk management and capital allocation processes. The company has established comprehensive governance mechanisms, including Code of Conduct, Vigil Mechanism, and Anti-Corruption frameworks, with no reported incidents of ethical violations during the reporting period. ESG oversight is embedded within Board-level committees, including the Corporate Social Responsibility and Sustainability Committee and the Risk Management Committee, with execution driven through a management-level ESG and Climate Change Committee.

A notable strength is the alignment of capital allocation with sustainability priorities, with 75.2% of R&D expenditure and 38.7% of capital expenditure directed towards ESG-related technologies and initiatives. The integration of ESG considerations within the Enterprise Risk Management framework, supported by quarterly reviews of performance against BRSR principles, indicates a structured approach to governance. However, execution depth remains uneven in certain areas, including training coverage for Code of Conduct and whistleblower mechanisms, evolving supplier-level ESG oversight, and limited diversity at leadership levels. Additionally, disclosures on quantified ESG risks and forward-looking scenario analysis remain limited.

Overall, NTPC's ESG rating of 74.3 reflects a relatively strong institutional foundation supported by established governance frameworks, large-scale community engagement, and incremental environmental improvements. The rating is moderated by structural challenges inherent to thermal power generation, including high emissions and water intensity, as well as gaps in workforce development, diversity, and execution of certain governance practices. Strengthening the pace of energy transition, improving resource efficiency, expanding workforce capability development, and enhancing depth of ESG disclosures represent key areas for further improvement and long-term risk mitigation.

The power generation sector is inherently resource-intensive, with significant environmental externalities arising from greenhouse gas (GHG) emissions, high water consumption, and large-scale waste generation. Thermal power producers, in particular, face elevated exposure to regulatory, transition, and physical climate risks due to their dependence on fossil fuels and associated environmental impacts. Accordingly, the environmental pillar carries a high weight of 45% in the overall ESG assessment. With an environmental score of 62.7, compared to the industry median of 50.2, NTPC Limited demonstrates stronger-than-industry environmental performance, reflecting solid outcomes across key operational areas such as energy efficiency and waste management. The company's progress is supported by continued investments in operational improvements, compliance with evolving environmental regulations, and a gradual but steady push toward energy transition initiatives. While opportunities remain to further enhance performance in emissions intensity and water usage, these areas also represent clear pathways for future improvement as the company expands its sustainability initiatives. Overall, NTPC's environmental profile highlights a positive trajectory, combining operational efficiency gains with ongoing efforts to strengthen its long-term environmental performance.

Within the GHG emissions and climate change theme, NTPC demonstrates moderate progress in managing emissions intensity, although its performance remains constrained by the scale and composition of its thermal power portfolio. NTPC has undertaken substantial efforts to control non-GHG air emissions, including sulphur dioxide (SO_2), nitrogen oxides (NO_x), and particulate matter (PM), in line with evolving regulatory standards in India. The company is in the process of installing Flue Gas Desulphurisation (FGD) systems across its thermal fleet

to reduce SO_2 emissions with installation completed for approximately 27 GW of capacity and work in progress across an additional 47+ GW, reflecting the scale and phased nature of regulatory compliance. Combustion modification measures for NO_x control have been completed across 50 units, while Electrostatic Precipitators (ESPs) have been retrofitted and upgraded to enhance particulate matter capture efficiency. Continuous Emission Monitoring Systems (CEMS) have been installed across stacks, complemented by online Ambient Air Quality Monitoring Systems to enable real-time tracking of emission levels and ambient air quality. These systems provide operational transparency and facilitate timely corrective actions in case of deviations. The scale and ongoing execution of these installations remain critical to achieving full regulatory compliance across the fleet.

NTPC has also undertaken upgrades to existing pollution control equipment to enhance efficiency and meet stricter emission standards. These measures demonstrate a compliance-driven approach to air pollution management, supported by investments in technology and infrastructure. While NTPC's initiatives in air emissions control are comprehensive, their effectiveness is contingent on timely implementation and operational efficiency. Delays in FGD installation or sub-optimal performance of emission control systems could impact compliance and environmental performance. Additionally, while these measures address local air pollutants, they do not directly reduce carbon emissions, reinforcing the need for broader decarbonisation efforts.

In terms of, Scope 1 emissions, which arise primarily from fuel combustion across coal-based power plants, constitute the majority of the company's total emissions footprint. In FY25, Scope 1 emissions intensity declined marginally to 876.9 tCO_2e/GWh, representing a 1% reduction compared to the previous year. Despite this reduction, the emission intensity remains above the industry median, suggesting that NTPC's emissions profile continues to be relatively more carbon-intensive compared to peers. This reflects both the company's reliance on coal-based generation and the pace at which low-carbon alternatives are being integrated into its energy mix.

NTPC's emissions management strategy is largely centred on improving operational efficiency within its existing thermal fleet. A key component of this strategy is the deployment of supercritical and ultra-supercritical technologies, which operate at higher temperatures and pressures compared to conventional sub-critical units. These technologies are designed to operate at higher thermal efficiency compared to sub-critical units. NTPC deploys supercritical and ultra-supercritical technologies across a part of its installed capacity, with new capacity additions aligned to higher efficiency benchmarks. However, given the continued operation of legacy sub-critical units and the overall scale of coal-based generation, the impact of these improvements on aggregate emissions intensity remains incremental.

In addition to technology upgrades, NTPC undertakes operational efficiency measures across its thermal fleet to improve plant performance and manage fuel consumption. These efforts include improvements in plant performance parameters, heat rate optimization, and reduction in auxiliary power consumption. Digitalization

initiatives, including real-time monitoring systems and data-driven performance tracking, support operational efficiency and monitoring of plant performance. In addition, targeted diagnostic and inspection interventions have been undertaken to improve equipment reliability and support failure prevention across critical systems. While these measures contribute to gradual improvements in emissions intensity, their impact is limited by the underlying dependence on coal as the primary fuel source.

NTPC has also initiated steps towards diversifying its energy mix and reducing reliance on fossil fuels. The company has set a target to achieve 60 GW of renewable energy capacity by 2032, reflecting a strategic shift towards cleaner energy sources. Ongoing investments in solar, wind, and hybrid renewable projects, along with the development of round-the-clock renewable energy solutions, indicate a long-term commitment to energy transition. Additionally, NTPC has undertaken pilot projects in green hydrogen production and energy storage, positioning itself to participate in emerging low-carbon technologies. Biomass co-firing initiatives, involving partial substitution of coal with biomass pellets, have also been implemented across several plants. NTPC is also retrofitting and upgrading select thermal assets to meet ramping requirements, enabling greater operational flexibility and supporting integration of intermittent renewable energy into the grid. While these initiatives contribute to emissions reduction and support sustainability objectives, their current scale remains insufficient to materially alter the company's emissions profile in the near term.

Scope 2 emissions, arising from purchased electricity for auxiliary and administrative operations, remain minimal relative to Scope 1 emissions. In FY25, Scope 2 emissions intensity declined marginally to 0.17 tCO_2e/GWh, remaining below the industry median. This reflects NTPC's limited reliance on external power sources, as most electricity requirements are met through internal generation. The company has implemented several measures to further reduce auxiliary consumption, including energy-efficient lighting systems, deployment of high-efficiency motors, and optimisation of plant operations. Rooftop solar installations and small-scale renewable energy systems have also been deployed across facilities to offset grid electricity consumption. While these initiatives support incremental reductions in Scope 2 emissions, their overall impact on the company's total emissions footprint remains limited due to the dominance of Scope 1 emissions.

Energy efficiency remains a relative strength for NTPC, supported by a structured approach to energy management and continuous operational improvements. The company reported an energy intensity of 9679.0 GJ/GWh in FY25, reflecting a slight increase compared to the previous year and remaining marginally above the industry median. This increase indicates pressure on efficiency metrics during the reporting period. Despite this, NTPC has implemented a wide range of initiatives aimed at improving energy performance across its operations. A key enabler of NTPC's energy efficiency efforts is the adoption of ISO 50001-certified Energy Management Systems, which provide a systematic framework for monitoring, analysing, and optimising energy consumption. These systems facilitate the identification of energy-saving opportunities and support the implementation of targeted

efficiency improvement measures. NTPC also leverages digital technologies, including advanced process control systems and real-time performance monitoring tools, to enhance operational efficiency and reduce energy losses.

Operational initiatives undertaken by NTPC include optimisation of heat rates, reduction in auxiliary power consumption, and improvements in plant performance parameters. Measures such as optimisation of cooling water systems and enhancement of boiler efficiency contribute to energy savings. Additionally, NTPC has implemented initiatives to reduce internal energy consumption, including replacement of conventional lighting systems with energy-efficient LED lighting, installation of variable frequency drives, and use of energy-efficient equipment across facilities. While these measures reflect a focus on energy efficiency, the slight increase in energy intensity indicates that further improvements are required to offset operational challenges and enhance overall efficiency.

NTPC's performance in the effluent and waste management theme indicates a relatively strong operational framework, supported by regulatory compliance and circular economy practices. The company reported a waste intensity of 0.16 MT/GWh, representing a decline of more than 50% from FY24 and remaining below the industry median. This reduction is largely attributable to a significant decrease in construction and demolition waste compared to the previous year. Overall, NTPC has established robust systems for managing and utilising waste, thereby helping to mitigate its environmental impact.

Fly ash, the primary waste generated in coal-based power plants, is managed through a comprehensive utilisation strategy. NTPC has achieved high levels of fly ash utilisation by promoting its use in cement manufacturing, road construction, mine backfilling, and other applications. The company has developed infrastructure and established partnerships to facilitate efficient transportation and utilisation of ash, including long-term agreements with cement manufacturers and other industrial users. Advanced technologies such as Dry Ash Evacuation Systems (DAES) and High Concentration Slurry Disposal (HCSD) systems have been implemented to reduce water consumption in ash handling processes. In parallel, NTPC continues to expand ash utilization avenues including road construction, building materials, mine backfilling and long-term offtake agreements, supporting circular resource use and reducing landfill dependency.

In addition to fly ash management, NTPC ensures safe handling and disposal of hazardous and non-hazardous wastes in accordance with regulatory requirements. Hazardous wastes are managed through authorised treatment and disposal facilities, while non-hazardous wastes are segregated, recycled, or reused wherever possible. The company's waste management approach is guided by principles of waste minimisation, reuse, recycling, and safe disposal, aligning with circular economy objectives. While the company's waste management framework demonstrates strong execution, the increase in waste intensity highlights the ongoing challenge of decoupling waste generation from production growth in a coal-based operating model.

Water usage and management remain the most material area of underperformance for NTPC, with both absolute consumption and intensity metrics significantly exceeding industry benchmarks. The company reported a water consumption intensity of 2800.5 KL/GWh, which is above the industry median, indicating a high reliance on water-intensive thermal generation processes. Additionally, the company has operations in water-stressed regions, which increases its exposure to both physical and regulatory risks associated with water scarcity. Given the growing emphasis on water stewardship within the power sector, this remains a significant constraint on NTPC's overall environmental performance.

NTPC has implemented a range of initiatives aimed at improving water efficiency and reducing freshwater dependency. A central component of its water management strategy is the adoption of Zero Liquid Discharge (ZLD) systems across multiple plants. These systems ensure that wastewater is treated and reused within the plant, thereby minimising discharge and reducing freshwater intake. Technologies such as High Concentration Slurry Disposal (HCSD) and Dry Ash Evacuation Systems (DAES) are also deployed to support reduction in water usage in ash handling processes.

Process optimisation measures have been undertaken to improve water efficiency across operations. These include increasing cycles of concentration in cooling towers, reducing blowdown losses, and enhancing cooling system efficiency. NTPC has also implemented wastewater recycling and reuse initiatives across several facilities, enabling the use of treated wastewater for operational purposes. In water-scarce regions, the company has adopted air-cooled condenser (ACC) technology, which significantly reduces water consumption compared to conventional water-cooled systems. These interventions indicate a structured approach to water management and alignment with regulatory expectations.

However, despite these measures, water intensity remains significantly above industry benchmarks. This can be partly attributed to the inherently water-intensive nature of coal-based power generation, lower part-load operations resulting from increasing renewable energy integration, and the additional water demand associated with wet Flue Gas Desulfurization (FGD) systems. The continued reliance on freshwater sources and high consumption intensity expose the company to risks related to regulatory tightening, operational disruptions, and increased costs associated with water procurement and treatment. Addressing this gap will require a combination of technological upgrades, process optimisation, and accelerated diversification towards less water-intensive generation sources.

From a broader environmental management perspective, NTPC has embedded sustainability considerations within its operational and strategic frameworks. Environmental risks, including climate change, water scarcity, and regulatory compliance, are integrated within the company's Enterprise Risk Management (ERM) framework. This enables systematic identification, assessment, and mitigation of risks that could impact operations and long-term

sustainability. The Risk Management Committee at the board level oversees the implementation of risk management practices, ensuring that environmental risks are regularly reviewed and addressed.

NTPC's approach to climate risk management includes both physical and transition risk considerations. Physical risks such as extreme weather events, rising temperatures, water scarcity, and changing precipitation patterns are addressed through infrastructure resilience measures and operational planning. The company undertakes infrastructure and operational measures to manage risks from extreme weather events such as floods, cyclones, and heatwaves.

Transition risks arising from evolving regulatory frameworks, carbon pricing mechanisms, and shifts in energy demand are being addressed through diversification of the energy portfolio and investment in low-carbon technologies, as outlined in the company's renewable energy expansion and emerging technology initiatives. These initiatives indicate alignment with national and global decarbonisation goals. However, their current contribution to overall generation remains limited.

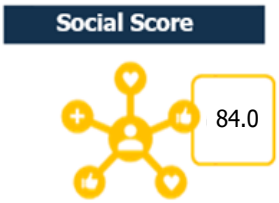
NTPC has also undertaken initiatives aimed at improving resource efficiency and reducing environmental impact beyond emissions and water usage. The company has adopted a "Reduce, Reuse, Recycle" approach across operations, focusing on minimising resource consumption and promoting circular economy practices. Efforts to improve ash utilisation, reduce waste generation, and enhance recycling practices contribute to overall environmental performance. Additionally, NTPC has implemented measures to improve land use and biodiversity conservation, including development of green belts around plant locations and afforestation initiatives. While these measures contribute positively to environmental management, their impact is relatively limited compared to core operational metrics such as emissions and water usage.

Overall, NTPC demonstrates a structured and compliance-driven approach to environmental management, with clear strengths in energy efficiency and waste management supported by established systems, technological interventions, and operational discipline. The company's investments in emissions control technologies, adoption of energy management systems, and efforts to improve resource efficiency reflect a commitment to environmental performance improvement. However, its performance is constrained by high carbon and water intensity inherent to its thermal-heavy portfolio.

While incremental improvements and transition initiatives are evident, the pace of change remains gradual, and significant challenges persist in reducing emissions intensity and improving water efficiency. The company's environmental performance would benefit from accelerated deployment of renewable energy, faster retirement or upgrading of inefficient thermal assets, and enhanced focus on water stewardship. Additionally, strengthening climate risk disclosures, incorporating scenario-based analysis, and aligning with global best practices would

improve transparency and support better assessment of long-term resilience.

Overall, NTPC's environmental profile reflects a balanced but transitional state, where operational efficiencies and compliance measures support above-median performance, but structural dependencies on coal and water-intensive processes limit further advancement. Addressing these structural challenges through targeted investments, technological innovation, and strategic alignment with low-carbon pathways will be critical for enhancing its environmental standing and maintaining competitiveness in an evolving energy landscape.



The social pillar within the power generation sector is inherently material, given the industry's large workforce footprint, high dependence on contract labour, and deep socio-economic linkages with communities across project locations. Thermal power producers, in particular, face elevated social risks arising from occupational hazards, labour practices, land use impacts, and community dependencies on infrastructure and livelihoods. Against this backdrop, NTPC Limited demonstrates a relatively strong social performance, with an overall score above the industry median and positioning as a leading peer across key themes such as community development and value chain engagement. This performance is supported by structured governance mechanisms, large-scale CSR interventions, and evolving human capital practices. However, gaps in workforce capability development, diversity outcomes, and contractor-level data reporting indicate areas for further improvement.

Within the Occupational Health and Safety (OHS) theme, NTPC has established a structured, system-driven safety framework aligned with international standards such as ISO 45001 and OHSAS 18001, reflecting a shift from compliance-based safety management to a more integrated and proactive risk mitigation approach. Given the scale of its operations, including multiple generation facilities, construction sites and a large contractor workforce—safety remains a critical operational priority with direct implications for business continuity and reputational risk.

In FY25, NTPC reported a workforce fatality rate of 0.000027, a Total Recordable Injury Rate (TRIR) of 0.00022, and an Average Lost Time Injury Frequency Rate (LTIFR) of 0.094. These indicators suggest an at par performance relative to the industry median, indicating a stable safety profile. The company has embedded safety into operational processes through initiatives such as the SAP-integrated Safety Framework, enabling real-time monitoring, incident tracking, and standardisation of safety protocols across plants. Regular safety audits, hazard identification exercises, and compliance checks are conducted to proactively mitigate risks.

Emergency preparedness is strengthened through alignment with national disaster management guidelines and structured Business Continuity Planning (BCP), ensuring readiness for high-impact events. NTPC also conducts mock drills, internal audits, and safety training programmes for employees and contractor personnel to reinforce awareness and preparedness. These measures reflect a well-institutionalised safety governance structure. While

safety frameworks are robust, performance metrics suggest that outcomes are broadly aligned with industry averages rather than exceeding them, indicating scope for further strengthening of safety performance.

NTPC's community development and CSR framework represents a major strength within its social pillar, characterised by scale and inclusivity, supported by structured programme delivery. Oversight is provided by a Board-level Corporate Social Responsibility and Sustainability Committee, ensuring alignment with statutory requirements and organisational priorities. Implementation is carried out through dedicated teams across project locations, enabling decentralised execution tailored to local needs.

During FY25, NTPC's CSR initiatives reached 18 lakh beneficiaries, with a significant 92.5% belonging to vulnerable and marginalised groups. This high level of inclusion materially enhances the company's social equity profile and positions it favourably relative to peers. The company reported 112 community grievances during the year, of which 91% were resolved, indicating the presence of functional grievance redressal mechanisms and accountability structures.

NTPC adopts a participatory stakeholder engagement approach, incorporating feedback through consultations, need assessments, and periodic materiality assessments. Its CSR portfolio spans healthcare, education, livelihoods, infrastructure development, and environmental sustainability, reflecting a comprehensive approach to community development. Healthcare initiatives, including medical camps and hospital support, address critical service gaps in remote areas, while education and skill development programmes contribute to long-term capacity building.

Livelihood initiatives focused on skill training, self-employment, and entrepreneurship development support economic empowerment and income generation. Infrastructure projects, including water supply, sanitation, and rural electrification, further enhance community well-being. Environmental initiatives such as afforestation and water conservation integrate ecological and social objectives, reflecting a holistic sustainability approach. The company has also conducted impact assessments for its key CSR projects.

From an employee wellbeing perspective, NTPC demonstrates a structured approach encompassing health, safety, and welfare initiatives aimed at ensuring workforce stability and productivity. The company provides comprehensive medical facilities, insurance coverage, and welfare benefits to employees, contributing to reduced health-related risks. However, employee wellbeing expenditure as a percentage of revenue declined marginally to 3.28% in FY25 from 3.42% in FY24, indicating a slight reduction in relative investment. At the same time, the employee turnover rate has shown improvement during the reporting period, suggesting broadly stable workforce retention, although continued focus on employee wellbeing remains relevant in a high-risk operating environment.

In terms of human capital development, NTPC demonstrates a structured but evolving approach to training and

skill development. During FY25, 89% of employees (excluding Board and Key Managerial Personnel) received training on BRSR principles, indicating strong ESG awareness and regulatory alignment. Total training hours stood at 10,30,314 hours, while total training expenditure was ₹54.82 crore, reflecting the scale of learning and development initiatives across the organization.

Despite this, skill upgradation remains an area of concern. Only 15% of employees and 7.7% of workers received skill upgradation training during FY25, both below the industry median. This highlights a gap in continuous capability building, particularly at the worker level. Given the increasing importance of digitalisation, automation, and energy transition within the sector, limited investment in workforce upskilling may impact long-term competitiveness and adaptability.

The relatively low training coverage for workers is particularly significant, as this group constitutes a large proportion of the operational workforce and is more directly exposed to safety and productivity risks. Expanding structured training programmes, particularly for contract workers, and improving monitoring of training outcomes would strengthen NTPC's human capital strategy.

Inclusion and diversity metrics present a mixed but gradually improving profile. The female-to-male employee ratio has improved, indicating incremental progress in workforce diversity. Similarly, the female-to-male pay ratio for employees showed an improvement, suggesting movement towards better pay equity.

Overall female representation remains relatively low, broadly in line with industry trends in the power sector. Women in senior management account for 6.9%, while Board representation includes one female director, indicating compliance with regulatory requirements but limited diversity at the highest level. While NTPC has established policies promoting non-discrimination and equal opportunity, the translation of these frameworks into broader representation across leadership levels appears gradual.

From a human rights perspective, NTPC demonstrates a policy-driven approach, integrating human rights considerations within its Code of Conduct and extending these expectations to suppliers and contractors. Human rights training coverage stood at 10.5% for employees and 0.4% for workers during FY25. The company reported 0 human rights-related grievances, with 100% resolved within the reporting period, indicating the presence of functional grievance mechanisms.

NTPC's value chain management represents a relative strength, supported by integration of ESG considerations into procurement and supplier engagement processes. The company requires suppliers and contractors to adhere to its Code of Conduct, embedding ethical, environmental, and social standards across its value chain. The inclusion of ESG clauses in contracts and monitoring mechanisms indicates a systematic approach to managing supply chain

risks. However, limited coverage of ESG assessments suggests that the framework is still evolving. Expanding ESG screening, adopting risk-based supplier segmentation, and enhancing transparency in disclosures will be critical to strengthening value chain governance.

NTPC also demonstrates alignment with broader stakeholder engagement principles through structured consultation mechanisms and periodic materiality assessments. Stakeholder inputs are integrated into sustainability strategy through surveys conducted every 3-4 years, ensuring responsiveness to evolving expectations. Board-level oversight is provided through the Corporate Social Responsibility and Sustainability Committee and the Risk Management Committee, which regularly review ESG-related issues. Additionally, the ESG and Climate Change Committee at the management level supports implementation and monitoring of sustainability initiatives.

Overall, NTPC's social pillar reflects a well-institutionalised and relatively mature framework, with strong performance in community development, stakeholder engagement, and value chain integration. High inclusivity in CSR programmes, structured safety governance, and strong ESG awareness among employees contribute positively to its above-median positioning.

However, the company's social performance is constrained by gaps in workforce skill development, contractor-level training, and diversity outcomes. While governance frameworks and policies are well-established, greater focus on execution depth, outcome measurement, and data transparency will be essential to further strengthen its social risk profile. Enhancing workforce capabilities, expanding ESG integration across the value chain, and improving disclosure practices will be critical for sustaining long-term social performance and aligning with evolving ESG expectations.

NTPC's governance framework reflects a strong alignment with statutory requirements and public sector accountability standards, underpinned by a comprehensive set of Board-approved policies governing ethical conduct, compliance, and risk management. The company has institutionalised key governance instruments, including a Code of Conduct, Vigil Mechanism/Whistleblower Policy, Anti-Corruption framework, and adherence to SEBI (Prohibition of Insider Trading) Regulations, which collectively establish a structured control environment for ethical business practices. Mechanisms to manage conflicts of interest and Related Party Transactions (RPTs) are embedded within Board-level oversight. Approvals are routed through the Audit Committee and where required, shareholders, ensuring procedural transparency. These frameworks are further extended across stakeholders through defined codes and contractual obligations, reinforcing expectations of ethical conduct beyond the organisation. During the reporting period, no material incidents related to corruption, insider trading, or anti-competitive behaviour were reported, indicating a relatively stable compliance environment

supported by formal controls. Grievance redressal mechanisms for investors and stakeholders are operational, with complaints received and addressed during the reporting period, reflecting the presence of formal grievance handling processes. However, while NTPC demonstrates strong policy architecture, coverage of training programmes related to Code of Conduct and whistleblower awareness remain limited, with scope of achieving universal coverage.

The company's ESG and sustainability governance architecture reflects a multi-layered structure with clear delineation between oversight and execution. At the Board level, dedicated committees such as the Corporate Social Responsibility and Sustainability Committee and the Risk Management Committee provide strategic direction and oversight on ESG-related risks and opportunities. These committees engage regularly with senior management, supported by a defined sustainability leadership structure at the corporate level, to review ESG performance. In addition, NTPC has established a management-level ESG and Climate Change Committee operating under the Director (Operations), which translates Board directives into operational actions across business units. This dual-layered structure supports both top-down governance and bottom-up implementation, supporting ESG considerations to be integrated into routine decision-making processes.

A key strength in NTPC's governance approach is the integration of ESG considerations within its Enterprise Risk Management (ERM) framework. Environmental and social risks—including climate change, regulatory compliance, and stakeholder expectations—are identified, assessed, and monitored alongside traditional business risks. The company conducts periodic reviews of performance against BRSR principles on a quarterly basis, reinforcing accountability and continuous monitoring of ESG performance. This structured review mechanism enhances governance discipline and ensures that sustainability metrics are not treated as static disclosures but are actively tracked and managed. However, while integration within ERM demonstrates maturity from a process standpoint, disclosures on quantified risk impacts, scenario analysis, and forward-looking ESG risk assessments remain limited, constraining visibility into the company's long-term resilience.

From a capital allocation perspective, NTPC demonstrates a relatively strong alignment between governance priorities and sustainability investments. A significant proportion of research and development expenditure (75.2%) is directed towards ESG-related technologies, while 38.7% of total capital expenditure is allocated to similar initiatives. These investments span areas such as renewable energy development, emissions control technologies, energy efficiency improvements, and emerging solutions including green hydrogen and energy storage. This level of capital commitment indicates that sustainability considerations are being embedded within strategic investment decisions rather than remaining peripheral initiatives.

NTPC's Board structure and governance practices demonstrate strong compliance with the Companies Act, 2013 and SEBI listing requirements, with all mandatory committees including Audit, Nomination and Remuneration, CSR

and Sustainability, Risk Management and Stakeholder Relationship Committees, constituted and functioning within prescribed norms. The Board comprises a mix of executive, non-executive, and independent directors, ensuring a degree of oversight and objectivity in decision-making. Regular Board and committee meetings, adherence to quorum requirements, and transparent disclosures around Annual General Meetings and shareholder participation reflect procedural robustness and accountability. Additionally, a high proportion of employees (89%, excluding Board and Key Managerial Personnel) have been trained on BRSR principles, indicating efforts to cascade ESG awareness across the organisation.

However, governance effectiveness is not solely determined by structural compliance, and certain gaps remain in NTPC's overall governance profile. Board diversity, particularly gender representation in senior management and operational roles, remains an area of relative weakness, limiting the breadth of perspectives in strategic decision-making. Furthermore, while ESG governance structures are well-defined, the depth of integration across the value chain—particularly in terms of supplier ESG assessments and monitoring—appears to be evolving, suggesting that responsible sourcing practices are not yet fully institutionalised. Similarly, although policies and committees exist, there remains considerable scope to expand the coverage of structured training on ethics, whistleblower protection, and ESG practices across all categories of employees.

Overall, NTPC's governance framework reflects a high degree of compliance maturity and institutional strength, supported by well-defined policies, Board-level oversight, and integration of ESG considerations into risk management and capital allocation processes. The presence of structured committees, quarterly performance reviews, and significant ESG-linked investments indicates that sustainability is being embedded within the company's governance architecture. However, the framework remains largely compliance-driven, with scope to strengthen execution through deeper employee training, enhanced value chain oversight, improved diversity, and more granular disclosures on ESG risk impacts and outcomes. Addressing these areas would enable NTPC to transition from a policy-led governance model to a more fully integrated and performance-driven ESG governance framework, enhancing both transparency and long-term resilience.

Key Rating Drivers

Strengths

Structured climate risk integration within enterprise risk management

A key strength lies in NTPC's structured integration of climate-related risks into its enterprise risk management framework, enabling systematic assessment of both physical and transition risks across operations. Risks such as water scarcity, extreme weather events, and evolving regulatory requirements are identified and monitored at plant and corporate levels, with defined mitigation strategies including infrastructure resilience, water optimization measures, and diversification into renewable energy.

Strong performance in community development and inclusive CSR execution

NTPC demonstrates leadership in community engagement through a highly institutionalized CSR framework characterized by structured program implementation and measurable outcomes. A significant 92.5% of beneficiaries belong to vulnerable and marginalized groups, indicating strong alignment with inclusive development priorities. Programs spanning healthcare, education, livelihoods, and infrastructure are implemented at scale and supported by periodic impact assessments and stakeholder consultations. This structured and outcome-oriented approach strengthens the company's social license to operate, particularly in regions hosting large thermal power assets.

Alignment of capital allocation towards ESG initiatives

NTPC's investment strategy reflects a growing alignment with sustainability objectives, with 75.2% of R&D expenditure and 38.7% of capital expenditure directed towards ESG-related technologies and initiatives. These include renewable energy expansion, emissions control systems, energy efficiency improvements, and emerging technologies such as green hydrogen. While the impact on emissions reduction is gradual, the scale of investment supports long-term transition readiness and positions the company to respond to evolving regulatory and market expectations.

External assurance enhancing credibility of ESG disclosures

NTPC's sustainability disclosures are subject to external assurance by independent third-party agencies, enhancing the reliability and credibility of reported ESG data. In the context of increasing investor and regulatory scrutiny, external validation reduces information asymmetry and strengthens confidence in the company's reporting practices. This reflects a higher level of disclosure maturity and alignment with evolving global standards, positioning NTPC favorably relative to peers with limited assurance coverage.

Structured stakeholder engagement and materiality-driven approach

The company adopts a systematic approach to stakeholder engagement through periodic materiality assessments conducted every three to four years, involving both internal and external stakeholders. This process enables identification and prioritization of key ESG issues based on their relative importance to stakeholders and business impact. By integrating these insights into its sustainability strategy and reporting, NTPC ensures that its ESG focus areas remain aligned with evolving expectations and sectoral risks. This materiality-driven approach enhances strategic clarity and strengthens the relevance of its sustainability initiatives.

Weaknesses

Low training coverage on business ethics

NTPC demonstrates relatively weak execution in terms of employee training and awareness. The proportion of employees trained on these policies remains below the industry median, indicating scope of improvement in coverage. This creates a gap between policy design and on-ground implementation, potentially increasing exposure to compliance risks, inconsistent ethical practices, and reduced effectiveness of whistleblower and reporting mechanisms.

Scope to improve health and safety training coverage

Although the company operates within a high-risk sector and has adopted structured Occupational Health and Safety frameworks aligned with standards such as ISO 45001/OHSAS 18001, training penetration across employees and workers remains below the industry median. The percentage of workforce covered under safety training programs is comparatively low, limiting the effectiveness of preventive risk management practices. In a sector characterized by operational hazards, inadequate training coverage can increase the likelihood of workplace incidents, weaken safety culture, and elevate operational and reputational risks.

Inadequate coverage of human rights and POSH training.

NTPC has established policies on human rights and prevention of sexual harassment (POSH). However, training coverage across employees remains limited. The proportion of employees trained on human rights and POSH frameworks falls below the expected benchmarks, indicating gaps in awareness and implementation. Expanding training coverage and ensuring consistent implementation across all levels of the workforce will be critical to strengthening social risk management.

High Scope 1 emissions intensity relative to peers

From an environmental perspective, NTPC's Scope 1 emissions intensity remains materially above the industry median reflecting the carbon-intensive nature of its predominantly coal-based generation portfolio. Despite incremental efficiency improvements, the company's reliance on thermal power continues to drive higher direct

emissions relative to peers. This not only constrains its environmental performance but also increases exposure to transition risks.

Key ESG Parameters of NTPC Limited

Parameters	Unit	2025-26	Industry Median
Environment			
Scope 1 intensity	tCO2e/GWh	876.9	847.1
Scope 2 intensity	tCO2e/GWh	0.2	1.4
Scope 3 intensity	tCO2e/GWh	5.3	159.2
Energy intensity	GJ/GWh	9679.0	9595.6
Water consumption intensity	KL/GWh	2800.5	1925.5
Waste generation intensity	MT/GWh	0.2	138.7
Social			
Employee turnover	%	6%	8%
Female to male employees' ratio	Per 100 male employees	8	5
Female to male employees' median pay	Per Rs. 100 of male employees' median pay	89.5	72.1
Health & safety complaints	#	0.0	0.0
Health insurance coverage	%	100%	100%
Accident insurance coverage	%	100%	100%
Differently abled workforce	% of total workforce	0.8%	0.2%
Workforce fatality rate	Total Fatalities/Total Workforce	0.00003	0.00001
Governance			
No. of female in board	#	1	1
% board members trained on BRSR	%	12.5%	100%
% KMPs trained on BRSR	%	28.6%	100%
Income gap ratio (CEO pay to median pay of employees)	X:Y	4.6:1	30.0:1

Data source: company information, public sources, CareEdge-ESG research & analysis
NR = Not Reported | MT = metric tons | GJ = gigajoules | GWh=Gigawatt hour

Rating Sensitivities

Positive Factors:

- Expansion of renewable energy and clean technology initiatives.
- Increase in coverage of essential training such as POSH, human rights, health and safety etc.
- Decrease in water consumption intensity.
- Increase in diversity of workforce.

Negative Factors

- Increase in LTIFR, recordable injury or fatality rate.
- Occurrence of environmental non-compliance.
- Regulatory lapses leading to reputational damage.
- Increase in emission, water and energy intensities.

Analytical approach

Rating boundary: CareEdge-ESG has considered standalone data of NTPC for assessment. The same is in line with their disclosure in BRSR. Transition parameters are included within the ESG Rating Model as per the methodology of CareEdge-ESG.

Methodology/Criteria

For detailed understanding of the criteria and methodology used by CareEdge-ESG, please refer to the methodology document available on www.careedgeesg.com

About the company and industry

NTPC Limited, incorporated in 1975 and headquartered in New Delhi, is India's largest power generation company and a central public sector enterprise under the Government of India. The company operates within the power generation industry and is primarily engaged in the generation and sale of electricity to state distribution utilities, government entities, and other bulk consumers. With an installed capacity of approximately 59.4 GW, accounting for nearly 17% of India's total installed power capacity, NTPC maintains a dominant position in the sector. Its diversified portfolio spans thermal, hydro, solar, and wind power generation, supporting both baseload and renewable energy requirements.

Over the years, NTPC has expanded significantly to establish a widespread presence across India, with operations spanning across 34 states and union territories, including key power generation hubs in states such as Uttar Pradesh, Chhattisgarh, Odisha, and Tamil Nadu. This extensive geographic footprint has strengthened its position in the Indian power sector, enabling efficient distribution of electricity and reducing regional supply imbalances. The company contributes to over 24% of India's total power requirement, underscoring its importance in ensuring reliable and affordable energy supply for industrial activity, infrastructure development, and household consumption.

NTPC occupies a central position within the Indian power sector, a key enabler of economic growth, urbanization, and industrial expansion. As India continues to witness rising energy demand, driven by population growth, industrialization, and infrastructure development, the need for reliable and scalable power generation remains critical. In this context, NTPC plays a vital role in strengthening energy security, supporting large-scale electrification, and driving capacity expansion in line with national development

priorities.

In recent years, NTPC has increasingly aligned its strategy with India's evolving energy transition goals and global climate commitments. The company has set an ambitious target of achieving 60 GW of renewable energy capacity by 2032, reflecting a strategic shift toward cleaner energy sources. This transition is aimed at diversifying its energy mix while continuing to support grid stability and base-load requirements, ensuring a balanced approach to sustainability and reliability.

Beyond traditional power generation, NTPC is progressively evolving into an integrated energy company by investing in emerging technologies such as green hydrogen, battery energy storage systems, and digitalized energy solutions. These initiatives position the company to play a broader role in India's transition toward a low-carbon economy, while reinforcing its long-term focus on sustainability, innovation, and resilient energy infrastructure.

Source of information

While assigning the ratings, CareEdge-ESG has considered publicly available information such as annual reports of the company and other policies, sustainability reports, certifications, BRSR reports, additional information and comments provided by the company.

Status of non-cooperation with previous ERP: Not applicable

Rating history for last three years:

Sr. No.	Name of Product	Current Rating		Rating history		
		Rating	Score	Date(s) & Rating(s) assigned in 2024-25	Date(s) & Rating(s) assigned in 2023-24	Date(s) & Rating(s) assigned in 2022-23
1	ESG Rating	CareEdge-ESG 1	74.3	-	-	-

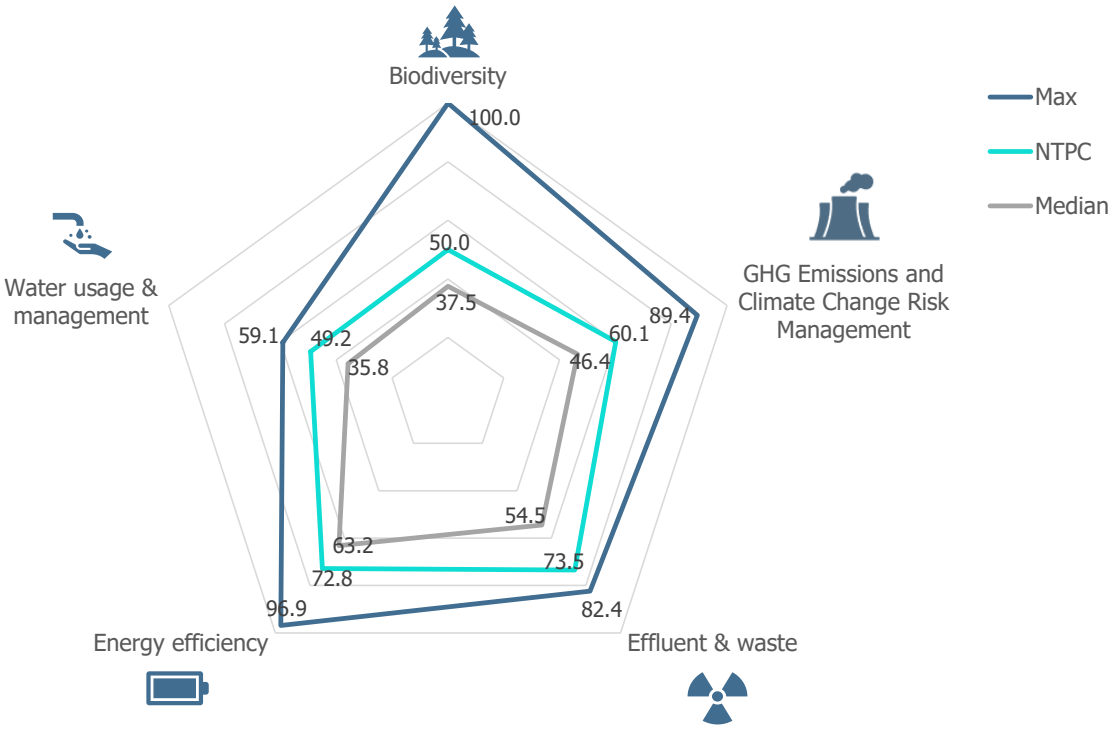
Annexure: Graphical summary of key rating drivers[2]

Hierarchy: While arriving at pillar level scores for NTPC, CareEdge–ESG has assigned theme weights based on relative importance and sectoral hierarchy as depicted in the exhibit below.

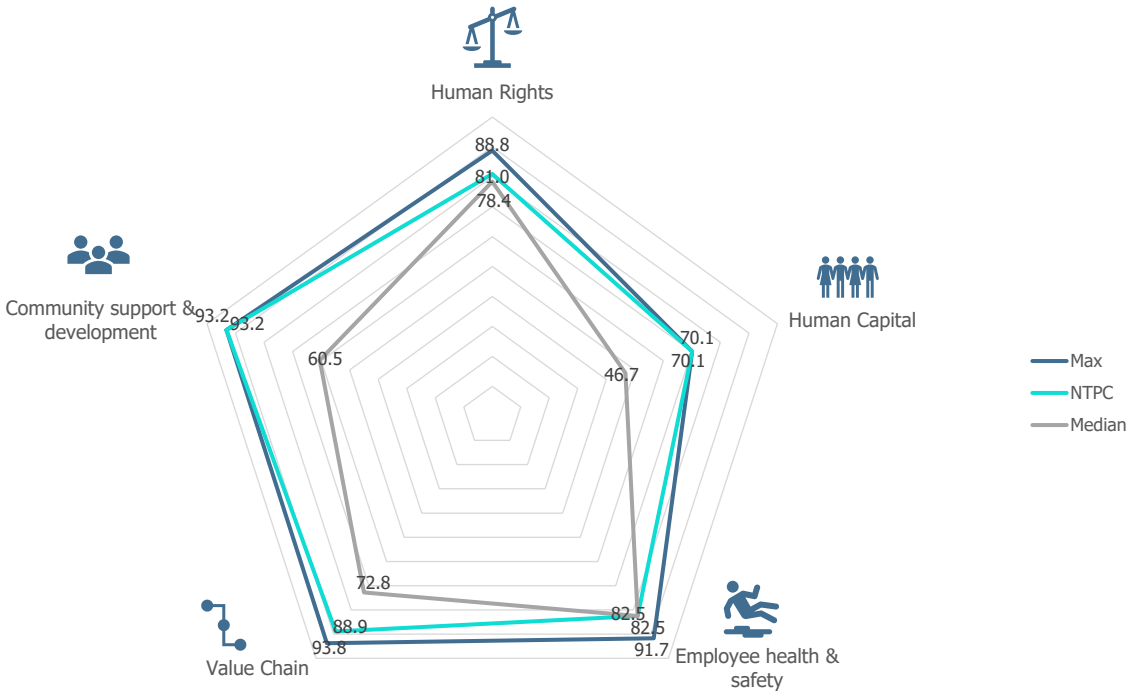
Materiality	Environment	Social	Governance
HIGH	GHG Emissions and Climate Change Risk Management Energy Efficiency	Employee Health & Safety Community Support & Development	Business Ethics Oversight on ESG
MEDIUM	Water Usage & Management	Human Capital Human Rights	Reporting, filling & disclosures Board Composition
LOW	Effluent & Waste Biodiversity	Value Chain	Remuneration Board Functioning

[2] *Comprehensive analytical insights, inferences and benchmarking is provided in CareEdge-ESG's detailed ESG Report*

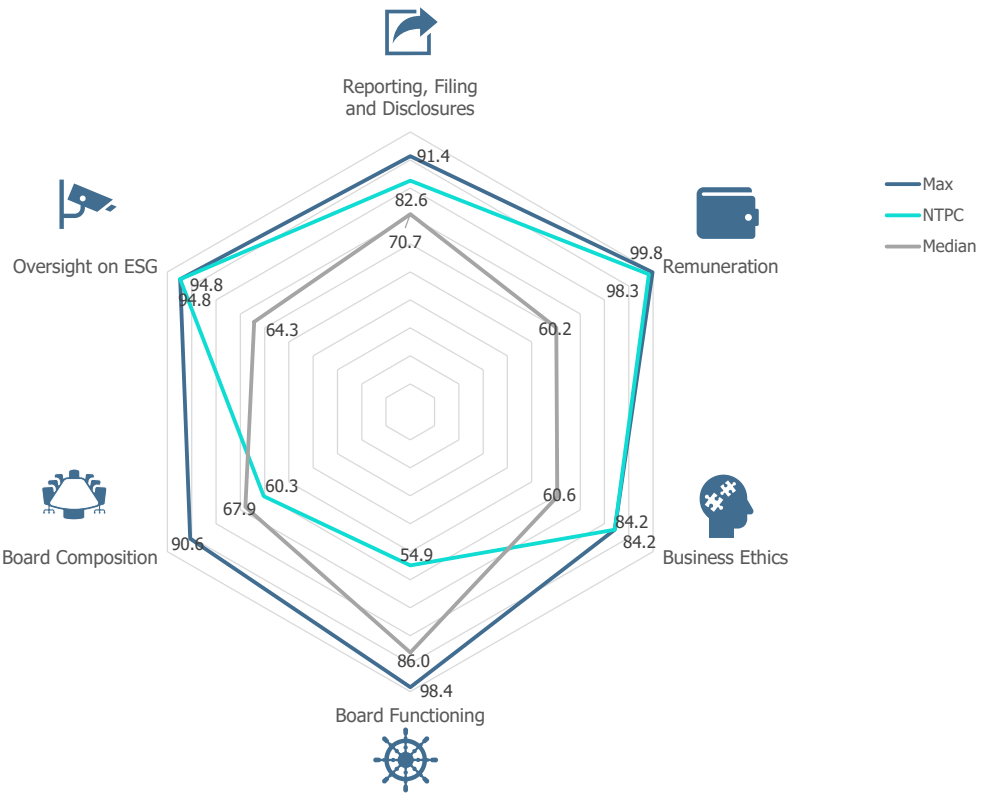
Environment Pillar: NTPC's theme-wise performance and industry benchmarks



Social Pillar: NTPC's theme-wise performance and industry benchmarks



Governance Pillar: NTPC's theme-wise performance and industry benchmarks



Summary of Pillar & Theme Scores:

Theme	NTPC	Industry Median
Biodiversity	50.0	37.5
GHG and Climate Change Risk Management	60.1	46.4
Effluent & Waste	73.5	54.5
Energy Efficiency	72.8	63.2
Water Usage & Management	49.2	35.8
Total Environment Score	**62.7**	**50.2**
Human Rights	81.0	78.4
Human Capital	70.1	46.7
Employee Health & Safety	82.5	82.5
Value Chain	88.9	72.8
Community Support & Development	93.2	60.5
Total Social Score	**84.0**	**69.0**
Reporting, Filing and Disclosures	82.6	70.7
Remuneration	98.3	60.2
Business Ethics	84.2	60.6
Board Functioning	54.9	86.0
Board Composition	60.3	67.9
Oversight on ESG	94.8	64.3
Total Governance Score	**83.6**	**63.3**
Total ESG Score	**74.3**	**59.1**

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About:

CareEdge is a knowledge based analytical group that aims to provide superior insights based on technology, data analytics and detailed research. CARE ESG Ratings Limited (CareEdge-ESG) is one of the India's pioneer ESG rating provider fostering sustainability with ESG insights. With an aim of being a catalyst of change for a sustainable future with the most credible ESG assessments, CareEdge-ESG provides a 360-degree appraisal for the ESG performance benchmarking cum transition enabling ESG risk mitigation and enhanced decision-making capabilities for all stakeholders.