December 11, 2025

Department of Corporate Services
Bombay Stock Exchange Limited
Phiroze Jeejeebhoy Towers,
Dalal Street, Fort,
Mumbai – 400 001
Scrip Code: 532717

Listing Department
National Stock Exchange of India Limited
Exchange Plaza, 5th Floor, Plot No. C/1, G Block,
Bandra Kurla Complex, Bandra (E),
Mumbai – 400 051
Symbol: INDOTECH

Sub: Disclosure of material event/ information pursuant to Regulation 30 (5) of SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 – ESG report of Indo-Tech for the FY 2024-25

Dear Sir/ Madam,

Team Indo-Tech is committed to raise its bar by embracing not only EHS excellence but also strong social and governance values. We aim to publish a comprehensive ESG report for FY 2024–25 to measure, benchmark, and continuously improve our sustainability performance as a responsible corporate entity.

In line with our commitment to climate action, ITTL has set a target to achieve a 70% reduction in Scope 1 greenhouse gas emissions by FY 2029–30 through the adoption of cleaner alternatives to fossil fuels. Complementing this and going beyond India's national pledge of attaining 50% green energy by 2030, ITTL has set an ambitious goal of transitioning to 100% green energy for Scope 2 emissions by FY 2029–30.

Recognizing the importance of our value chain, ITTL is also focused on Scope 3 emissions. The company aims to reduce Scope 3 emissions by 3% by FY 2029–30, primarily by promoting and increasing local procurement, thereby strengthening both environmental performance and community linkages.

Our ESG agenda places equal emphasis on social responsibility and people-centric practices. The ESG assessment confirms that both permanent and contractual employees regard the working environment at ITTL as safe. Furthermore, women employees have indicated that they experience strong and encouraging opportunities for professional growth within the organization.

ITTL remains committed to transparent reporting and continuous improvement in its ESG performance. The company looks forward to engaging with all stakeholders as it advances on this sustainability journey and delivers long-term value in a responsible and ethical manner.

We kindly request you to take the same on record and oblige.

For **Indo Tech Transformers Limited**

KARTHICK
Digitally signed by KARTHICK
Date: 2025.12.11 09:44:19 +05'30'

Karthick. D
Compliance Officer

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A Subsidiary of Shirdi Sai Electricals Limited
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INDO TECH

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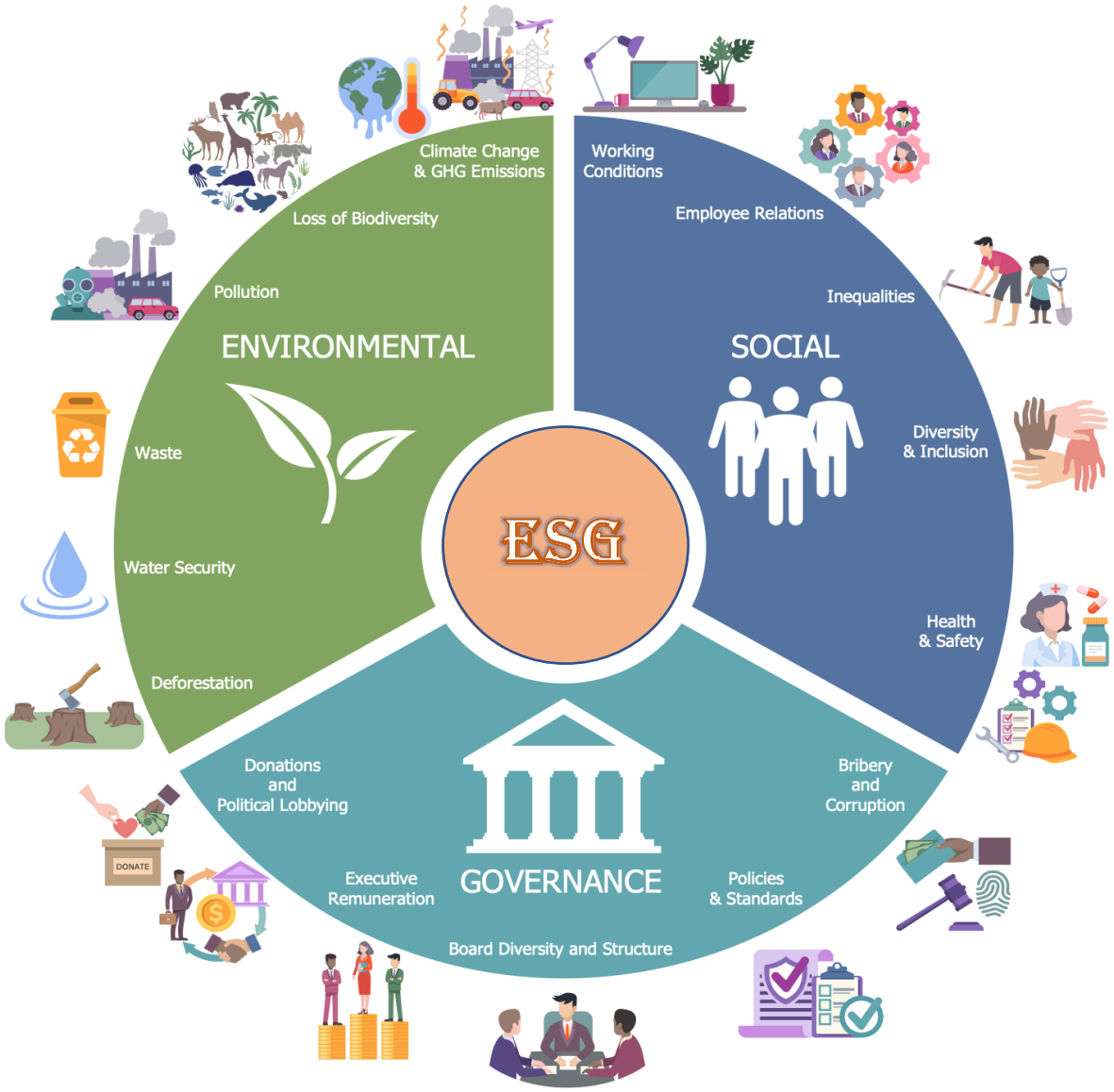
A subsidiary of Shirdi Sai Electricals Limited



INDO TECH TRANSFORMERS LIMITED

ESG REPORT

FY 24-25

Released On
20th November 2025

Report by
ESG Department

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ABBREVIATIONS

Abbreviations	
AC	Air Conditioning
ACT	Assessing low Carbon Transition
AMDT	Amorphous Metal Distribution Transformer
ANSI	American National Standards Institute
AP	Andhra Pradesh
AR	Assessment Report
AUM	Asset Under Management
BEE	Bureau of Energy Efficiency
BIS	Bureau of Indian Standards
BRSR	Business Responsibility and Sustainability Report
C	Category
CBAM	Carbon Border Adjustment Mechanism
CCA	Climate Change Agreement
CCL	Climate Change Levy
CDP	Carbon Disclosure Project
CFD	Climate-related Financial Disclosure
CH4	Methane
CII	Confederation of Indian Industry
CNG	Compressed natural gas
CO2	Carbon Dioxide
CO2-FFI	Carbon dioxide from Fossil Fuel combustion and Industrial processes
CO2-LULUCF	Carbon dioxide and Land Use, Land-Use Change, and Forestry
COP	Coefficient of Performance
COP	Conference of the Parties
CRC	Carbon Reduction Commitment
CRD	Climate Related Disclosures
CRGO	Cold Rolled Grain Oriented Steel
CSA	Corporate Sustainability Assessment
CSDDD	Corporate Sustainability Due Diligence Directive
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
CVM	Brazilian Securities and Exchange Commission
D&A	Governance & Accountability Institute
DEI	Diversity, Equity, and Inclusion
DEFRA	Department for Environment Food and Rural Affairs
DG	Diesel Generator
DGFASLI	Directorate General, Factory Advice and Labour Institutes
DJSI	Dow Jones Sustainability Indexes
DOE	U.S. Department of Energy
e.g.,	Example
EF	Emission Factors
EFRAG	European Financial Reporting Advisory Group
EHS	Environment, Health, and Safety
EI	Emission Intensity
ELV	Emissions Limit Values
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
EPEAT	Electronic Product Environmental Assessment Tool
EPR	Environmental Permitting Regulations

ERM	Enterprise Risk Management
ESG	Environmental Social Governance
ESOS	Energy Savings Opportunity Scheme
ESRS	European Sustainability Reporting Standards
ETS	Emissions Trading Scheme
EU	European Union
EV	Electric Vehicle
FO	Furnace Oil
FRFI	Federally Regulated Financial Institutions
FY	Financial Year
GC	General Counsel
GCV	Gross Calorific Value
GHG	Green House Gas
GRI	Global Reporting Initiative
GWP	Global Warming Potential
H1	First half of the year.
HDV	Heavy Duty Vehicle
HFC	Hydrofluorocarbon
HSD	High Speed Diesel
HVAC	Heating, Ventilation, and Air Conditioning
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Commission
IFRS	International Financial Reporting Standards
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IPCC SR15	IPCC Special Report on Global Warming of 1.5°C
ISO	International Organization for Standardization
ISSB	International Sustainability Standards Board
kg	Kilogram
km	Kilometre
kVA	Kilo Volt Ampere
L	litre
LCA	Life Cycle Assessments
LDV	Light Duty Vehicle
LED	Light-emitting diode
LLP	Limited Liability Partnership
LPG	Liquefied Petroleum Gas
M & T	Monitoring and Targeting
MCPD	Medium Combustion Plant Directive
MCR	Mandatory Carbon Reporting
MDV	Medium Duty Vehicle
MEPS	Australia's Minimum Energy Performance Standards
MS	Mild Steel
MSCI	Morgan Stanley Capital International
MTOE	Million Tonne of Oil Equivalent (Mtoe).
MVA	Mega Volt Ampere
MW	Megawatt
N/A	Not Applicable
N2O	Nitrous oxide
NF3	Nitrogen trifluoride
NFRD	Non-Financial Reporting Directive
Nos	Numbers
NSF	National Sanitation Foundation
NZD	New Zealand Dollar
OHS	Occupational Health and Safety
OIP	Oil Impregnated Paper
OLTC	On-Load Tap Changer
PAS	Publicly Available Specification
Pax-km	passenger-kilometre
PCR	Product Category Rules
PFC	Perfluorocarbon
PPA	Power Purchase Agreement
ppb	Parts per billion
ppm	Parts per million
PRC	People's Republic of China
PSR	Product-Specific Rules
PV	Photovoltaic

RE	Renewable Energy
REACH	Registration, Evaluation, Authorisation, and Restriction of Chemicals
REC	Renewable Energy Certificates
RMB	Chinese yuan
RoHS	Restriction of Hazardous Substances
RTCC	Remote Tap Changer Control
S&P	Standard & Poor's
SAF	Sustainable Aviation Fuel
SAP	Systems Applications and Products in Data Processing
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SDG	Sustainable Development Goals
SEBI	Securities and Exchange Board of India
SEC	Securities and Exchange Commission
SECR	Streamlined Energy & Carbon Reporting
SF6	Sulphur hexafluoride
SFC	Specific Fuel Consumption
SFRD	Sustainable Finance Disclosure Regulation
Sl.no	Serial Number
SME	Small and Medium Enterprises
SOP	Standard Operating Procedure
SSEL	Shirdi Sai Electricals Limited
t	Tonne
T&D	Transportation and Distribution
TC	Technical Committee
TCFD	Task Force on Climate-related Financial Disclosures
tCO2e	Tonne of Carbon Dioxide equivalent
TG	Telangana
TNFD	Task Force on Nature-related Financial Disclosures
toe	Tonne of Oil Equivalent or Metric Tonne of Oil Equivalent
ts	short ton
UAE	United Arab Emirates
UK	United Kingdom
UL	Underwriters Laboratories
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNSDG	United Nations Sustainable Development Group
UOM	Unit of Measurement
UP	Uttar Pradesh
UPS	Uninterruptible Power Supply
USA	United States of America
USD	United States Dollar
VCS	Voluntary Carbon Standards
VERRA	verification
WBCSD	World Business Council for Sustainable Development
WEEE	Waste from Electrical and Electronic Equipment
WRI	World Resources Institute
WTT	Well-To-Tank
WWF	World-Wide Fund for Nature
YoY	year over year

1. ESG – THE KEY PILLARS TO BUILD A RESILIENT BUSINESS

In today's rapidly evolving business landscape, sustainability and responsible corporate practices are no longer optional—they are essential. Environmental, Social, and Governance (ESG) principles provide a structured framework for companies to assess and improve their impact on the planet, society, and stakeholders.

In other words, ESG is a framework used to assess a company's impact on the environment, its relationships with stakeholders (employees, customers, communities etc.,), and the effectiveness of its corporate governance. ESG has become a key factor for investors, regulators, and customers in evaluating business sustainability and long-term financial performance.

Figure 1: Three Pillars of Sustainability

The three key pillars drive long-term value creation and responsible business conduct:

- **Environmental (E):** Focuses on how a company manages its environmental impact, including energy efficiency, greenhouse gas (GHG) emissions, waste management, and responsible resource consumption. For a transformer manufacturing company, this involves optimizing energy use, reducing emissions in production processes, and ensuring the responsible disposal of materials such as transformer oils and metals.
- **Social (S):** Addresses the company's relationships with employees, suppliers, customers, and communities. This includes maintaining a safe and inclusive workplace, adhering to ethical labor practices, and engaging with local communities. As a manufacturer, ensuring worker safety, fostering diversity, and promoting customer satisfaction through high-quality, reliable products are crucial social responsibilities.
- **Governance (G):** Covers corporate leadership, ethical business conduct, and transparency. Strong governance practices ensure compliance with regulations, integrity in financial reporting, and responsible decision-making. For a transformer manufacturer, governance includes upholding ethical sourcing practices, ensuring

compliance with environmental and safety regulations, and fostering transparency with stakeholders.

As the energy sector transitions towards sustainable solutions, transformer manufacturers play a critical role in supporting energy efficiency, grid modernization, and renewable energy integration. By embedding ESG principles into our operations, we not only minimize environmental impact but also strengthen our social and governance frameworks, ensuring long-term resilience and value creation for all stakeholders.

This ESG report outlines our commitment to sustainable manufacturing, responsible business practices, and continuous improvement in alignment with global ESG standards. Through this report, we aim to demonstrate transparency, accountability, and our ongoing efforts to contribute to a more sustainable future.

1.1 Recent Global ESG Trends

Recent trends in Environmental, Social, and Governance (ESG) practices reflect a complex landscape influenced by regulatory changes, corporate strategies, and evolving investor priorities.

The European Union's Corporate Sustainability Reporting Directive (CSRD) has come into effect for the first time in the 2024 financial year, for reports published in 2025. Companies subject to the CSRD have to report according to European Sustainability Reporting Standards (ESRS). On 26 February 2025, the Commission adopted a package of proposals (Omnibus Packages) to simplify EU rules and boost competitiveness. Among other things, the package proposes to apply the CSRD only to the largest companies (those with more than 1000 employees), focusing the sustainability reporting obligations on the companies which are more likely to have the biggest impacts on people and the environment. Moreover, it seeks to ensure that reporting requirements on large companies do not burden smaller companies in their value chains.

Whereas, the United States has experienced a resurgence of policies favouring deregulation and has created an uncertain regulatory environment for sustainable investments, leading to volatility in ESG-focused strategies.

However, an analysis regarding policy changes, corporate reporting trends, statements from business leaders, evidence of evolving communication strategies, and perspectives from financial institutions and stakeholders indicate that while the recent changes in policies have created less supportive federal environment for ESG, a reversal has not occurred. Instead, many companies are continuing their sustainability efforts, often driven by market forces and stakeholder expectations, and are **increasingly using alternative terminology** to discuss these initiatives amidst a politicized landscape.

1.1.1 Status of ESG Integration in companies globally

ESG reporting and sustainability initiatives remain prevalent among US corporations despite the changes in policies. A 2024 study conducted by the New York-based Governance & Accountability Institute, Inc. (G&A) specializing in ESG (Environmental, Social, and Governance) reporting, sustainability strategies, and corporate responsibility analysis gives an interesting perspective.

In 2012, G&A's analysts began researching the sustainability reporting of the S&P 500 companies for the 2011 publication year. This became the foundation for their annual examination of corporate sustainability reporting trends in subsequent years. The results of their initial research 13 years ago showed that just 20% of the S&P 500 companies published sustainability reports or disclosures. G&A has examined sustainability reporting trends of the S&P 500 companies each calendar year since then and today the percentage of non-reporters is just over 1%.

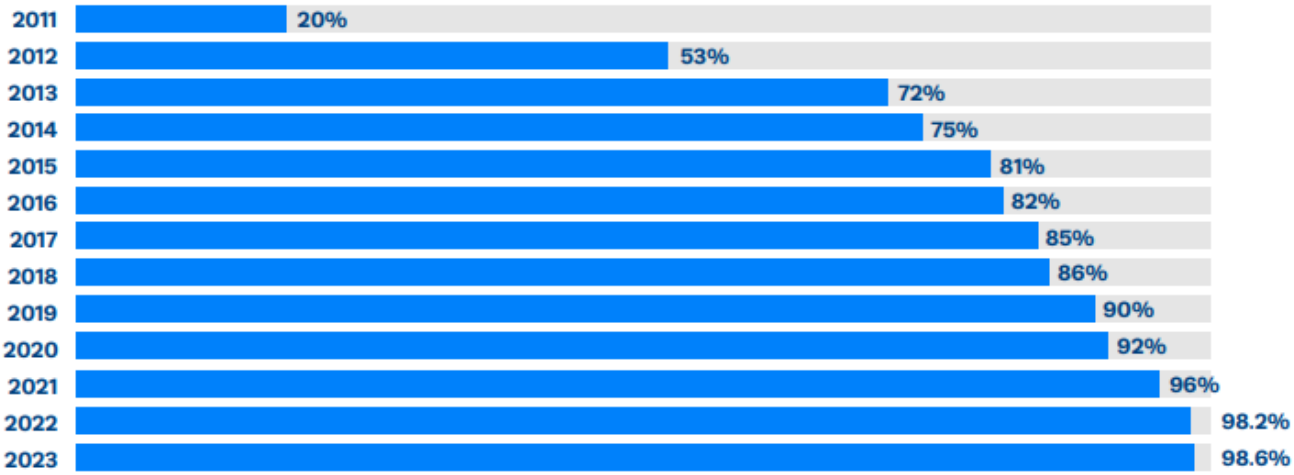
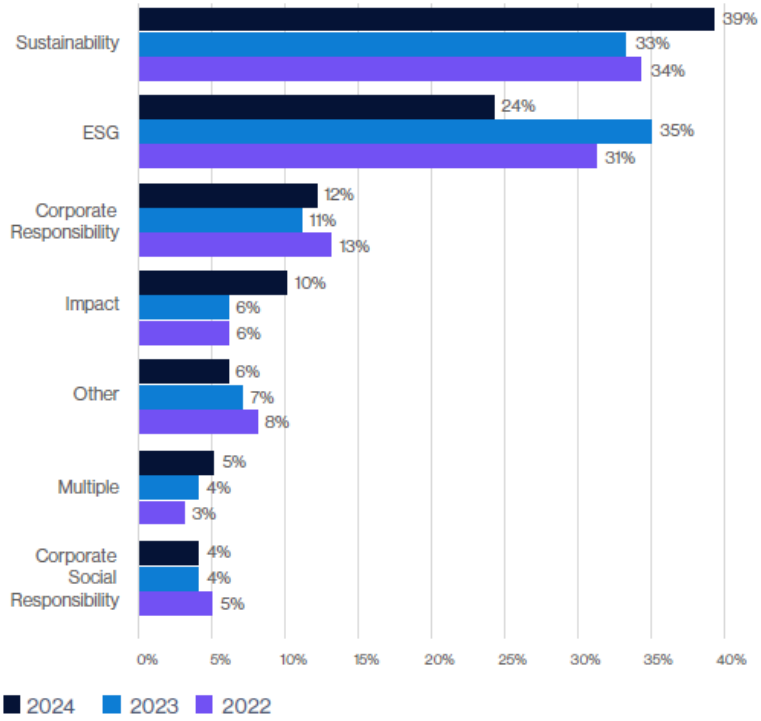


Figure 2: Sustainability Reporting trends of S&P 500 Companies

In 2023, 93% of the companies included in the Russell 1000 Index published sustainability reports and data disclosures. Only 7% of this important universe of publicly-traded companies did not report during 2023. Throughout our annual research on corporate reporters, we continue to see a steady decrease of sustainability reporting laggards. However, some sectors are progressing more quickly than others.

1.1.2 Terminology shift – ESG to Sustainability focus

An analysis of 2024 sustainability reports revealed an interesting shift in terminology. While the acronym "ESG" remained prevalent within the reports, appearing an average of 62 times, "Sustainability" overtook "ESG" as the most common keyword in report titles, with 39% using "Sustainability" compared to 24% using "ESG" (down from 35% in 2023). This change suggests a potential strategic communication shift, possibly to navigate the politicized landscape surrounding the term "ESG" while still addressing the core principles within a "Sustainability" framework. Notably, the length of sustainability reports continued to increase for the third consecutive year, averaging 83 pages in 2024, a 20% increase from 2021. This increase in length indicates a growing volume and detail of information being disclosed.

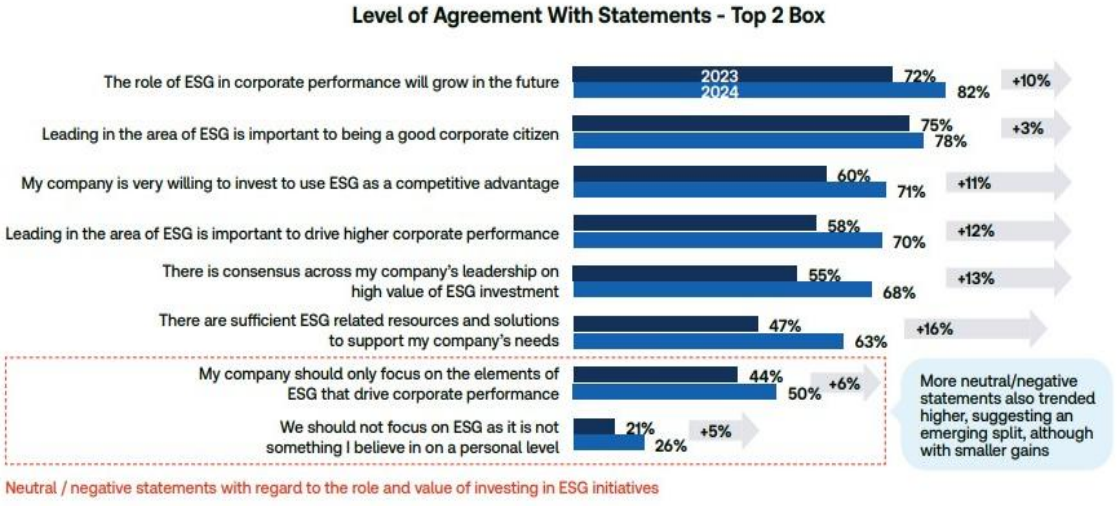


"Sustainability" overtook "ESG" as the most common key word within report titles, with 9% of companies removing the term "ESG" year-over-year from the report's title. The use of "impact" nearly doubled.

Figure 3: Key Word of 2024 Sustainability Report Titles (2022-2024)

Furthermore, external assurance of ESG data increasingly includes "Social" data points, with 32% of companies adding social data when getting environmental data assured in 2024, up from 22% in 2023. This indicates a growing importance and scrutiny of social metrics in ESG reporting. Anticipating future trends, an increased focus on broader social issues such as human rights, labour practices, and social impact is expected in US ESG reporting in 2025.

1.1.3 ESG Integration into Core Business Strategy – A Reality Check



[Q: How much do you agree with the following statements? Note: only showing combined percentage who stated "agree" and "strongly agree"]

Figure 4: C-suite and Functional Leaders See ESG Growing in Importance

ESG is also increasingly being integrated into core business strategy. In 2024 Thomson Reuters Institute published the "2024 State of Corporate ESG" report, which found that 82% of corporate leaders believe that ESG is crucial for corporate

success, moving beyond mere compliance. It revealed a shift towards integrating ESG into the core financial and operational strategies of companies. Moreover, there is an increasing trend of companies investing in third-party solutions and AI technologies to manage their ESG activities, indicating a deeper commitment to effective ESG management and reporting.

Additionally, a recent report released by PwC towards end March 2025 has revealed that a vast majority, 84 % of public companies are either retaining or ramping up their climate commitments, with companies found to be more than twice as likely to be increasing their emissions reduction goals than decelerating them, based on data from climate research provider and environmental disclosure platform CDP.

The study also found that the practice of setting climate goals is progressing down the value chain as companies increase engagement efforts, with smaller companies representing a growing proportion of those introducing new targets.

For the report, PwC's 2025 State of Decarbonization, PwC examined data from 4,163 public companies that submitted the full CDP questionnaire in the 2024 disclosure cycle, using GenAI to analyse more than 1 million entries of long form free text and quantitative responses, in addition to drawing on information from S&P Capital IQ, the Science-Based Targets initiative, and various public sources of information.

The report found that, while headlines suggest that companies are scaling back their sustainability efforts, 47% of companies maintained their decarbonization targets in 2024, and 37% actually increased their ambitions, while only 16% pulled back on their climate goals.

Even among those scaling back, PwC found that more than half are recalibrating their expectations lower from overly ambitious goals set in the absence of a detailed plan, as companies gain a better view of what it achievable.

The increase in participation by smaller companies in setting climate commitments comes as companies appear to be ramping engagement in order to tackle their Scope 3 value chain emissions, with 72% of companies reporting that they are now engaging with their suppliers, and 67% engaging with customers and clients.

The value chain focus was also apparent in disclosure data, with more than 3,600 companies reporting Scope 3 emissions in 2024, up by 80% from around 2,000 in the prior year.

Despite the increased focus on engagement and reporting, the report found that only 54% of companies were on track to meet their Scope 3 emissions goals. Notably, however, this metric improved from 50% in 2023.

The report found a better success rate on operational and energy emissions, with 67% of companies on track to meet their Scope 1 and 2 targets. Progress appears to be much faster on Scope 2, with on-track companies reporting an aggregate reduction of 12%, compared to a 6% reduction in Scope 1 emissions.

According to PwC, the faster progress on Scope 2 emissions highlights the centrality of low-carbon electricity to current emissions reduction efforts, with a shift to renewable energy accounting for more than 40% of Scope 1 and 2

emissions reductions last year, indicating a need to focus in the future on direct Scope 1 emissions in the future to maintain momentum.

As companies increasingly set decarbonization commitments, the report also found that they anticipate spending more on climate initiatives, with expectations for an 18% higher proportion of capex and 21% higher proportion of operating expenses to be allocated to climate mitigation and adaptation by 2030.

The higher spending expectations come as companies also see opportunities to add value through their climate efforts, with 60% of companies already having low-carbon products in their portfolio, and PwC's analysis finding a potential uplift of 6% to 25% from products featuring sustainability attributes. PwC also highlighted potential value to be derived from progress on Scope 3 emissions, with less energy and materials needed to produce products translating to lower costs and improved margins.

1.1.4 Evidence of Continued Sustainability Efforts: Downplaying the "ESG" Label

Figure 5: Type of Greenwashing

The political backlash against ESG has contributed to a phenomenon known as "green-hushing," where companies are deliberately downplaying their ESG ambitions and initiatives to avoid scrutiny, litigation, and negative attention. This is distinct from "greenwashing," where companies exaggerate or misrepresent their environmental or social activities. The trend of "green-hushing" suggests that while some companies might be less vocal about their ESG efforts, the underlying work may still be ongoing. Some investors are also reportedly removing references to ESG from their reports and websites while continuing their ESG-related activities quietly.

Despite knowing that communicating about net-zero goals can be beneficial for their bottom line, a significant percentage of companies admit to "green-hushing" due to the fear of greenwashing accusations and heightened scrutiny from various stakeholders. This creates a challenging environment where companies are hesitant to be fully transparent about their sustainability initiatives, potentially leading to a decrease in overall transparency and ambition around climate goals. By downplaying their actions, companies risk lowering the bar on climate ambition, hindering momentum, and missing opportunities to engage with customers and stakeholders.

However, the fundamental drivers for sustainable business remain strong. Companies that want to remain relevant are unlikely to completely abandon action on sustainability, as the impacts of climate change and the increasing importance of diversity and inclusion continue to grow. Historical examples demonstrate that even when the US government has retreated from climate action or on social issues, many large companies have stepped up to maintain their commitments and support their stakeholders. This suggests a resilience and commitment to sustainability that extends beyond political cycles. The high rates of ESG reporting and the increasing focus on specific ESG issues discussed earlier also serve as evidence that companies are continuing their efforts, even if they are not prominently using the term "ESG." The adoption of international reporting frameworks and the response to state-level regulations further indicate ongoing engagement with sustainability principles.

1.1.5 Continuing ESG focus across the world

While the ESG landscape in the United States faces increasing political headwinds, the rest of the world, particularly Europe and Asia, is demonstrating a continued and, in many cases, strengthened commitment to ESG principles.

Key Trends:

- Regulatory Momentum:
    - The European Union is a global leader in ESG regulation, with initiatives like the Corporate Sustainability Reporting Directive (CSRD) driving increased transparency and accountability. These regulations are setting a new global standard for ESG reporting. At these same time EU tries to ease the reporting burdens by adapting a package of proposal to simplify EU rules and boost competitiveness, and unlock additional investment capacity.
    - Many Asian countries are also implementing or strengthening their ESG frameworks, recognizing the importance of sustainability for long-term economic growth.
        - **Singapore:**
            - SGX (Singapore Exchange) mandates climate-related disclosures (aligned with TCFD) for selected listed companies in phased manner starting from FY2022 and Mandatory for all listed by FY2025.
            - Working on mandatory ISSB-aligned disclosures by 2025/2026.
            - MAS (Monetary Authority of Singapore) green finance taxonomy (Dec 2024 draft expected to become final in 2025 (Date not yet confirmed)).
        - **South Korea**
            - Mandatory ESG reporting for large listed companies by 2025 (market cap > KRW 2 trillion), extended to all KOSPI-listed companies by 2030.
            - New guidelines aligned with ISSB standards.
        - **India**
            - BRSR Core (Business Responsibility and Sustainability Report – Core) mandatory for top 150 listed companies from FY 2023–24, expanding to top 1000 companies by FY 2026–27.

        - SEBI has indicated alignment with ISSB standards in progress.
    - **China**
        - 2024: Draft ESG disclosure guidelines by China Securities Regulatory Commission (CSRC).
        - Push for mandatory ESG reporting for key sectors (e.g., high-emitting industries) by 2026.
        - Growing emphasis on green finance and taxonomy-based investments.
- Investor Demand:
    - Institutional investors in Europe and Asia increasingly integrating ESG factors into their investment decisions.
    - Over 100 companies and investors—including EDF, Nokia, Allianz, IKEA—urged the EU not to dilute sustainability reporting rules, stating these are essential to "guide capital toward green technologies" and "competitiveness and growth"
    - There is a growing recognition that ESG considerations are not just ethical concerns but also crucial for managing risk and identifying long-term value.
- Focus on Transparency and Reporting:
    - There is a strong emphasis on standardized and comparable ESG reporting, driven by both regulatory requirements and investor demand.
    - This focus on transparency is leading to increased scrutiny of companies' ESG performance.
- Regional Differences:
    - While there is a general trend towards greater ESG integration, there are regional differences in priorities and approaches.
    - Europe tends to place a strong emphasis on environmental issues, while Asia is increasingly focused on social and governance factors as well.
- Technological influence:
    - The use of AI and blockchain technologies are being more heavily invested in, to provide greater transparency and accountability in ESG reporting.
    - AI is increasingly central to ESG: automating data capture, enabling real-time insights, validating claims, and linking executive compensation to performance.
    - Blockchain is emerging as a critical tool for verifiable ESG data and supply-chain transparency.
    - Real-time monitoring via IoT and sensors is shifting ESG from retrospective reports to proactive risk management.
    - Academic advances are demonstrating that tailored LLMs can enhance ESG disclosure accuracy and performance.

In essence, the overall trend shows that ESG is here to stay and the fundamental shift in how businesses are evaluated and operated can be attributed to the gradually increasing integration of ESG values in business operations.

1.1.6 Evolution from MDGs to UNSDGs

Figure 6: MDGs Goals

Figure 7: UNSDGs Goals

MDGs (2000 – 2015)	SDGs (2015 – 2030)
Adopted by 189 countries at the UN Millennium Summit in 2000.	Adopted by 193+ countries in 2015 as part of the UN 2030 Agenda for Sustainable Development.
Focused on 8 goals: poverty, education, gender equality, child mortality, maternal health, diseases, environmental sustainability, and global partnerships.	Introduced 17 goals covering a wider range: sustainability, economic growth, social inclusion, and more.
Achievements: Reduced extreme poverty, improved health and education.	Expanded scope to include developed and developing countries.
Gaps remained, especially in inequality, climate, and sustainability.	Emphasis on environmental sustainability, economic growth, and social inclusion.
Limited indicators	169 targets and 232 indicators. https://unstats.un.org/sdgs/indicators/indicators-list/

Table 1: MDGs vs UNSDGs

1.1.7 ESG in India – The SEBI – BRSR & NGRBC

NGRBC

The National Guidelines on Responsible Business Conduct (NGRBC) is a comprehensive framework developed by the Ministry of Corporate Affairs (MCA), Government of India, aimed at fostering ethical, sustainable, and socially responsible business practices across all sectors.

- Introduced as National Voluntary Guidelines (NVGs) in 2011
- Renamed and updated as NGRBC in 2019
- Voluntary in principle, but widely encouraged as a benchmark for responsible corporate behavior

Purpose and Global Alignment

The NGRBC is designed to help businesses integrate Environmental, Social, and Governance (ESG) considerations into their strategy and day-to-day operations.

Its purpose is closely aligned with India's development agenda and international standards such as the United Nations Sustainable Development Goals (UN SDGs).

Nine Principles and relevance to UNSDGs and ESG

Nine NGRBC Principle	ESG Pillar	Relevant UN SDGs
1.Ethical, Transparent, and Accountable Governance	Governance	SDG 16 (Peace, Justice & Strong Institutions)
2.Product Life Cycle Sustainability	Environmental	SDG 12 (Responsible Consumption & Production)
3.Employee Well-being	Social	SDG 3 (Good Health), SDG 8 (Decent Work)
4.Stakeholder Engagement	Social	SDG 17 (Partnerships for the Goals)
5.Human Rights	Social	SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities)
6.Environmental Protection	Environmental	SDG 13 (Climate Action), SDG 15 (Life on Land)
7.Responsible Public Policy Advocacy	Governance	SDG 16 (Strong Institutions)
8.Inclusive Growth and Equitable Development	Social	SDG 1 (No Poverty), SDG 10 (Reduced Inequalities)
9.Consumer Value and Protection	Social	SDG 12 (Sustainable Consumption)

Table 2: Nine Principles and relevance to UNSDGs and ESG

BRSR – Core BRSR – Disclosure in XBRL Format:

BRSR (Business Responsibility and Sustainability Report)

Definition: A comprehensive ESG (Environmental, Social, Governance) disclosure format introduced by SEBI in 2021 as part of the effort to enhance transparency and accountability in sustainability reporting.

Applicability: Mandatory for the top 1,000 listed companies in India (by market capitalization) from FY 2022–23 onwards.

Core BRSR

Definition: A standardized, limited subset of the BRSR disclosures introduced in 2023 under SEBI's ESG regulatory framework to ensure comparability and consistency in ESG disclosures.
Applicability: Applies to companies under the proposed ESG rating and assurance framework. Voluntary for FY 2023–24 and mandatory for top 150 listed entities from FY 2024–25.

Focus:

- Focused only on quantifiable, essential ESG indicators**.**
- Enables third-party assurance.
- Designed for use in ESG ratings and investment decision-making.

Key Areas Covered:

- GHG emissions (Scope 1 & 2) Water consumption
- Water consumption
- Gender diversity
- Median wages

- Waste management
- Social impact
- Board diversity, etc.

Disclosure in XBRL Format

The deadline for filing BRSR (Business Responsibility and Sustainability Report) in XBRL format is generally within 5 months from the end of the financial year. For example, if the financial year ends on March 31st, the BRSR in XBRL format should be submitted by August 31st of the same year.

Here's a more detailed breakdown:

• XBRL Format: The BRSR is required to be filed in XBRL (Extensible Business Reporting Language) format.
• Due Date: The deadline for BRSR filing is within 5 months from the end of the financial year.
• Example: For the financial year 2024-25 (which ends on March 31, 2025), the BRSR in XBRL format should be filed by August 31, 2025.

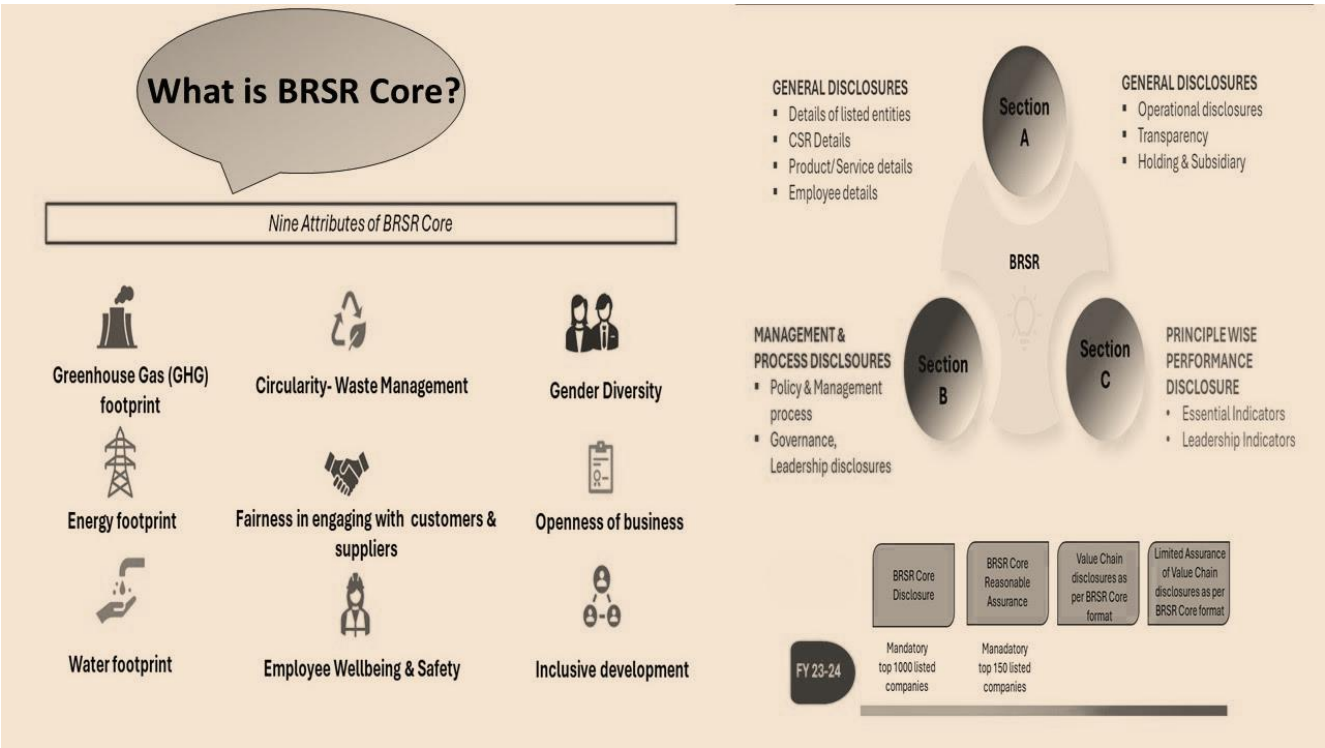


Figure 8: BRSR Core

ESG Disclosures for value chain

- Disclosures for value chain shall be made by the listed company as per BRSR Core, as part of its Annual Report. For this purpose, value chain shall encompass the top upstream and downstream partners of a listed entity, cumulatively comprising 75% of its purchases / sales (by value) respectively.
- Listed entities shall report the KPIs in the BRSR Core for their value chain to the extent it is attributable to their business with that value chain partner. Such reporting may be segregated for upstream and downstream partners or an be reported on an aggregate basis.
- The scope of reporting and any assumptions or estimates, if any, shall be clearly disclosed.

Applicability

- ESG disclosures for the value chain shall be applicable to the top 250 listed entities (by market capitalization), on a comply-or-explain basis from FY 2024-25.
- The limited assurance of the above shall be applicable on a comply-or-explain basis from FY 2025-26.

1.1.8 India's Nationally Determined Contributions (NDC)

The 21st session of the Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC) was held in Paris in November and December 2015. 195 participating countries negotiated and adopted the Paris Agreement, which includes objectives to peak greenhouse gas emissions as soon as possible, to limit the global average temperature increase above pre-industrial levels to well below 2°C, and to pursue efforts to limit the increase to 1.5°C.[1]

The Paris Agreement, which entered into force on 4 November 2016, requires Parties to put forward their best efforts through "Nationally Determined Contributions" (NDCs). These NDCs represent targets and actions for the post-2020 period with reference to the base year 2005.

India initially submitted its Intended Nationally Determined Contribution (INDC) in October 2015, before the Paris Agreement was adopted in December 2015 and India ratified its contribution on 2nd of October 2016 and it became the India's first NDC.
India's NDC Target and current progress shown in below table:

India's NDC Target and Current Progress		
Category	**Commitments & Updates**	**Achievements/Running Targets/Current Progress**
Emissions Intensity Reduction	**NDC 2015**: To reduce Emissions Intensity of India's GDP by 33 % -36% by 2030, from 2005 level.	• Achieved 36% by 2020[2] (33% by 2019)[3]
	Updated NDC 2022: To reduce Emissions Intensity of its GDP by 45 % by 2030, from 2005 level.	Running Target
Non-Fossil Fuel Electric Power Capacity	**NDC 2015**: To achieve 40 % cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030	• Achieved 40% in 2021[3]
	Updated NDC 2022: To achieve about 50 % cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030	• Achieved **50.08%** in June-25 [4] five years ahead of the target set under its NDC
Promoting Sustainable Living	**NDC 2015**: To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation	Current progress: • Mission LiFE launched Oct 2022, aiming to mobilize 1 billion people by 2028.[5]
	Updated NDC 2022: To put forward and further propagate a healthy and sustainable way of living based on	

	traditions and values of conservation and moderation, including through a mass movement for 'LIFE'– 'Lifestyle for Environment' as a key to combating climate change	
NDC 2015 Target and continuing		
Additional Carbon Sink from base year 2005	To create an additional carbon sink of 2.5 to 3 GtCO2e through additional forest and tree cover by 2030, from base year 2005.	• India's forest and tree cover has consistently increased from 20.60% in 2005 and as on year 2023 stands at 25.17% of the total geographical area of the country. [2] • Achieved 2.29 GtCO2e by 2021.[1] (1.97 GtCO2e by 2019)[2] Running target: • 0.21 GtCO2e away from achieving the 2030 target.
Adopting a Cleaner Development Path	To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.	Current progress: • India is promoting circular economy principles to reduce waste and resource use. • Initiatives like the Solid Waste Management Rules and Plastic Waste Management Rules push for better recycling, reduction of single-use plastics, and waste segregation at source.
Enhancing Climate Change Adaptation	To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.	Current progress: • Adaptation-relevant expenditure increased to 5.60% of GDP by 2021-2022[2]
Mobilizing Finance	To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.	Current progress: • ₹36,000 crore raised via sovereign green bonds in 2023.[2] • $66 billion annual finance gap remains.[3]
Building Capacity & Technology Transfer	To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.	Current progress: • Reliance on domestic resources due to lack of international technology transfer (as of Dec 2024, 4th BUR).[4]

Table 3: India's NDC Target and Current Progress

1. Press Information Bureau, Government of India. (2025, January 3). India submits its Fourth Biennial Update Report (BUR-4) to UNFCCC [Press release]
2. Press Information Bureau. (2024, July 22). Despite Being One of the Fastest-Growing Economies in the World, India's Annual Per Capita Carbon Emission is Only About One-Third of the Global Average
3. *Economic Survey: India on track to create additional carbon sink through forest cover*, Mint
4. Lack of tech transfer slowing climate action in India: Government to UNFCCC. The Times of India

In addition to that at the 26th Conference of the Parties (COP26) in Glasgow, Prime Minister Modi outlined several significant commitments, often referred to as the "Panchamrit" (five nectars) goals [1], along with other key points:

Panchamrit Goals:

- **Achieve 500 GW of non-fossil fuel energy capacity by 2030:** This target aims to significantly boost India's green energy capacity. The break-up of all installed capacity of energy sources from Central Electricity Authority database for **June-25** [2] is as follows.

Category	Energy Source	Total (GW)	% Share
Fossil Fuel	Coal	214.70	44.28%
	Lignite	6.62	1.37%
	Gas	20.13	4.15%
	Diesel	0.59	0.12%
	Total	**242.04**	**49.92%**
Non-Fossil Fuel	Nuclear	8.78	1.81%
	Hydro	49.38	10.18%
	Small Hydro Power	5.10	1.05%
	Wind Power	51.67	10.66%
	Bio-Power	11.60	2.39%
	Solar Power	116.25	23.98%
	Total	**242.78**	**50.08%**
Grand total		**484.82**	100.00%

Table 4: Percentage Share of Installed Capacity as of June-25

- **Meet 50% of energy requirements from renewable energy by 2030:** This includes sources like solar, wind, and hydropower, marking a transformative step towards reducing dependency on fossil fuels.
- **Reduce total projected carbon emissions by 1 billion tonnes by 2030:** This commitment focuses on cutting down India's carbon footprint without hindering economic growth.
- **Lower carbon intensity of the GDP by 45% by 2030:** This goal aims to decouple economic growth from carbon emissions by improving energy efficiency and promoting sustainable practices across industries.
- **Achieve net-zero emissions by 2070:** This signifies a long-term commitment to neutralize greenhouse gas emissions by balancing them with carbon absorption through natural and technological solutions.

Other Noteworthy Points:

- **Greener Infrastructure:** Prime Minister Modi announced that the Indian railway system had set a target of achieving "Net Zero" emissions by 2030, aiming to reduce emissions by 60 million tonnes annually. He indicated that this trend would extend to other infrastructure areas as well [3].
- **Climate Finance Expectations:** Modi reiterated the expectation for developed countries to provide $1 trillion in climate finance. However, he also noted that past promises regarding climate finance had been "hollow,"

1. Press Information Bureau. (2022, February 3). *India's stand at COP-26* [Press release]. Ministry of Environment, Forest and Climate Change, Government of India.
2. Central Electricity Authority, Government of India. Installed capacity report for June-25.
3. https://www.roedl.com/insights/india-modi-panchamrit-cop26-implication-industrial-perspective

signalling India's understanding that it cannot solely depend on developed nations for funding and would pursue self-financing through initiatives like "Make-in-India" and "Vocal-for-Local"

1.2 Importance of ESG for Transformer Manufacturing Industry

The transformer manufacturing industry is deeply interlinked with all three pillars of ESG: Environmental, Social, and Governance. As a critical component of energy infrastructure, especially with the global shift towards renewable energy, the industry's sustainability performance is under increasing scrutiny.

Figure 9: Indo Tech Transformer

Here's how each aspect of ESG connects with transformer manufacturing:

Environmental (E)
The "E" in ESG for transformer manufacturing primarily revolves around reducing the ecological footprint of production and the transformers themselves throughout their lifecycle.

- **Material Consumption and Sourcing:**
  - **Raw Materials:** Transformers require significant amounts of materials like copper, steel, and insulating materials. The extraction and processing of these virgin materials contribute to carbon emissions, habitat destruction, and resource depletion.
  - **Sustainable Materials:** The industry is moving towards using recycled copper and steel, and eco-friendly insulating materials (e.g., biodegradable vegetable-based oils instead of mineral oil). Amorphous metal cores are gaining traction as they significantly reduce energy losses compared to traditional silicon steel.

- **Energy Consumption and Emissions:**
  - **Energy-Intensive Production:** Manufacturing transformers is an energy-intensive process, leading to a high carbon footprint.

    - **Renewable Energy in Manufacturing:** Manufacturers are increasingly transitioning to renewable energy sources like solar, wind, and hydroelectric power to fuel their production facilities, aiming to minimize reliance on fossil fuels and reduce greenhouse gas emissions (Scope 1 and 2 emissions).
    - **Energy Efficiency of Transformers:** Inefficient transformers contribute to energy losses in the grid, leading to higher CO2 emissions over their operational life (Scope 3 emissions). The industry is focused on developing more energy-efficient transformers, including smart transformers that optimize voltage levels in real-time, and high-temperature superconducting (HTS) transformers that promise near-zero energy loss. Regulations like the EU's Eco-design Directive and US Department of Energy standards are pushing for higher efficiency.

- **Waste Management and Circular Economy:**
    - **Production Waste:** Manufacturing processes generate waste. Implementing circular economy principles, such as closed-loop recycling systems for scrap materials, can reduce waste significantly.
    - **End-of-Life Management:** Responsible disposal and recycling of old transformers are crucial. This includes recovering valuable materials like copper and steel and safely managing hazardous substances (e.g., PCB-contaminated oils). Retrofit programs also extend the lifespan of existing transformers, reducing the need for new production.

- **Pollution Control:**
    - **Oil Spills:** Traditional mineral oil used in liquid-filled transformers poses a risk of spills and contamination. The shift to biodegradable, non-toxic alternatives (like natural or synthetic esters) mitigates this risk.
    - **Noise Pollution:** Large transformers can produce significant noise, which can impact nearby communities and ecosystems. Developing low-noise models is an environmental consideration.

Social (S)

The "S" in ESG addresses the human element and the impact of the transformer industry on people and communities.

- **Labor Practices and Worker Safety:**
    - **Working Conditions:** Ensuring safe and ethical working conditions in manufacturing plants, including fair wages, reasonable working hours, and protective equipment.
    - **Human Rights in Supply Chain:** Given that a significant portion of a manufacturer's ESG impact can be in its supply chain, responsible sourcing and due diligence on human rights are critical to prevent issues like child labor or forced labor.
- **Community Engagement and Impact:**
    - **Local Communities:** Minimizing negative impacts on local communities from manufacturing operations (e.g., noise, air pollution) and contributing positively through job creation and local economic development.
    - **Access to Energy:** Transformers are fundamental to providing reliable electricity, which has a direct social benefit by powering homes, businesses, and essential services, particularly in developing regions.

- **Product Safety and Reliability:**
    - **Safety Standards:** Adhering to rigorous safety standards to ensure transformers are safe for installation, operation, and maintenance, protecting both workers and the public.
    - **Reliability:** Producing durable and reliable transformers contributes to grid stability, which is essential for societal well-being and economic activity.

Governance (G)

The "G" in ESG focuses on the leadership, internal controls, and ethical conduct of transformer manufacturing companies.

- **Ethical Business Practices:**
    - **Anti-Corruption and Bribery:** Implementing strong policies and procedures to prevent corruption, bribery, and other unethical practices within the company and its supply chain.
    - **Fair Competition:** Adhering to anti-trust laws and promoting fair competition in the market.
- **Board Structure and Oversight:**
    - **Board Diversity:** Ensuring a diverse board of directors with a range of skills and perspectives, including expertise in sustainability.
    - **Executive Compensation:** Linking executive compensation to ESG performance metrics to incentivize sustainable practices.
- **Transparency and Reporting:**
    - **ESG Reporting:** Transparently disclosing ESG performance through sustainability reports, aligning with frameworks like GRI, SASB, or TCFD. This allows stakeholders (investors, customers, regulators) to assess the company's sustainability efforts.
    - **Regulatory Compliance:** Adhering to all relevant environmental, social, and labor laws and regulations (e.g., Eco-design Directive, WEEE Directive, energy efficiency standards, labor laws).
- **Risk Management:**
    - **ESG Risk Assessment:** Identifying, assessing, and managing ESG-related risks, such as supply chain disruptions due to climate change, reputational damage from social issues, or financial penalties from regulatory non-compliance.
    - **Cybersecurity:** Protecting sensitive data and operational technology, which is increasingly relevant with the rise of smart transformers and connected grids.

Why it is Critical?

- Regulatory Compliance: Governments worldwide are tightening environmental and safety regulations. Non-compliance can result in fines, legal issues, and reputational damage.
- Investor & Customer Expectations: Investors and businesses are increasingly considering ESG factors before investing or making procurement decisions.
- Cost Savings: Energy-efficient manufacturing, waste reduction, and recycling can lower operational costs.
- Competitive Advantage: Companies with strong ESG policies attract customers, investors, and talent, gaining a competitive edge in the market.

- Long-Term Sustainability: A sustainable business model ensures long-term growth, reduces environmental impact, and enhances brand value.

In summary, the transformer manufacturing industry's interlinkage with ESG is multifaceted. Addressing ESG factors is not just about compliance but also about enhancing operational efficiency, reducing costs, attracting investment, building brand reputation, mitigating risks, and contributing to a more sustainable and equitable energy future. As the world transitions to renewable energy, the demand for transformers is growing, making their sustainable production even more critical.

1.2.1 Importance of ESG for Transformer Export Market

Table 5: Continent wise key ESG Regulatory Implications

Continent	Key ESG Regulatory Implications	Notes for Transformer Export
Europe (EU)	• CBAM (Carbon Border Adjustment Mechanism) • EU Eco-Design Regulation REACH / RoHS / WEEE Directives • Corporate Sustainability Reporting Directive (CSRD) + supply chain due diligence laws	• Must meet strict eco-design efficiency norms. • Need to declare product's carbon footprint • Need to declare SF_6 (greenhouse gas) content. • Supplier sustainability data required under CSRD.
North America (USA, Canada)	• US SEC Climate Disclosure Rule (large buyers) • Canadian CETA rules (carbon reporting on metals) • State-level green procurement rules (USA) • Energy efficiency regulations (DOE in USA)	• Buyers may ask for Scope 3 carbon data. • Transformers must meet energy efficiency standards. • SF_6 phaseout trends in California, other states.
Australia	• Safeguard Mechanism (large emitters) • Modern Slavery Act (supply chain disclosure) • Energy efficiency import requirements	• Buyers may request carbon footprint data. • Supply chain must declare no forced labour (modern slavery).
Asia	• Japan Green Procurement Law • China Dual Carbon targets • ASEAN energy efficiency norms (Vietnam, Indonesia growing focus)	• Japan, Korea buyers may demand low-carbon transformers. • Efficiency standards tightening in ASEAN. • SF_6 scrutiny growing across Asia.
Africa	• EU Deforestation & Supply Chain Laws (if re-exporting) • Local energy efficiency programs (South Africa)	• Mostly indirect pressure via EU or global buyers. • African utilities starting to adopt eco-efficient transformers.
South America	• Energy efficiency standards • ESG reporting growing for listed companies	• If exporting to Brazil, eco-efficiency norms apply. • Carbon footprint reporting starting to influence procurement.

EU Eco-design Directive (EN 50708 Series):

- EN 50708 is the European harmonized standard series that specifies eco-design, efficiency, and performance requirements for transformers in line with the EU Eco-Design Regulation (EU) 2019/1783.
- This series essentially replaces the older EN 50588 series and supports compliance with EU Regulation 2019/1783, which is legally binding in all EU countries.
- This is crucial for transformer manufacturers. It focuses on energy efficiency, setting minimum requirements for losses in different transformers. Compliance is mandatory for selling transformers within the EU.
- This directly relates to the "E" in ESG, focusing on the environmental impact of energy consumption.
- Breakdown of the EN 50708 Series:

Standard Number	Title / Scope
EN 50708-1-1:2020	General requirements for eco-design of power transformers
EN 50708-1-2:2020	Transformers with rated power ≤ 3150 kVA (distribution transformers)
EN 50708-1-3:2020	Transformers with rated power > 3150 kVA (large power transformers)
EN 50708-2-x series	Specific requirements by technology (liquid-filled, dry-type) and voltage class

Table 6: Breakdown of the EN 50708 Series

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals):

- REACH is the European Union's (EU) regulation (EC No 1907/2006) on Registration, Evaluation, Authorisation, and Restriction of Chemicals. It aims to protect human health and the environment from the risks posed by chemicals, while also fostering innovation and competitiveness within the EU's chemical industry. REACH places responsibility on industry to manage the risks associated with chemicals and provide safety information.
- This regulation concerns the safe use of chemicals. Transformer manufacturers must ensure their products and manufacturing processes comply with REACH restrictions, particularly regarding substances of very high concern (SVHCs).
- This addresses both "E" (environmental) and "S" (social, in terms of human health) aspects.
- Scope of REACH:
    - REACH applies to all chemical substances manufactured, imported, marketed, or used within the EU, whether alone, in mixtures, or in articles.
    - This includes consumer products, industrial chemicals, and substances used in various industries.
- Impact of REACH:
    - REACH has a significant impact on businesses that manufacture, import, or use chemical substances in the EU.
    - It requires companies to take proactive measures to identify and manage the risks associated with their products.

- REACH also fosters innovation by encouraging the development of safer and more sustainable alternatives to hazardous chemicals.

RoHS (Restriction of Hazardous Substances):

- RoHS, or the Restriction of Hazardous Substances Directive, is a European Union (EU) directive that restricts the use of certain hazardous substances in electrical and electronic equipment (EEE).
- This directive, originally implemented in 2002 and updated in 2006, aims to reduce the environmental and health risks associated with electronic waste. It achieves this by limiting the concentration of specific substances in materials used in the manufacturing of EEE.
- This is a key "E" factor, aimed at reducing environmental pollution.
- Purpose: To protect human health and the environment by reducing the use of hazardous substances in EEE, thus improving the recyclability of electronic waste.
- Scope: Applies to a wide range of EEE, including appliances, gadgets, and industrial equipment.
- Restricted Substances: The directive restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs), and polybrominated diphenyl ethers (PBDEs). It also includes four phthalates (DEHP, BBP, DBP, DIBP).

Figure 10: RoHS Restricted Substances

- Compliance: Manufacturers must ensure their products comply with RoHS regulations, meaning they cannot exceed the maximum permitted concentrations of the restricted substances. This requires thorough material assessment and design modifications to avoid using banned substances.
- Global Impact: While originating in the EU, RoHS-like regulations are now adopted in many countries, including the UAE, China, Japan, South Korea, India, and some U.S. states like California.
- RoHS in India: While RoHS originated in the EU, India has also implemented similar regulations to address the growing problem of electronic waste. The Ministry of Environment and Forest (MoEF) and the Government of India have implemented the Restriction of Hazardous Substance directive in India, which is also known as Electronic waste.
- In essence, RoHS is a crucial initiative for promoting environmental sustainability in the electronics industry by reducing the use of harmful substances and improving the manageability of electronic waste.

Corporate Sustainability Reporting Directive (CSRD):

- While primarily aimed at companies operating within the EU, the CSRD increasingly impacts non-EU companies that supply to the European market. It mandates detailed reporting on ESG performance.
- This covers all aspects of ESG, requiring companies to disclose their environmental, social, and governance impacts.
- In 26th Feb 2025 the European Commission has adopted a package of proposals called as **"Omnibus Packages"** to reduce reporting burdens and compliance costs on companies, particularly SMEs, while maintaining ESG objectives of the Green Deal and Sustainable Finance Action Plan.
- The revised CSRD applicability and timeline are updated based on Omnibus Packages Proposal amendment in the below table 5.

Sl.No	Companies	Applicability/Criteria	Implementation Timeline
1	Companies Under NFRD or Large Public Interest Companies)	• Publicly listed, employ more than 500 employees (**Now Revised to >1000 employees**). • Total Assets > €25 million, or net turnover > €50 million.	• From January 1, 2024 • First report due in 2025
2	Large Companies (Non-NFRD)	Meet at least two of the following: • Total Assets > €25 million • Net turnover > €50 million • Employee count > 250	• From January 1, 2025 (**Now Revised to 2027**) • First report due in 2026 (**Revised to 2028**)
3	Listed SMEs	Listed on EU markets, and meet two or more of: • More than 50 employees • Total Assets > €5 million • Net turnover > €10 million	• From January 1, 2026 (**Now Revised to 2028**) • First report due in 2027 (**Revised to 2030**) • Optional two-year opt-out with an explanatory statement
4	Non-EU Companies	Non-EU companies with a significant EU presence, either through meeting any of the criteria above, or: • A net turnover > €150 million (**Now Revised to > €450 million**) in the EU for two consecutive years, and fulfils any of the following: ▪ At least one subsidiary in the EU considered a "large company" ▪ At least one listed subsidiary on an EU market ▪ Has an EU branch with net turnover > €40 million	• From January 1, 2028 • First report due in 2029

Table 7: CSRD Applicability and Timeline

Carbon Border Adjustment Mechanism (CBAM):

- The Carbon Border Adjustment Mechanism (CBAM) is the EU's policy to ensure imported goods face the same carbon costs as domestically produced goods, aiming to prevent carbon leakage and encourage cleaner industrial production in non-EU countries. It works by imposing a charge on the embedded carbon content of imports equivalent to the charge on domestic goods under the EU Emissions Trading System (ETS).
- This is a large "E" factor, that will increasingly affect trade with the EU.
- Goal: The primary aim of CBAM is to prevent "carbon leakage," where EU companies relocate carbon-intensive production to countries with less stringent climate policies to avoid carbon costs. By ensuring imported goods have a carbon price, CBAM levels the playing field between EU and non-EU producers.
- Mechanism: CBAM works by requiring importers to:
    - Declare the quantity of goods imported into the EU.
    - Declare the embedded Greenhouse Gas (GHG) emissions of those goods.
    - Surrender a corresponding number of CBAM certificates.
- Scope: Initially, CBAM focuses on high-emitting sectors like cement, electricity, fertilizers, aluminum, iron, steel, and hydrogen, along with some upstream and downstream products. The scope is planned to expand gradually to include other sectors, including chemicals and polymers, by 2030.
- Implementation: CBAM has a transitional phase (2023-2025) where importers are required to submit quarterly reports on imported goods, embedded emissions, and any carbon price paid in the country of origin. A definitive regime, where importers will be required to purchase CBAM certificates, will be implemented starting in 2026.
- Alignment with WTO: The CBAM is designed to be compatible with World Trade Organization (WTO) rules.
- Incentives: By ensuring a carbon price for imported goods, CBAM encourages non-EU countries to adopt cleaner production methods and decarbonize their industries.
- Carbon Pricing: The CBAM price is linked to the EU ETS carbon price, ensuring that imported goods pay a carbon price equivalent to that of domestic production.
- Reporting and Registry: Importers need to register in the CBAM Transitional Registry to facilitate reporting and communication between the EU Commission, customs authorities, and traders.

Corporate Sustainability Due Diligence Directive (CSDDD):

- The Corporate Sustainability Due Diligence Directive (CSDDD) is an EU law requiring companies to actively manage and address human rights and environmental risks within their operations and supply chains. It mandates companies to identify, prevent, mitigate, and account for adverse impacts, including those from their own activities, subsidiaries, and business partners. The CSDDD aims to create a more sustainable global economy by holding companies accountable for their impact.
- This affects the "S" and "E" factors of ESG.

- Scope: The directive applies to large companies with a specified number of employees and turnover, both in the EU and non-EU countries operating within the EU.
- Due Diligence Process: Companies are required to integrate due diligence into their policies and management systems, identify and assess adverse human rights and environmental impacts, prevent and cease actual and potential adverse impacts, and monitor and communicate their due diligence practices.
- Focus on Supply Chain: The CSDDD extends due diligence obligations to companies' value chains, including suppliers and other business partners.
- Transparency: Companies are required to publicly report on their sustainability performance, including their due diligence efforts and measures taken to address adverse impacts.
- Accountability: The directive provides mechanisms for holding companies accountable for non-compliance, including potential administrative penalties and the ability for victims to seek redress.
- Enforcement: National supervisory authorities will be responsible for enforcing the CSDDD and investigating substantiated concerns about non-compliance.
- Enhanced Trust: Effective due diligence practices demonstrate a company's commitment to sustainability and builds trust with stakeholders.
- Reduced Risk: Identifying and addressing adverse impacts proactively helps companies avoid reputational damage, legal liabilities, and financial losses.
- Increased Sustainability: The CSDDD promotes a more sustainable business model by encouraging companies to prioritize human rights and environmental protection alongside profits.
- Implementation and Timing: The CSDDD entered into force on July 25, 2024, and EU member states are required to transpose it into national law by July 2026 now it is **revised to July 2027** and first wave company compliance start from July 2028 (EU Companies >= 5000 staff, >= €1.5B global turnover | Non-EU Companies:>= 5000 staff, >= €1.5B in EU).
- The directive's provisions will be phased in, with different deadlines for different categories of companies.

1.3 Sustainability & Energy Related Framework & Standards

Since the release of the Intergovernmental Panel on Climate Change (IPCC) "Global Warming of 1.5°C" report in 2018 which positioned the efforts of the private sector as integral to ensure that global warming stays within the 1.5°C limit, reporting frameworks, voluntary and mandatory, have grown to facilitate the integration of sustainability into organizations' strategies and to guide them towards greater transparency for their stakeholders.

There are more than 30 voluntary environmental reporting frameworks that companies can use. It is therefore difficult to determine which ones are the most appropriate.

Below are a few of the important such frameworks that we run into on a regular basis:

Energy & Emissions – Standards

Standard	GHG Protocol	An internationally credible methodology for the calculation of Scopes 1, 2 & 3 emissions which can be used in mandatory and voluntary reporting frameworks
	ISO 14064	An internationally credible standard for the calculation of Scopes 1, 2 & 3 emissions which can be used in mandatory and voluntary reporting frameworks
	PAS 2060	An internationally recognised voluntary standard for operational carbon neutrality through which companies can gain certification
	ISO 50001	An international energy management standard which assists in implementing a continual improvement approach to energy efficiency
	ISO 14001	ISO 14001 is an internationally agreed and recognised standard for Environmental Management Systems
	Net-Zero Standard	New Net-Zero Standard from the Science-Based Targets initiative (SBTi), considered global best practice for companies setting net-zero strategies
	Net-Zero Guidelines	The Net-Zero Guidelines, published by the ISO, establish a standardisation framework based on 12 guidelines to help companies achieve net-zero emissions
	ACT Initiative	The ACT (Assessing low Carbon Transition) initiative offers several sector-specific methodologies to assess the extent to which an organisation has a strategy aligned with the decarbonisation trajectories of its sector.

Figure 11: Energy & Emission related Standards

Sustainability	Environmental, Social & Governance (ESG)	SDGs	17 UN environmental, social and economic goals with 169 associated targets that companies can voluntarily demonstrate that they are contributing to
		Ecovadis	An online sustainability framework that provides performance ratings for companies within global supply chains
		GRI	An internationally recognised and extremely broad framework of standards for reporting on sustainability with requirements, recommendations and guidance on 900 sustainability topics
	Investor-led	TCFD	A set of recommendations to assist companies in better accounting for climate-related risks in their financial and mainstream disclosures
		TNFD	Global science-based initiative that develops and delivers risk management and disclosure frameworks for organisations to report and act on evolving nature-related issues
		IFRS I and II	In 2023, the ISSB published two standards to facilitate the risks & opportunities reporting of any company's value chain
		DJSI	Published indices of the top 10% of companies who respond to a questionnaire covering Economic. Environmental and Social issues
		CDP	One of the largest international, investor-led sustainability reporting frameworks. It is voluntary, but companies can be asked to respond by their stakeholders
		RE100	The Renewable Energy 100 initiative brings together major companies that want to source 100% of their energy from renewable energy sources by 2050
		EV100	Global initiative promoted by the Climate Group to bring together companies that are committed to electrifying their owned and contracted fleets
	Legislation	CSRD	From 2024, 50,000 companies will gradually be covered by extended and harmonised ESG reporting on ESG criteria
		EU Taxonomy	A regulatory classification system under which companies may define which of their economic activities are environmentally sustainable
		CFD	The Companies (Strategic Report) (Climate-related Financial Disclosure) (CFD) Regulations were implemented from April 2022
		International TCFD regulations	Several jurisdictions outside of Europe have implemented their own climate risk reporting requirements aligned to the recommendations of the TCFD and/or IFRS I & II.
		SEC	Aims to enhance the climate-related disclosures of US publicly traded companies by including information relating to climate-related risks.

Figure 12: Sustainability related framework

1.4 Country Wise GHG Emissions Linked Regulations

Globally, legislation mandating carbon emission disclosure has gained momentum as governments aim to combat climate change and ensure accountability from businesses. Various countries and regions have introduced laws, regulations, or frameworks requiring companies to disclose their greenhouse gas (GHG) emissions, particularly carbon dioxide (CO_2), as part of broader efforts to track progress toward climate targets such as the Paris Agreement.

Here's an overview of key global legislation mandating carbon emission disclosures:

Table 8: Country Wise Legislation Mandating Carbon Emission Disclosures

Country	**Regulation-Implementations**	**Key features**
European Union (EU)	Corporate Sustainability Reporting Directive (CSRD) (formerly Non-Financial Reporting Directive, NFRD) is effective from 2024, with the first reporting required in 2025.	• Requires detailed climate-related disclosures, including the company's transition plans toward net-zero emissions. • Aligns with the EU's Taxonomy Regulation, which defines what qualifies as environmentally sustainable activities. • Additional Legislation: EU Emissions Trading System (ETS) and Sustainable Finance Disclosure Regulation (SFDR)
United States	SEC Climate Disclosure Rule	• On March 6, 2024, the SEC adopted final rules requiring public companies to disclose climate-related risks and their impacts in annual reports and registration statements. These rules aimed to provide investors with consistent and reliable information regarding companies' exposure to climate-related financial risks. • Following the adoption, multiple lawsuits were filed challenging the SEC's authority to enforce these climate disclosure rules. These cases were consolidated in the Eighth Circuit Court of Appeals. In response, the SEC voluntarily stayed the implementation of the rules on April 4, 2024, pending the outcome of the litigation. • Many U.S. companies are already disclosing emissions voluntarily through the Task Force on Climate-Related Financial Disclosures (TCFD) framework or the Carbon Disclosure Project (CDP)**.**
United Kingdom	Streamlined Energy and Carbon Reporting (SECR) Introduced in April 2019	• Requires large UK companies to report their energy use, carbon emissions, and energy efficiency measures. • Applies to quoted companies, large unquoted companies, and large Limited Liability Partnerships (LLPs). • Builds on the previous Mandatory Carbon Reporting (MCR) regime, which required listed companies to disclose their GHG emissions. • TCFD Compliance: From 2022, the UK government also mandates TCFD-aligned climate disclosures for large companies and financial institutions, making the UK

		the first G20 country to require TCFD reporting.
Canada	Federal climate-related financial disclosure requirements for large corporations. As of 2024, Canada is phasing in mandatory climate disclosures for federally regulated financial institutions (FRFIs), including banks and insurance companies.	• Requires large financial institutions to disclose climate-related risks and GHG emissions using the TCFD framework. • Applies to companies with assets over certain thresholds and publicly traded companies. • The government also aims to integrate climate disclosures in investment and pension fund management.
Australia	Australia is expected to adopt mandatory climate risk disclosure requirements in line with TCFD recommendations by 2024.	• Likely to apply to large listed companies and financial institutions. • Requires reporting on climate-related financial risks, including emissions and the impact of climate change on business operations.
New Zealand	Climate-Related Disclosures (CRD) Bill New Zealand became the first country to pass mandatory climate risk disclosure legislation in 2021.	• Requires companies, including banks, insurers, and investment managers, to disclose climate-related risks and opportunities based on the TCFD framework. • Mandatory for large publicly listed companies and financial institutions. • Applies to entities with assets over NZD 1 billion, banks with total assets over NZD 1 billion, and insurance companies with premiums over NZD 250 million.
Japan	While Japan has not fully mandated carbon disclosures, it has developed TCFD-compliant disclosure requirements for large companies.	• The Tokyo Stock Exchange encourages listed companies to disclose climate-related risks in line with TCFD. • Japan's Corporate Governance Code encourages companies to address sustainability issues, including climate change, within their reporting. • Government initiatives like the Green Growth Strategy aim to support industries in reducing carbon emissions through transparency and regulation.
South Korea	Korea Stock Exchange ESG Guidelines	• South Korea encourages companies listed on the Korea Stock Exchange to disclose ESG factors, including carbon emissions. • The country has a voluntary framework for climate-related financial disclosures, with growing pressure to mandate emissions reporting for large companies and certain sectors.

		• South Korea's K-ETS (Emissions Trading System) also obligates industries with high emissions to report their carbon footprints.
China	China has not mandated comprehensive carbon emissions disclosure, but there are movements toward increased transparency.	• China's government encourages large companies to disclose environmental impacts, especially those listed on the Shanghai Stock Exchange. • A growing number of Chinese companies are voluntarily adopting GRI and TCFD standards. • As part of its Dual Carbon Goals (carbon peak by 2030 and carbon neutrality by 2060), China is expected to move toward stricter reporting requirements for industries with high emissions.
Brazil	Brazilian Securities and Exchange Commission (CVM) ESG Reporting Guidelines	• In 2022, the CVM introduced requirements for publicly listed companies to disclose ESG information, including GHG emissions. • Brazil is developing frameworks for mandatory climate risk disclosures as part of its commitment to the Paris Agreement.
India	Business Responsibility and Sustainability Report (BRSR) Introduced by the Securities and Exchange Board of India (SEBI) in 2021.	• The BRSR mandates listed companies to disclose ESG data, including carbon emissions, from the 2022-23 fiscal year. • This reporting aligns with India's national sustainability and climate targets, including reducing carbon intensity by 33-35% by 2030.

1.5 ESG – To Build a Sustainable Business

Environmental, Social, and Governance (ESG) factors have become a crucial consideration for investors worldwide. Companies that integrate ESG principles into their operations attract capital by demonstrating sustainability, ethical business practices, and effective risk management.

1.5.1 ESG as a Risk Mitigation Tool

Companies with strong ESG policies:

- Manage climate-related and regulatory risks more effectively.
- Reduce exposure to fines, lawsuits, and reputational damage.
- Foster ethical governance, minimizing corruption and fraud risks.
- Strengthen supply chain resilience, reducing operational disruptions.

1.5.2 Enhanced Financial Performance & Competitive Advantage

Numerous studies indicate that ESG-compliant companies achieve superior long-term financial performance.

Benefits include:

- Improved operational efficiency, leading to cost savings in energy, waste management, and resource utilization.
- Higher revenue growth due to increased customer trust and loyalty.
- Better valuation multiples and lower capital costs compared to non-ESG firms.
- Outperformance in economic downturns, as observed during the COVID-19 crisis.

1.5.3 Growing ESG Investment Opportunities

The ESG investment landscape is rapidly expanding, with sustainable assets under management (AUM) exceeding **$40 trillion globally**.

Investment opportunities include:

- ESG Exchange-Traded Funds (ETFs) and Mutual Funds.
- Green bonds and sustainability-linked loans.
- Inclusion in ESG indices such as the MSCI ESG Index and Dow Jones Sustainability Index**.**

1.5.4 Regulatory & Compliance Advantages

Governments and regulatory bodies worldwide are implementing stringent ESG reporting requirements, such as:

- EU Taxonomy and Sustainable Finance Disclosure Regulation (SFDR) in Europe.
- Task Force on Climate-related Financial Disclosures (TCFD) framework.
- Business Responsibility and Sustainability Reporting (BRSR) by SEBI in India. Companies that proactively adopt ESG frameworks position themselves ahead of compliance requirements, avoiding legal and financial penalties.

1.5.5 Meeting Investor Demand & Fiduciary Responsibility

Institutional investors, including pension funds and sovereign wealth funds, are shifting capital toward ESG-focused investments.

This shift is driven by:

- Increased investor demand for sustainable investment options.
- ESG integration as part of fiduciary duty to ensure long-term value creation.
- Greater alignment between investment strategies and global sustainability goals.

1.5.6 Resilience in Market Downturns

Empirical evidence suggests that ESG-focused companies demonstrate stronger resilience during economic downturns by:

- Prioritizing employee well-being and corporate social responsibility.
- Strengthening supply chain ethics and risk management.
- Attracting long-term investors who value stability over short-term gains.

1.5.7 Improved Brand Reputation & Customer Loyalty

Consumers are increasingly favouring brands with strong sustainability commitments. ESG-focused companies:

- Build brand loyalty and trust, reducing customer acquisition costs.
- Enhance their corporate reputation, attracting ethical investors.
- Differentiate themselves from competitors in a saturated market.

1.5.8 Stronger Human Capital & Innovation

ESG-aligned companies attract and retain top talent, leading to:

- Higher employee engagement and productivity.
- A culture of innovation that fosters breakthrough technologies (e.g., renewable energy, circular economy solutions).
- Improved diversity and inclusion, which correlates with better financial performance.

Companies that adopt ESG frameworks gain a competitive advantage by

1. Attracting long-term investors.
2. Reducing financial and operational risks.
3. Aligning with regulatory expectations and global sustainability goals.
4. Enhancing their brand reputation and financial performance.

2. ABOUT INDO TECH TRANSFORMERS LIMITED

2.1 About Indo Tech Transformers Limited

Indo Tech Transformers Limited, established in 1992, is one of the leading transformer manufacturers in Southern India. With a legacy spanning over 33 years, the company has successfully installed and commissioned over 56,000 transformers of varying ratings up to 245 kV, serving a wide range of substations and industries across India and globally.

In 2020, Shirdi Sai Electricals Limited (SSEL) acquired Indo Tech Transformers Limited from GE Prolec, strengthening its presence and manufacturing capabilities in Tamil Nadu.

2.2 Manufacturing Excellence

Located in Kancheepuram, Tamil Nadu, Indo Tech's manufacturing facilities are equipped with state-of-the-art infrastructure, ensuring high precision and quality in transformer production. The Extra High Voltage (EHV) transformer facility operates under dust-free, sterile conditions, enabling consistent production of high-performance equipment.

The in-house testing laboratory, accredited by NABL (ISO 17025), is equipped to conduct all routine and special tests as per various national and international standards.

2.3 Product Portfolio

Indo Tech Transformers manufactures a broad range of transformers, including:

1. Distribution Transformers
2. Power Transformers
3. Large Power Transformers
4. Skid-Mounted Substations
5. Special Application Transformers (Inverter, Converter, etc.)

These products cater to sectors such as Transmission, Generation, Renewables (Hydro, Wind, Solar), Steel, Cement, Textiles, Utilities, and DESCOMs.

Clientele

Indo Tech is a trusted partner for a vast range of renowned companies, including:

- Public Sector: TNEB, NTPC, NLC, DVC
- Private Sector: ADANI, L&T, ABB, Siemens, Reliance, TATA Projects
- Renewables: Vestas, Gamesa, Suzlon, Regen Power Tech
- Industrials: JSW Steel, Jindal Steel & Power, BALCO, Jayaswal Neco Industries
- Consultants: M.N. Dastur, EIL, MECON, Fichtner, PGCIL, Avant Garde, TCE
- Inspecting Agencies: RITES, Lloyd's, CPRI, Bureau Veritas, TUV, SGS

Global Reach

Indo Tech has a strong international footprint, with high-voltage transformers successfully exported to:
Canada, Poland, Australia, Turkey, Vietnam, Indonesia, Bangladesh, Mali, Congo, Ivory Coast, Algeria, and many other global markets, along with installations across the Indian subcontinent.

Key Highlights

- Installed Capacity: 10,000 MVA
- Testing Labs: ISO 17025 (NABL accredited)
- Short Circuit Test Success Rate: 100%
- Certifications: ISO 9001, 14001, 45000
- Recognitions: CII EHS Excellence Awards (2020 & 2021) Distribution Transformers

2.3.1 Distribution Transformer

- Indo Tech manufactures a wide range of Distribution Transformers designed for utility and industrial applications, suitable for residential, commercial, and industrial use. The product range includes transformers rated from 100 kVA / 11 kV to 5000 kVA / 33 kV.
- **Customization:** Various options and features are available and custom-designed to meet specific client requirements.
- **Facility:** Manufactured at the Kancheepuram plant, which has an annual installed capacity of 1000 MVA for distribution transformer production.

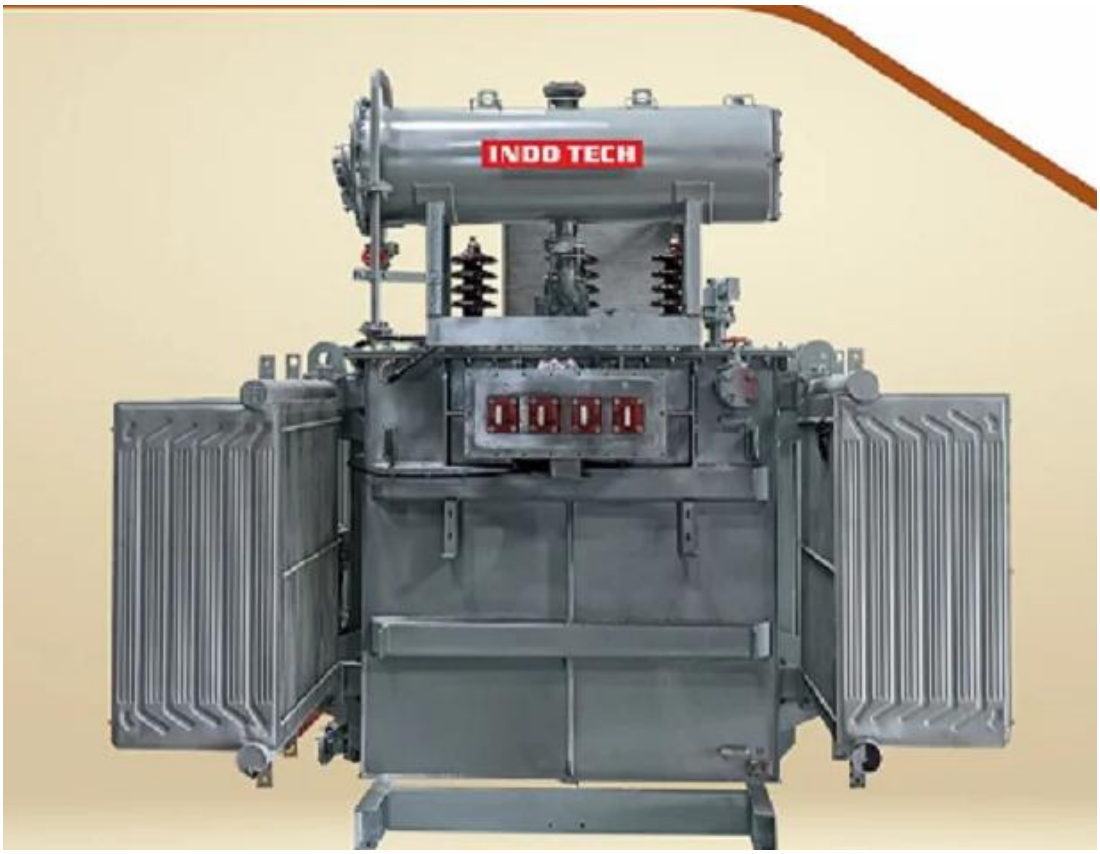


Figure 13: Distribution Transformer Manufactured at Indo Tech, Kancheepuram

2.3.2 Power Transformers

- Power Transformer Manufactured at Indo Tech, Kancheepuram
- Indo Tech offers medium-sized Power Transformers, supporting transmission and distribution networks across various sectors.
- **Rating Range:** 5 MVA / 33 kV to 31.5 MVA / 132 kV
- **Variants:** Includes two-winding, three-winding, and auto transformers
- **Manufacturing:** Produced at the Kancheepuram facility under strict quality and safety standards.

Figure 14: Power Transformer Manufactured at Indo Tech, Kancheepuram

2.3.3 Large Power Transformers

- Large Power Transformer Manufactured at Indo Tech, Kancheepuram

- Indo Tech's Large Power Transformers are built at its advanced manufacturing facility in Kancheepuram, which has an impressive installed capacity of 9000 MVA annually.
- **Rating Range:** From 5 MVA / 11 kV up to 200 MVA / 230 kV
- **Applications:** Suitable for substations, generator step-up/step-down, and include two-winding, three-winding, and auto transformer variants.
- **Quality:** Manufactured under sterile, dust-free conditions using high-quality materials and cutting-edge processes to ensure superior performance and durability.

Figure 15: Large Power Transformer Manufactured at Indo Tech, Kancheepuram

2.3.4 Skid Mounted Substations

Figure 16: Skid Mounted Substation Transformer Manufactured at Indo Tech, Kancheepuram

- Skid Mounted Substation Transformer Manufactured at Indo Tech, Kancheepuram
- Indo Tech also produces Skid Mounted Substations, specially developed for wind energy applications and compact substation requirements.

- **Rating:** Up to 5 MVA, 11–33 kV (HV)
- **Integrated System:**
  Each unit includes:
  - Transformer
  - HV bushings to breaker panel bus-duct
  - HV breaker and panel
  - LV side cable box connections
  - Assembled on a single skid for easy transport

Advantages:

- Delivered fully assembled, oil-filled, and with radiator/conservator mounted
- No on-site mounting or oil filtration required
- Saves up to 50% in space compared to conventional DP yard substations
- Reduces erection time by up to 60%

3. ENVIRONMENTAL

3.1 Climate Change: The result of increasing GHG emissions

As the world becomes more conscious of climate change, industries are under increasing pressure to manage their environmental impact. Climate change refers to significant shifts in global temperatures and weather patterns over time. While Earth's climate has naturally fluctuated over millions of years, the current phase of change is largely driven by human activities.

Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above pre-industrial level (1850–1900) in 2011–2020. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.

Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts on food and water security, human health and on economies and society and related losses and damages to nature and people. Vulnerable communities who have historically contributed the least to current climate change are disproportionately affected.

Climate change represents an urgent and potentially irreversible threat to human societies and the planet. In recognition of this, the overwhelming majority of countries around the world adopted the Paris Agreement in December 2015, the central aim of which includes pursuing efforts to limit global temperature rise to 1.5°C.

Figure 17 shows, the causal chain from emissions to resulting warming of the climate system. Emissions of GHG have increased rapidly over recent decades.

Panel (a): Global net anthropogenic GHG emissions include CO2 from fossil fuel combustion and industrial processes (CO2-FFI) (dark green); net CO2 from land use, land-use change and forestry (CO2-LULUCF) (green); CH4; N2O; and fluorinated gases (HFCs, PFCs, SF6, NF3) (light blue). These emissions have led to increases in the atmospheric concentrations of several GHGs including the three major well-mixed GHGs CO2, CH4 and N2O

Panel (b), annual values: To indicate their relative importance each subpanel's vertical extent for CO2, CH4 and N2O is scaled to match the assessed individual direct effect (and, in the case of CH4 indirect effect via atmospheric chemistry impacts on tropospheric ozone) of historical emissions on temperature change from 1850–1900 to 2010–2019. This estimate arises from an assessment of effective radiative forcing and climate sensitivity. The global surface temperature (shown as annual anomalies from an 1850–1900 baseline) has increased by around 1.1°C since 1850–1900.

Panel ©: The vertical bar on the right shows the estimated temperature (very likely range) during the warmest multi-century period in at least the last 100,000 years, which occurred around 6500 years ago during the current interglacial period (Holocene). Prior to that, the next most recent warm period was about 125,000 years ago, when the assessed multi-century

temperature range [0.5°C to 1.5°C] overlaps the observations of the most recent decade. These past warm periods were caused by slow (multi-millennial) orbital variations. Formal detection and attribution studies synthesise information from

climate models and observations and show that the best estimate is that all the warming observed between 1850–1900 and 2010–2019 is caused by humans.

Panel (d): The panel shows temperature change attributed to: total human influence; its decomposition into changes in GHG concentrations and other human drivers (aerosols, ozone and land-use change (land-use reflectance)); solar and volcanic drivers; and internal climate variability.

Figure 18 shows the Impact from human caused climate change.

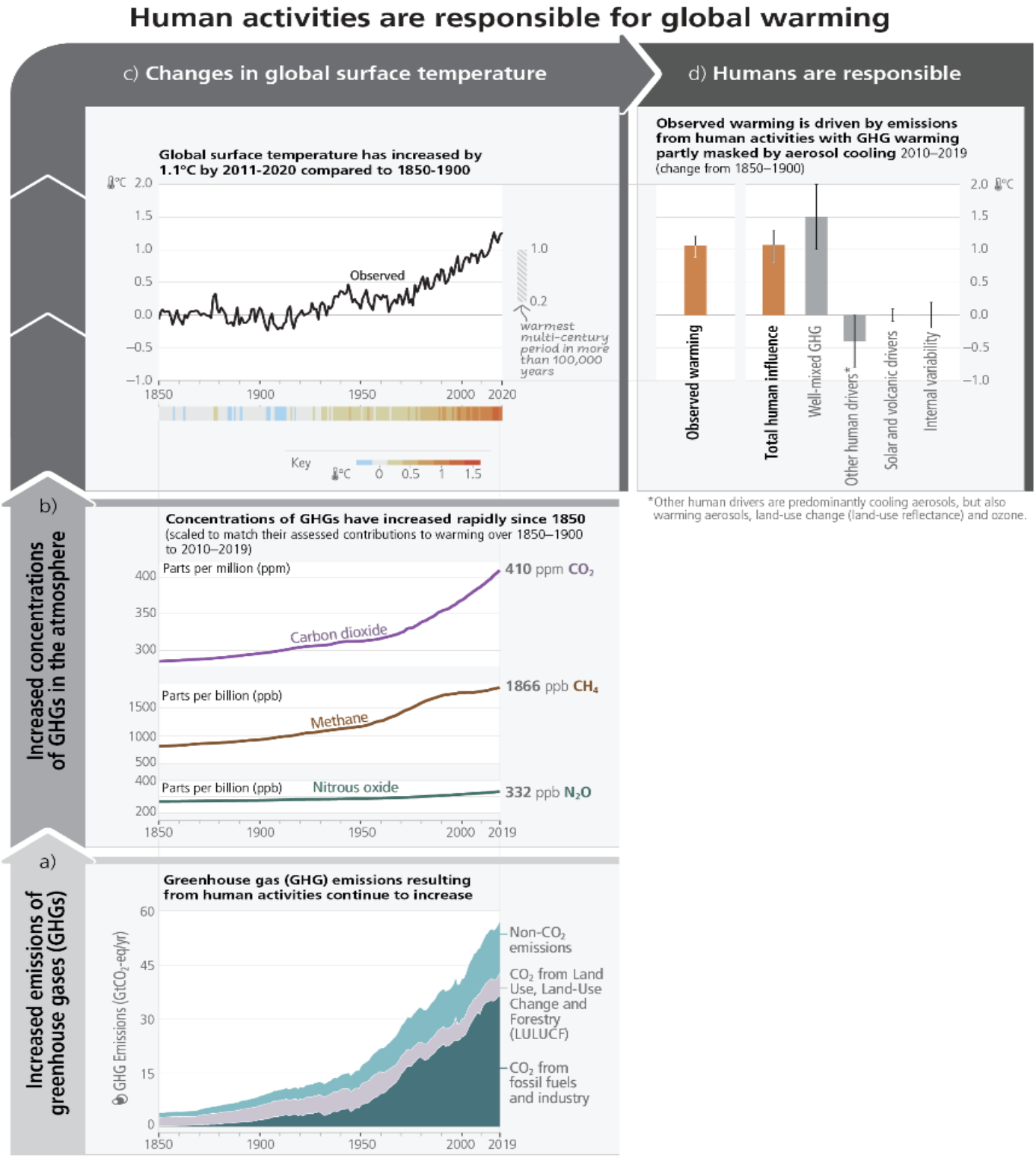


Figure 17: Human activities are responsible for global warming

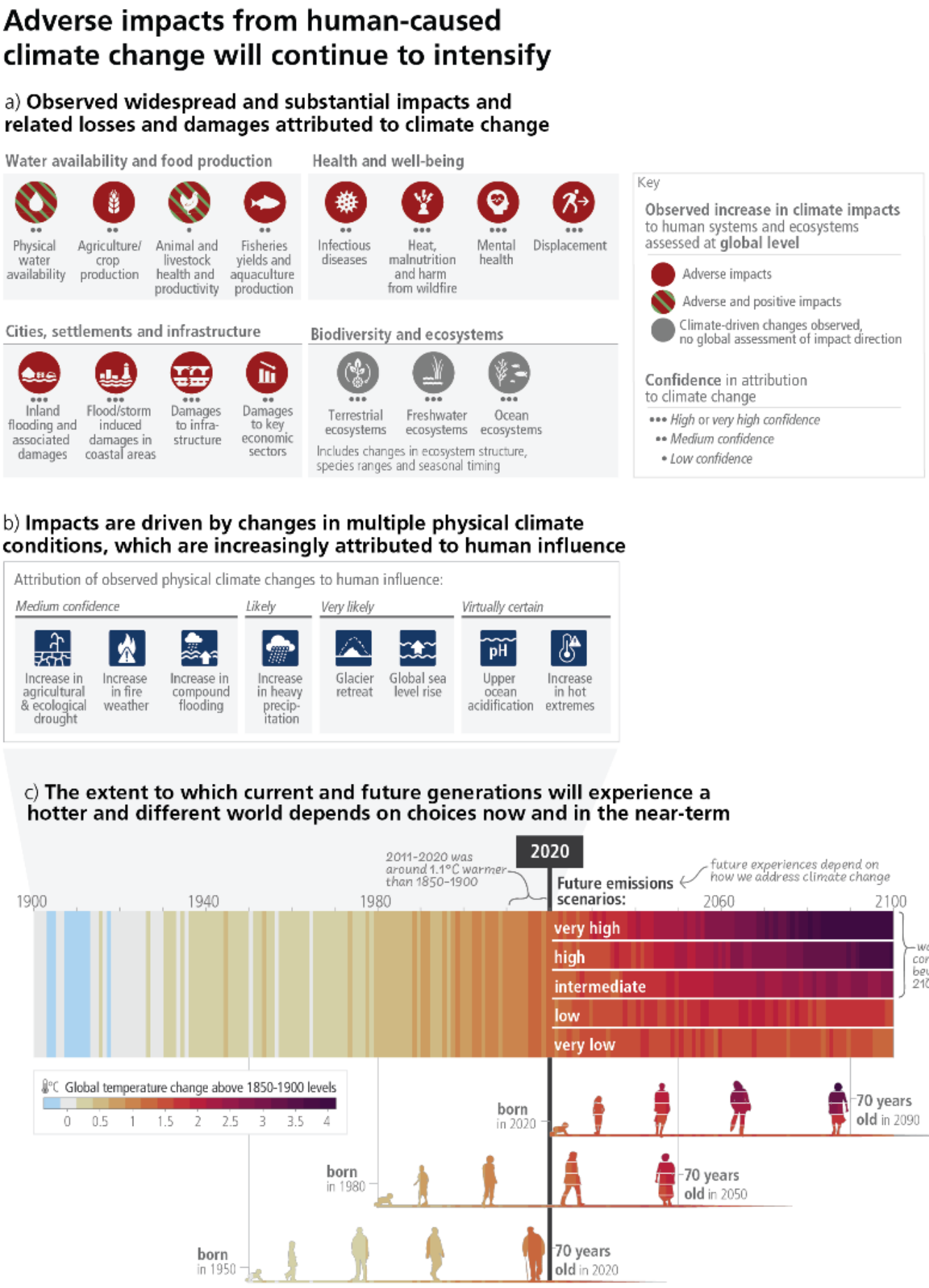


Figure 18: Impact from human caused climate change

3.2 Carbon Footprint – The Calculation of GHG Emissions

A carbon footprint study is a systematic analysis of the total greenhouse gas (GHG) emissions generated by an organization's activities, including manufacturing, energy usage, transportation, and supply chain operations. This study measures emissions in carbon dioxide equivalents (CO_2e), covering various GHGs such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), Hydrofluorocarbon (HFCs), Perfluorocarbons (PFCs), Sulphur Hexafluoride (SF6) and Nitrogen trifluoride (NF3).

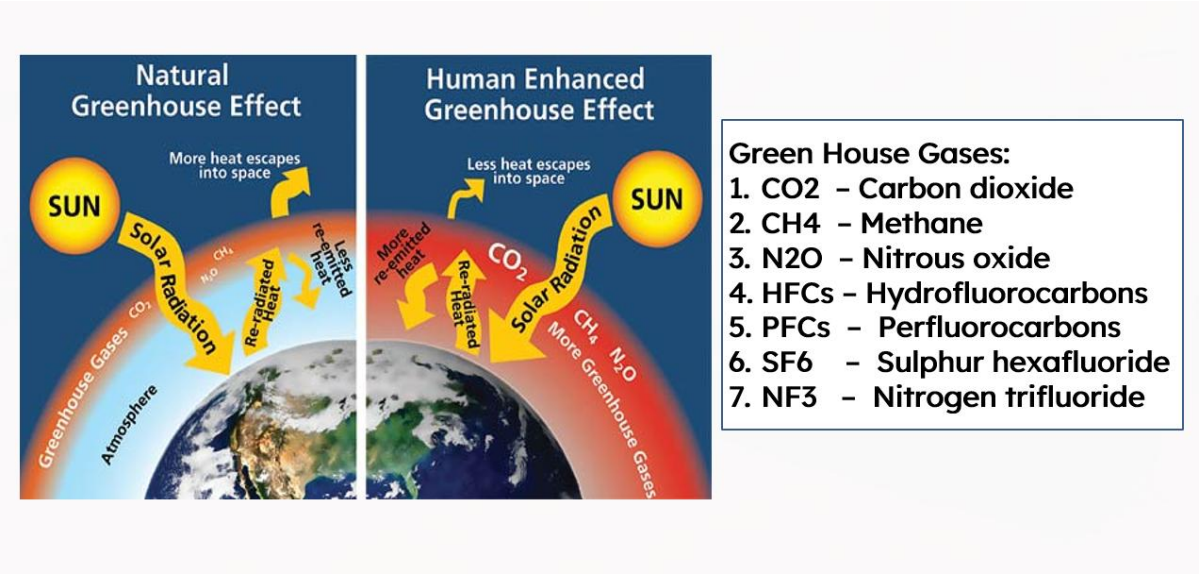


Figure 19: Greenhouse Gases and its Effect

3.2.1 Carbon Footprint Calculation as per GHG Protocol

The Standard used for calculations of Carbon Footprint is GHG Protocol – Corporate Accounting and Reporting Standard.

By following the GHG Accounting and Reporting Principle we ensure:

- **RELEVANCE**: Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users both internal and external to the company.
- **COMPLETENESS**: Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
- **CONSISTENCY**: Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.
- **TRANSPARENCY**: Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
- **ACCURACY:** Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

Definition of Scope 1,2 & 3 of GHG Emissions:

As per GHG Protocol the GHG emissions are classified into two types (Direct emissions & Indirect emissions) and three Scopes (Scope 1, Scope 2 & Scope 3).

Emissions type	*Scope*	*Definition*	*Examples*
Direct emissions	Scope 1	Emissions from operations that are owned or controlled by the reporting company	Emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment
Indirect emissions	Scope 2	Emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company	Use of purchased electricity, steam, heating, or cooling
	Scope 3	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions	Production of purchased products, transportation of purchased products, or use of sold products

Table 9: Definition of the Scopes

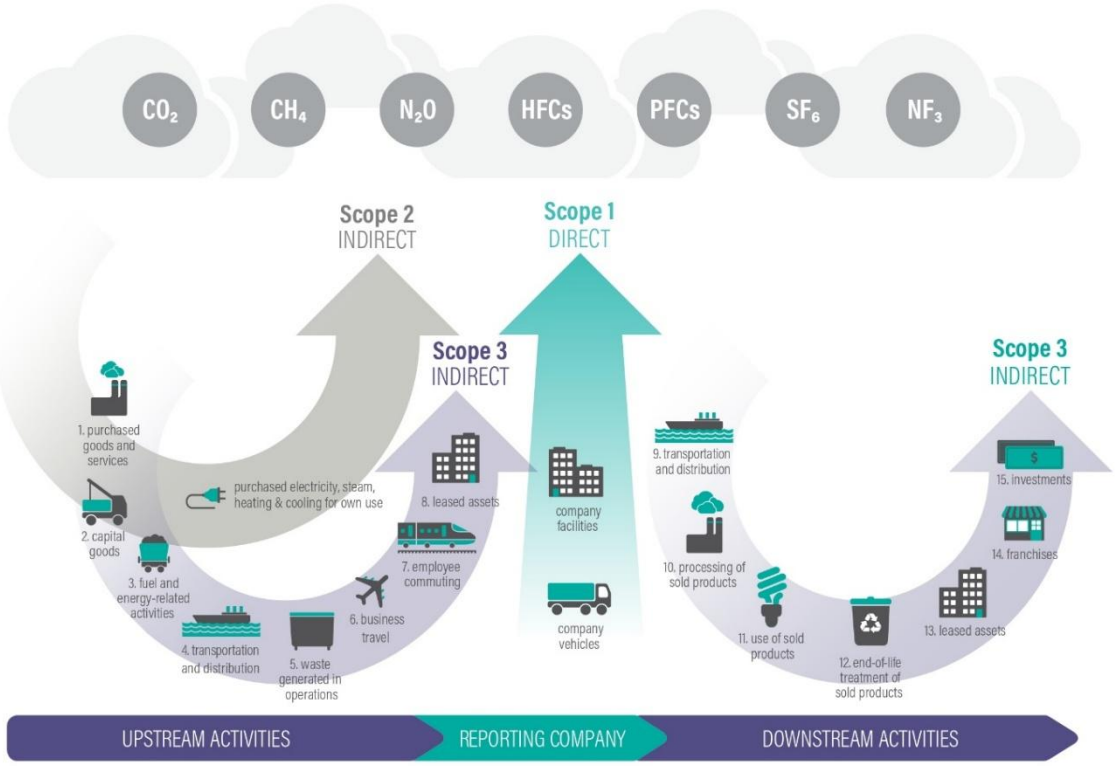


Figure 20: Overview of the Scopes

Scope 3 Emissions: Scope 3 Emissions are further classified into two category which is Upstream Scope 3 Emissions and Downstream Scope 3 Emissions.

Table 10: Upstream Scope 3 Emissions

Upstream scope 3 emissions

Category	*Category description*	*Minimum boundary*
1. Purchased goods and services	• Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 - 8	• All upstream (cradle-to-gate) emissions of purchased goods and services
2. Capital goods	• Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year	• All upstream (cradle-to-gate) emissions of purchased capital goods
3. Fuel- and energy-related activities (not included in scope 1 or scope 2)	• Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in scope 1 or scope 2, including: **a.** Upstream emissions of purchased fuels (extraction, production, and transportation of fuels consumed by the reporting company) **b.** Upstream emissions of purchased electricity (extraction, production, and transportation of fuels consumed in the generation of electricity, steam, heating, and cooling consumed by the reporting company) **c.** Transmission and distribution (T&D) losses (generation of electricity, steam, heating and cooling that is consumed (i.e., lost) in a T&D system) – reported by end user **d.** Generation of purchased electricity that is sold to end users (generation of electricity, steam, heating, and cooling that is purchased by the reporting company and sold to end users) – reported by utility company or energy retailer only	**a.** For upstream emissions of purchased fuels: All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction up to the point of, but excluding combustion) **b.** For upstream emissions of purchased electricity: All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction up to the point of, but excluding, combustion by a power generator) **c.** For T&D losses: All upstream (cradle-to-gate) emissions of energy consumed in a T&D system, including emissions from combustion **d.** For generation of purchased electricity that is sold to end users: Emissions from the generation of purchased energy

Upstream scope 3 emissions

Category	*Category description*	*Minimum boundary*
4. Upstream transportation and distribution	• Transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company) • Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g., of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by the reporting company)	• The scope 1 and scope 2 emissions of transportation and distribution providers that occur during use of vehicles and facilities (e.g., from energy use) • *Optional:* The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure
5. Waste generated in operations	• Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company)	• The scope 1 and scope 2 emissions of waste management suppliers that occur during disposal or treatment • *Optional:* Emissions from transportation of waste
6. Business travel	• Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company)	• The scope 1 and scope 2 emissions of transportation carriers that occur during use of vehicles (e.g., from energy use) • *Optional:* The life cycle emissions associated with manufacturing vehicles or infrastructure
7. Employee commuting	• Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company)	• The scope 1 and scope 2 emissions of employees and transportation providers that occur during use of vehicles (e.g., from energy use) • *Optional:* Emissions from employee teleworking
8. Upstream leased assets	• Operation of assets leased by the reporting company (lessee) in the reporting year and not included in scope 1 and scope 2 – reported by lessee	• The scope 1 and scope 2 emissions of lessors that occur during the reporting company's operation of leased assets (e.g., from energy use) • *Optional:* The life cycle emissions associated with manufacturing or constructing leased assets

Table 11: Downstream Scope 3 Emissions

Downtream scope 3 emissions

Category	*Category description*	*Minimum boundary*
9. Downstream transportation and distribution	• Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company)	• The scope 1 and scope 2 emissions of transportation providers, distributors, and retailers that occur during use of vehicles and facilities (e.g., from energy use) • *Optional:* The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure
10. Processing of sold products	• Processing of intermediate products sold in the reporting year by downstream companies (e.g., manufacturers)	• The scope 1 and scope 2 emissions of downstream companies that occur during processing (e.g., from energy use)
11. Use of sold products	• End use of goods and services sold by the reporting company in the reporting year	• The direct use-phase emissions of sold products over their expected lifetime (i.e., the scope 1 and scope 2 emissions of end users that occur from the use of: products that directly consume energy (fuels or electricity) during use; fuels and feedstocks; and GHGs and products that contain or form GHGs that are emitted during use) • *Optional:* The indirect use-phase emissions of sold products over their expected lifetime (i.e., emissions from the use of products that indirectly consume energy (fuels or electricity) during use)
12. End-of-life treatment of sold products	• Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life	• The scope 1 and scope 2 emissions of waste management companies that occur during disposal or treatment of sold products
13. Downstream leased assets	• Operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year, not included in scope 1 and scope 2 – reported by lessor	• The scope 1 and scope 2 emissions of lessees that occur during operation of leased assets (e.g., from energy use). • *Optional:* The life cycle emissions associated with manufacturing or constructing leased assets

Downtrream scope 3 emissions

Category	Category description	Minimum boundary
14. Franchises	• Operation of franchises in the reporting year, not included in scope 1 and scope 2 – reported by franchisor	• The scope 1 and scope 2 emissions of franchisees that occur during operation of franchises (e.g., from energy use) • *Optional:* The life cycle emissions associated with manufacturing or constructing franchises
15. Investments	• Operation of investments (including equity and debt investments and project finance) in the reporting year, not included in scope 1 or scope 2	• See the description of category 15 (Investments) in section 5.5 for the required and optional boundaries

3.2.2 Indo Tech Transformers – Methodology Used for Calculation

1. **Organization Boundary:**
   - Approach used: Operational Control Approach
   - Boundary:
     i. Indo Tech Transformers Private Limited, Kancheepuram.
2. **Operational Boundary:**

Operational Boundaries		
Sl. No	**Description**	**INDOTECH, Kancheepuram**
Scope 1		
1	Company Owned Vehciles	✗
2	Refrigerant top up	✓
3	CO2 used for refilling into fire extinguisher	✓
4	Gas mixture used in welding (Argon+Carbon dioxide)	✗
5	Acetylene (used in Brazing, Cutting)	✓
6	LPG used in Brazing, Cutting	✗
7	LPG used in Canteen	✗
8	Diesel used in DG sets	✓
9	Biomass used in Canteen (Carbon Neutral)	✗
10	Fuel used in Thermic Fluid Heater	✓
Scope 2		
1	Net Power consumed from GRID	✓
2	Purchased DG Power	✗
3	Purchased Cooling	✗
Scope 3		
1	C3 - Fuel & Energy related Activities	✓
2	C4 - Upstream Transportation & Distribution	✓
3	C5 - Waste Generation	✓
4	C6 - Business Travel	✓
5	C7 - Employee Commute	✓
6	C9 - Downstream Transportation & Distribution	✓

Table 12 : Operational Boundary

3. Reason for Exclusion in Scope 3 Categories at Indo Tech:

- Not applicable: Categories 8, 13, 14 & 15.
- Since we are disclosing Scope 3 voluntarily, we initially taken only six categories (3, 4, 5, 6, 7, & 9) so, we excluded the remaining five categories (1,2,10,11 & 12).

4. Identifying GHG emissions sources:

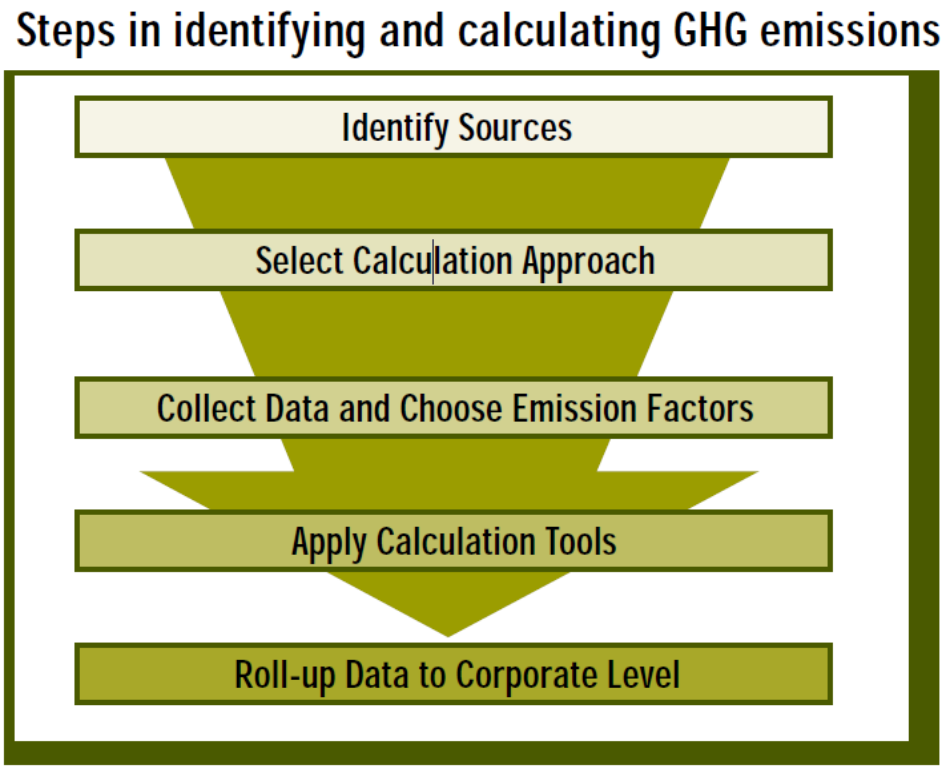


Figure 21: Approach to Calculate GHG Emissions

5. Calculation method used in Scope 3:

Scope 3 Categories	Calculation Method Used
Category 3: Fuel & Energy related activities	Average-data Method
Category 4: Upstream Transportation and Distribution	Distance-based Method
Category 5: Waste Generation in Operations	Waste-type-specific method
Category 6: Business Travel	Distance-based method
Category 7: Employee Commute	Distance-based method
Category 9: Downstream Transportation and Distribution	Distance-based method

Table 13: Calculation method used in Scope 3

6. Activity Data Collected:

Scope 1 & 2:

Scope 1 & 2 Activity Data Collected – Indo Tech, Kancheepuram						
Scope 1						
Sl.No	**Description**	**Unit**	**Activity Data**			
			FY 23-24 (base Year)	**FY 24-25 (H1)**	**FY 24-25 (H2)**	**Total FY 24-25**
1.	Refrigerant top up					
	R-22	kg	8	0	0	0
	R-32	kg	0	0	0	0
	R-410A	kg	0	0	0	0
	R 134A	kg	0	0	0	0
2.	CO2 used for refilling into fire extinguisher	kg	65	0	0	0
3.	Acetylene (used in Brazing, Cutting)	kg	1838	593.61	767.66	1361.27
4.	Diesel used in DG sets	L	36000	16749.65	18000	34749.65
5.	FO used in Thermic Fluid heater	kg	167260	88640	110000	198640
Scope 2						
1.	Net Power Consumed from GRID	kWh	2030393	930419	1280463	2210882
2.	Wind Power Export to Grid	kWh	509397	208733	148551	357284

Table 14: Scope 1 & 2 Activity Data

Scope 3:

Scope 3 activity data is captured in Scope 3 Questionnaire which is an exhaustive document placed in one drive for reference.

7. Emission Factors Used:

Emission Factors (FY 23-24) (Baseline Year)				
Scope 1 & 2				
S.No	**Emission Source**	**Emission Factors**	**UoM**	**Source**
1	Diesel	2.68	kgCO2/l	IPCC
2	FO	3.144	tCO2e/t	IPCC
3	Acetylene	3.38	kgCO2/kg	IPCC
4	R- 22	1760	kg CO2e/kg	IPCC (AR5)
5	R- 32	677	kg CO2e/kg	IPCC (AR5)
6	R- 410	1924	kg CO2e/kg	IPCC (AR5)
7	R-134a.	1300	kg CO2e/kg	IPCC (AR5)
8	Grid Electricity	0.716	kg CO2e/kwh	Central Electricity Authority
Scope 3				
C3	Diesel	0.6241	$kgCO_2e$/Ltr	DEFRA
	FO	0.71487	tCO_2e/t	DEFRA
	Acetylene	0.9800	$kgCO_2e$/T	DEFRA
	Grid electricity WTT	0.1675	TCO_2e/MWh	WRI

	Electricity T&D 2022-23	15.80	%	India Climate & Energy Dashboard
	Electricity 2022-23	0.7160	$kgCO_2e/kWh$	Central Electricity Authority
	Refrigerant – R22	13.10	kgCO2e/kg	IPCC
	Refrigerant – R32	9.20	kgCO2e/kg	IPCC
	Refrigerant – R410A	22.00	kgCO2e/kg	IPCC
	Refrigerant – R134A	11.20	kgCO2e/kg	IPCC
C5	Copper (Recycle)	0.18	t CO2/ts	EPA
	Mixed Paper (Winding Core Paper)	0.03	t CO2/ts	EPA
	Mixed Metals (Empty Oil Barrels etc.,)	0.23	t CO2/ts	EPA
	Corrugated Containers (Recycle)	0.11	t CO2/ts	EPA
	MS scrap (Mixed Metals) (Recycle)	0.23	t CO2/ts	EPA
	Process Waste, Residues and sludge (Landfill)	0.5203	t CO2/t	DEFRA
	Used/Spent Oil (Recycle)	0.0213	t CO2/t	DEFRA
	Repair job – used / Spent oil	0.0213	t CO2/t	DEFRA
	Waste & Residues containing oil	0.0213	t CO2/t	DEFRA
	Spent Solvent	0.0213	t CO2/t	DEFRA
	Discarded container	0.0213	t CO2/t	DEFRA
C6	Air	Default	kg CO2e/pax-km	ICAO Tool
	Rail	0.0078	kg CO2e/pax-km	India GHG Program
	Road – Car – Petrol Sedan <1600)	0.153	kg CO2e/km	India GHG Program
	Road – bus	0.0152	kg CO2e/pax-km	India GHG Program
C7	Car-Sedan(<1600CC)	0.141	kg CO2e/km	India GHG Program
	Motorcycle(<135CC)	0.0356	kg CO2e/km	India GHG Program
	Bus	0.0152	kg CO2e/pax-km	India GHG Program
C4 & C9	Road – LDV (<3.5T)	0.0877	kg CO2e/ton-km	India GHG Program
	Road – MDV(<12T)	0.0741	kg CO2e/ton-km	India GHG Program
	Sea- Bulk Carrier cargo ship	0.0035	kg CO2e/ton-km	DEFRA
	Road – HDV(>12T)	0.0615	kg CO2e/ton-km	India GHG Program

Table 15: Emission Factors Used for FY 23-24 GHG Emission Calculations

Emission Factors (FY24-25) (H1 & H2)				
Scope 1 & 2				
S.No	**Emission Source**	**Emission Factors**	**UoM**	**Source**
1	Diesel/HSD	2.926	kgCO2e/l	IPCC
2	FO/Residual fuel oil	3.144	tCO2e/t	IPCC
3	Acetylene	3.38	kgCO2/kg	IPCC
4	R- 22	1960	kg CO2e/kg	IPCC (AR6)
5	R- 32	771	kg CO2e/kg	IPCC (AR6)
6	R- 410	2255.5	kg CO2e/kg	IPCC (AR6)
7	R-134a	1530	kg CO2e/kg	IPCC (AR6)
8	Grid Electricity 2023-24 (v20)	0.727	tCO2/MWh	Central Electricity Authority of India
Scope 3				
Category	**Emission Source**	**Emission Factor**	**UOM**	**Source**
C3	Diesel	0.6241	$kgCO_2e/Ltr$	DEFRA
	FO	0.71487	tCO_2e/t	DEFRA
	Acetylene	3.3850	$kgCO_2e/kg$	IPCC
	Grid electricity WTT	0.1675	TCO_2e/MWh	WRI
	Electricity T&D 2023-24	14.7800	%	India Climate & Energy Dashboard
	Grid Electricity 2023-24 (v20)	0.727	tCO2/MWh	Central Electricity Authority of India
	Refrigerant – R22	4.2600	kgCO2e/kg	MDPI
	Refrigerant – R32	10.0100	kgCO2e/kg	MDPI
	Refrigerant – R410A	10.3500	kgCO2e/kg	MDPI
	Refrigerant – R134A	10.4800	kgCO2e/kg	MDPI
C5	Coper	0.1800	tCO2e/ts	EPA
	Aluminium	0.0400	tCO2e/ts	EPA
	Brass	0.2300	tCO2e/ts	EPA
	Mixed Electronics	0.0200	tCO2e/ts	EPA
	Mixed Metals	0.2300	tCO2e/ts	EPA
	Wood	0.0213	t CO2/t	DEFRA
	General Waste	0.0213	t CO2/t	DEFRA
	Used/Spent Oil	0.0213	t CO2/t	DEFRA
	Waste and Residues Containing Oil	0.0213	t CO2/t	DEFRA
	Discarded Container	0.0213	t CO2/t	DEFRA
	Spent Solvent	0.0213	t CO2/t	DEFRA
C6	Air	Default	kg CO2/pax-km	ICAO Tool
	Rail	0.0078	kg CO2e/pax-km	India GHG Program
	Road – Car – Petrol Sedan <1600)	0.1530	kg CO2e/km	India GHG Program
	Road – bus	0.0152	kg CO2e/pax-km	India GHG Program
C7	Car-Sedan(<1600CC)	0.1410	kg CO2e/km	India GHG Program
	Motorcycle(<135CC)	0.0356	kg CO2e/km	India GHG Program
	Bus	0.0152	kg CO2e/pax-km	India GHG Program

	Rail	0.0078	kg CO2e/pax-km	India GHG Program
C4 & C9	Road – LDV(<3.5T)	0.0877	kg CO2e/ton-km	India GHG Program
	Road – MDV(<12T)	0.0741	kg CO2e/ton-km	India GHG Program
	Road – HDV(>12T)	0.0615	kg CO2e/ton-km	India GHG Program
	Rail	0.0100	kg CO2e/ton-km	India GHG Program
	Air	1.0990	kg CO2e/ton-km	DEFRA
	Sea- Bulk Carrier cargo ship	0.0035	kg CO2e/ton-km	DEFRA

Table 16: Emission Factors used for FY 24-25 GHG Emission Calculations

3.2.3 GHG Emissions Result Overview

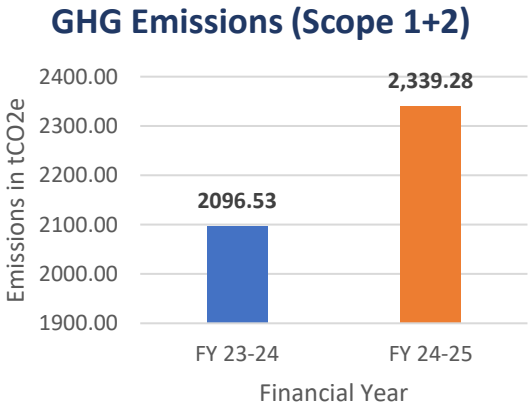


Figure 22: GHG Emissions (Scope 1+2)

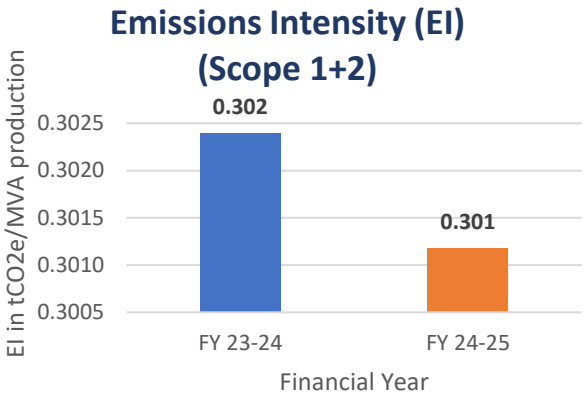


Figure 23: Emission Intensity (Scope 1+2)

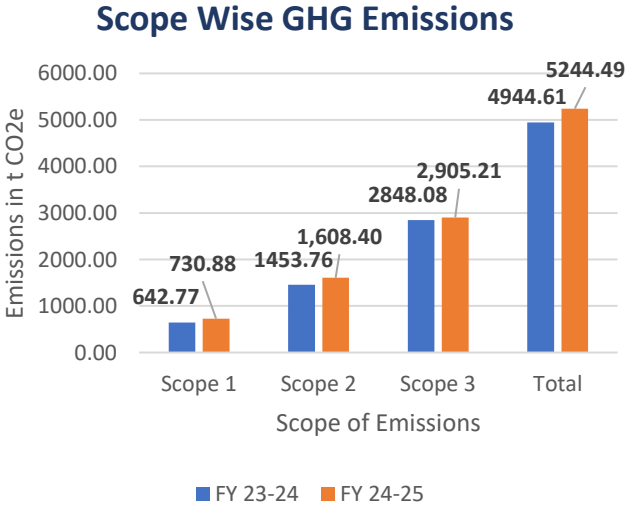


Figure 24: Scope wise GHG Emissions

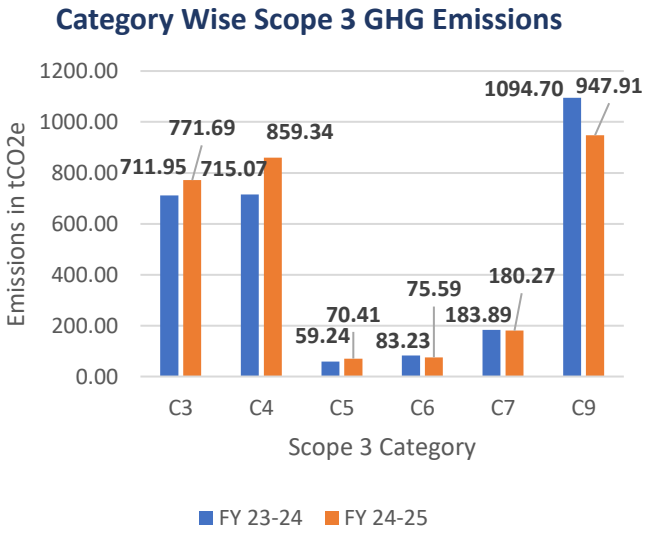


Figure 25: Category Wise Scope 3 GHG Emissions

Absolute Emissions:

Absolute Emissions in tCO2e – Indo Tech, Kancheepuram				
Description	**FY 23-24 (Base Year)**	**FY 24-25 (H1)**	**FY 24-25 (H2)**	**Total FY 24-25**
Scope 1	642.77	329.73	401.14	730.88
Scope 2	1453.76	676.87	931.53	1,608.40
Total (Scope 1+2)	2096.53	1006.61	1,332.67	2,339.28
Category 3	711.952	329.69	442.00	771.69
Category 4	715.07	378.62	480.72	859.34
Category 5	59.243	14.325	56.088	70.413
Category 6	83.232	28.623	46.964	75.587
Category 7	183.89	88.49	91.77	180.26
Category 9	1094.7	180.13	767.78	947.91
Total Scope 3	2848.08	1019.89	1885.33	2905.21
Total (Scope 1+2+3)	4944.61	2026.49	3218.00	5244.49

Table 17: Absolute Emissions in tCO2e

Emissions Intensity:

Emission Intensity (EI) – Indo Tech, Kancheepuram					
Description	**UOM**	**FY 23-24 (Base Year)**	**FY 24-25 (H1)**	**FY 24-25 (H2)**	**Total FY 24-25**
Production	**MVA**	6933	3068	4699	7767
Absolute Emissions (Scope 1+2)	**tCO2e**	2096.53	1006.61	1,332.67	2,339.28
Absolute Emissions (Scope 1+2+3)	**tCO2e**	4944.61	2026.49	3218.00	5244.49
Emission Intensity (EI) (Scope 1+2)	**tCO2e/MVA**	**0.302**	**0.328**	**0.284**	**0.301**
Emission Intensity (EI) (Scope 1+2+3)	**tCO2e/MVA**	**0.713**	**0.661**	**0.685**	**0.675**

Table 18: Emission Intensity in tCO2e/MVA

3.2.4 Emission Reduction Recommendations w.r.t baseline year 23-24 3 Years plan achievable in one year based on implementations

UOM: tCO2e

Scope	From FY23-24 data	To 3-year plan	Total Reduction
Scope 1	643	164	**479 (74.49%)**
Scope 2	1454	0	**1454 (100%)**
Scope 3	2848	2763	**85 (3%)**
Total Reduction	4945	2927	**2018 (40.81%)**

Table 19: Expected Emission Reduction

As shown in Table 19, the total expected emission reduction for the Indo Tech Transformers Limited under Scope 1, Scope 2, and Scope 3 is 479 tCO2e, 1454 tCO2e, and 85 tCO2e, respectively, totaling 2018 tCO2e.

3.2.5 Emission Reduction Recommendations for Indo Tech Transformers Limited (Scope 1,2 &3)

Scope	Focus Area	Recommendations	Calculated emissions reduction in tCO2e
1	DG Set	***1. Modify DG set to run on dual fuel or biodiesel or biogas or other biofuels.***	**18.82 (2.93%)**
		2. Improve combustion efficiency by commencing the performance study.	
	Thermic Fluid Heater	1. Improve combustion efficiency by commencing the performance study.	-
		2. Reduce heat losses with proper insulation.	**-**
		3. Switch the fuel from furnace oil to biomass	**460.04 (71.55%)**
		4. To **achieve zero emissions** – If budget allows the highly recommended solution would be switching to electricity from renewable energy source to heat the thermic fluid.	**-**
Scope 1 Emission Reduction/annum at base year production (Refer Chapter 3.2.6 for budget details for point no 1)			**478.86 (74.49%)**
2	Energy Efficiency	Conduct detailed energy audit and machinery efficiency study based on which generally 20 to 30 % energy conservation can be implemented.	**145.38 tCO2e** @ 10% reductions
		*As INDOTECH has shown reduced scope 2 emission already, so the expected emission reduction range will be minimum **5 to 15 %***	
	Onsite Renewable Energy generation	Explore the rooftop solar power generation or any other kind of solar power farming.	**1134.60 tCO2e** @ **78.05 %** reduction (**987 kW** Solar Roof top Power capacity)
	Offsite Renewable Energy generation	1. Indotech already has offsite wind mill plant capacity of 450 kW/day at Thirunelveli. Recommend further increase this wind mill capacity and wheeling it.	-
		2. Explore other source of renewable energy power generation in offsite and wheeling it.	-
	Offset Mechanism options	1. Purchase of renewable energy certificates (RECs)	-
		2. Purchase renewable energy through power purchase agreement (PPAs)	**173.78 tCO2e** @ **11.95%** reduction
		3. Purchase renewable energy directly from the generator through open access policy.	-
	Carbon Credits	1. Invest in projects that significantly reduce emissions can generate carbon credits under various carbon market mechanisms.	-
		2. Tree plantation/afforestation and registration of project under voluntary carbon standards (VCS) – VERRA – Gold standards etc., for carbon credits.	-
		3. Installation of Carbon capture technology.	-
Scope 2 Emission Reduction/annum at base year production (Refer Chapter 3.2.8, 3.2.9 for budget details)			**1453.76**

Table 20: Emission Reduction Recommendations Under Scope 1 & 2

General Recommendations Under Scope 3 emissions

Scope	Category	Focus Area	Recommendations
3	C3 – Fuel and Energy-Related Activities (not included in Scope 1 or 2)	Renewable Energy Contracts	Influence value chain to secure renewable energy for the entire value chain by working with energy providers, not just for direct operations but also encouraging suppliers to adopt renewable energy sources.
		Energy Efficiency Programs	Collaborate with suppliers to improve energy efficiency in their operations, providing training or incentives for adopting low-energy production technologies.
3	C4 – Upstream Transportation and Distribution	Logistics Optimization	Optimize shipping routes, consolidate shipments, and use larger loads to reduce the number of trips. This helps reduce fuel consumption and emissions.
		Low-Emission Transport	Shift to low-carbon transportation modes such as electric trucks, rail, or sea freight wherever possible. Work with logistics partners that offer green transportation options.
		Local Sourcing	Source raw materials, components, and sub-assemblies from suppliers closer to the manufacturing plant to reduce the carbon footprint from transportation.
3	C5 – Waste Generated in Operations	Waste Minimization	Implement lean manufacturing techniques to minimize material waste in the production process. Recycle scrap metals, insulation materials, and other production by-products.
		Circular Economy Initiatives	Establish take-back or recycling programs for transformer components that reach the end of their useful life. This reduces waste and recycles valuable materials.
		Packaging Optimization	Reduce packaging material use, and switch to recyclable or reusable packaging materials for both inbound and outbound goods.
3	C6 – Business Travel	Virtual Collaboration	Minimize business travel by increasing the use of virtual meeting tools for collaboration with suppliers, clients, and internal teams.
		Sustainable Travel Policies	Implement a company-wide sustainable travel policy that prioritizes low-emission transportation options (e.g., trains over flights, electric vehicles over fossil-fuel-based vehicles).
3	C7 – Employee Commuting	Telecommuting Options	Provide flexible work-from-home policies to reduce emissions from commuting.
		Carpooling and EV Adoption	Encourage carpooling and the use of electric vehicles (Evs) among employees.

			Provide EV charging stations at company facilities.
		Public Transport Incentives	Offer incentives for employees who use public transportation or adopt other sustainable commuting options like cycling or walking.
3	C9 – Downstream Transportation and Distribution	Green Distribution Networks	Partner with distribution companies that prioritize the use of low-emission vehicles or carbon offset programs. Encourage customers to opt for lower-emission shipping options.
		Demand Forecasting	Improve demand forecasting to reduce the need for express or air freight, which tends to have higher emissions than other shipping methods.
		Reverse Logistics	Implement systems for customers to return used transformers for recycling or refurbishment, minimizing waste and transportation emissions associated with product disposal.

Table 21: Emission Reduction Recommendations Under Scope 3

Assuming minimum 3 % reduction in Scope 3 emission, total reduction will be in the range of **85.442 tCO2e** emission reduction per year for the Indo Tech Transformers Limited.
It is very important that we commence measurement of scope 3 emissions of all applicable 15 categories because EI can be disclosed as per scope 1+2 or scope 1+2+3. But while doing the latter it is important to include all applicable categories under scope 3.

General recommendation to reduce other categories under scope 3

Category 1: Purchased Goods and Services

- Material Sourcing: Prioritize the use of recycled or sustainably sourced materials such as copper, steel, and insulation materials, which are key components in transformers.
- Supplier Sustainability: Engage with suppliers to ensure they are adopting energy-efficient manufacturing processes and low-carbon energy sources in their operations.
- Eco-friendly Components: Partner with suppliers to develop and procure more energy-efficient and longer-lasting components like high-efficiency cores and advanced insulation.

Category 2: Capital Goods

- Low-Carbon Machinery: Invest in manufacturing equipment and infrastructure that are energy-efficient, durable, and use renewable energy where possible.
- Sustainable Facility Design: Ensure manufacturing facilities and capital assets are built and maintained with sustainability in mind, incorporating renewable energy systems and waste-reducing technologies.

Category 8: Upstream Leased Assets

- Energy-Efficient Leases: Ensure that leased assets, such as office spaces or warehouses, meet high energy-efficiency standards. Work with landlords to install renewable energy sources like solar panels on leased buildings.
- Sustainable Asset Management: Ensure any leased manufacturing equipment is energy-efficient and regularly maintained to minimize energy consumption and emissions.

Category 10: Processing of Sold Products

- End-of-Life Treatment Programs: Develop and promote programs that help customers properly recycle or refurbish transformers at the end of their life to minimize environmental impacts.
- Product-as-a-Service Models: Consider offering transformers on a service or leasing model, where you retain control over end-of-life processing, ensuring products are disposed of sustainably.

Category 11: Use of Sold Products

- Energy-Efficient Design: Design transformers with high energy efficiency to reduce the operational emissions from electricity loss during use. Use advanced materials and technologies to minimize core and copper losses.
- Demand-Side Management: Work with customers to optimize transformer sizing and load management to ensure that transformers are operating at optimal efficiency.
- Smart Grid Integration: Design transformers to be compatible with smart grid technologies, enabling more efficient energy distribution and reducing emissions associated with electricity consumption.

Category 12: End-of-Life Treatment of Sold Products

- Take-Back Programs: Implement take-back or recycling programs for transformers that have reached the end of their useful life. This ensures that materials like copper, steel, and insulation are recovered and recycled.
- Recycling Partnerships: Partner with specialized recycling companies to ensure proper disposal and recovery of valuable materials from transformers, minimizing landfill waste and the emissions associated with raw material extraction.

Category 13: Downstream Leased Assets

- Energy-Efficient Leasing Options: Offer energy-efficient transformers to customers on a leasing basis. This ensures that the latest, most efficient models are in use and that the products can be managed at end-of-life by the manufacturer for recycling or refurbishment.
- Renewable Energy Integration: Encourage customers leasing transformers to use renewable energy sources, reducing operational emissions associated with the electricity flowing through the transformers.

Category 14: Franchises

- Sustainability Standards for Franchisees: If the company operates franchises, set stringent environmental performance standards for them, particularly regarding energy use, waste management, and sourcing of materials.

- Franchise Training: Provide training and tools to franchisees to help them reduce their emissions, including using energy-efficient products and optimizing their supply chains.

Category 15: Investments

- Sustainable Investment Strategies: For any investments in external businesses, prioritize those with strong environmental, social, and governance (ESG) practices.
- Green Innovation Funding: Invest in green technologies and companies that focus on developing more sustainable transformer materials, designs, and manufacturing processes.

3.2.6 Emission Reduction with Costing for Scope 1 – Dual Fuel

Modification of DG set to run on dual fuel – Table no 20

Description	UOM	Indo Tech
Before Modification		
Diesel Consumption	L/year	36000
Diesel Cost @ Rs. 93/L for Indo Tech	Rs/year	3348000
GHG Emission	tCO2e	96.48
After Modification		
Diesel (35.8 MJ/L) Consumption	L	10800
CNG (50 MJ/kg) Consumption (70 % of diesel is replaced with CNG)	kg	18043
Diesel Cost @ Rs. 93/L for Indo Tech	Rs/year	1047600
CNG Cost @ Rs. 87.5/L for Indo Tech	Rs/year	1578780
Total Fuel Cost	Rs/year	2626380
GHG Emission from Diesel	tCO2e	28.94
GHG Emission from CNG	tCO2e	48.72
Total GHG Emission	tCO2e	77.66
No of DG set	Nos.	4
Cost of Dual Fuel Kit	Rs	2400000
Cost of Dual Fuel Kit installation	Rs	240000
Total Investment	Rs	2640000
Cost Savings	**Rs/year**	**721620**
Emission Reduction	**tCO2e**	**18.82**
Payback Period	**Year**	**3.66**
ROI	**%**	**27.33**

Table 22: Costing for DG set modification to run on dual fuel

The Maharashtra States Pollution Control Board has made it mandatory to convert for all Diesel Generators to Dual Fuel (Gas and Diesel) or retrofit them with an Emission Control Device (RECD). Some other state pollution control board also made it mandatory to convert DG set to run on dual fuel, which is Gujarat, Karnataka & Goa.

As shown in table 22, modification of DG set to run on dual fuel can be reduced about **Rs.7.22** Lakhs/annum for Indo Tech as per our current expenditure, while

investing approx. **Rs.26.4** Lakhs **(Rs. 6.6** Lakhs per DG set) with the payback period of **3 years 8 month** and ROI of **27.33% per year**. Also, these actions resulted in GHG Emission reduction of **18.82 tCO2e/year** (**4.7 tCO2e/year** per DG set). To further reduce GHG emission, switch to Biogas or Biofuel based on availability for up to 80 to 90 % emission reduction.

3.2.7 Emission Reduction recommendation for Scope 1 – Fuel Switch (Table 20)

Fuel Switch from Diesel to Biomass in Thermic Fluid Heater		
Description	**Value**	**UOM**
FO used in Thermic Fluid heater per annum	**167260**	**kg/yr**
GCV of FO	10361.62	kcal/kg
FO Energy	1733083841.98	kcal
Biomass Briquette – GCV	3946.00	kcal/kg
FO equivalent Biomass Briquette per annum	439200.16	kg/yr
Emission Factor (FO)	3.144	tCO2e/t
Emission Factor (wood)	0.15	tCO2e/t
Emission Before Fuel Switch (FO)	525.92	tCO2e
Emission After Fuel Switch (Biomass)	65.88	tCO2e
Emission Reduction per annum	**460.04**	**tCO2e**
% Reduction	**87.47**	**%**

Table 23: Emission Reduction Recommendation for Scope 1 – Fuel Switch

The fuel used in the thermic fluid heater at Indo Tech is furnace oil, which is a non-renewable energy source. The emissions resulting from this fuel usage amount to **525.92** tCO_2e per annum. By switching to a biomass-based thermic fluid heater, greenhouse gas (GHG) emissions can be reduced by **460.04** tCO_2e per annum, representing an **87.47%** reduction in thermic fluid heater GHG emissions.

3.2.8 Emission Reduction with Costing for Scope 2 – Roof top Solar Panel (Table 20)

Rooftop Solar PV Costing for Indo Tech		
MONO PERC Solar PV Module Details		
Description	**Value**	**UOM**
Nominal Power per panel	**550**	**Wp**
Dimension	2279*1134*35 mm	
Capacity	0.55	kW
Peak Sun Hours (PSH)	5.5	h
Performance Ratio (PR)	0.8	
Annual Power Gen	883.3	kWh
Panel cost	**16000**	**Rs**
Area needed/panel (67pprox.)	30	Sq.ft
Cost Workout		
Rooftop Area Availability (67pprox..)	5000	m2
Rooftop Area in sq.ft	53820	Sq.ft
Panel qty needed	1794	Nos
Rooftop Solar Capacity	**987**	**kW**

Solar Panel Cost	28704000	Rs
Invertor Cost	7176000	Rs
Installation Cost	5740800	Rs
Total Investment	**41620800**	**Rs**
Maintenance Cost	1435200	Rs/annum
Grid Power Tariff	7.25	Rs/kWh
Annual Power Generation from Rooftop Solar	**1584640**	**kWh/annum**
Base Year Grid Electricity Demand	**2030393**	**kWh/annum**
Reduction in Grid Electricity Demand	**78.05**	**%**
Cost Savings per annum	**11488641**	**Rs/annum**
Net Savings per annum	**10053441**	**Rs/annum**
ROI	**24**	**%**
Payback Period	**4.14**	**year**
GHG Emission Reduction	**1134.6**	**tCO2e/annum**

Table 24: Roof Top Solar Power Costing

The above cost estimate is based on the available rooftop space for installing solar panels at the Indo Tech Transformers plant. The rooftop area considered for the calculation is 100 m × 50 m = **5,000 m²** (approx..). With this space, we can install a **987 kW** capacity solar rooftop plant, which will generate approximately **1,584,640 kWh per annum**. The total investment required is **Rs. 4.16 crore**, with a payback period of **4.14 years** and a return on investment (ROI) of **24%**. This installation will reduce grid electricity consumption by **78.05 %**, resulting in net cost savings of **Rs. 1 crore** per annum, and it will also reduce greenhouse gas (GHG) emissions by **1,134.6 tCO_2e (78.05%)** per annum.

3.2.9 Emission Reduction with Costing for Scope 2 – PPA (Table no 20)

A Power Purchase Agreement (PPA) in India is a long-term contractual agreement between an electricity generator (seller) and a customer (buyer) for the sale and purchase of electricity. These agreements are crucial for the development and financing of power projects, especially in the renewable energy sector, as they provide a predictable revenue stream for generators and predictable energy costs for buyers.

Key Aspects of PPAs in India:

1. Purpose and Importance:

- **Financial Security:** PPAs provide a stable and predictable income source for power generators, which is essential for securing financing from lenders and investors due to the high upfront capital expenditure involved in power projects.
- **Predictable Energy Costs:** For buyers, PPAs offer long-term price certainty, helping them manage their electricity expenses and hedge against market price volatility.
- **Renewable Energy Promotion:** PPAs are vital instruments for facilitating the expansion of renewable energy projects (solar, wind, etc.) by providing a guaranteed market for the generated power and enabling them to meet their Renewable Purchase Obligations (RPOs).
- **Risk Allocation:** PPAs allocate risks between the generator and the buyer, covering aspects like payment, regulatory changes, technical performance, and market fluctuations.

2. Parties Involved:

- **Seller/Generator:** Typically, an Independent Power Producer (IPP) or a renewable energy developer who builds, owns, and operates the power plant.
- **Buyer/Procurer:**
  - **Distribution Companies (DISCOMs):** State-owned utilities that procure power from generators and supply it to end-consumers. Historically, DISCOMs have been the primary buyers.
  - **Commercial & Industrial (C&I) Consumers:** Large businesses, factories, and commercial establishments increasingly enter into PPAs (especially for renewable energy) to meet their energy demands, achieve sustainability goals, and reduce electricity costs.
  - **Government Entities/Public Sector Undertakings (PSUs):** Other government bodies might also act as buyers.
  - **Power Traders:** Intermediaries who buy power from generators and sell it to multiple buyers or in the open market.

3. Typical Duration:

- PPAs in India are generally long-term agreements, ranging from **10 to 25 years**, with solar PPAs commonly set at 25 years. This long duration is necessary to recover the significant investments made in power generation infrastructure.

4. Types of PPAs in India:

- **On-site PPA:**
  - The solar or wind energy system is installed directly on the buyer's property (e.g., rooftop solar on a factory).
  - The generated energy is consumed directly by the purchaser, reducing their reliance on grid electricity.
  - The developer (seller) is responsible for installation, operation, and maintenance.

- **Off-site PPA (Physical Delivery PPA):**
  - The power plant is located at a different site from the consumption point.
  - Electricity is generated and then transmitted to the buyer through the existing grid infrastructure.
  - The buyer physically receives the electricity. This is common for large-scale solar or wind farms.

- **Sleeved PPA:**
  - A variation of the off-site PPA where a third-party intermediary (often a utility or power trader) "sleeves" or facilitates the physical delivery of electricity from the generator to the end-user.
  - The intermediary handles transmission, balancing, and other logistical complexities.

- **Virtual PPA (VPPA) / Financial PPA / Synthetic PPA:**
  - This is a financial contract that decouples the physical flow of electricity from the financial transaction.
  - The buyer does not physically receive the electricity directly from the renewable project. Instead, the generator sells power into the

wholesale market, and the buyer receives "renewable energy attributes" (like Renewable Energy Certificates - RECs).
    - The buyer and generator agree on a "strike price." If the market price is higher, the generator pays the difference to the buyer; if it's lower, the buyer pays the difference to the generator.
    - VPPAs are popular for companies seeking to meet sustainability goals without directly managing the physical delivery of power.
- **Portfolio PPA:**
    - Allows consumers to procure energy from a portfolio of renewable energy projects rather than a single supplier, offering diversification.
- **Block Delivery PPA:**
    - Enables buyers to purchase energy in predetermined blocks or increments, providing flexibility for fluctuating energy demands.

5. Key Clauses in a PPA:

A well-drafted PPA is comprehensive and covers various aspects to ensure clarity and mitigate risks. Important clauses include:

- **Definitions and Interpretations:** Clearly define all terms used in the agreement to avoid ambiguity.
- **Effectiveness, Term, and Lock-in Period:** Specifies the duration of the agreement, including commencement and termination dates.
- **Conditions Precedent:** Outlines the conditions that must be met before the PPA becomes effective (e.g., obtaining necessary permits, financial closure).
- **Scope of Work & Project Construction:** Details the obligations related to the development, construction, operation, and maintenance of the power project.
- **Sale and Purchase of Delivered Energy:** Specifies the quantity of energy to be supplied (e.g., contracted capacity, minimum/maximum thresholds) and the obligations of both parties.
- **Tariffs and Charges:** Defines the pricing mechanism (fixed, escalating, or indexed tariffs), payment terms, and any additional charges (wheeling charges, cross-subsidy surcharge, banking charges).
- **Invoicing and Payment:** Outlines billing cycles, payment due dates, and mechanisms for late payments or disputes.
- **Delivery Point and Metering System:** Defines where the energy will be delivered and how it will be accurately measured.
- **Performance Standards and Penalties:** Sets performance metrics (e.g., plant availability, generation targets) and specifies penalties for non-compliance.
- **Force Majeure:** Addresses unforeseen events (natural disasters, war) that prevent parties from fulfilling their obligations, outlining procedures for notification and mitigation.
- **Change in Law:** Crucial in long-term contracts, this clause addresses how changes in legislation, regulations, or taxes will impact the PPA, often allowing for tariff adjustments or other compensatory measures.
- **Representations and Warranties:** Assurances made by both parties regarding their legal authority, project status, and ability to perform obligations.

- **Events of Default & Termination:** Defines conditions under which either party can terminate the agreement (e.g., breach of contract, insolvency) and outlines termination compensation.
- **Dispute Resolution:** Specifies mechanisms for resolving disputes, often through arbitration or mediation, to avoid lengthy litigation.
- **Assignment:** Conditions under which the PPA or its obligations can be transferred to another party.

6. Regulatory Framework in India:

The Indian power sector is primarily governed by:

- **Electricity Act, 2003:**
  - The overarching law that governs generation, transmission, distribution, and trading of electricity, promoting competition and private sector participation.

- **Central Electricity Regulatory Commission (CERC):**
  - The central regulator that frames regulations for inter-state transmission, tariff determination for central generating stations, and trading of electricity.

- **State Electricity Regulatory Commissions (SERCs):**
  - State-level regulators responsible for intra-state matters, including tariff fixation for DISCOMs, retail tariffs, and open access regulations.

- **Ministry of Power (MoP) and Ministry of New and Renewable Energy (MNRE):**
  - These ministries issue policy guidelines, schemes, and bidding trajectories to promote power generation, especially from renewable sources.
- **Open Access Regulations:**
  - These regulations, under the Electricity Act, allow large consumers (typically with a connected load of 1 MW or more) to procure power directly from generators, bypassing DISCOMs. This has fuelled the growth of C&I PPAs.
- **Green Energy Open Access Rules, 2022:**
  - These rules further simplify the open access mechanism for green energy, reducing the eligible contract demand limit and promoting renewable energy procurement.

7. Challenges of PPAs in India:

Despite their importance, PPAs in India face several challenges:

- **DISCOM Financial Health:**
  - Many state-owned DISCOMs suffer from poor financial health, leading to delays in payment to generators, reluctance to sign new long-term PPAs, and making them a significant counterparty risk for developers.
- **Regulatory and Policy Risk:**
  - Frequent changes in state and central policies, including those related to open access charges (wheeling charges, cross-subsidy surcharge, additional surcharge), can impact the economic viability of projects and lead to disputes.

- **PPA Delays:**
  - Bureaucratic hurdles and regulatory delays in finalizing and signing PPAs can stall project development and create uncertainty for investors.
- **Grid Infrastructure Limitations:**
  - Inadequate transmission and distribution infrastructure, especially in renewable energy-rich states, can hinder the integration of new projects and lead to grid curtailment.
- **Tariff Disputes:**
  - Conflicts between central and state regulatory bodies over tariff structures can lead to prolonged negotiations and impact project viability.
- **Oversupply of Bids:**
  - Competitive bidding has driven down tariffs, but sometimes leads to an oversupply of renewable energy bids compared to actual demand from financially constrained DISCOMs, resulting in underutilized capacity.
- **Enforcement of Contracts:**
  - Enforcement of PPA terms and securing timely payments can be a challenge, requiring robust payment security mechanisms.

8. Solar PPA Costing with GHG Emission Reduction – Scope 2 (Table 20)

Indo Tech Transformers Limited, Kancheepuram		
Solar PPA Costing with GHG Emission Reduction		
Description	**Value**	**UOM**
Solar Power Tariff	3.60	Rs/kWh
Transmission Charges/Wheeling Charges	0.54	Rs/kWh
Cross Subsidy Surcharge	1.92	Rs/kWh
Additional Surcharge	0.54	Rs/kWh
Total Landed Cost (Solar)	6.60	Rs/kWh
Grid Power Tariff	7.25	Rs/kWh
Annual Grid Electricity Demand (Base Year)	2030393.00	kWh/annum
Power Savings through Energy Audit – Reduce (10%)	**203039.30**	kWh/annum
Grid Electricity replace with Solar Roof Top – Switch (78.05 %)	**1584640.2**	kWh/annum
Electricity consumed through Solar PPA – Switch (11.95%)	**242713.50**	kWh/annum
Grid vs PPA Cost Comparison		
Power Grid Cost for 242713.5 kWh	1759672.88	Rs/annum
Power Cost for 242713.5 kWh from PPA	1601909.10	Rs/annum
Savings	157763.78	Rs/annum
% Savings in Cost	**8.97**	**%**
GHG Emission Reduction	**173.78**	**tCO2e**

Table 25: Solar PPA Costing with GHG Emission Reduction

Table No. 25 shows the emission reduction potential and cost savings from increasing renewable energy consumption through a Solar Power Purchase Agreement (PPA).

The annual electricity demand is **2030393 kWh.** By energy conservation and energy efficiency activities we can reduce 10 % of the demand which is **203039.3 kWh (10%)** and by installing roof top solar panel we will further replace **1584640.2 kWh (78.05%)** of grid electricity with renewable power. The

remaining **242713.50 kWh (11.95%)** will be replaced with Solar PPA which will result in **173.78 tCO2e** emission reduction and cost saving of **Rs.1.57 lakh per annum.**

Based on availability of solar energy in the PPA market, if **100%** of the grid electricity demand is replaced with solar PPA, the cost savings would be **Rs.13.19 lakh per annum (8.97%)** and the GHG emission reduction would be **1453.76 tCO_2e per annum.**

3.2.10 Tracking Emissions Over Time

Companies often undergo significant structural changes such as acquisitions, divestments, and mergers. These changes will alter a company's historical emission profile, making meaningful comparisons over time difficult. In order to maintain consistency over time, or in other words, to keep comparing "like with like", historic emission data will have to be recalculated.

Companies may need to track emissions over time in response to a variety of business goals, including:

- Public reporting
- Establishing GHG targets
- Managing risks and opportunities
- Addressing the needs of investors and other stakeholders

A meaningful and consistent comparison of emissions over time requires that companies set a performance datum with which to compare current emissions. This performance datum is referred to as the base year emissions. For consistent tracking of emissions over time, the base year emissions may need to be recalculated as companies undergo:

- significant structural changes such as acquisitions, divestments, and mergers.
- Outsourcing and insourcing of emitting activities.
- Changes in calculation methodology or improvements in the accuracy of emission factors or activity data that result in a significant impact on the base year emissions data.
- Discovery of significant errors, or a number of cumulative errors, that are collectively significant.

3.2.11 Target Setting for SSEL Group Companies

Long term target:

- To become a carbon neutral company by 2040 with respect to only scope 1+2.
- To reduce scope 3 emission by 50% from a 2023 base year by 2030 (EU has a target of reducing net GHG emission by 55% by 2030 and India has a target of reducing carbon emissions by 50% by 2030 and for the entire economy to be net zero by 2070)
- To become a net zero company by 2060
- Reach RE100 status by 2035

Short term target:

Based on above long term targets the roadmap for short term target can be modeled as below for a 3-year period and review, course correct in 2027.

- Reduce Scope 1+2 absolute emission by 5 % annually from a 2023 base year.
- Reduce Scope 3 absolute emission by 3 % annually from a 2023 base year.
- Increase renewable energy share by 5 % annually from a 2023 base year.

The targets envisaged are achievable in a much shorter period provided focus and budget are allocated for each of the emission sources. Both the long term and short-term target mentioned above are comfortably paced and taking India's NDC into account.

3.3 Energy

3.3.1 Introduction

Energy is one of the major inputs for the economic development of any country. In the case of the developing countries, the energy sector assumes critical importance in view of the ever-increasing energy needs, requiring huge investments to meet them.

The consumption of energy is increasing at a fast pace while available resources remain limited. The global need for energy is increasing on an average by about 2.4% every year. Out of the total amount of primary energy, over 85% comes from fossil fuels. The current consumption of fossil fuels, particularly oil, is not sustainable in the long term.

Energy consumption also has a significant impact on our natural environment. There is clear evidence that climate change is caused by human activity, mostly related to the use of energy.

Energy, that we use, can be classified into several types based on the following criteria:

- Primary energy and secondary energy
- Commercial and non-commercial energy
- Renewable and non-renewable energy

Primary Energy and Secondary Energy

Primary energy refers to all types of energy extracted or captured directly from natural resources.
Primary energy can be further divided into two distinctive groups:

- Renewable (solar, wind, geothermal, tidal, biomass, hydel etc.)
- Non-renewable (fossil fuels: crude oil and its products, coal, natural gas, nuclear, etc.)

The primary energy content of all fuels is generally expressed in terms of toe (tonne of oil equivalent) and is based the following conversion factor.

One tonne of oil equivalent(toe*)= 1 x 10^7 kcal = 11630 kWh = 41868 MJ

Primary energy sources are mostly converted in industrial utilities into secondary energy sources; for example, coal, oil or gas converted into steam and electricity. Primary energy can also be used directly. Some energy sources have non-energy uses, for example coal or natural gas can be used as a feedstock in fertiliser plants. Primary energy is transformed in energy conversion process to more convenient forms of energy such as electricity, steam etc. These forms of energy are called secondary energy.

*toe is Tonne of Oil Equivalent which is the same as Metric Tonne of Oil Equivalent. *toe is used so as not to confuse with MTOE which is Million Tonne of Oil Equivalent.

Commercial and Non-Commercial Energy:
Commercial Energy:

Energy that is available in the market for a definite price is known as commercial energy. No matter what the method of energy production is, whether it is from fossil fuels, nuclear or renewable sources, any form of energy used for commercial purposes constitutes commercial energy.

By far, the most important forms of commercial energy are electricity, coal, refined petroleum products and natural gas. Commercial energy forms the basis of industrial, agricultural, transport and commercial development in the modern world. In the industrialized countries, commercial fuels are predominant sources of energy not only for industrial use, but also for many household needs.
Examples: Electricity, lignite, coal, oil, natural gas ete.,

Non-Commercial Energy:

Any kind of energy which is sourced within a community and its surrounding area, and which is not normally traded in the commercial market is termed as non-commercial energy.
Non-commercial energy sources include fuels such as firewood, cattle dung and agricultural wastes, which are traditionally gathered, and used mostly in rural households. These are also called as traditional fuels. Non-commercial energy is often ignored in compiling a country's energy statistics.
Examples: Firewood and agro waste in rural areas, solar energy for water heating, electricity generation, and for drying grain, fish and fruits, animal power for transport, threshing, lifting water for irrigation, crushing sugarcane etc.; wind energy for lifting water and electricity generation.

Renewable and Non-Renewable Energy:

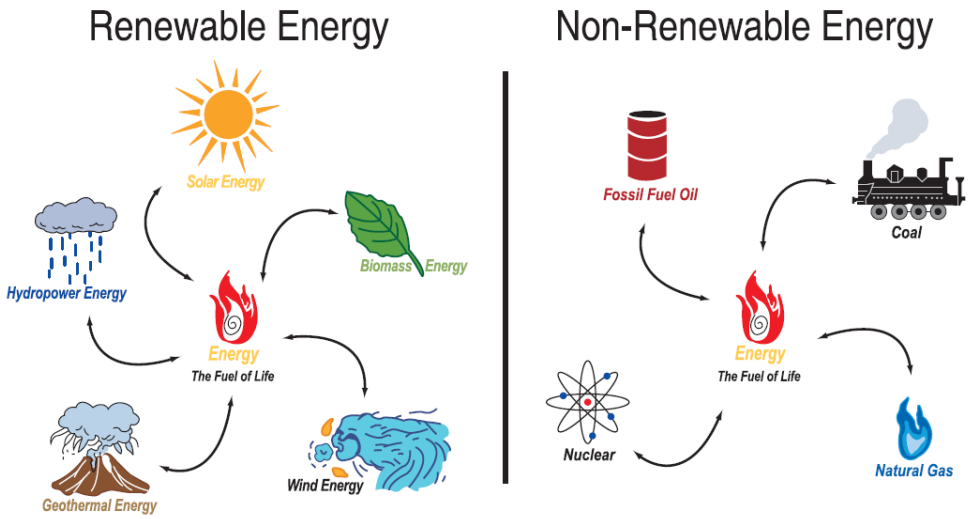


Figure 26: Renewable and Non-Renewable Energy

Renewable energy is the energy obtained from natural sources which are essentially inexhaustible. Examples of renewable resources include wind power, solar power, geothermal energy, tidal power and hydroelectric power (see Figure 26). The most important feature of renewable energy is that it can be harnessed without the release of harmful pollutants.

A non-renewable resource is a natural resource which cannot be produced, grown, replenished, or used on a scale which can sustain its consumption rate. These resources often exist in a fixed amount, or are consumed much faster than nature can create them. Natural resources such as coal, oil and natural gas take millions of years to form and cannot be replaced as fast as they are being consumed now. These resources will deplete with time.

3.3.2 Energy Share of Indo Tech Transformers Limited

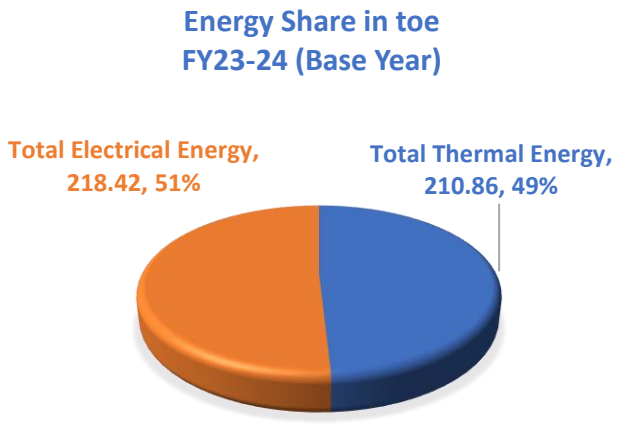


Figure 27: Energy share in toe FY23-24

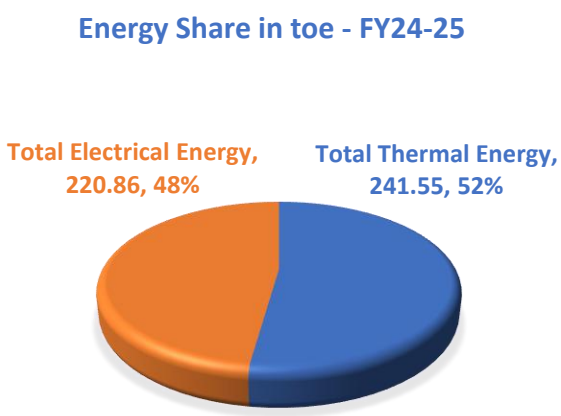


Figure 28: Energy Share in toe FY24-25

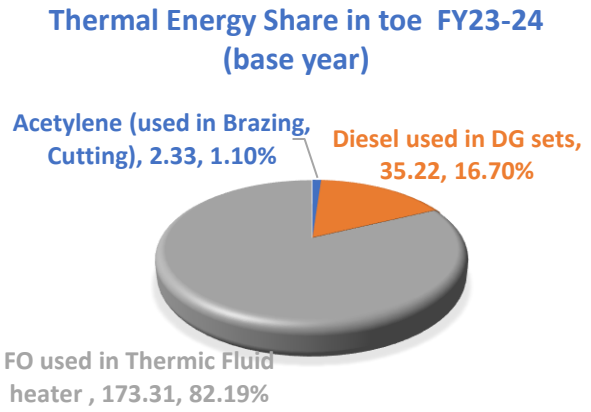


Figure 29: Thermal Energy share in toe FY23-24

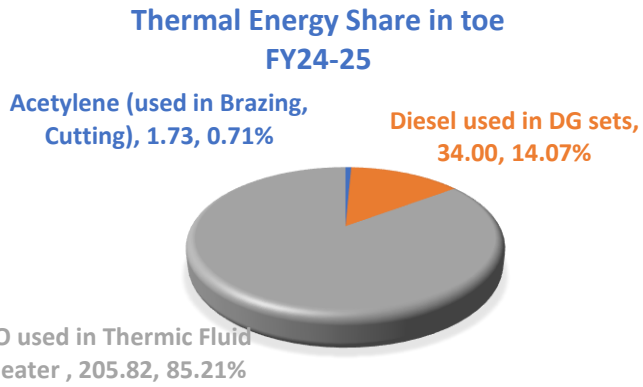


Figure 30: Thermal Energy share in toe FY24-25

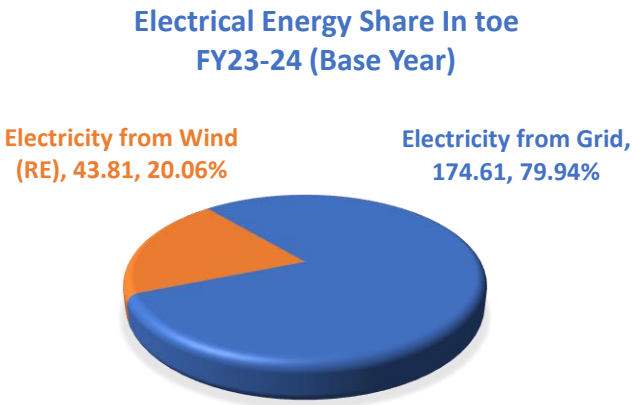


Figure 31: Electrical Energy in toe FY23-24

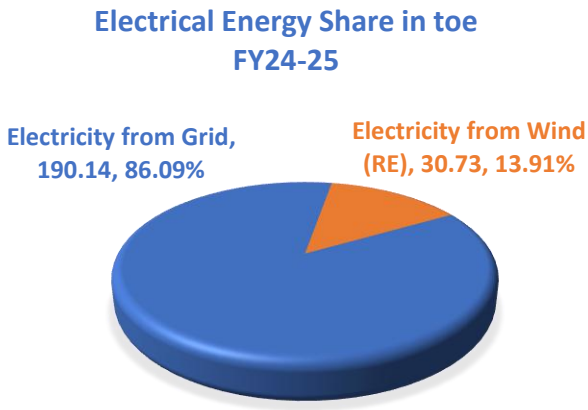


Figure 32: Electrical Energy in toe FY24-25

Chapter 3.3.2 are explaining about the energy share of the Indo Tech Transformers Limited.
Please note that the Electrical Energy consumed from DG set is indirectly accounted in Thermal Energy as a diesel consumption basis so it is not included in Electrical Energy Consumption.

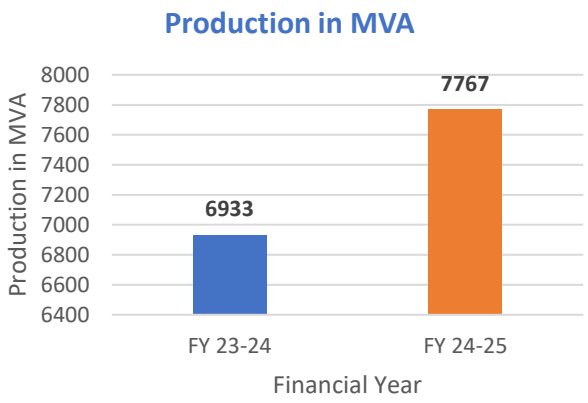


Figure 33: Production in MVA

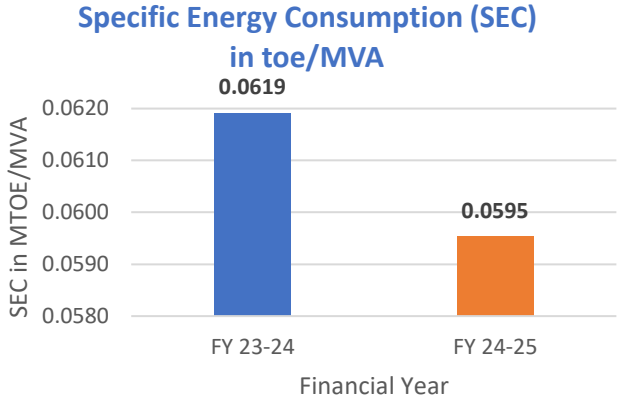


Figure 34: Specific Energy Consumption in toe/MVA

Energy Share of Indo Tech				
Description	**FY 23-24 (Base yr)**		**FY 24-25 (H1+H2)**	
Thermal Energy				
Fuel Name	**Energy in toe**	**% Share**	**Energy in toe**	**% Share**
Acetylene (used in Brazing, Cutting)	2.33	1.10	1.73	0.71
Diesel used in DG sets	35.22	16.70	34.00	14.07
FO used in Thermic Fluid heater	173.31	**82.19**	205.82	**85.21**
Total (a)	210.86	100.00	241.55	100.00
Electrical Energy				
Electricity	**Energy in toe**	**% Share**	**Energy in toe**	**% Share**
Electricity from Grid	174.61	79.94	190.14	86.09
Electricity from Wind (RE)	43.81	**20.06**	30.73	**13.91**
Total (b)	218.42	100.00	220.86	100.00
Total Thermal Energy	**210.86**	**49.12**	**241.55**	**52.24**
Total Electrical Energy	**218.42**	**50.88**	**220.86**	**47.76**
Total Renewable Energy	**43.81**	**10.21**	**30.73**	**6.64**
Total Energy (a+b)	**429.28**	**100.00**	**462.41**	**100.00**
Total Production in MVA	6933		7767.00	
Energy Intensity in Tonne of Oil Equivalent/MVA Production	**0.0619**		**0.0595**	

Table 26: Energy Share of Indo Tech

Figure 28 & 29 shows the Indo Tech energy share, which is **49 %** thermal energy and **51 %** electrical energy during the FY23-24 and **52 %** thermal and **48 %** electrical energy in FY24-25 respectively.

As shown in table 26 the total energy consumption of the Indo Tech Transformers in FY 23-24 & FY24-25 is **429.28** Tonne of Oil Equivalent (toe) and **462.41** toe respectively. In FY 23-24 Electrical Energy is contributing more to the total energy consumption (51%) whereas in FY24-25 Thermal Energy is contributed more in total energy consumption (52%). The total Renewable energy consumption is **10.21 %** in FY23-24 & **6.64 %** in FY 24-25. The reduction in renewable energy consumption (**3.57%**) is due to the reduction in off-site windmill power generation, in FY 23-24 the wind power generation is **509397 kWh** but in FY24-

25 it is **357284 kWh** only, **152113 kWh** is reduced compared with base year FY23-24. Wind power generation is depending upon various factors like wind pattern, age of the windmill etc., so it is difficult to pin point the reason at this point, detailed study needs to be done to identify the root cause. Figure 30 & 31 shows the share of different thermal energy consumption during the reporting year, in this thermal energy from Furnace Oil is contributing most to the total thermal energy which is **82.19 %** during FY23-24 and **85.21 %** during FY24-25. Figure 32 & 33 shows the share of different electrical energy consumption during the reporting year, in this electricity generated from off-site windmill contributes **20.06 %** in FY23-24 and **13.91 %** in FY24-25.

The Energy Intensity of Indo Tech Transformers are **0.0619** toe per MVA production for FY23-24 and **0.0595** toe per MVA production for FY24-25.

3.3.3 Demand Side Management (DMS) Techniques:

Demand-Side Management (DSM) encompasses various techniques designed to influence and optimize how and when electricity is used by consumers. The primary goals of DSM include reducing peak electricity demand, enhancing grid reliability, and promoting energy efficiency and sustainability.

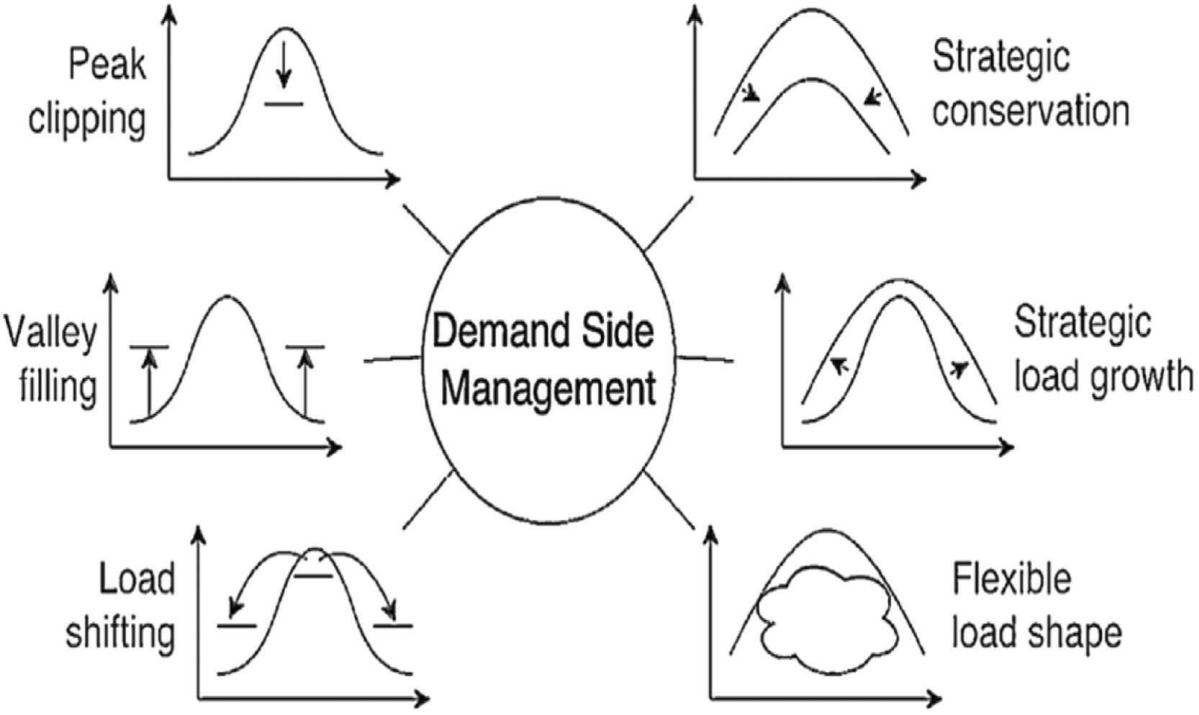


Figure 35: Demand Side Management techniques

Here are some key DSM techniques:

1. Energy efficiency

- Focus: Reducing the amount of energy needed to achieve the same task or service.
- Examples:
  - Switching to energy-saving lighting like LED bulbs.
  - Utilizing energy-efficient appliances (e.g., refrigerators, washing machines).
  - Improving building insulation and sealing drafts to reduce heating and cooling needs.

- Impact: Leads to permanent reductions in overall energy consumption.

2. Demand response (DR)

- Focus: Encouraging consumers to adjust their electricity consumption patterns in response to signals from the grid (e.g., price changes, high demand periods).
- Types of Demand Response:
    - Price-based DR: Utilizes variable electricity tariffs to incentivize consumers to shift their usage to off-peak hours when electricity is cheaper.
        - Examples: Time-of-Use (TOU) pricing, Real-Time Pricing (RTP), Critical Peak Pricing (CPP).
    - Incentive-based DR: Offers monetary incentives to consumers for voluntarily reducing their electricity consumption during periods of high demand or grid stress.
        - Examples: Direct Load Control (DLC) programs, Interruptible Curtailable Service (ICS), Capacity Market Programs (CMP).

Benefits: Enhances grid reliability, reduces the need for expensive peaking power plants, and can help integrate intermittent renewable energy sources.

3. Load shifting

- Focus: Moving energy consumption from peak hours to off-peak hours without necessarily reducing overall energy use.
- Mechanism: Often relies on smart appliances and/or energy storage systems.
- Example: Storing energy in batteries during off-peak hours for use during peak demand periods.

4. Peak clipping

- Focus: Reducing electricity demand specifically during peak hours when the cost of electricity is highest or the grid is under stress.
- Methods: Can be achieved through Demand Response programs or direct control of certain loads.

5. Valley filling

- Focus: Increasing electricity consumption during off-peak hours (e.g., nights, weekends) to improve the overall load factor and efficiency of power plants.
- Incentive: Often achieved through lower off-peak electricity rates.

6. Strategic conservation

- Focus: Reducing energy waste by lowering seasonal energy usage and increasing efficiency through technological and behavioural changes.
- Outcome: A long-term reduction in overall energy consumption.

7. Strategic load growth

- Focus: Intelligently increasing electricity consumption in specific sectors or seasons to utilize excess generation capacity or promote electrification.
- Example: Incentivizing the adoption of electric vehicles and smart charging infrastructure.

8. Flexible load shape

- Focus: Flexible load shape involves adjusting an industrial facility's electricity consumption pattern over time to optimize energy use and reduce costs. The primary focus is to analyse current consumption patterns, integrate with renewable energy sources, and capitalize on variable electricity pricing structures.

- Outcome: The expected outcomes include reduced peak demand, which lowers electricity bills, enhanced grid stability by balancing supply and demand, and improved integration of renewable energy sources into the grid.

9. Distributed energy resources (DER)

- Focus: Integrating localized energy generation and storage systems within the industrial facility or cluster.
- Strategies:
  - Rooftop Solar PV: Installing rooftop solar photovoltaic (PV) systems to generate clean electricity on-site. Kancheepuram has a number of solar energy system manufacturers and suppliers.
  - Energy Storage Systems (ESS): Utilizing battery storage systems to store excess solar energy generated during the day for use during evening peak hours or during grid outages.
  - Combined Heat and Power (CHP): Implementing CHP systems to generate both electricity and useful heat from a single fuel source, maximizing energy efficiency and reducing reliance on the grid.
- Benefits: Reduces reliance on the central grid, enhances energy security, lowers electricity costs, and contributes to a cleaner energy mix.

In addition to these techniques, advancements in communication technologies, such as Advanced Metering Infrastructure (AMI) and smart meters, facilitate the implementation of these DSM strategies by providing real-time data and enabling two-way communication between utilities and consumers.
Overall, DSM techniques aim to create a more efficient, reliable, and sustainable energy system by actively involving consumers in managing their electricity demand.

3.3.4 Demand Management at Indo Tech Transformers Limited

Contract Demand is the maximum demand (in kVA) agreed upon between the consumer and the utility. If the actual maximum demand exceeds this limit, a penalty is levied—often significantly raising your monthly bill.

The Permitted Maximum Demand is 900 kVA, The figure 37 & 38 shows the month wise maximum demand recorded on the FY23-24 and FY24-25 respectively at Indo Tech.

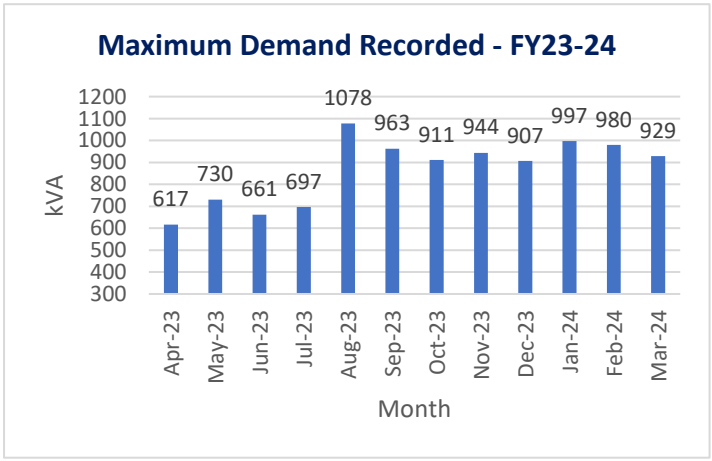


Figure 36: Maximum Demand Recorded – FY23-24

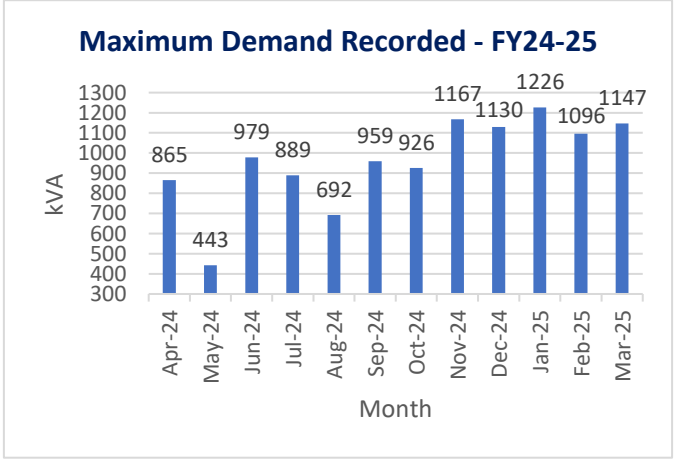


Figure 37: Maximum Demand Recorded – FY24-25

Maximum Demand Charges of Indo Tech						
Permitted MD		**900**	**kVA**			
Month	**Max Demand Recorded**	**Demand Charges**	**Fixed Demand Charges**	**Exceeded con. Demand value**	**Penalty Charges**	**Total Penalty Charges**
FY23-24	**kVA**	**Rs/kVA**	**Rs**	**kVA**	**Rs/kVA**	**Rs**
Apr-23	617	550	445500	0	1100	0
May-23	730	550	445500	0	1100	0
Jun-23	661	550	445500	0	1100	0
Jul-23	697	562	455220	0	1124	0
Aug-23	1078	562	605836	178	1124	200072
Sep-23	963	562	541206	63	1124	70812
Oct-23	911	562	511982	11	1124	12364
Nov-23	944	562	530528	44	1124	49456
Dec-23	907	562	509734	7	1124	7868
Jan-24	997	562	560314	97	1124	109028
Feb-24	980	562	550760	80	1124	89920
Mar-24	929	562	522098	29	1124	32596
Total			**6124178**	**509**		**572116**
FY24-25	**kVA**	**Rs/kVA**	**Rs**	**kVA**	**Rs/kVA**	**Rs**
Apr-24	865	562	486130	0	1124	0
May-24	443	562	455220	0	1124	0
Jun-24	979	562	550198	79	1124	88796
Jul-24	889	589	523621	0	1178	0
Aug-24	692	589	407588	0	1178	0
Sep-24	959	589	564851	59	1178	69502
Oct-24	926	589	545414	26	1178	30628
Nov-24	1167	589	687363	267	1178	314526
Dec-24	1130	589	665570	230	1178	270940
Jan-25	1226	589	722114	326	1178	384028
Feb-25	1096	589	645544	196	1178	230888
Mar-25	1147	589	675583	247	1178	290966
Total			**6929196**	**1430**		**1680274**
Grand Total						**2252390**

Table 27: Maximum Demand Charges of Indo Tech

Table 27 presents the month-wise recorded contract demand, exceeded contract demand values, and the associated penalties for exceeding the contract demand for both FY 2023–24 and FY 2024–25.

The total exceeded contract demand was 509 kVA for FY 2023–24 and 1,430 kVA for FY 2024–25. The total penalties incurred due to exceeded contract demand were Rs.5,72,116 for FY 2023–24 and Rs.16,80,274 for FY 2024–25.

This trend clearly indicates that the current contract demand is insufficient, highlighting the need for either revising the contract demand or improving scheduling and implementing demand-side management techniques.

General Recommendation to avoid the contract demand penalty:

1. **Implement Automatic Load Management (ALM) System:**
   - Use load shedding schemes or load limiting relays to ensure loads are automatically reduced when nearing the contract demand.
   - Integrate with SCADA/EMS systems for real-time alerts and control.

2. **Stagger Load Operations:**
   - Shift non-critical loads (e.g., testing equipment, auxiliary systems) to off-peak times.
   - Use time-of-use (TOU) rates and scheduling to balance demand.

3. **Optimize Transformer Loading:**
   - Avoid overloading individual transformers.
   - Spread the load uniformly across transformers to prevent peak demand spikes.

4. **Power Factor Correction:**
   - Ensure power factor is close to 1 using capacitor banks or APFC panels.
   - A poor power factor increases kVA demand (even when kW is constant), causing unintentional breaches of contract demand.

5. **Energy Audits:**
   - Conduct regular energy audits to identify peak demand causes and rectify inefficiencies.
   - Many industries discover hidden causes like compressed air leaks or simultaneous equipment startups during audits.

6. **Solar Roof Top Power:**
   - Integrating Solar Roof Top power for overcome peak hour consumption during day time. If we install battery backup, we can able to utilize it in night time.
   - Refer chapter 3.2.8 in this report for costing of solar roof top power.

3.3.5 Energy Monitoring and Targeting System

Energy monitoring and targeting (M&T) is primarily a management technique that uses energy information as a basis to eliminate waste, reduce and control current level of energy use and improve the existing operating procedures.

It is based on the principle **"you can't manage what you don't measure"**. It essentially combines the principles of energy use and statistics.

Monitoring and Targeting (M&T) programs have been so effective that they show typical reductions in annual energy costs in various industrial sectors between **5 and 15%** as per BEE.

Energy Monitoring and Targeting, its relevance to emissions reduction leading to reduction in carbon footprint and improved Specific Energy Consumption thereby reducing Emission Intensity which is an important step in sustainability that gives results both in the areas of operating costs efficiency as well as environmental protection.

The following important definitions are given in the BEE – Book 1, General Aspects of Energy management & Energy Audit.

Definition of Monitoring & Targeting:

Monitoring is the process of establishing the existing pattern of energy consumption and explaining deviations from existing pattern. Its primary goal is to maintain existing pattern by providing all the necessary data on energy consumption and key related data such as production.

Targeting is the identification of desirable energy consumption level and working towards achieving them. Targets are based on the historical (average or best) data acquired during the monitoring as well as benchmarking with energy performance of similar organizations.

Setting up Monitoring & Targeting

It is important that any proposed M&T program be designed to suit the needs of the particular organization. From an energy point of view, organization can be characterized in various ways. Typical classifications are by the number of sites covered and the level of metering adopted as follows:

- Single site with central utility metering
- Single site with sub-metering
- Multi-site with central utility metering
- Multiple-site with sub-metering

Implementation in SSEL Group of companies

Implementation in SSEL Group of companies can be provided after each site/location study. And, ESG Department will provide the Energy Block Diagram for Energy mapping which will indicate specific meter laying points.

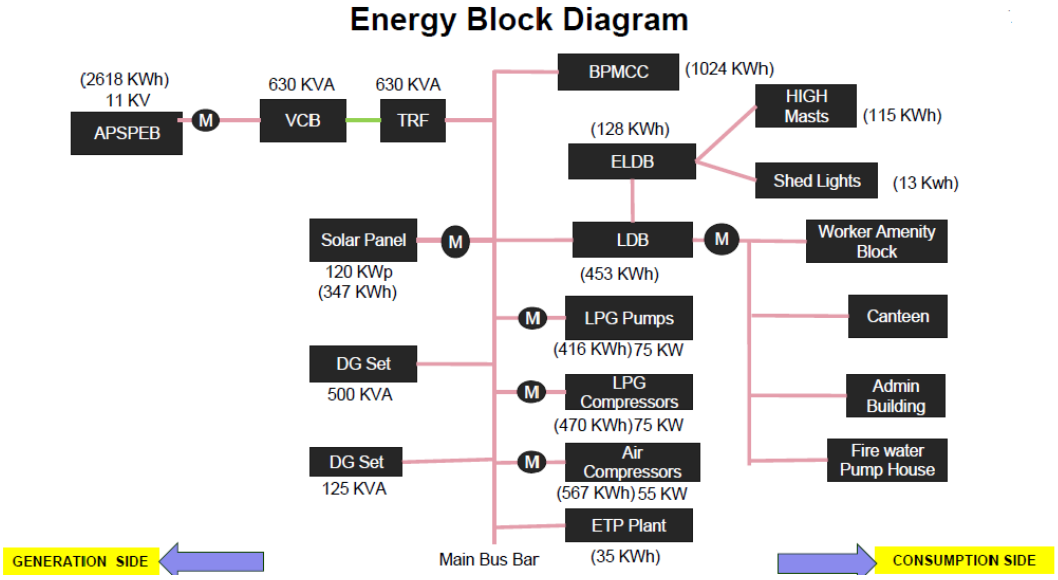


Figure 38: Example of Energy Block Diagram with Meter Laying Points

Figure 39: Typical Energy meter

Key Elements of M&T

- Recording
- Analysing & Comparing
- Setting Targets
- Monitoring
- Reporting
- Controlling

Particularly M&T system will Involve the following:

- Checking the accuracy of energy invoices
- Allocating energy cost
- Determining energy performance
- Recording energy use
- Highlighting performance problem in equipment or systems

Benefits of M&T

- Identify and explain an increase or decrease in energy use
- Draw energy consumption trends (weekly, seasonal, operational)
- Improve energy budgeting corresponding to production plans
- Observe how the organization reacted to changes in the past
- Determine future energy use when planning changes in operations
- Diagnose specific areas of wasted energy
- Develop performance targets for energy management programs/energy action plans
- Manage energy consumption rather than accept it as a fixed cost that cannot be controlled.

One unit saved = Two units generated

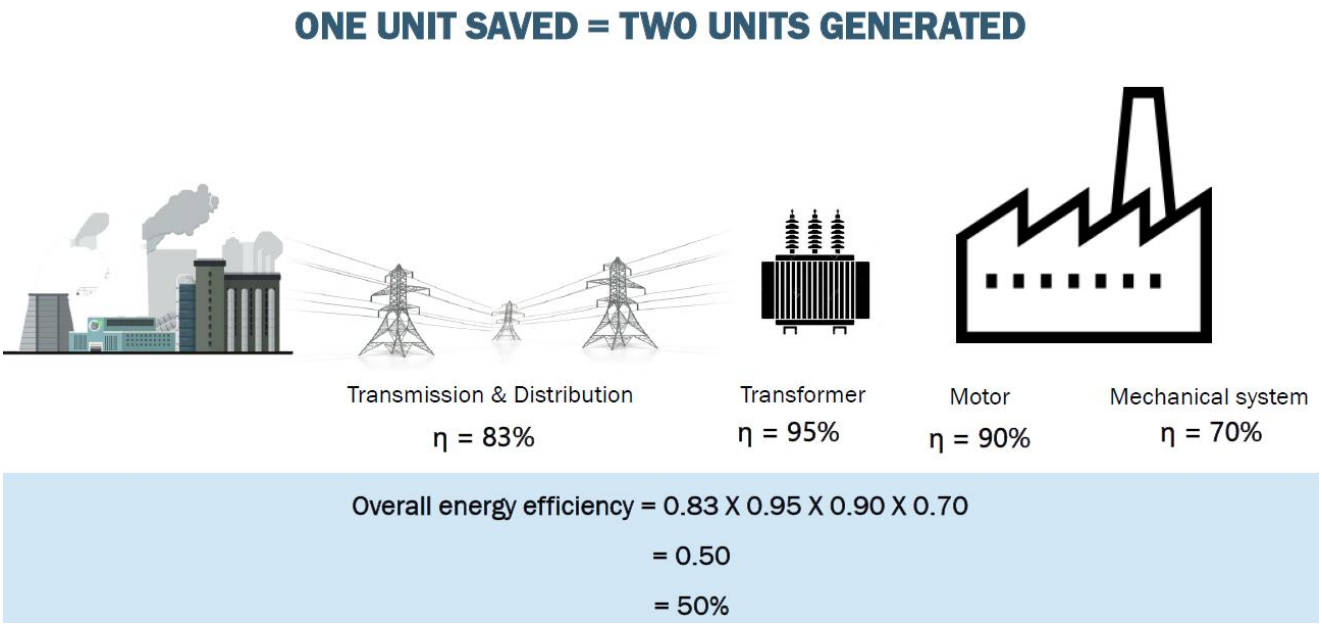


Figure 40: One unit Saved = Two Units Generated

When the power reaches the industry, it meets the transformer. The energy efficiency of the transformer is generally very high. Next, it goes to the motor through internal plant distribution network. A typical distribution network efficiency including transformer is 95% and motor efficiency is about 90%.

Another 30% (Efficiency 70%) is lost in the mechanical system which includes coupling/drive train, a driven equipment such as pump and flow control valves/throttling etc. Thus, the overall energy efficiency becomes 50% (0.83 x 0.95x 0.9 x 0.70 = 0.50, i.e., 50% efficiency)

Hence one unit saved in the end user is equivalent to two units generated in the power plant. (1Unit/0.5Eff-2 Units)

Data, Information Sources & Analysis

- Plant Level
- Plant Department Level
- System Level
- Equipment Level

Analysis

- Annual Energy Consumption
    - Thermal Energy
    - Electrical Energy

Energy Management Information System – EMIS

The use of specially designed information system software is advisable when operating an M&T programme. EMIS software can be developed or purchased.

Generic features:

- A database facility, which is capable of storing and organizing large quantities of data collected over a long period of time.
- The ability to record energy data for all utility types, including data taken from both meters and invoices.
- The ability to handle complex utility tariffs. Tariffs vary from place to place, and are becoming increasingly complex as competition is introduced into the utilities sector.
- The ability to handle other related variables such as degree days and production data.
- A data analysis facility. This is achieved by incorporating statistical analysis software into the energy management software.
- A reporting facility, which is capable of quickly producing energy management reports.
- With the more sophisticated energy management packages it is possible to interface the software with Building Management Systems (BMS), so that energy data can be automatically recorded on a regular basis (e.g. hourly).

Figure 41: Typical Energy Dashboard Lookalike

Energy M&T is an important part of CII GreenCo Rating

About CII GreenCo Rating:

- GreenCo Rating is a Performance based standard.
- It's Define and assess "How Green is your Unit" and highlight the way forward to facilitate world class competitiveness through green strategies.
- It is the "first-of-its-kind in the world"
- The GreenCo Rating System Act as a tool for the company for facilitating excellence in environmental and resource conservation activities that helps to improve towards world class standards.
- It's Helps to implement low hanging measures, identify areas for further advancement and plan for future improvement.
- The Unit will be evaluated for a total of 1000 Points and rated on Five different levels.
- It was launched in 2011
- 900+ Companies working on GreenCo Ratings.
- 590+ Companies are GreenCo rated.

Figure 42: Rating Level

Parameter	Points
Management System	75
Energy Management	150
Carbon Management	150
Water Management	125
Material Resource Management	125
Green Supply Chain	100
Product Stewardship and Life Cycle Approach	125
Innovation for Environment	50
Green Built Environment and Others	100
Total	1000

Figure 43: Credit Points

Table 28: Credit Requirements under Energy Management

Energy Management			
Credit Number	**Credit**	**Maximum Credit**	
EM Mandatory Requirement 1	**Energy Mapping**	***NA***	
EM Mandatory Requirement 2	**Energy Management Cell *(only for energy intensive industries)***	***NA***	
EM Credit 1	**Leadership & Strategy**	**10**	
EM Credit 1.1	Target setting		5
EM Credit 1.2	Action plan		5
EM Credit 2	**Energy Monitoring System**	**15**	
EM Credit 2.1	Equipment-wise energy monitoring		5
EM Credit 2.2	Variance analysis and corrective actions		5
EM Credit 2.3	Energy monitoring dashboard		5
EM Credit 3	**Reduction in Specific Energy Consumption**	**50**	
EM Credit 3.1	Reduction in specific energy consumption		30
EM Credit 3.2	Projects implemented to achieve the reduction in SEC		10
EM Credit 3.3	Tools and techniques used in energy management		10
EM Credit 4	**Efficiency Improvement**	**15**	
EM Credit 4.1	Equipment Wise Efficiency Improvement		10
EM Credit 4.2	Process Wise Efficiency Improvement		5
EM Credit 5	**Benchmarking**	**25**	
EM Credit 5.1	Internal benchmarking		15
EM Credit 5.2	External benchmarking		
EM Credit 5.2.1	National benchmarking		5
EM Credit 5.2.2	International benchmarking		5
EM Credit 6	**Renewable Energy**	**35**	
EM Credit 6.1	Renewable energy potential mapping		5
EM Credit 6.2	% of renewable energy in electrical energy		25
EM Credit 6.2	% of on-site renewable energy in thermal energy		5
Total		**150**	

Stage 1 – 25 Points Out of 150 Points
Stage 2 – 100 Points Out of 150 Points
Stage 3 – 25 Points Out of 150 Points

25 points out of 150 points under Energy Management which can be achieved through Energy Monitoring System and Leadership & Strategy which are the First Stage. In the next stage we can address 100/150 points which are Reduction in Specific Energy Consumption, Renewable Energy & Equipment-wise efficiency improvement. The third stage is benchmarking.

Strategy

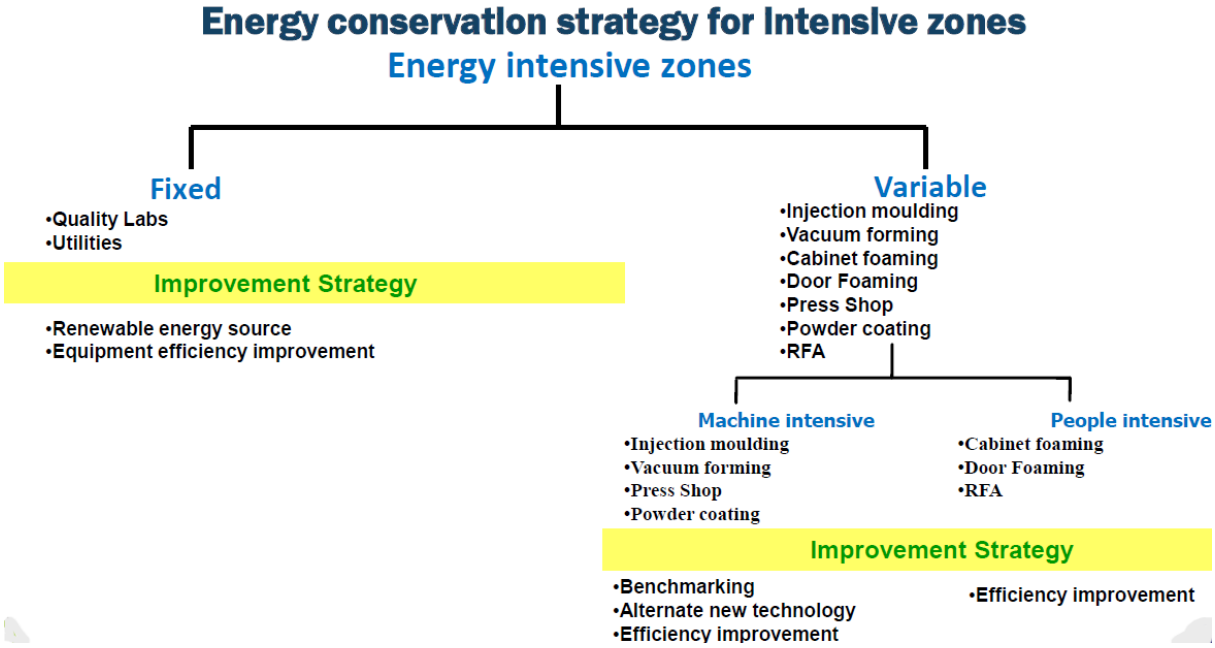
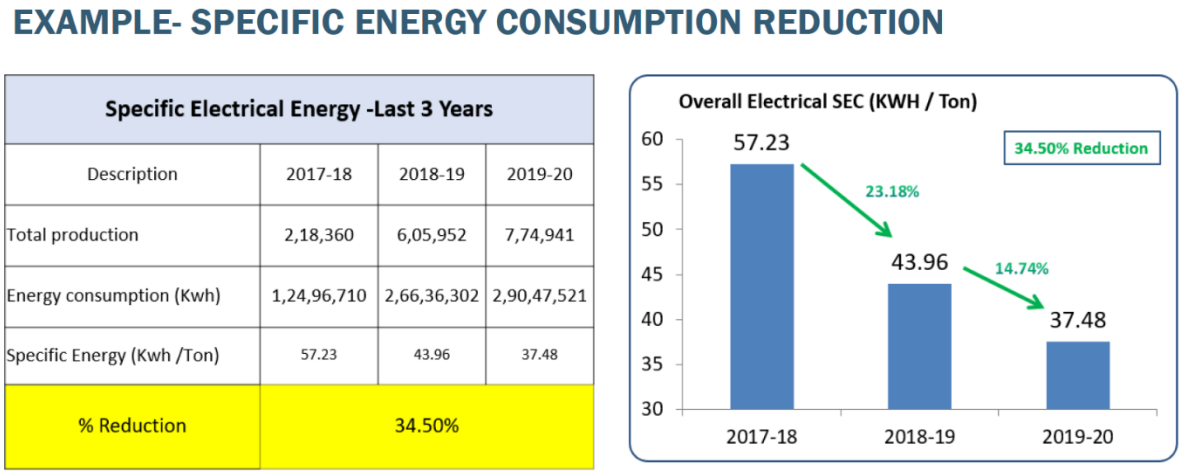


Figure 44: Typical Example of Energy Conservation Strategy

Teasers for Stage 2



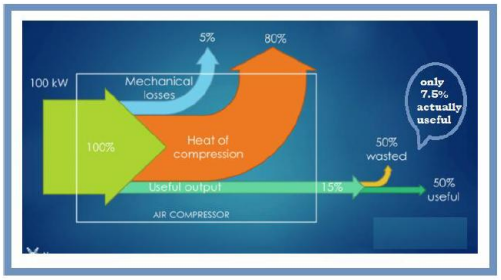
Specific Electrical Energy -Last 3 Years			
Description	2017-18	2018-19	2019-20
Total production	2,18,360	6,05,952	7,74,941
Energy consumption (Kwh)	1,24,96,710	2,66,36,302	2,90,47,521
Specific Energy (Kwh /Ton)	57.23	43.96	37.48
% Reduction	34.50%		

Figure 45: Example of Reduction on Specific Energy Consumption (SEC)

ENERGY SAVING OPPORTUNITIES

❑ Compressor

- Monitor Volumetric efficiency (kW/CFM)
- Monitor % leakages and take corrective action
- Segregation of pressure lines
- Aluminum piping for compressed air network
- Installation of VFDs
- Use of transvector nozzles
  - ➢ Saving potential 50%



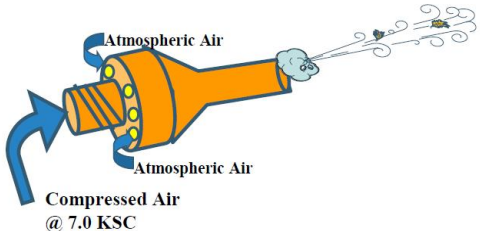


Figure 46: Energy Saving Opportunities in Compressor

ENERGY SAVING OPPORTUNITIES

❑ Pumps, Fans and Blowers

- Arresting leakages in water pipelines and air ducts
- Monitoring of efficiencies
- Installation of VFDs
- Use of coatings to reduce friction in pumps and increase efficiency

Pump Power Calculator

$$\text{Pump Hydraulic Power (kW)} = \frac{\text{Pump Flowrate } \left(\frac{m^3}{h}\right) \times \text{Fluid Density } \left(\frac{kg}{m^3}\right) \times g\left(\frac{m}{s^2}\right) \times \text{Pump Head (m)}}{3.6 \times 10^6}$$

$$g = \text{gravitational acceleration} = 9.81 m/s^2$$

$$\text{Shaft Power (kW)} = \frac{\text{Pump Hydraulic Power (kW)}}{\text{Pump Efficiency}}$$

$$\text{Motor Power (kW)} = \frac{\text{Shaft Power (kW)}}{\text{Motor Efficiency}}$$

$$\text{Motor Power (kW)} = \frac{\text{Pump Flowrate } \left(\frac{m^3}{h}\right) \times 1000\left(\frac{kg}{m^3}\right) \times 9.81\left(\frac{m}{s^2}\right) \times \text{Pump Head (m)}}{3.6 \times 10^6 \times \text{Pump Efficiency} \times \text{Motor Efficiency}}$$

Figure 47: Energy Saving Opportunities in Pumps, Fans and Blowers

ENERGY SAVING OPPORTUNITIES

❑ Lightings and Electrical Systems

- Maintaining power factor close to unity or unity
- Measuring efficiencies of motor and replacement of old inefficient motors
- Maximum usage of daylight (transparent sheets / sky lights)
- Lux mapping across the plant level and provide exact lighting as per requirement
- Lowering the heights of luminaires wherever possible

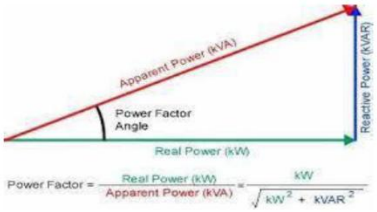


Figure 48: Energy Saving Opportunities in Lightings and Electrical Systems

Equipment Wise Efficiency Improvements:

- List of the most energy consuming equipment to be made - this equipment put together should contribute to at least 80% of the overall energy consumption.
- Performance evaluation of the energy intensive equipment need to be carried out and recorded. For example, kW/CFM for compressors, kW/TR for chillers, efficiency for fans, pumps, blowers, etc.
- For the listed equipment, the following aspects must be monitored -
    - Rated efficiency versus operating efficiency
    - Operating efficiency versus market efficiency
    - From the efficiency analysis, a deviation chart can be derived. Activities initiated or action plan developed to address the deviation must be specified in this credit.

3.3.6 ISO 50001 – EnMS – Indo Tech Transformers Limited Preparedness and Planning

ISO 50001 specifies requirements for establishing, implementing, maintaining and improving an energy management system (EnMS). The intended outcome is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance and the EnMS.

Applicability:

- It is applicable to any organization regardless of its type, size, complexity, geographical location, organizational culture or the products and services it provides.
- It is applicable to activities affecting energy performance that are managed and controlled by the organization.
- It is applicable irrespective of the quantity, use, or types of energy consumed.
- Requires demonstration of continual energy performance improvement, but does not define levels of energy performance improvement to be achieved.
- Can be used independently, or be aligned or integrated with other management systems.

Benefits:

- **Cost Reduction**: By implementing energy management systems, organizations can identify areas for improvement and reduce energy consumption, leading to significant cost savings.
- **Improved Energy Efficiency**: ISO 50001 provides a framework for systematically managing energy use, leading to better efficiency and resource optimization.
- **Reduced Carbon Footprint**: By reducing energy consumption, organizations can lower their greenhouse gas emissions, contributing to environmental sustainability and global efforts to combat climate change.
- **Enhanced Reputation**: Certification demonstrates a commitment to energy efficiency and sustainability, enhancing an organization's reputation and building trust with customers, investors, and stakeholders.

- **Compliance with Regulations**: ISO 50001 helps organizations understand and comply with energy-related legal and regulatory requirements, reducing the risk of fines and penalties.
- **Competitive Advantage**: Certification sets organizations apart from competitors, demonstrating a commitment to sustainable practices and attracting environmentally conscious customers and partners.
- **Operational Efficiency**: By improving energy management, organizations can also enhance overall operational efficiency, leading to better resource utilization, reduced waste, and increased productivity.
- **Continual Improvement**: The standard encourages a culture of continuous improvement in energy management, fostering innovation and long-term sustainability.
- **Employee Engagement**: ISO 50001 can also increase employee awareness and engagement in energy management initiatives, leading to more effective implementation and improved results.
- **Risk Management**: By identifying and mitigating energy-related risks, ISO 50001 helps organizations enhance their resilience and adaptability to market changes.

Documentation Required as per ISO 50001:

Document Name	Requirement Clause	Mandatory/ Optional
Energy Policy	5.2	Yes
Scope and Boundaries of the EnMS	4.3	Yes
Energy Review	6.3	Yes
Identified Significant Energy Uses (SEUs)	6.3	Yes
Energy Baseline(s)	6.4	Yes
Energy Performance Indicators (EnPIs)	6.4	Yes
Energy Objectives, Targets, and Action Plans	6.2	Yes
Criteria for Effective Operation & Maintenance	8.1	Yes
Monitoring & Measurement Plan	9.1.1	Yes
Competence Records (Training, Qualifications)	7.2	Yes
Internal Audit Procedure & Reports	9.2	Yes
Management Review Meeting Records	9.3	Yes
Nonconformities & Corrective Action Records	10.1	Yes
Legal & Other Compliance Register	6.1.3	Yes
Communication Records (Internal/External)	7.4	Optional
Energy Data (Utility bills, Meter logs, etc.)	6.3 / 9.1	Recommended
Equipment List and Maintenance Records	8.1	Recommended
Organizational Chart & Roles	5.3	Recommended
Procurement Procedures (Energy-efficient products)	8.2	Recommended
Change Management Procedures	8.1	Optional
Risk & Opportunity Assessment (energy-related)	6.1	Optional

Table 29:Documentation required for ISO 50001

3.3.7 ISO 14064 GHG Accounting – Indo Tech Transformers Limited Preparedness and Planning

ISO 14064 is a series of international standards developed by the International Organization for Standardization (ISO) that provides guidelines and requirements for the quantification, monitoring, reporting, and verification of greenhouse gas (GHG) emissions and removals. It is part of the ISO 14000 family of standards focused on environmental management.

Key aspects of ISO 14064:

- **Purpose:** To help organizations transparently measure, manage, and report their GHG emissions and removals.
- **Scope:** ISO 14064 applies to organizations, projects, and products.
- **Standards:**

There are three main parts:

  - **ISO 14064-1:** Focuses on quantifying and reporting GHG emissions and removals at the organizational level.
  - **ISO 14064-2:** Provides guidance on quantifying, monitoring, and reporting emission reductions and removal enhancements from specific projects.
  - **ISO 14064-3:** Deals with the verification and validation of GHG statements.

- **Benefits:**
  - Accurate and reliable measurement of GHG emissions.
  - Enhanced transparency and accountability.
  - Improved credibility through independent verification.
  - Facilitates comparison of GHG data across different organizations.

- **Applications:**
  - **Organizational level:** Helps companies develop and manage their GHG inventories.
  - **Project level:** Provides guidance for quantifying and reporting emissions from specific projects, such as afforestation or renewable energy projects.
  - **Product level:** Can be used to assess the carbon footprint of products across their life cycle.

In essence, ISO 14064 provides a standardized and globally recognized framework for organizations to understand, manage, and report on their GHG emissions, contributing to efforts to combat climate change.

3.4 Environmental Policy

INDO TECH

Indo Tech Transformers Limited
S.NO. 153-210,
Illuppapattu Village
P.O. Rajakulam,K.M. 64
Chennai Bangalore Highway
Kancheepuram Dist
Tamilnadu- 631 561

Environmental Sustainability Policy

We at Indo Tech Transformers Ltd. own responsibilities for Environmental Sustainability. We meet our compliance obligations as minimum and work to continuously improve over it.

Scope

Our Environmental Sustainability Policy is applicable to all employees who carry out work on behalf of every business of Indo Tech Transformers Ltd.

We are committed to

- Identifying our environmental risks, including climate change, and developing plans to mitigate them.
- Protecting the environment by ensuring prevention of pollution is a key consideration in the design of all our assets. .
- Using resources more efficiently by using sustainable materials and reducing waste.
- Identifying opportunities to use alternatives to hazardous materials.
- Seeking ways to enhance the natural value of the areas we work for the benefit of local communities and the environment.
- Continuously improving the Environmental Management System by reviewing and challenging our performance using feedback from stakeholders and benchmarking against our contemporaries.

Everyone at Indo Tech Transformers Limited will proactively support the environment in the way we work. We will always drive for better performance and learn when things don't go right.

Date: 04.04.2022

Shridhar Gokhale
(Chief Executive Officer)
Indo Tech Transformers Ltd.

3.4.1 ESG Working Group

Indo Tech Transformers has an ESG Working Group, compromises of the following representatives, which is responsible to oversee the implementation and compliance of the framework and report any discrepancies to the management of the company while also providing an annual status update on the achievement of commitment. This group has a meeting frequency of 3 three months which commences from Q2 of FY25-26.

i. Karthick. D - Compliance Officer
ii. Gandhirasan - Assistant Manager EHS
iii. Shanmugam Ravi - Assistant General Manager Operations
iv. Kumaresh CS - Deputy Manager HR

Scope of ESG working group is to set targets and monitor / work done in the below areas

- Overseeing goals set for reduction of Emissions
- Energy Efficiency/Water Consumption/Waste Management
- Monitor Influence of company over Value Chain
- Ensure alignment of ESG initiatives with business objectives and stakeholder expectations
- Evaluate and monitor key ESG risks and opportunities

The ESG Working group has the following tasks for FY25-26:

- Submit ESG Strategy & Roadmap to the management for approval
- Set emission reduction targets
- Formulate & Implement the Supplier Code of Conduct (SCoC)
- Training of vendors and suppliers on the SCoC

3.4.2 KRA linked to ESG

Indo-Tech Transformers has a total of 243 KRA points assigned to each department, of which 20 points are in the nature of ESG Activities. Therefore, ESG accounts for 8.23% of the total KRA, which is an acceptable weightage for ESG metrics.

SI.No	Department Name	KRA pertaining to ESG
1	Service	2
2	Design	2
3	Quality	2
4	Testing	2
5	HR	2
6	Maintenance, Projects & TPS	2
7	Production	2
8	EHS	3
9	Procurement	1
10	Logistics	1
11	Digital Transformation	1
TOTAL		**2**

Total KRA	243
Total KRA pertaining to ESG	20
% of KRA on ESG	**8.23%**

4. SOCIAL

4.1 Occupational Health and Safety

Occupational Health and Safety (OHS) is a discipline with a broad scope involving many specialized fields. In its broadest sense, it aims at:

- Promotion and maintenance of the highest level of physical, mental and social well-being of workers in all occupations in the organization;
- Prevention among workers of adverse effects on health caused by their working conditions;
- Protection of workers in their employment from risks resulting from factors adverse to health;
- Placing and maintenance of workers in an occupational environment adapted to physical and mental needs;

In other words, OHS encompasses the social, mental and physical well-being of workers in all aspects.

Successful OHS practice requires the collaboration and participation of both employers and workers in health and safety programmes, and involves the consideration of issues relating to occupational medicine, industrial hygiene, toxicology, education, engineering safety, ergonomics, psychology, etc.

Occupational health issues are often given less attention than occupational safety issues because the former are generally more difficult to confront. However, when health is addressed, so is safety, because a healthy workplace is by definition also a safe workplace. The converse, though, may not be true - a so-called safe workplace is not necessarily also a healthy workplace. The important point is that issues of both health and safety must be addressed in every workplace. By and large, the definition of OHS given above encompasses both health and safety in their broadest contexts.

Poor working conditions of any type have the potential to affect a worker's health and safety.

Unhealthy or unsafe working conditions are not limited to factories — they can be found anywhere, whether the workplace is indoors or outdoors. For many workers, such as agricultural workers or miners, the workplace is "outdoors" and can pose many health and safety hazards.

Poor working conditions can also affect the environment workers live in, since the working and living environments are the same for many workers. This means that occupational hazards can have harmful effects on workers, their families, and other people in the community, as well as on the physical environment around the workplace. A classic example is the use of pesticides in agricultural work. Workers can be exposed to toxic chemicals in a number of ways when spraying pesticides: they can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink, or smoke without first washing their hands, or if drinking water has become contaminated with the chemicals.

The workers' families can also be exposed in a number of ways: they can inhale the pesticides which may linger in the air, they can drink contaminated water, or

they can be exposed to residues which may be on the worker's clothes. Other people in the community can all be exposed in the same ways as well. When the chemicals get absorbed into the soil or leach into groundwater supplies, the adverse effects on the natural environment can be permanent.

Overall, efforts in occupational health and safety must aim to prevent industrial accidents and diseases, and at the same time recognize the connection between worker health and safety, the workplace, and the environment outside the workplace.

4.1.1 Importance of OHS

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on a plantation, in an office, factory, etc. Therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day workers all over the world are faced with a multitude of health hazards, such as:

- dusts
- gases
- noise
- vibration
- extreme temperatures.

Unfortunately, some employers assume little responsibility for the protection of workers' health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world.

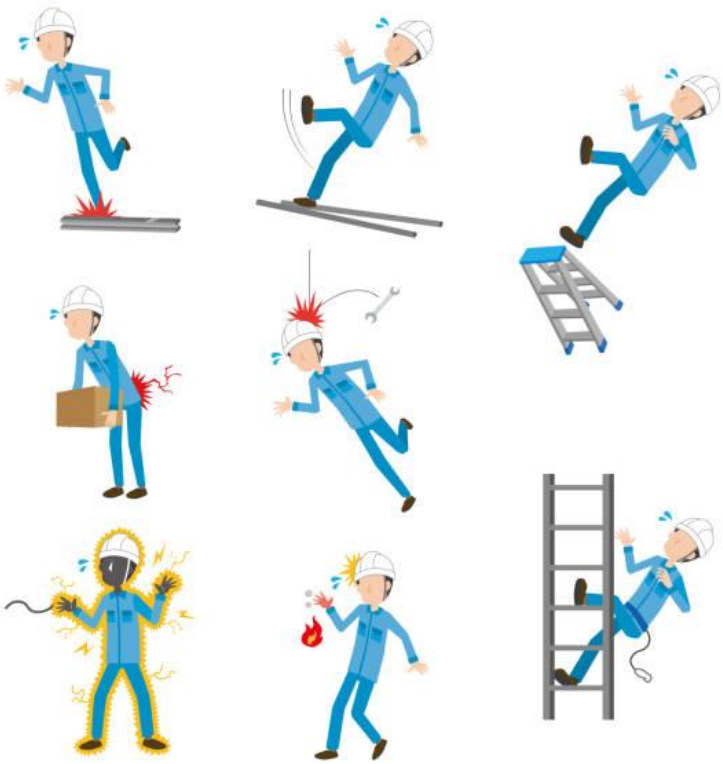


Figure 49: Occupational Injury

4.1.2 Costs of occupational injury/disease

In India, the cost of injury or illness to an employee that must be borne by an employer depends on various factors, including the severity of the injury, the industry, and compliance with labour laws. Below are the key costs that an employer may have to bear:

1. Direct Costs

These are legally mandated costs that an employer must pay under various labour laws:

a. Compensation under the Employees' Compensation Act, 1923

- Applicable to workers in factories, mines, plantations, and hazardous occupations.
- Employers must compensate workers for injury or death due to workplace accidents.
- Compensation formula for permanent disability or death:
- Death: 50% of monthly wages × relevant age factor (minimum ₹1,40,000).
- Permanent Total Disablement: 60% of monthly wages × relevant age factor (minimum ₹1,20,000).
- Temporary Disablement: 25% of monthly wages, paid every two weeks.

b. Contribution to Employees' State Insurance (ESI)

- Applicable to establishments with 10+ employees.
- Covers medical care, disability, sickness, maternity, and death benefits.
- Employer's contribution: 3.25% of the worker's wages.
- c. Gratuity (if applicable)
- If the injury results in termination of service and the employee has completed five years, gratuity may be payable under the Payment of Gratuity Act, 1972.
- Formula: (15/26) × Last drawn salary × No. of years of service.

2. Indirect Costs

These are additional costs not mandated by law but still impact the employer.

a. Productivity Loss

- Absence from work affects production and efficiency.
- Other employees may have to take over the injured worker’s tasks, reducing efficiency.

b. Hiring & Training Costs

- If an employee is unable to return to work, the employer may have to recruit and train a replacement.

c. Legal & Compliance Costs

- Non-compliance with labour laws may result in penalties, fines, or lawsuits.
- The employer may have to defend claims in labour courts or tribunals.

d. Reputation Damage

- Workplace injuries can lead to bad publicity and lower employee morale, affecting retention and hiring.

Key Differences in Risk Levels based on workplace:

Factor	Manufacturing Sector	Service Sector
Risk Level	High (heavy machinery, chemicals, hazardous work)	Low (mostly office work, customer service)
Common Injuries	Burns, fractures, amputations, respiratory diseases	Repetitive strain injuries, stress-related illness
Fatal Accidents	More frequent due to industrial hazards	Rare
Regulatory Compliance	Stringent safety laws (Factories Act, ESI, Employees' Compensation Act)	Fewer regulations for non-hazardous work

Table 30: Key Difference in Risk Levels

Comparative Cost of Injury/Illness

Cost Factor	Manufacturing	Service Sector
Medical Expenses	High due to severity of injuries (₹50,000–₹5,00,000+)	Low to moderate (₹10,000–₹1,00,000)
Compensation under Employees' Compensation Act	Higher payouts due to disability/death risks	Lower as injuries are often non-disabling
ESI Contribution (if applicable)	Employer pays 3.25% of wages	Same (3.25% of wages)
Loss of Productivity	High due to specialized workforce	Low as roles are easily replaceable
Hiring & Training Replacement Cost	High, especially for skilled labor	Low, as replacements are easier to find
Legal & Compliance Costs	Can be significant if safety laws are violated	Minimal unless there's workplace harassment or mental health issues
Insurance Premiums	Higher due to occupational hazards	Lower, as workplace injuries are rare
Reputation Impact	Severe (safety violations can impact operations)	Moderate (employee dissatisfaction, stress issues)

Table 31: Cost of Injury/Illness Comparison

4.1.3 Key Hazards in Transformer Manufacturing

- Electrical Hazards: The industry inherently involves working with high-voltage electricity, posing risks of electrical shocks and burns.
- Musculoskeletal Disorders (MSDs): Handling heavy components, repetitive tasks, and awkward postures contribute to MSDs.
- Chemical Exposure: Exposure to solvents, insulating oils, and other chemicals used in transformer manufacturing can lead to respiratory problems and skin conditions.
- Noise and Vibration: Machinery used in transformer manufacturing can generate high noise levels and vibrations, causing hearing damage and other health issues.

- Thermal Hazards: Working with welding and soldering equipment, and also working with heated materials, poses burn risks.

Figure 50: Hazards in Transformer Manufacturing Industry

4.1.4 Additional Insights on injury in Manufacturing Sector

MSD Prevalence:

- Studies indicate a high prevalence of MSDs in manufacturing industries in India. Research available shows that a large percentage of workers report Musculoskeletal discomfort.
- For example, research papers such as "Ergonomic Risk Identification and Postural Analysis in Electrical Transformers Manufacturing Company located in Southern *1* India" highlight the high risk of MSDs within the transformer manufacturing work environment.

General Manufacturing Injury Rates:

- Reports from sources like the Directorate General Factory Advice Service & Labor Institutes (DGFASLI), Ministry of Labor and Employment, Govt of India provide data on industrial injuries in the broader manufacturing sector. While not transformer-specific, they indicate the general risks present.
- Studies have shown that manufacturing sectors that deal with metal work, and heavy machinery, have higher rates of workplace injury. Transformer manufacture falls within this risk category.

Chemical Exposure Risks:

- The use of chemicals in the transformer industry raises concerns about occupational diseases. Reports on chemical industry hazards in India provide insights into the potential risks.

Preventive Measures and Recommendations:

- Enhanced Safety Protocols: Implementing stringent safety measures, regular equipment maintenance, and employee training can reduce the risk of accidents.
- Quality Assurance: Ensuring the use of high-quality materials, like certified CRGO steel, can prevent equipment failures leading to accidents.
- Regulatory Compliance: Adhering to national safety standards and conducting regular audits can mitigate legal risks and promote a safer work environment.

Extract from DGFASLI Reports:

- The DGFASLI collects and compiles data from state-level Chief Inspectors of Factories, providing a national overview.
- However, the limitations of data collection, particularly within the informal sector, must be considered.
- The reporting of occupational disease is extremely low, and therefore is not a good metric for the actual amount of work-related disease that occurs.
- Based on the information available from DGFASLI and related sources, these are the key points on deaths and disabilities within the Indian manufacturing sector:

Fatalities:

- Reports indicate that, on average, over 1,000 people die annually in factories registered under the Factories Act, 1948, between 2012 and 2022. This highlights the persistent risk of fatal accidents within the manufacturing sector.
- It is important to understand that this figure represents the deaths that are reported from registered factories, and that the true number of deaths may be significantly higher, due to the large informal work sector in India.

Non-Fatal Injuries:

- While fatal injuries are a serious concern, non-fatal injuries also have a significant impact. Data indicates a trend of declining non-fatal injuries in registered factories in recent years. Where the number of fatal injuries is around 1000 per year, the number of non-fatal injuries has been recorded in the thousands.

Sectoral Risks:

- Sectors like construction and those involving heavy machinery and chemical processing consistently exhibit higher risks of accidents and disabilities. The manufacturing sector as a whole, contains many industries that contain these risks.

Data Limitations:

- It's crucial to acknowledge that these figures primarily reflect data from registered factories. The informal sector, which employs a substantial portion of India's workforce, often lacks adequate reporting mechanisms.
- Therefore, the actual number of occupational injuries and disabilities is likely significantly higher.

Challenges in Reporting Occupational Diseases:

- Occupational diseases are often underreported due to difficulties in diagnosis and attribution. This makes it challenging to accurately assess the prevalence of work-related illnesses.

4.1.5 Health and Safety Programmes

For all of the reasons given above, it is crucial that employers, workers and unions are committed to health and safety and that:

- workplace hazards are controlled - at the source whenever possible;
- records of any exposure are maintained for many years;
- both workers and employers are informed about health and safety risks in the workplace;
- there is an active and effective health and safety committee that includes both workers and management;
- worker health and safety efforts are ongoing.

Effective workplace health and safety programmes can help to save the lives of workers by reducing hazards and their consequences. Health and safety programmes also have positive effects on both worker morale and productivity, which are important benefits. At the same time, effective programmes can save employers a great deal of money.

4.1.6 Importance of management commitment

In order to develop a successful health and safety programme, it is essential that there be strong management commitment and strong worker participation in the effort to create and maintain a safe and healthy workplace. An effective management addresses all work-related hazards, not only those covered by government standards.

All levels of management must make health and safety a priority. They must communicate this by going out into the worksite to talk with workers about their concerns and to observe work procedures and equipment. In each workplace, the lines of responsibility from top to bottom need to be clear, and workers should know who is responsible for different health and safety issues.

4.1.7 The importance of training

Workers often experience work-related health problems and do not realize that the problems are related to their work, particularly when an occupational disease, for example, is in the early stages. Besides the other more obvious benefits of training, such as skills development, hazard recognition, etc., a comprehensive training programme in each workplace will help workers to:

- recognize early signs/symptoms of any potential occupational diseases before they become permanent conditions;
- assess their work environment;
- insist that management make changes before hazardous conditions can develop.

4.1.8 Role of the health and safety representative

As health and safety representative your role is to work proactively (this means taking action before hazards become a problem) to prevent workers from being exposed to occupational hazards. You can do this by making sure management eliminates hazards or keeps them under control when they cannot be eliminated.

Steps to help you reach your goals are:
1. Be well informed about the various hazards in your workplace and the possible solutions for controlling those hazards.
2. Work together with your union and the employer to identify and control hazards.

3. Although these Modules have been developed for the protection of workers, you may occasionally need to share some of this information with your supervisors and employer in the process of working towards a safe and healthy workplace.

Being a health and safety representative is not always easy, but helping to protect the lives of your fellow workers is worth all the time and effort you put into the job.

Workers in every occupation can be faced with a multitude of hazards in the workplace. Occupational health and safety addresses the broad range of workplace hazards from accident prevention to the more insidious hazards including toxic fumes, dust, noise, heat, stress, etc. Preventing work-related diseases and accidents must be the goal of occupational health and safety programmes, rather than attempting to solve problems after they have already developed.

Hazards in the workplace can be found in a variety of forms, including chemical, physical, biological, psychological, non-application of ergonomic principles, etc. Because of the multitude of hazards in most workplaces and the overall lack of attention given to health and safety by many employers, work-related accidents and diseases continue to be serious problems in all parts of the world. Therefore, trade unions must insist that employers control hazards at the source and not force workers to adapt to unsafe conditions.

Management commitment to health and safety and strong worker participation are two essential elements of any successful workplace health and safety program. The most effective accident and disease prevention begins when work processes are still in the design stage

4.2 OHS in Indo Tech Transformers Limited, Kancheepuram

4.2.1 OHS/EHS Site Team

Sl.No	Name	Designation
1.	Gandhirasan KKS	Asst Manager

Table 32: OHS/EHS site team

4.2.2 Emergency Team Details

Emergency Response Team:

Sl. No	Name	Department	Shift	Roles in Emergency
1	C.Isravel Veda	Winding	Shift 1	Evacuation
2	Iyyapan.A	Winding	Shift 1	Evacuation
3	M.Narendran	Assembly	Shift 1	Evacuation
4	J.Deenadayalan	Assembly	Shift 1	Evacuation
5	P.Chinniah	Assembly	Shift 1	Evacuation
6	Sivagurunathan.C	Winding	Shift 1	Evacuation
7	N.Parthasarathi	Assembly	Shift 1	Evacuation
8	J.Alexander	Assembly	Shift 1	Evacuation
9	C.Suresh Babu	Assembly	Shift 1	Evacuation
10	A.Sathish	Winding	Shift 1	Evacuation
11	A.Ravichandran	Assembly	Shift 1	Evacuation
12	Krishnakumar.E	Assembly	Shift 1	Evacuation
13	Surya.A	Assembly	Shift 1	Evacuation
14	Dasarathlal	Winding	Shift 1	Evacuation
15	Pushp Raj Singh	Assembly	Shift 1	Evacuation
16	Rajesh Singh	Winding	Shift 1	Evacuation
17	Rajesh Sharma	Assembly	Shift 1	Evacuation
18	Vandana	OTR	Shift 1	Evacuation
19	Rajesh K T	Palnning	Shift 1	Evacuation
20	Nithyanandan P	Quality	Shift 1	Evacuation
21	Vivkanandhan S	Quality	Shift 1	Evacuation
22	Amal Prince	Assembly	Shift 1	Evacuation
23	Santo Saji John	Project	Shift 1	Evacuation
24	Naveenkumar	Store	Shift 1	Evacuation
25	Prabu Raja	Design	Shift 1	Evacuation
26	Nalini	Admin	Shift 1	Evacuation
27	Praveena	Design	Shift 1	Evacuation
28	Murugan	SCM	Shift 1	Evacuation
29	Srinivasan	Testing	Shift 1	Evacuation
30	Manikandan L Finance	Finance	Shift 1	Evacuation
31	Sivakumar S	Winding	Shift 1	Evacuation
32	Santhoshkumar.E	Winding	Shift 2	Evacuation
33	N.Boobesh	Winding	Shift 2	Evacuation
34	Thanthoni.M	Winding	Shift 2	Evacuation
35	Janakiraman	Winding	Shift 2	Evacuation
36	Sundrarajan	Winding	Shift 2	Evacuation
37	R.Jayakumar	Assembly	Shift 2	Evacuation
38	G.Prakash	Assembly	Shift 2	Evacuation
39	J.Babu	Assembly	Shift 2	Evacuation
40	Senthilkumar.K.G.	Winding	Shift 2	Evacuation

41	G.Chandrasekar	Assembly	Shift 2	Evacuation
42	V.Vasu	Assembly	Shift 2	Evacuation
43	Kandasamy.R	Assembly	Shift 2	Evacuation
44	Kandasamy.S	Winding	Shift 2	Evacuation
45	Damodharan	Winding	Shift 2	Evacuation
46	Sivaraman..D	Winding	Shift 3	Evacuation
47	T.Ravichandran	Winding	Shift 3	Evacuation
48	Ganapathi.M	Winding	Shift 3	Evacuation
49	R.Dhandapani	Winding	Shift 3	Evacuation
50	M.Yuvaraj	Assembly	Shift 3	Evacuation
51	E.Thamizh Mano	Assembly	Shift 3	Evacuation
52	M.Vasu	Assembly	Shift 3	Evacuation
53	M.S.Karthikeyan	Assembly	Shift 3	Evacuation
54	K Pandurangan	Assembly	Shift 3	Evacuation
55	Kantharooban.M	Winding	Shift 3	Evacuation
56	P.Hemadri	Assembly	Shift 3	Evacuation
57	Sivakumar.S	Winding	Shift 3	Evacuation
58	Venkateshwaran.S	Winding	Shift 3	Evacuation
59	Karthikeyan.R	Winding	Shift 1	Fire Response
60	Antony Raj.T	Winding	Shift 1	Fire Response
61	Arul.I	Winding	Shift 1	Fire Response
62	Karupasamy.S	Winding	Shift 1	Fire Response
63	Gajendran.K	Winding	Shift 1	Fire Response
64	C.Parasuraman	Winding	Shift 1	Fire Response
65	Thanigamalai.K	Winding	Shift 1	Fire Response
66	M.Sathya	Winding	Shift 1	Fire Response
67	Saravanan.K	Assembly	Shift 1	Fire Response
68	D.Sasikumar	Assembly	Shift 1	Fire Response
69	Pratheeban.M	Assembly	Shift 1	Fire Response
70	Elumalai.A	Assembly	Shift 1	Fire Response
71	D.Paramasivam	Assembly	Shift 1	Fire Response
72	K.Mohanraj	Assembly	Shift 1	Fire Response
73	S.Saravanan	Assembly	Shift 1	Fire Response
74	S.Sundar	Assembly	Shift 1	Fire Response
75	S.Prabakar	Assembly	Shift 1	Fire Response
76	D.Saravanan	Assembly	Shift 1	Fire Response
77	Dinesh.K.S.	Winding	Shift 1	Fire Response
78	Vinay Singh	Winding	Shift 1	Fire Response
79	Munna	Assembly	Shift 1	Fire Response
80	Dinesh Chand Gujar	Assembly	Shift 1	Fire Response
81	Om Prakash Singh	Assembly	Shift 1	Fire Response
82	M Naresh	Winding	Shift 1	Fire Response
83	Devaraj	Testing	Shift 1	Fire Response
84	Jeybeem	Testing	Shift 1	Fire Response
85	Masco	Testing	Shift 1	Fire Response
86	Kalaiarasan	Design	Shift 1	Fire Response
87	Naveenkumar	Store	Shift 1	Fire Response
88	Selvabushan	TPS	Shift 1	Fire Response
89	Loganathan	Design	Shift 1	Fire Response
90	Deepak Narla	Quality	Shift 1	Fire Response
91	Balkrishnan	OTR	Shift 1	Fire Response
92	Muralidharan	SCM	Shift 1	Fire Response
93	Durairaj	Quality	Shift 1	Fire Response

94	Santhosh	Finance	Shift 1	Fire Response
95	Kipson	SCM	Shift 1	Fire Response
96	Karthik Gurram	Commercial	Shift 1	Fire Response
97	Kumar M	Testing	Shift 1	Fire Response
98	Yuvaraj	Assembly	Shift 1	Fire Response
99	Ramesh D	Testing	Shift 1	Fire Response
100	Hariharan	TPS	Shift 1	Fire Response
101	Shyamkumar P	Commercial	Shift 1	Fire Response
102	Parivallal T	SCM	Shift 1	Fire Response
103	Sathish R	Maintenance	Shift 1	Fire Response
104	Santhakumar	Maintenance	Shift 1	Fire Response
105	Rakesh Gandhi	Maintenance	Shift 1	Fire Response
106	K Karthik	Maintenance	Shift 1	Fire Response
107	Balasubramani	Maintenance	Shift 1	Fire Response
108	Lakshminarayanan	Maintenance	Shift 1	Fire Response
109	Swamynathan	Assembly	Shift 1	Fire Response
110	Vijay Kumar.P	Winding	Shift 2	Fire Response
111	Sathish.S	Winding	Shift 2	Fire Response
112	Vijayaraj	Winding	Shift 2	Fire Response
113	R.Kesavan	Winding	Shift 2	Fire Response
114	G.Harikrishnan	Winding	Shift 2	Fire Response
115	J.Saravanan	Assembly	Shift 2	Fire Response
116	K.Elamaran	Assembly	Shift 2	Fire Response
117	L.Gnanavel	Assembly	Shift 2	Fire Response
118	R.Santhosh	Assembly	Shift 2	Fire Response
119	G.Venkatesha Perumal	Assembly	Shift 2	Fire Response
120	M.Yuvaraj(Disp)	Assembly	Shift 2	Fire Response
121	T. Ashok Kumar	Assembly	Shift 2	Fire Response
122	Mohan Ramesh.G	Assembly	Shift 2	Fire Response
123	D.Madhan Kumar	Assembly	Shift 2	Fire Response
124	D.Palani	Assembly	Shift 2	Fire Response
125	M.Elangovan	Assembly	Shift 2	Fire Response
126	R.Saravanan	Assembly	Shift 2	Fire Response
127	S.Ramesh	Assembly	Shift 2	Fire Response
128	Arul Velankanni	Assembly	Shift 2	Fire Response
129	Sundramoorthy.K	Winding	Shift 3	Fire Response
130	V.Kumaran	Winding	Shift 3	Fire Response
131	R.Venkatesan	Winding	Shift 3	Fire Response
132	M.Balakumar	Winding	Shift 3	Fire Response
133	Charles.J	Winding	Shift 3	Fire Response
134	Saravanan.D	Winding	Shift 3	Fire Response
135	Balaji.V	Winding	Shift 3	Fire Response
136	K.Babu	Assembly	Shift 3	Fire Response
137	B.Samuel Rajadurai	Assembly	Shift 3	Fire Response
138	Saravanasundaram	Assembly	Shift 3	Fire Response
139	D.Raja	Assembly	Shift 3	Fire Response
140	L.Ramesh	Assembly	Shift 3	Fire Response
141	M.Rukmangathan	Assembly	Shift 3	Fire Response
142	M.Sathishkumar	Assembly	Shift 3	Fire Response
143	P.Mageswaran	Assembly	Shift 3	Fire Response
144	R.Partheeban	Assembly	Shift 3	Fire Response
145	V.Sureshbabu	Assembly	Shift 3	Fire Response
146	P.Ravendran	Assembly	Shift 3	Fire Response

147	Ratchaganathan.S	Assembly	Shift 3	Fire Response
148	Jayarajkumar.J	Winding	Shift 3	Fire Response
149	S.Kannadhasan	Winding	Shift 3	Fire Response
150	Karthik.P	Assembly	Shift 3	Fire Response
151	Rathish.R	Assembly	Shift 3	Fire Response
152	Vasudevan L	Assembly	-	First Aid
153	VINAYAGAM S	ASSEMBLY	-	First Aid
154	Sathishkumar D	Assembly	-	First Aid
155	Pandurangan K	Assembly	-	First Aid
156	Karthik K	Assembly	-	First Aid
157	Dillibabu R	Assembly	-	First Aid
158	Viney Singh	Assembly	-	First Aid
159	Prabhu S	Assembly	-	First Aid
160	Saravanan K	Assembly	-	First Aid
161	Suthersanan S	Assembly	-	First Aid
162	Krishna Kumar	Assembly	-	First Aid
163	Karunakaran P	Assembly	-	First Aid
164	Syed Rafi S	Assembly	-	First Aid
165	Karthikeyan	Assembly	-	First Aid
166	Duraivel V	Assembly	-	First Aid
167	Ramesh Y	Assembly	-	First Aid
168	Karthikeyan S	Winding	-	First Aid
169	Prabhu K	Winding	-	First Aid
170	Dinesh R	Winding	-	First Aid
171	Vijayakumar S	Winding	-	First Aid
172	Veeramani R	Winding	-	First Aid
173	Selvam M	Winding	-	First Aid
174	Gowtham Chandar Ks	Winding	-	First Aid
175	Idayadulla A	Winding	-	First Aid
176	Parvathy D	Winding	-	First Aid
177	Vinothkumar C	Insulation	-	First Aid
178	Paramasivam D	Insulation	-	First Aid
179	Sathish	Testing	-	First Aid
180	Shabareesh Babu	Testing	-	First Aid
181	R.Shankar	Maintenance	-	First Aid
182	Balasubramanian L	Maintenance	-	First Aid
183	Lakshminarayan	Maintenance	-	First Aid
184	Giridharan	Quality	-	First Aid
185	Navinkumar	Design	-	First Aid
186	Praburaju	Design	-	First Aid
187	E.Dinesh Kumar	Store	-	First Aid
188	E.Vallarasu	Store	-	First Aid
189	Vijayakumar S	Security	-	First Aid
190	Birlla Bose.J	Security	-	First Aid
191	Kumar	Security	-	First Aid
192	Mohana Sundaravel	Security	-	First Aid
193	Gandhirasan Kks	EHS	-	First Aid

Table 33: Emergency Response Team – Indo Tech

4.2.3 Safety Committee Members Details

Indo Tech – Safety Committee Members			
Sl.No	**Name**	**Department**	**Position**
1	Mr. R. Dayanand	Vice President - Operation	Safety Chairman (Plant Manager)
2	Mr. Gandhirasan KKS	EHS	Safety secretary (Asst Manager – EHS)
3	Mr. Dinesh Kannan	Supply Chain Management	Member (Manager - SCM)
4	Mr. Kumar	HR	Member (Manager – HR)
5	Mr. S. Sakthivel	Production	Member (Sr. Manager – LPT Operation)
6	Mr. S. Sivakumar	Production	Member (Dy. Manager – Sizing & Winding)
7	Mr. Dharmavel	Maintenance	Member (Dy. Manager - Maintenance)
8	Mr. Deepak Narla	Quality	Member (Dy. Manager – Quality)
9	Mr. Tamil mano	Assembly	Member (Operator)
10	Mr. Hemadri	Assembly	Member (Operator)
11	Mr. M Sathishkumar	Assembly	Member (Operator)
12	Mr. Balasubramaniyam	Maintenance	Member (Operator)
13	Mr. Ganapathy	Sizing	Member (Operator)
14	Mr. L Ramesh	Assembly	Member (Operator)
15	Mr. Jayaraj	Winding	Member (Operator)
16	Mr. Nagarathinam	Medical center	Member

Table 34: Safety Committee Members – Indo Tech

4.2.4 Statutory Licenses/ Approvals

Sl. No	**Description**	**Corresponding Legislation**	**Validity**	
			From	**To**
1.	Factory License	Factories Act, 1948	01.01.2025	31.12.2025
2.	CTO – Air	The Air Act, 1981	31-03-2024	31-03-2027
	CTO – Water	The Water Act, 1974	31-03-2024	31-03-2027
3.	HWA	Hazardous Waste Rules, 2016	03-01-2023	31-03-2027
4.	Fire Safety NOC	Factories Act, 1948	19.10.2024	One time Authorization

Table 35: Statutory Licenses / Approvals

4.2.5 Compliance Documents Availability

Document Name/Description	**Corresponding Legislation**	**Availability Status (Y/N/NA)**
Organizational OHS Policy	OSH Code, 2020	Y
Standard Operating Procedures (SOPs)	OSH Code, 2020	Y
Risk Assessment Reports (HIRA)	OSH Code, 2020	Y
Emergency Response Plan	OSH Code, 2020	Y
OHS Audit Reports (Internal/External)	OSH Code, 2020	Y
Training Calendar and Logs	OSH Code, 2020	Y

Equipment Testing Certificates (Lifts, Boilers, etc.)	Factories Act, 1948	Y
Register of Adult Workers (Form 11 - Factories Act)	Factories Act, 1948	NA
Health Check-up Records	Factories Act, 1948	Y
Accident/Incident Register	Factories Act, 1948	Y
Records of Occupational Diseases	Factories Act, 1948	Y
Inspection Reports (Electrical, Mechanical)	Factories Act, 1948	Y
Safety Equipment Maintenance Logs	Factories Act, 1948	Y
PPE Distribution Records	Factories Act, 1948	Y
Inventory of Hazardous Substances	Environment Protection Act, 1986	Y
Material Safety Data Sheets (MSDS)	Environment Protection Act, 1986	Y
Spill Response Logs	Environment Protection Act, 1986	Y
Fire Extinguisher Inspection Logs	OSH Code, 2020	Y
Evacuation Drill Reports	OSH Code, 2020	Y
Emergency Contact List	OSH Code, 2020	Y
Contractor Pre-qualification Records	OSH Code, 2020	Y
Safety Training Records for Contractors	OSH Code, 2020	Y
Workplace Air Quality Reports	OSH Code, 2020	Y
Noise Level Monitoring Records	OSH Code, 2020	Y
Inspection Notices from Authorities	OSH Code, 2020	Y
Response to Notices	OSH Code, 2020	Y
Annual Compliance Reports	OSH Code, 2020	Y
Pre-audit Questionnaire	OSH Code, 2020	Y
Previous Audit Findings	OSH Code, 2020	Y
Corrective and Preventive Action (CAPA) Status	OSH Code, 2020	Y

Table 36: Compliance Documents Availability

4.2.6 Master Document List (List of the documents being maintained in the site)

Indo Tech – Master Document List – IMS		
Sl.No	**Document Description**	**Document Number**
1	Integrated Management system Manual	IMSM
2	Integrated Management System Procedure	IMSP
Leadership and Accountability		
3	Environment, Health and Safety (EHS) Policy	IMSM-06
4	Environment, Health and Safety (EHS) Objectives	IMSM-06
5	EHS Goal Planning Worksheet	ITTL/D/EHS/1-01
6	EHS Performance Measures and target	ITTL/D/EHS/1-02
7	Annual Plan Management Review Meeting	ITTL/D/EHS/1-03
Statutory and Regulatory Requirements		
8	Applicable statutory and regulatory requirements	ITTL/D/EHS/2-01
9	statutory and regulatory requirements review annual	ITTL/D/EHS/2-02

EHS Process and Systems		
10	Master List of Documents	ITTL/D/EHS/3-01
11	Master List of External origin Documents	ITTL/D/EHS/3-02
12	Master List of Records	ITTL/D/EHS/3-03
13	Annual Internal audit Plan	ITTL/D/EHS/3-04
14	List of qualified Internal Auditors	ITTL/D/EHS/3-05
15	Competency Matrix	ITTL/D/EHS/3-06
16	Training Plan	ITTL/D/EHS/3-07
17	Master List of Monitoring Measurement Equipment	ITTL/D/EHS/3-08
18	Annual Inspection Plan	ITTL/D/EHS/3-09
19	Master List of Operational Control Procedure	ITTL/D/EHS/3-10
20	Monitoring Measurement Plan	ITTL/D/EHS/3-11
21	List of EOHS Team	ITTL/D/EHS/3-12
Emergency Preparedness and Response		
22	Mock Drill Plan	ITTL/D/EHS/4-01
23	Emergency Manual	ITTL/D/EHS/4-02
24	Personal Protective Equipment plan	ITTL/D/EHS/4-03
25	List of Qualified Fire Fighters and First Aid team	ITTL/D/EHS/4-04
Risk Assessment		
26	Guideline for Hazard Identification and Risk Assessment	ITTL/D/EHS/5-01
Safety Defenses		
27	Crane and Hoist Annual Preventive Maintenance Plan	ITTL/D/EHS/6-01
28	LOTO Audit Plan	ITTL/D/EHS/6-02
29	Safety Audit Plan	ITTL/D/EHS/6-03
30	Health Plan	ITTL/D/EHS/6-04
Exposure Defenses		
31	List of Chemicals	ITTL/D/EHS/7-01
Environmental Defenses		
32	Air Quality Monitoring Plan	ITTL/D/EHS/8-01
Contractor Management		
33	Master List of Approved Contractor	ITTL/D/EHS/10-1
34	Contractor Work Order / Agreement	ITTL/D/EHS/10-2
Preventive Maintenance		
35	Fire Alarm Test Plan	ITTL/D/EHS/11-1
36	Fire Hydrant Test Plan	ITTL/D/EHS/11-2
Distributed Workforce Defenses		
37	Guideline for Environmental significant Study	ITTL/D/EHS/12-01

Table 37: IMS Master Document List – Indo Tech

4.2.7 OHS Consolidated Data (April-2024 to March -2025)

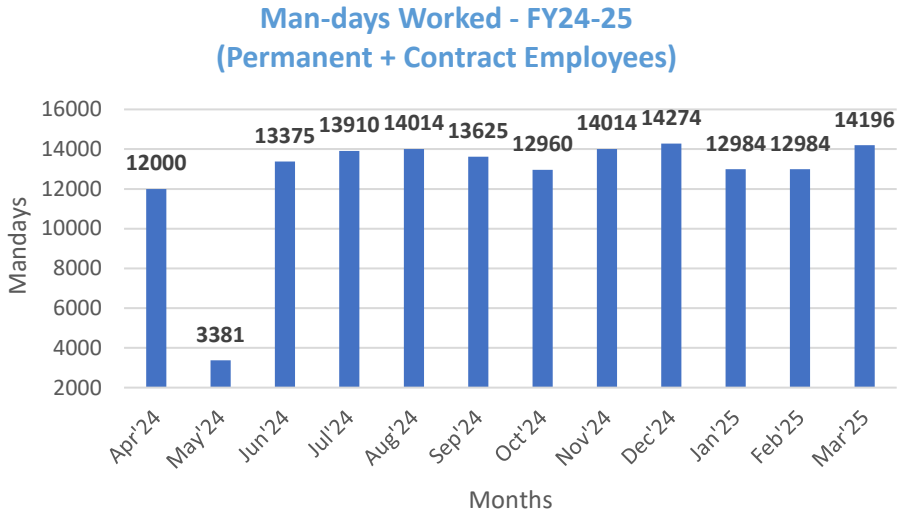


Figure 51: Man-days Worked – FY24-25

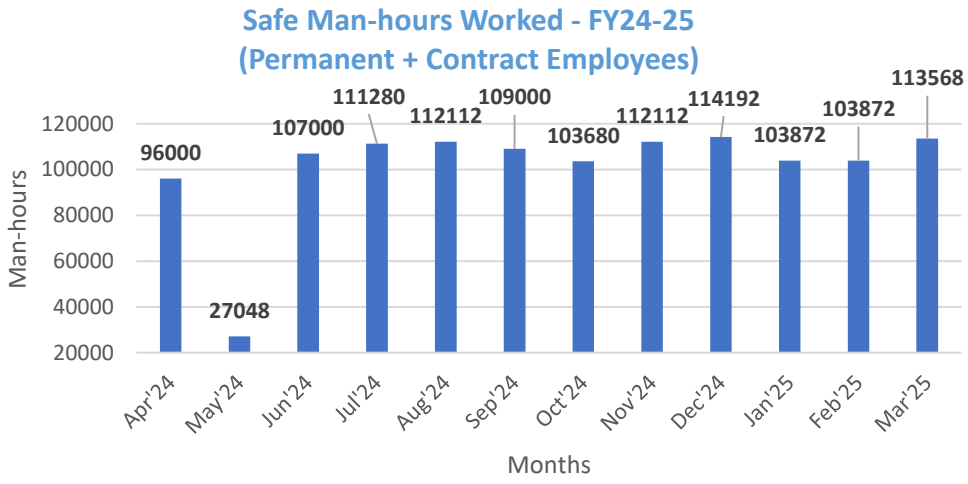


Figure 52: Safe Man-hours Worked – FY24-25

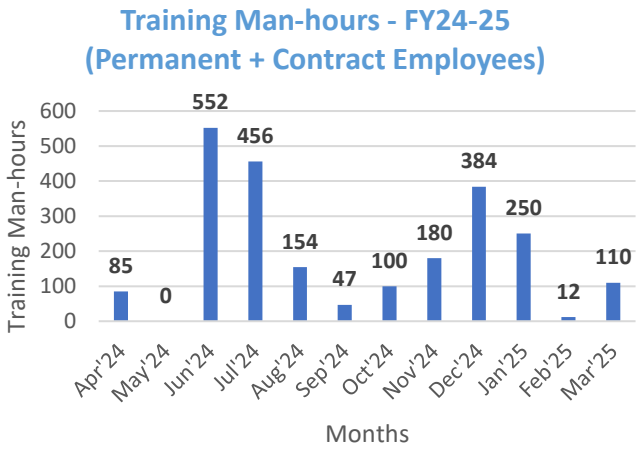


Figure 53: Training Man-hours – FY24-25

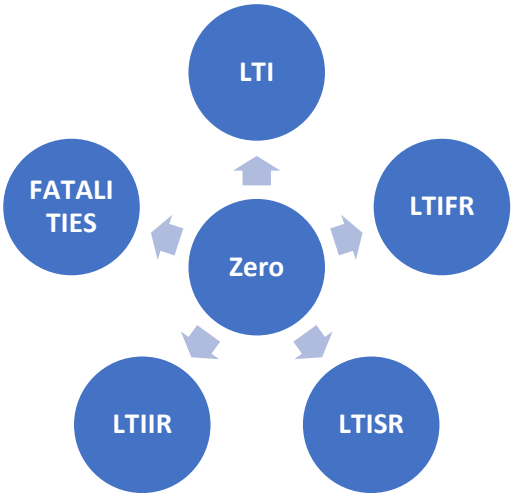


Figure 54: OHS Essential Indicators – FY24-25

Table 38: OHS Consolidated Data – FY 24-25

Indo Tech Transformers Limited, Kancheepuram			
OHS Consolidated Data for the FY 24-25			
Sl.No	**Descriptions**	**UOM**	**FY 24-25**
1	Total Man-days (Permanent + Contractual)	Man-days	151717
2	Total Man-hours worked (Permanent + Contractual)	Man-hours	1204000
3	Total Safe Man-hours worked	Man-hours	1204000
4	Man-days lost due to lost time injury	Man-days	0
5	Total Number of Lost Time Injury (LTI)	Nos	0
6	Lost Time Injury Frequency Rate (LTIFR)	No.of.LTI per million hours worked	0
7	Lost Time Injury Severity Rate (LTISR)	Lost day per million hours worked	0
8	Lost Time Injury Incident Rate (LTIIR)	No.of.LTI per 100 emp	0
9	Fatalities	Nos	0
10	Total Number of Near Miss Incident	Nos	14
11	Total Number of Incident	Nos	12
12	Total Number of Observations	Nos	241
13	Total Number of Observation points open	Nos	0
14	Total Training Man-hours	Man-hours	2330
15	Total Number of Mock drills conducted	Nos	16

4.2.8 Accident/Incident Details

Table 39: Accident/Incident Details – FY 24-25

Accident/Incident Details – FY24-25				
Sl.No	**Date**	**Incident Details**	**Root cause/Description**	**Corrective action / Preventive action taken**
1	24/04/24	ESOI acid spilled on the right-hand forearm	1.Not aware of Risk. 2.Not wearing the PPE.	Awareness to be provided to all other employees during all shift beginning. Forearm rubber sleeve and chemical suit to be provide.
2	22/06/24	While doing coil clamping.MS supporting block was fell down on back head (Left) and got injury.	1.Not locking cotton tape in coil runner. 2.Negligence	Awareness to be provided to all other employees during all shift beginning.
3	22/06/24	Scorpion bite	-	-

4	02/09/24	During the HV connection work, sleeve was removed by using knife, that time knife got slipped and injured in his left-hand forefinger	1.Not aware of the risk 2.Process deviation 3.Kinfe was used because no specific tool	Training to be given to the operators Cut resistance gloves to be provide. Specific tool should be used.
5	09/09/24	Bobbin rod slipped form stand at the time helper tried to hold the nylon rope bobbin, resulted in left-hand little and ring finger skin got injured.	Lock facility not available	Permanent lock facility to be provide to all stand to avoid slippage.
6	21/09/24	The team was engaged for 6087(160 MVA) CCA retightening process that time while applying the pressure top frame bottom rip was bend and supporting wood moved out from the frame (60 % pressure) and one person got hit on his left leg near knee joint.	1.Jack not placed under the stiffer area. 2.Pressure was applied continuously more than four shift. 3.Pakage height not as per design (+ 30 MM) 4.Frame rip was bend	Design modification in progress to avoid the usage of packing while applying pressure.
7	09/10/224	The pressurized hose was hit on nose and got cut injury.	1.Materials are placed around the working platform and 5S not followed 2.Kept the wedge on the machine 3.QRC coupling worn out 4.Risk not captured in HIRA	1. Alternate QRC type or single locking type to be implement 2. HIRA register to be update 3. Awareness session to be conduct among the employees
8	13/11/24	After completing the task while standing up the employee got hit at the breather support & got injury at his head	Didn’t wear any proper PPE’s	Every operator or any person who were allowed to work at T site should wear proper PPE before entering the Shop floor
9	16/12/2024	While checking the gas flow in gas cutting machine with bare hand, fire resumed suddenly without any ignition	1)Not aware of the risk 2)Didn’t check initial checking 3)Proper service has not been done	1. Training to be given to all

		and the burn injury happened on the right-hand palm	4)Process service schedule not available 5)Blockage in cutting nozzle 6)Controlling knob not available	brazing and cutting operators. 2. Checklist and SOP need to be created. 3. Procedure to be created for initial checks and cylinder changing.
10	19/12/24	While lifting LV bushing due to oil spill in the floor his leg got slipped and left leg knee swelling was happened	1. Pre-assessment not done 2.Not aware of risk 3.Oil spill on the floor	1. Cleaning schedule to be prepared and implemented 2. Awareness to be provide
11	21/02/25	While opening the air hose valve, the valve itself released from the QRC coupling line and hit on face.	1.Not locked the hose properly 2.New type (Screw)QRC not replace all around the plant 3.New type QRC was changed in machine end only	1.Alternate QRC type or single locking type to be implement both machine end and pipeline end. 2.Awareness to be provide all three shift
12	15/03/25	The right-hand index finger got struck in between the supporting leg and fixture and crush & cut injury was happened on his finger.	1.Not addressed the pinch points hazard in HIRA 2.Primary Leg placement holder not available	Holder height to be reduced and gap to be provide between fixture and holder leg to avoid pinch point HIRA register to be updated Awareness session to be conducted among the employees

4.2.9 Near Miss Incidents:

Table 40: Near Miss Incidents

Sl.No	Date	Near Miss Details	Corrective Action
1	03/04/2024	While shifting vacuum machine toward the tank for vacuum process, the vacuum machine wheel center bolt got broken and pump setup tilt down.	1)Wheel check Points to be add in the monthly PM check sheet. 2) Awareness and pep talk should be provide. 3) Risk to be captured in HIRA
2	21/06/2024	While shifting transformer from yard to DT dispatch area, Mobile crane boom was hit the shutter. Due to improper assessment of	1)Awareness to be provided to all other employees during all shift beginning.

		both Crane Operator & Dispatch team person.	
3	01/07/2024	While lifting the CCA of Wo.no 6038/2 for removing the bottom support the CCA swinged and got hit on the CCA trolly and V phase HV main lead cleat damaged & V phase tap coil outer conductor got damaged	1)Awareness to be provided to all other employees during all shift beginning.
4	14/08/2024	Fire incident happened due to Lizard caused an electric short circuit in Garden fountain motor starter at Admin block outside	1.) New enclosed outdoor panel to be provide along with motor starters and to be ensure without gaps in cable entry 2.) Contractors' cupboard, Garden things, housekeeping materials are kept near panel location, need to do 5s 3.) Electrical panels condition to be verified during monthly audit and point to be add in the checklist 4.) Cable to be laid properly to avoid man disturb 5.) Rated MCB to be verify and replace at all area
5	19/08/2024	Fire incident happened in conference hall AC outdoor compressor due to short circuit. While doing AC fault trouble shooting.	1.) Aging compressor or unit will replace with new one 2.) Fiber blade will be replaced at all unit 3.) Cable tightness to be verify
6	26/08/2024	While shifting the tank (6131-Prakash sponge) from LPT dispatch area to tanking area. Job was lifted after belt placement. While operating the 15-ton EOT crane that time belt got cut and job was fell down from half feet.	1) Materials not stored inside the tank 2) Awareness and pep talk should be provide.
7	05/09/2024	The team was engaged for shifting 6078-1 radiator from General scarp yard to shopfloor using mobile crane. Infront of the 6078-1 job radiator another job radiator was stored. Without clearing the shifting pathway 6078-1 radiator was lifted, While lifting radiator mobile crane boom was extended to its max range for lifting and vehicle moved reverse with extended condition so mobile lost its control and got tilted.	OPL to be display in the mobile crane Training to be given to all mobile crane operator and forklift operator
8	20/11/2024	Fire incident happened Mobile vacuum plug point at LPT	1.) Rated cable to be provided and to be verify and change sub sequent areas

		dispatch area near paint booth due to short circuit.	2.) Identification sticker to be provide for all vacuum pump connection 3.) Monthly Cable tightness and insulation sleeve damage to be verify for all portable connection points 4.) RCBO/ RCCB provision to be provide instead of MCB
9	23/11/2024	Fire incident happened at winding machine no 5 While doing C clamp welding work at Winding area.	Work permit procedure to be adhere Awareness to be provided
10	14/12/2024	While Dismantling HV bushing (5832-RS INFO) from tank, tetron was fixed in top of the bushing, after disassembly while going to keep in floor tetron, it was cut and bushing rod fell down.	1) Awareness and pep talk should be provided. 2) M/S string for lifting the HV bushing rod with help of eye bolt.
11	16/01/2025	While unloading HV Uph coil from W.O.No. 6123-2, Bottom Support woods of coil is slipped from former and coil rested on the Coil upended platform.	Training to be given to the operators Kaizen to be done for Adequate bottom support
12	04/02/2025	While planning to shift container from vehicle to FG yard container got slipped due to belt damage. container was slightly slipped form vehicle bed and it was landed on fire hydrant pipeline.	Awareness to be provide all crane champions and project team / crane operators Damaged belts should remove from shopfloor usage.
13	23/02/2025	While doing 2T EOT AMC work by K2 crane persons moved coil(6163-Ilios) from DT winding to outside for scissor lift placement, after finishing the work the person was moved coil form outside to inside by using Hand pallet truck. coil was fell down from trolley.	1) Awareness to be provided for external / Internal persons 2) Pre communication to be provided to concern team / EHS 3) Work area to be supervised by concern team before starting the work 4) Layout identification to be defined for storage.
14	12/03/2025	While pulling (Open) the autoclave trolly 6169-19 HV Wph coil fell down inside the autoclave due to coil clamping plate was placed close to the chamber wall. So that clamping plate edge was hit on the chamber wall and it change the clamping plate position. So the coil was fell down inside the chamber.	1.) Marking to be at the auto clave bed 2.) Methods need to be created and to be educate all workers 3.) Checklist to be modified to ensure the position before moving inside 4.) Awareness to be created

4.2.10 Site Observation Details

Figure 55: Caution & Warning Sign Symbol

At Indo Tech Transformers Limited, total 241 safety observations have been recorded from April- 2024 to March 2025 and all the safety observations are closed in with photo evidence. Of the total 241 observations, 111 nos observations were recorded in the online tracker starting from December 2024. These observations include improper earthing, unsafe/damaged tools and equipment, unattended tools, machine guarding, and housekeeping. It is recommended to close the open points within the specified time frame to avoid process interruption.

We appreciate the efforts of the site team in actively identifying and reporting safety observations. We encourage the team to continue capturing as many observations as possible, and to motivate all employees to report unsafe conditions, near misses, and unsafe acts to the concerned person promptly. It is equally important to ensure timely closure of reported observations to strengthen our safety culture and maintain a proactive approach to risk management.

4.3 SHINE (Safety and Health Innovations Nurturing Excellence)

In order to standardize, streamline and **SHINE (Safety and Health Innovations Nurturing Excellence)** we have instituted a Special Quarterly OHS Themed Event. These include voluntary events which will enable Indo Tech to reach the Leadership Indicators as listed in the BRSR – Business Responsibility and Sustainability Reporting – a disclosure document required under SEBI reporting. Similar standards of activity and disclosure is expected under global ESG reporting standards and frameworks.

The aim of this themed event is to also make OHS more interesting and creative, so that there is an enthusiastic participation and recall of the activities. The research and content document for the activities is being done by ESG team and shared with site teams every quarter to bring about a uniformity of OHS voluntary events at all locations, just as the regulatory observances are uniformly done.

This themed event is based on the 4 elements – Water, Air, Earth and Fire as a theme. Please refer to the below table 41.

January - March	Earth
April - June	Fire
July - September	Water
October - December	Air

Table 41: Elements of Themed Events

Figure 56: Four Themed Elements

Indo Tech site team has adapted these themes and included the preplanned/Mandatory OHS Training and Drills in the respective months as part of the said themes. However, over a period of time the activities will get streamlined to reflect the themes.

4.3.1 Q1 - April to June 2024: Fire Theme

Table 42: Q1 Training Activities of FY 24-25

Sl.No	Month	Training Topics/Campaign
1	Apr-24	Incident awareness in Electric Overhead Traveling (EOT) Cranes
2	May-24	-
3	Jun-24	ISO 45001 and 14001, Fall from height.
4	Jun-24	Environmental day campaign
5	Jun-24	National Electrical Safety Week

Glimpse of trainings:

1. Height Work Demo – 40+ participants

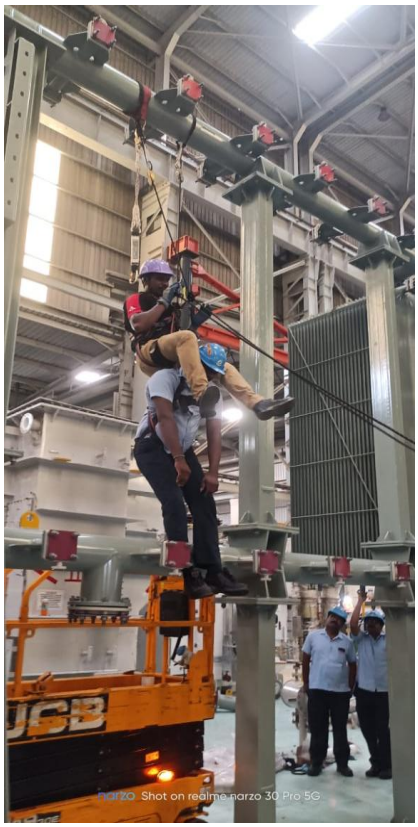


Figure 57: Height Work Demo

2. Environmental Day Campaigns – 150+ participants

Environmental day campaign was celebrated throughout the June 2024 month starting from 5th June 2024 which is the world Environmental day. The World Environment Day 2024 theme is "Our Land. Our Future. We are Generation Restoration" focusing on land restoration, desertification, and drought resilience. The employees are taken the below pledge on that day:

"Today Let Us Pledge Not to Destroy the Planet We depend Upon"

The Indo Tech Management encouraged their employees to plant a tree inside the factory premises as well as outside the factory which resulted in 30 numbers of employees planted the tree inside the factory premises and 20 number of employees planted the tree near their homes and the management recognized and appreciated them with gifts.

Various events were conducted during this event which is Environmental Quiz, Rangoli competition & Drawing competitions and the winners got the attractive gifts.

Figure 58: Environmental Day Celebrations

Figure 59: Environmental day Campaign Competitions

3. June 2024: National Electrical Safety Week

National Electrical Safety Week was celebrated on 26th June to 2nd July 2024.

Figure 60: National Electrical Safety Week Activities

National Electrical Safety Week
| 26th June – 2nd July 2024 |
"EMBRACE ELECTRICAL SAFETY, SAFEGUARD LIVES"

Introduction

- **Electrical Safety Week-2024 Theme :**

"EMBRACE ELECTRICAL SAFETY, SAFEGUARD LIVES"

- **Driving Force :**
  - The Central Electricity Authority (CEA),Govt of India
  - National Safety Council (NSC)
- First National Electrical Safety Week (NESW) commenced on 26th June 2020
- **Objective:**
  - To raise awareness and enthusiasm among the public and industries.
  - To renew the commitment of employees and the public to promote a participative approach towards the safe use of electricity.

Coinciding with Nation wide celebrations, it is proposed as an ESG adherence, to celebrate Electrical Safety Week From 26 June – 2 July at all our locations to the extent possible.

Activities List Proposed

Sl.No	Date & Day	Activities to Conduct	Note	Impact
1.	26.06.24, Wednesday	Opening Ceremony	• Plant leaders will speak about the importance of Electrical safety at work place , home and public places. • Ensure sufficient promotional banners, standees, placards and danglers are placed to create awareness and atmosphere of celebrations • Pledge	showcase commitment to safety
2.	27.06.24, Thursday	Electrical Safety awareness & training to staff & workmen.	• Training should include Mock drill on electrical shock, recognizing electrical dangers and reporting mechanism.	Improve awareness and preparedness in case of accidents
3.	28.06.24, Friday	Awareness training program for selected neighborhood school children	• One plant team can take these initiative do training session on electrical safety at nearby school. • Pledge	Extend the awareness to public
4.	29.06.24, Saturday	Drawing Competitions for Employees children.	• Organize employee children drawings done at their houses and submitted by employees on 29 June in plant. Those drawing will be displayed at Plant locations and also winners will be selected	Include entire family in the safety drives
5	01.07.24 Monday	Conduct various completions like slogans, Quiz, awareness drawings	• Among the staff & workmen.	Reward & Recognize enthusiasm and pro-active safety behavior
6.	02.07.24	Closing Ceremony	• Prize distribution and closing ceremony festivities	Enable pleasant recall of the event

4.3.2 Q2 - July to September 2024: Water Theme

Table 43: Q2 - Training Activities of FY 24-25

Sl.No	Month	Actual Topics
1	Jul-24	First aid training
2	Jul-24	Monsoon Precaution and Preparedness (Water conservation)
3	Aug-24	Emergency preparedness Training
4	Aug-24	Blood donation campaign
5	Sep-24	General safety awareness session
6	Sep-24	Emergency preparedness Campaign

Glimpse of trainings:

1. Water Themed Event Activities:

Figure 61: Water Themed Event Activities

ACTIVITIES OF SPECIAL EVENT :

Sl.No	Date & Day	Activities to Conduct	Note	Impact
1.	Day 1: 22.07.24, Monday	Awareness Session	• OHS/EHS head will present the PPT and invite the top management to speak at this event– Location person to fill it.	1. Emphasize the H&S focus of the organization. 2. Make H&S more creative & interesting.
2.	Day 2: 23.07.24, Tuesday	Training Sessions 1. Preparedness for flood hazards for H & S 2. Costal zone plant to include preparedness on Tsunami/Cyclone.	• Location OHS can select any one training and execute –Location person to fill it.	Improve awareness and preparedness for water based disaster.
3.	Day 3: 24.07.24, Wednesday	Mock Drill of any one scenario based on day 2 training section.	• Location OHS can select and execute- Location person to fill it.	Improve awareness and preparedness for water based disaster.
4.	Day 4: 25.07.24, Thursday	Public Interactive- with family, school, general public, specific organizations. Drawing competition, Slogan Writing Competition & quiz.	• Location OHS can select any one option and execute– Location person to fill it.	1. Emphasize the H&S focus of the public. 2. Make H&S more creative & interesting.
5	26.07.24 Friday	Closing Ceremony	1.Location OHS to invite external guest only after consulting with location head 2. Location OHS to take approval for budgets from location head well in advance 3. Prize distribution and closing ceremony festivities – Location person to fill it.	1. Reward & Recognize enthusiasm and pro-active safety behavior. 2. Enable pleasant recall of the event

2. First Aid Training by St. John ambulance services – 26 Participants

Figure 62: First Aid Training

3. Monsoon Precaution Campaign: July 24 – 100+ Participants

Figure 63: Monsoon Preparedness Campaign

4. Blood Donation Campaign – Aug'24 – 52 Doners

Figure 64: Blood Donation Campaign

4.3.3 Q3 - October to December 2024: Air Theme

Table 44: Q3 Training Activities of FY 24-25

Sl.No	Month	Actual Topics
1.	Oct-24	Manual Material Handling, Reduce Reuse Recycle (Prima)
2.	Oct-24	Portable tool and power tool awareness campaign
3.	Nov-24	Risk Assessment training, Manual Material Handling (SST)
4.	Nov-24	Diet health awareness campaign
5.	Dec'24	Crane champion refreshment training
6.	Dec-24	Electrical Safety and Energy conservation Campaign

Glimpse of trainings:

1. Air Themed Event Activities:

Figure 65: Air Themed Event Activities

ACTIVITIES OF SPECIAL EVENT

Sl.No	Date & Day	Activities to Conduct	Note	Impact
1.	Day 01 21.10. 2024, Monday	Awareness Session	OHS/EHS head will present the PPT and invite the top management to speak at h event (location person to fill as per plan note in ppt)	Emphasize Health & Safety initiatives, ma it more creative and engaging
2.	Day 02 22.10.24, Tuesday	Training Sessions 1.Preparedness for Toxic gases release hazards for H & S 2.Preparedness on smoke Emission due fire accident	Location OHS can select any one training and execute (location person select one the two options and write a brief note h before presenting)	Improve awareness and preparedness fo pollution at workplace
3.	Day 03 23.10.24, Wednesday	Mock Drill of any one scenario based o day 2 training section.	Location OHS can select and exeecute (Location person to fill here as per mock drill)	Improve awareness and preparedness fo pollution at workplace
4.	Day 04 24.10.24, Thursday	Public Interactivewith family, school, general public, specific organizations. Drawing competition, Slogan Writing Competition Quiz, & Air pollution awareness rally	(Location person to fill selected option before presenting this ppt)	Improve awareness of air pollution amor public
5	Day 05 25.10.24, Friday	Closing Ceremony	1.Location OHS to invite external guest o after consulting with location head 2. Location OHS to take approval for budg from location head well in advance 3. Prize distribution and closing ceremon festivities (Location person to fill this notpeersplan)	Provide positive feedback and recognize proactive efforts Enable pleasant recall of the event

2. Crane Champion – 100 + Participants

Figure 66: Crane Champion Training

3. Health Campaign – Nov'24 – 70+ Participants

Figure 67: Health Campaign

4.3.4 Q4 - January to March 2025: Earth Theme

Table 45: Q4 Training Activities of FY 24-25

Sl.No	Month	Actual Topics
1.	Jan-25	Road safety awareness
2.	Jan-25	Road safety campaign
3.	Feb-25	Chemical handling and storage
4.	Feb-25	Eye & Ear Safety campaign
5.	Mar-25	Shopfloor safety awareness
6.	Mar-25	Zero injury campaign

Glimpse of trainings:

1. Earth Themed Event Activities:

Figure 68: Earth Themed Event Activities

ACTIVITIES OF THEMED EVENT :

Sl. No	Date & Day	Activities to Conduct	Note	Impact
1.	Day 1: 17.01.25, Saturday	Awareness Session with Special Mention of Road Safety.	OHS/EHS Head will present the PPT and invite the top management to speak at this event – Location person to fill	1. Emphasize the H&S focus of the organization. 2. Make H&S more creative & interesting. 3. Special reference to Road Safety for drivers and pedestrians
2.	Day 2: 18.01.25 Friday	Public Interactive Session – i) Road safety awareness rally with employees and local community/school/ college students. ii)Drawing/Slogan Writing/quiz Competition.	Location OHS can select any one competition and execute – Location person to fill it.	1. Emphasize the H&S focus of the public. 2. Make H&S more creative & interesting.
3.	Day 3: 20.01.25, Monday	Training Sessions 1. Preparedness for Earthquakes. 2. Preparedness for Landslides.	Location OHS can select any one training and execute – Location person to fill it.	Improve awareness and preparedness for earth based disaster.
4.	Day 4: 21.01.25, Tuesday	i)Mock Drill of any one scenario based on day 3 training section. ii) Participation/Suggestions during training session – Recognition/prize	Location OHS can select and execute – Location person to fill it.	Improve awareness and preparedness for earth based disaster.
5	Day 5: 22.01.25 Wednesday	Closing Ceremony & Prize Distributions.	1.Location OHS to invite external guest only after consulting with location head 2. Location OHS to take approval for budgets from location head well in advance 3. Prize distribution and closing ceremony festivities – Location person to fill it.	1. Reward & Recognize enthusiasm and pro-active safety behavior. 2. Enable pleasant recall of the event

2. Road Safety Campaign – Jan'25 – 200+ Participants

Figure 69: Road Safety Campaign

Road Safety Campaign celebrated in the accounts of National Road Safety Month (Jan 1st to Jan 31st 2025). The theme of the National Road Safety Month 2025 is

"Road Safety - Life Protection". During this event employees are pledged to be a safe driver and signed in the road safety pledge board and participated in various program like quiz, bike rally, drama, and poster display. The winners of the different competitions were rewarded with gifts.

Figure 70: Employees signing the road safety pledge

Figure 71: Different Activities and Prize distribution – Road Safety

4.3.5 Mock Drill/Demo

INDO TECH TRANSFORMERS LIMITED	INTEGRATED MANAGEMENT SYSTEM	Doc No.: ITTL-D-WHS-4-01
	MOCK DRILL PLAN	Rev. No.:00 dt:02-Jan-20

YEAR: 2024-2025

Sl. No.	Description	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
01	FIRE		●		●		●		●		●		●
02	CHEMICAL SPILL AND LEAK					●				●			
03	SNAKE/INSECT BITE			●						●			
04	FOOD POISONING							●					
05	MEDICAL EMERGENCY (FAINT, HEART ATTACK)				●			●					
06	ELCETRIC SHOCK					●							
07	FALL FROM HEIGHT			●							●		

PLAN	○	COMPLETED	●

Figure 72: Mock Drill Plan – FY24-25

1. Fire Mock Drill – 50+ Participants

Figure 73: Fire Mock Drill

2. Snake/Insects bite mock drill – 30+ Participants

Figure 74: Snake/Insects bite mock drill

3. Electric shock mock drill – 30+ Participants

Figure 75: Electric Shock mock drill

4. Food poison mock drill – 20+ Participants

Figure 76: Food Poison Mock Drill

4.4 OHS/EHS/IMS (QEHS) Policy

INDO TECH

Indo Tech Transformers Limited
S.NO. 153-210, Illuppapattu Village,
P.O. Rajakulam,K.M. 64,
Chennai Bangalore Highway
Kancheepuram Dist,
Tamilnadu- 631 561

Integrated Management System (QEHS) Policy

We, at Indotech Transformers Limited are committed to manufacture and Installation of power, distribution & special transformers to achieve total quality of our products & services and conduct all business activities in a way we assure the health and safety of our employees and ensuring that our activities are safe for the environment and the surrounding community.

We shall remain committed to:

- Enhance customer satisfaction through effective integrated management system.
- Upholding stakeholder value and employee development.
- Creating better value to customers through technology upgradation.
- Meet all applicable compliance obligations and other requirement related to Environment, Health & Safety to provide a safe working environment.
- Protections of environment by adopting reduce waste, reuse and recycle methods and control the environment aspects.
- Conserve natural resource by optimum utilization of air, water and energy.
- Prevent environment pollution, injury and illness to employees, visitors, interested parties by eliminating hazards and reducing OH & S Risk.
- Train and motivate workers to perform their activities in a safe and environmentally responsible manner by consultation and participation of workers and workers representatives.
- Continual Improvement of all process and product through structured mechanisms with focus on Integrated Management system.
- This policy is communicated, implemented and maintained at all levels of operations of the company and is available upon request. It is periodically reviewed and revised to ensure its continuing adequacy, relevance and sustainability.

Date: 08.04.2025

Purusothaman M
Chief Executive Officer
Indo Tech Transformers Ltd.

4.5 ESG Adherences by Value chain- Supplier Code of Conduct

Indo-Tech does not have a separate Suppliers Code of Conduct (SCoC), however in place, the Purchase Order (PO) of Indo-tech consist of SCoC elements such as Environment Health and Safety, Child Labor, Confidentiality, Anti-corruption and Bribery. Given below is an extract of relevant ESG adherences from the PO given to vendors/suppliers.

17.ENVIRONMENT HEALTH AND SAFETY (EHS) (This clause shall be applicable only to Site Suppliers /Outsource process owners who are supplying the goods and also performing the site services or who are performing the site services only at Purchaser's site or Purchaser's customer site, or both)

The Supplier shall:
(a) give the highest regard to EHS to avoid any injury to any person and damage to any property;
(b) ensure that the management of EHS is an integral and visible part of its work planning and execution processes;
(c) strive for continuous improvement of its EHS performance;
(d) obtain Purchaser's Corporate EHS Policy, understand and implement the applicable content of this policy;
(e) follow all applicable requirements of Purchaser's Corporate EHS policy;
(f) monitor and evaluate its safety performance to effectively take such actions as appropriate to rectify or improve its overall safety performance;
(g) ensure that it complies with all applicable EHS laws and any EHS requirements of the Purchaser in force from time to time.
(h) Ensure that in case Purchaser produces a safety and health documentation for the site (Occupational Safety Plan) and provides Supplier with a copy of the Occupational Safety Plan, Supplier shall confirm receipt thereof in writing and comply with the regulations contained therein.
(i) legal and other requirements related to environment and OH&S.eg; REACH, ROHS. Etc compliance
(j) Plastic packing material more than 120 micron only allowed in INDOTECH premises (Rule 4(1) © of PWM Rules 2022.
(k) Material unloading person should be wear proper personal protective equipment as per INDOTECH safety guideline.
(1) Material safety data sheet should be provided along with materials for all hazardous materials.
(m) out source supplier shall implement the system ISO 14001- Environmental Management system as applicable.
(n) Polyethene cover's for packing or any other purpose should as per specification. (Min 120microns allowed to our factory premises).
The same shall apply to updates of the Occupational Safety Plan, which Purchaser may produce as it deems necessary. Supplier shall ensure that its direct and indirect subcontractors employed to perform the Works commit themselves to the Occupational Safety Plan and its updates. The supplier shall commit to this clause to avoid any injury to any persons who are legally on the work site including personnel, Purchaser's personnel and visitors.

18. Child Labor.
Supplier (including but not limited to subcontractor or affiliate or other person acting for supplier) shall not engage in child labor or any work that deprives a child of its childhood, potential, dignity or that is harmful to its physical or mental health or development. Suppliers shall not employ or use a child as

workforce if it is under the age of 14 or a higher age prescribed in applicable laws, in which case the higher age shall apply. Under no circumstances shall Suppliers let a child under the age of 18 perform hazardous work, including work likely to jeopardize their health, safety or development.

20. Anti-Corruption and Bribery
In connection with the supply of materials and/or services under this Purchase Order neither Supplier nor any of its directors, officers, employees, agents or other representatives shall directly or indirectly make or attempt to make any payment, offer or promise to make any payment or take or attempt to make a payment, or provide property or anything else of value, including any commissions, monies, share in profits, loans and or services to any government official, third party, customer, or potential customer or previous customer, firm, entity, individual, and/or organization of Company or any third party in seeking or making a favour in the conduct of business activities in violation of any statute or regulation in any country of the world, which has the objective of corruption of any nature whatsoever.

The purpose of an SCoC is to select and align with vendors/suppliers/ business partners who conduct their business in a manner that shows commitment high ethical standard, safe and healthy working environment, protection human rights and dignity, protection of environment and compliance with the law so that the business or resilient, risk ready and innovation advanced. Such a vendors/suppliers/business partner who has common principles and practices the same in the value chain is an important stepping stone to success.

Recognizing the importance of such vendors/partners, Indo Tech Transformers will soon formulate a separate SCoC which includes the below adherences:

1- Workplace, Labor and Human Rights – Prevention of Forced Labor, Prohibition of Child Labor, Respect and Dignity, Fair Remuneration and Decent Working Hours, Employment Eligibility and Voluntary Labor, Freedom of Association and Collective Bargaining
2) Occupational Health and Safety- Safeguard to prevent incidents, Processes that ensure Safety adherence, Regular Training and Awareness Drives.

3) Business Conduct and Ethics- Anti corruption and Bribery, Gifts and Hospitality, Antitrust and Competition Loss, General Contracting Ethics and Fiscal integrity, Conflict of Interest, Securities and Insider Trading, Intellectual Property and Data Privacy.

4) Responsibility to Earth and Communities – Adherence to Environmental Loss, Commitment to Environmental Sustainability, Transparency of Impact Achieved, Commitment to communities.

5) The SCoC will also give Indo Tech Transformers the right to investigate any instances of suppliers non compliances of which it becomes aware, which may lead to termination of contractual obligation with supplier.

5. GOVERNANCE

Governance is the system of managing of the corporate entity with the intent of delivering a robust triple bottom line of planet people and profit. It includes several important aspects of corporate governance like board independence, business ethics, policy influence, risk and crisis management among others.

Under governance we strategize and set the agenda for effective ESG implementation in order to build a resilient business. As part of this strategy, framing of policies that pertain to all aspects of business, is the starting point.

As part of implementation of these policies several activities are undertaken and reported. The public disclosure of monitoring and reporting is the proof of transparent governance which is the foundation for building an ESG adherent company.

Figure 77: Pillars of Corporate Governance

5.1 Overview of the Policies

Policies are divided into three categories:

1. **Workplace Conduct & Culture Policies** *(Affecting Inter-Employee Relations & Organizational Culture)*
2. **Operational & Compliance Policies** *(Ensuring Legal & Industry Standards Compliance)*
3. **Employee Management Policies** *(Focusing on Effective Talent Recruitment & Management)*

5.2 Prelude of the policy categories

5.2.1 Workplace Conduct & Culture Policies (Affecting Inter-Employee Relations & Organizational Culture)

Importance of Workplace Conduct & Culture Policies

Workplace conduct and culture policies are fundamental to fostering a healthy, productive, and inclusive work environment.

These policies help in:

- Promoting Fairness & Respect: They ensure that all employees are treated with dignity and respect, which leads to a positive workplace culture.
- Preventing Harassment & Discrimination: These policies are designed to eliminate discriminatory behaviors and ensure compliance with legal and ethical standards.
- Enhancing Employee Engagement: Clear guidelines on behavior, ethics, and workplace culture can drive higher morale, motivation, and retention rates.
- Risk Mitigation: By proactively addressing potential issues like harassment or unethical behavior, organizations can avoid costly lawsuits, reputational damage, and regulatory sanctions.
- Attracting Talent: A clear and inclusive culture fosters a sense of belonging, which helps attract diverse talent, particularly in competitive markets.

Importance as per the UNSDGs

The United Nations Sustainable Development Goals (UNSDGs) emphasize the role of businesses in contributing to global sustainability, including social equality and ethical workplace practices. Several UNSDGs align with these policies:

- Goal 5: Gender Equality - Anti-harassment policies and promoting equal opportunities for all employees support gender equality in the workplace.
- Goal 8: Decent Work and Economic Growth - A focus on fair and respectful working conditions, non-discrimination, and diversity within workplace culture enhances economic participation for all employees.
- Goal 10: Reduced Inequality - These policies are central to promoting equality in the workplace, helping to reduce social and economic disparities, especially in terms of gender, race, and disability.
- Goal 16: Peace, Justice, and Strong Institutions - Policies such as whistleblower protection and codes of conduct reinforce ethical behavior, ensuring that organizational practices align with rule of law and justice principles.

Frameworks that Assess the Implementation of These Policies

Several frameworks assess the implementation and effectiveness of workplace conduct and culture policies:

- ISO 26000 (Social Responsibility) - Provides guidelines on how organizations can operate in a socially responsible manner, which includes promoting fairness and equity in the workplace.
- Global Reporting Initiative (GRI) - Standards for sustainability reporting, including social and workplace issues like employee treatment and diversity.

- UN Global Compact Principles - Encourages businesses to adopt sustainable and socially responsible policies that focus on human rights, labor, environment, and anti-corruption.
- Great Place to Work Certification - This recognizes organizations that foster an excellent workplace culture and prioritize employee well-being, inclusivity, and fair treatment.
- B Corp Certification - Measures a company's social and environmental impact, including workplace culture and policies on employee rights and satisfaction.

Role of General Counsel in Ensuring Policy Implementation

As the custodian of workplace conduct and culture policies, the General Counsel (GC) plays a critical role in ensuring their proper implementation, monitoring, and enforcement. Here's why the GC's involvement is crucial:

- Ensuring Legal Compliance: The General Counsel ensures that the workplace policies align with local, national, and international legal requirements (e.g., anti-discrimination laws, labor laws, harassment regulations). The GC's oversight ensures that the organization remains compliant with evolving legal frameworks, reducing legal risk.
- Guiding Ethical Standards: The GC is responsible for embedding ethical standards into organizational practices, ensuring that policies like the Code of Conduct, Anti-Harassment, and Whistleblower policies align with the organization's core values and foster trust both within and outside the company.
- Training & Awareness: The General Counsel often leads the creation of training materials and awareness campaigns to promote understanding of these policies across the organization. By ensuring proper communication, the GC helps in maintaining a culture of transparency and respect.
- Conflict Resolution & Risk Management: In case of disputes or grievances, the General Counsel oversees investigations, ensuring fairness, confidentiality, and compliance with internal procedures. Effective conflict resolution reduces reputational damage and legal liabilities.
- Embedding Culture into Governance: The GC ensures that workplace culture and ethical policies are incorporated into governance practices. This involvement reinforces the organization's commitment to building an inclusive and respectful workplace, which is critical to long-term success and sustainability.

In conclusion, the General Counsel's role in driving these policies forward ensures not only legal compliance but also promotes a culture of fairness, integrity, and respect, aligning with global standards and safeguarding the company's reputation.

5.2.2 Operational & Compliance Policies (Ensuring Legal & Industry Standards Compliance)

Importance of Operational & Compliance Policies to an Organization

Operational and compliance policies are crucial for organizations as they provide the structure and guidelines needed to ensure adherence to legal, regulatory, and industry standards. The importance of these policies includes:

- Risk Mitigation: These policies help organizations identify, assess, and mitigate operational, legal, and financial risks, ensuring smooth operations and avoiding costly fines or legal penalties.
- Consistency & Efficiency: They promote consistency in decision-making, operations, and employee conduct, ensuring that all actions align with organizational goals, legal requirements, and industry standards.
- Reputation Management: By adhering to operational and compliance policies, organizations can protect their reputation and credibility, which is crucial for retaining customers, investors, and business partners.
- Regulatory Compliance: These policies ensure that organizations comply with relevant laws and industry regulations, avoiding legal consequences and protecting the interests of stakeholders.
- Operational Continuity: Well-defined policies ensure that key operational functions, such as supply chain management, quality control, and financial reporting, continue seamlessly, minimizing disruptions and increasing organizational resilience.

Importance as per the UNSDGs

Operational and compliance policies align closely with several United Nations Sustainable Development Goals (UNSDGs):

- Goal 8: Decent Work and Economic Growth - Ensuring that operational and compliance policies align with labor laws and industry standards fosters economic growth and provides decent working conditions for employees.
- Goal 9: Industry, Innovation, and Infrastructure - Operational policies related to innovation, technology management, and infrastructure ensure compliance with international standards, fostering sustainable industrial growth.
- Goal 12: Responsible Consumption and Production - Policies related to environmental compliance and sustainable business practices contribute to reducing waste, improving resource efficiency, and minimizing negative environmental impacts.
- Goal 16: Peace, Justice, and Strong Institutions - These policies ensure that businesses adhere to the rule of law, anti-corruption measures, and transparency standards, which contribute to stronger institutions and ethical governance.
- Goal 17: Partnerships for the Goals - By maintaining compliance with industry standards and regulatory frameworks, companies promote transparency and trust, which is critical for forming partnerships that contribute to broader sustainability goals.

Frameworks that Assess the Implementation of These Policies

Several established frameworks can assess the implementation and effectiveness of operational and compliance policies:

- ISO Standards (e.g., ISO 9001, ISO 14001, ISO 45001) - These certifications provide frameworks for quality management, environmental management, and occupational health and safety, which organizations can adopt to ensure they meet regulatory and industry standards.
- COSO Framework (Committee of Sponsoring Organizations of the Treadway Commission) - This widely accepted framework provides guidelines for enterprise risk management (ERM) and internal controls, helping organizations align their policies with global standards.
- SOX Compliance (Sarbanes-Oxley Act) - For publicly traded companies, the SOX Act establishes requirements for financial reporting, corporate governance, and internal controls to ensure transparency and accountability.
- Global Reporting Initiative (GRI) Standards - The GRI standards guide businesses in reporting their environmental, social, and governance performance, aligning with sustainability and regulatory compliance goals.
- OECD Guidelines for Multinational Enterprises - These guidelines help businesses adhere to international standards, ensuring responsible business conduct in areas like anti-corruption, supply chain management, and environmental protection.
- Anti-Corruption and Compliance Frameworks (e.g., FCPA, UK Bribery Act) - Frameworks addressing anti-corruption laws ensure that businesses adhere to ethical standards and regulatory requirements in their global operations.

Role of the General Counsel & CSO in Ensuring Policy Implementation

As the custodian of operational and compliance policies, the General Counsel (GC) is critical to ensuring the effective implementation, monitoring, and enforcement of these policies within the organization. Here's why the General Counsel's role is indispensable:

- Legal Oversight & Compliance Management: The General Counsel ensures that the organization's operational policies align with evolving local, national, and international laws. This involves staying informed about changes in the legal landscape, regulatory shifts, and industry standards, ensuring that policies remain relevant and compliant. By doing so, the GC minimizes legal and financial risks, ensuring the company avoids penalties, lawsuits, and regulatory sanctions.
- Governance & Ethical Leadership: As a key member of the leadership team, the GC provides guidance on ethical issues, corporate governance, and risk management. The GC helps shape policies that reflect the organization's commitment to transparency, fairness, and ethical business practices. This leadership strengthens the organizational culture, reinforces compliance at all levels, and builds stakeholder trust.
- Policy Communication & Training: The GC ensures that operational and compliance policies are clearly communicated throughout the organization. This includes overseeing training programs and awareness campaigns, ensuring that employees understand the importance of compliance and the consequences of non-adherence.
- Crisis Management & Internal Investigations: In cases where policies are violated or non-compliance occurs, the GC plays a crucial role in investigating the matter, guiding corrective actions, and managing legal or

reputational crises. By proactively managing these issues, the GC helps the company navigate challenges and maintain its reputation.
- Alignment with Business Strategy: The GC works closely with other executives to align operational and compliance policies with the company's overall business strategy. This ensures that compliance doesn't just meet regulatory requirements, but also supports sustainable growth, innovation, and ethical operations across the organization.

By ensuring the consistent application and evolution of operational and compliance policies, the General Counsel serves as a strategic advisor and protector of the organization, ensuring long-term success, risk mitigation, and regulatory adherence.

5.2.3 Employee Management Policies (Focusing on Effective Talent Recruitment & Management)

Importance of Employee Management Policies to an Organization

Employee management policies are crucial for creating a structured, fair, and supportive workplace that fosters employee well-being, productivity, and retention. Their importance includes:

- Employee Satisfaction & Engagement: Clear, fair policies ensure that employees know what to expect in terms of compensation, benefits, work expectations, and performance standards. This contributes to job satisfaction and engagement, which boosts productivity.
- Legal & Regulatory Compliance: These policies ensure that the organization is in compliance with labor laws, health and safety regulations, and anti-discrimination laws, protecting the organization from legal risks and penalties.
- Consistency & Fairness: Well-defined policies ensure that all employees are treated equally and consistently, reducing biases and promoting fairness in recruitment, promotions, compensation, and other key areas.
- Retention & Talent Attraction: Competitive compensation and benefits policies, along with clear pathways for growth, help attract top talent and reduce turnover. Effective management of employee performance and development supports long-term employee retention.
- Conflict Resolution & Grievance Handling: Employee management policies provide a clear process for resolving disputes or grievances, promoting a harmonious and productive workplace.

Importance as per the UNSDGs

Employee management policies play a significant role in achieving several United Nations Sustainable Development Goals (UNSDGs):

- Goal 5: Gender Equality - Policies related to equal pay, anti-discrimination, and opportunities for career advancement ensure gender equality in the workplace. Policies like the Equal Employment Opportunity (EEO) and Anti-Sexual Harassment promote a diverse and inclusive workforce.
- Goal 8: Decent Work and Economic Growth - Fair labor practices, performance management, and career development policies contribute to economic growth by creating decent work conditions for employees. These

policies help improve employee welfare, which drives greater productivity and sustainable economic growth.

- Goal 10: Reduced Inequality - Employee management policies aimed at diversity and inclusion promote equality in the workplace by supporting underrepresented groups and eliminating discrimination. This helps reduce workplace inequality.
- Goal 3: Good Health and Well-Being - Policies that support work-life balance, employee well-being, and mental health ensure that employees are physically and mentally healthy, which is essential for productivity and overall organizational success.
- Goal 4: Quality Education - Training and development policies ensure employees have opportunities for continuous learning and growth, improving their skills and increasing their potential for career advancement.

Frameworks that Assess the Implementation of These Policies

Several frameworks can assess the implementation and effectiveness of employee management policies:

- ISO 30414 (Human Resource Management – Guidelines for Internal and External Human Capital Reporting) - This standard provides guidelines for measuring and reporting on human capital, assessing how well employee management policies are supporting organizational goals and employee well-being.
- Great Place to Work Certification - This framework assesses organizational culture, including employee satisfaction and trust in leadership, which is influenced by the company's employee management policies.
- Human Capital Management (HCM) Frameworks - These frameworks assess how effectively an organization is managing its workforce, ensuring that policies related to recruitment, training, compensation, and performance management align with business needs.
- Gallup Q12 Engagement Survey - This survey assesses employee engagement and satisfaction, providing insights into how well employee management policies are driving positive outcomes.
- SHRM Competency Model (Society for Human Resource Management) - This model outlines key competencies for HR professionals and provides a framework for assessing the effectiveness of employee management policies in fostering a positive work environment and organizational success.

Role of the CHRO in Ensuring Policy Implementation

As the Chief Human Resources Officer (CHRO) is the custodian of employee management policies, their involvement in ensuring the successful implementation and ongoing evaluation of these policies is critical for the organization’s success. Here's why the CHRO's role is indispensable:

- Leadership in People Strategy: The CHRO is responsible for aligning employee management policies with the organization’s broader goals and vision. This involves ensuring that recruitment, development, compensation, and performance management systems are not only

compliant with legal standards but also drive employee engagement, productivity, and retention. By championing these policies, the CHRO contributes to building a motivated, skilled, and diverse workforce that drives organizational success.

- Promoting an Inclusive & Fair Work Culture: The CHRO ensures that the organization's employee management policies promote fairness, transparency, and inclusivity. By implementing policies like equal opportunity, diversity & inclusion, and anti-harassment, the CHRO fosters a work environment where all employees feel valued and supported. This enhances employee satisfaction and loyalty while also helping to prevent workplace conflicts and legal challenges.
- Employee Development & Performance Management: A key part of the CHRO's role is ensuring that employees are supported in their growth and development. The CHRO ensures that training, appraisal, and succession planning policies are in place to help employees advance in their careers. By establishing clear paths for growth, the CHRO helps retain top talent and maximizes workforce potential.
- Risk Mitigation & Compliance: The CHRO is responsible for ensuring that employee management policies comply with local, national, and international labor laws. By staying up to date with legislative changes and ensuring that policies are reviewed regularly, the CHRO helps mitigate legal risks and ensures that the organization avoids penalties for non-compliance.

Overall, the CHRO plays a critical role in fostering a positive organizational culture, ensuring legal and regulatory compliance, and enhancing employee engagement and retention. Their leadership ensures that employee management policies not only align with legal requirements but also support the organization's strategic objectives, making them an essential driver of both short-term success and long-term organizational sustainability.

List of Policies of Indo Tech Transformer Limited:

List of Policies at Indo Tech Transformers Limited		
Policy Category	**Sl.No**	**Name of the Policy**
1. Workplace Conduct & Culture Policies (Affecting Inter-Employee Relations & Organizational Culture)	1	Code Of Conduct
	2	Code Of Ethics and Business Conduct
	3	Policy On Sexual Harassment of Women at Workplace
	4	Policy on diversity of board of directors
2. Operational & Compliance Policies (Ensuring Legal & Industry Standards Compliance)	1	Environment Sustainability Policy
	2	Integrated Management (QEHS)Policy
	3	Policy On Payment of Sales Incentive to Sales Personnel
	4	Whistle-Blower Policy
	5	Corporate Social Responsibility (CSR) Policy
	6	Related Party Transactions Policy
	7	Policy On Material Subsidiaries
	8	Policy On Preservation of Documents and Archival of Documents

	9	Policy On Disclosure of Material Events / Information
	10	Code of Practices and Procedures for Fair Disclosure of Unpublished Price Sensitive Information
	11	Code of Conduct to Regulate, Monitor and Report trading by Designated Persons and
	12	Institutional mechanism for prevention of Insider Trading
3. Employee Management Policies (Focusing on Effective Talent Recruitment & Management)	1	Attendance & Leave Policy
	2	Domestic Travel Policy
	3	Dress Code & Uniform Policy
	4	Employee Of the Month Scheme
	5	Employee Referral Scheme
	6	Equal Employment Opportunity & Anti-Discrimination Policy
	7	Extension Of Service Retirement Superannuation Separation & Farewell Policy
	8	Foreign Travel Policy
	9	Gradation Of Employees
	10	Local Conveyance Policy
	11	Maternity Policy
	12	Overtime Policy
	13	Policy on Recruitment Confirmation & Retention of Trainees
	14	Process For Working Sundays & Holidays
	15	Recruitment & Selection Policy
	16	Sim Card Allotment Policy
	17	SOP For Attaining Customer Delight in Travel Arrangement
	18	SOP Relating COVID 19 Precautionary Actions
	19	Policy relating to remuneration of the directors, key managerial personnel and other employees
	20	Criteria for making payments to non-executive director

Table 46: List of Policies - Indo Tech

5.3 ESG Training

The ESG Department conducted an in-person training session on "Introduction to ESG" on 9th and 10th April 2025. A total of **151** employees were invited, of which **98** employees (64.90%) attended. During this training, three different PowerPoint presentations were delivered based on the employees' levels and responsibilities: one for the Senior Leadership Team, another for employees involved in data recording/gathering, and a third for general employees.

The total training man-hours for this session amounted to **123.5** man-hours.

Indo Tech Transformers Limited, Kancheepuram						
ESG Training Details – 9th & 10th April 2025						
Sl.No	**Date**	**Topics/PPT**	**Time**	**Invited**	**Attended**	**Man-hours**
1.	09.04.2025	ESG Intro, E of ESG & S of ESG	12.00 pm to 1.30 pm	30	21	31.5
2.	09.04.2025	Establishing The Culture of ESG - A Preface	2.30 pm to 4.00 pm	16	16	24
3.	09.04.2025	ESG Intro, E of ESG & S of ESG	4.00 pm to 5.30 pm	30	14	21
4.	10.04.2025	ESG Intro & S of ESG	10.00 am to 11.00 pm	25	21	21
5.	10.04.2025	ESG Intro & S of ESG	12.00 pm to 1.00 pm	25	11	11
6.	10.04.2025	ESG Intro & S of ESG	3.00 pm to 4.00 pm	25	15	15
			Total	**151**	**98**	**123.5**

Table 47: ESG Training Details

Figure 78: Training by ESG Department

PPT 1: ESTABLISHING THE CULTURE OF ESG - A PREFACE

This presentation, followed by a Q&A session, was designed for the CEO, CFO, Company Secretary, and other senior leaders. It focused on introducing the what and why of ESG, outlining the starting point of our ESG journey, and explaining the guiding principles behind ESG ratings.

Key topics covered included:

- Global risk perceptions and peer ESG score comparisons
- Global assessment frameworks vs. BRSR requirements
- Measurement of GHG emissions
- ESG-related publications by ESG Department
- The roadmap to carbon neutrality
- The planning and development of Indo Tech's first ESG report.

List of Participants:

Sl.No	Name	Designation
1.	Purusothaman M	CEO & WTD
2.	Dayanand R	COO
3.	Sai Krishnan CP	CFO
4.	Shiva Prasad Padhy	Company secretary
5.	Karthick D	Compliance Officer
6.	Tushar giri	GM – SCM
7.	Narasimha Rao	DGM – QA
8.	Rajendra Prasath	DGM - Design
9.	Ramya B	Senior Manager - ITO
10.	Mathan raj	Senior Manager - OTR
11.	Shanmugam R	Senior Manager – Production
12.	Sakthivel	Senior Manager – Production
13.	Manohar	Manager - Logistic
14.	Baskar	Manager - Service
15.	Dinesh Kannan	Manager – SCM
16.	Gandhi Rasan KKS	Assistant Manager - EHS
17.	Nalini	Executive - Admin

Table 48: Participants List of Senior Leaders

PPT 2: ESG Intro & E of ESG

This presentation, followed by a Q&A session, was designed for employees who directly involved in data gathering and documentation. It is focused on Introduction to ESG and Environmental aspects of ESG.

Key topics covered included:

- Carbon footprint, Global Warming, Green House Effect and Paris Agreement
- Global GHG Emission Trends
- GHG Protocol Standards and Scopes overview
- Data Collection and Documentation
- GHG Emission Calculation Methods
- Internal & External Verification

PPT 3: ESG Intro & S of ESG

This presentation, followed by a Q&A session, was designed for all employees. This session briefly introduces ESG and moves into the Social PPT which explains the Human Rights Due Diligence and Survey questions.

5.4 Materiality & Peer comparison

Materiality is the study of sustainability factors that are relevant for long-term value creation, considering the interrelation between external impact on society or the environment on the one hand and internal impact on enterprise value on the other hand. It therefore considers the dual nature of materiality, also referred to as double materiality.

Investors are increasingly interested in both sides of this equation. The same holds for regulations across the world, who are requiring reporting on this broader and integrated understanding of materiality.

A sustainability issue is seen as material if it presents a significant impact on society or the environment and might have a significant impact on a company's value drivers, competitive position, and long-term shareholder value creation. Material ESG issues can significantly affect an entity's business operations, cash flows, legal or regulatory liabilities, and access to capital. They can also significantly improve or undermine an entity's reputation and relationships with key stakeholders, society and the environment. Over time external impacts on society and environment translate into internal impact on a company itself, including its financial value drivers.

Materiality Peer Comparison	
Schneider	**Hitachi**
Environment	
Being a role model in the effective reduction of our own CO2 emissions	Decarbonization
Aiming for environmental excellence at our sites	Resource circulation
Social	
Guaranteeing optimal working health and safety conditions for our employees	Employee happiness
Promoting diversity and inclusion in all our professions, countries and operations	Maintaining social infrastructure
Decarbonizing our supply chain	Strengthening supply chains
Governance and Ethics	
Aiming for zero corruption at all levels, in the whole value chain	Business ethics and compliance
Guaranteeing quality and safety of products	Safe and secure products and services

Table 49: Materiality Peer Comparison

5.5 Risk and crisis management – CRO – IRC – Risk Governance process – Board approval

A key factor for a Company's capacity to create sustainable value is the risks that the Company is willing to take and its ability to manage them effectively. Ability

to identify and manage risks promptly is also a critical aspect of corporate governance at any Company. Many risks exist in a Company's operating environment and continuously emerge on a day-to-day basis. Risk management does not aim at eliminating them, as that would simultaneously eliminate all chances of rewards/ opportunities. Risk Management is instead focused at ensuring that these risks are known and addressed through a pragmatic and effective risk management process.

The Securities and Exchange Board of India (SEBI) has included Risk Management as part of Securities & Exchange Board of India. (Listing Obligations and Disclosure Requirements) Regulations 2015 (LODR) requirement as amended time to time. As per Regulation 17 of the SEBI LODR, disclosures to the Board are to be made by the listed entity on whether the risk assessment and its minimization procedures are in place. As per the Companies Act 2013, there are specific requirements for Risk Management that a Company needs to comply with. In addition, the Board of Directors and Audit Committee have been vested with specific responsibilities in assessing the robustness of risk management policy, process and systems.

Definition of Risk:

Risk is any event/non-event, the occurrence/non-occurrence of which can adversely affect the objectives of the Company. These threats may be internal/ external to the Company, may/may not be directly influenced by the Company and may arise out of routine/non-routine actions of the Company.

Definition of Risk Management:

Risk Management is a structured, consistent, and continuous process across the whole organization for identifying, assessing, deciding on responses to and reporting on the opportunities and threats that may affect the achievement of its objectives.

Objectives of Risk Management:

- Better understand the Company's risk profile.
- Ensure that the Senior Management is in a position to make informed business decisions based on risk assessment.
- Sound business opportunities are identified and pursued without exposing the business to an unacceptable level of risk.
- Contribute to safeguard Company value and interest of shareholders; and
- Improve compliance with good corporate governance guidelines and practices as well as laws & regulations.

Risk Management Framework:

The Risk Management Framework comprises essentially of 2 elements:

- **Risk management process** i.e., the process to identify, prioritize and manage risks in the Company; and
- **Risk management structure** i.e., the enablers that are created to operationalize the process. These take the form of roles & responsibilities, reporting calendars etc.

Below is a diagrammatic representation of the Risk Management Framework.

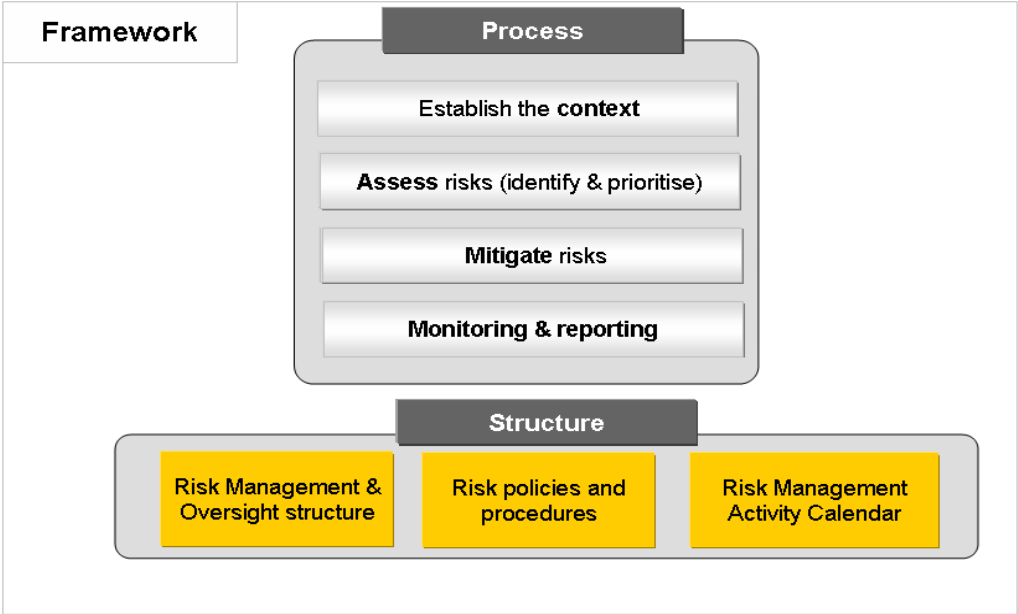


Figure 79: Risk Management Framework

Risk Management Flow:

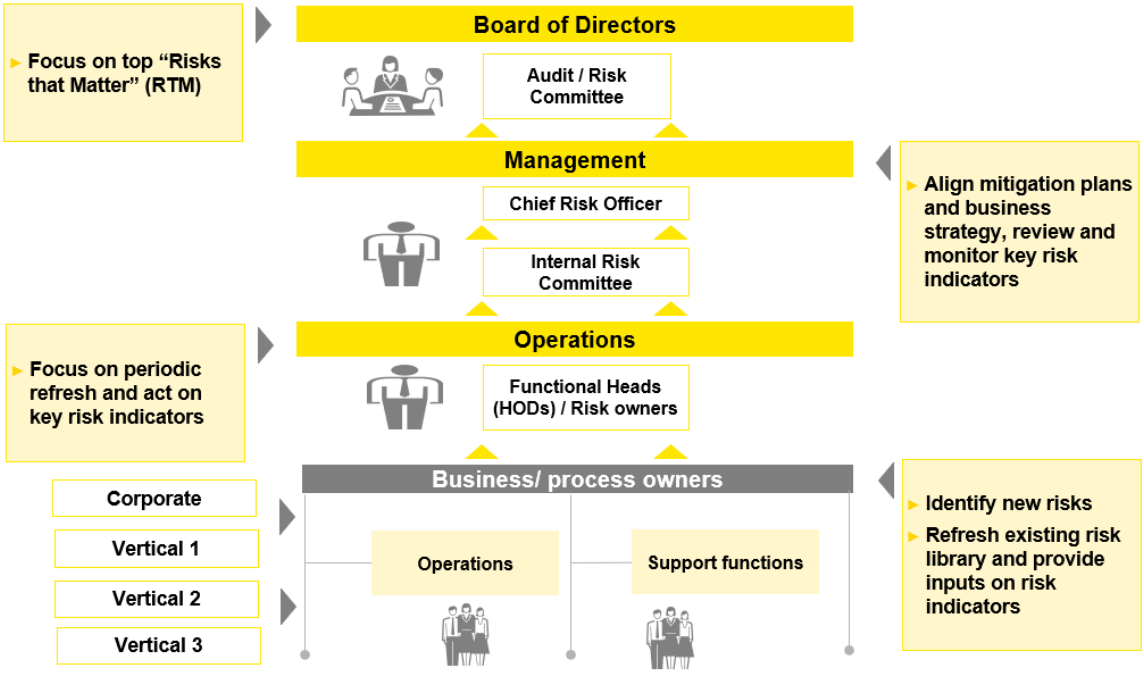


Figure 79: Risk management Flow

The roles and structure for risk management and oversight:

Governance:

The Board of Directors is responsible for defining and approving the Risk Management framework. The Board of Directors has delegated direct oversight responsibility for Risk Management to the Risk Management Committee. The Risk Management Committee is thus responsible for monitoring the risks and risk management process by reviewing: (i) periodic risk reporting produced by the

CRO and internal risk committee; and (ii) reports from the various Assurance functions.

Execution:

CRO and internal risk committee is responsible for operationalizing the risk management framework at the Company. This includes identifying & prioritizing risks, operationalizing mitigation strategies and reporting on risk mitigation. Internal Risk committee shall be constituted by Management which shall be headed by CRO and approved by the Risk Management committee of the board.

- **For routine business activities:**
  - Business Unit ('BU') head/Function heads are required to implement the risk management framework within their respective area. While they are responsible for performance on risks, they may designate specific risk owners to assist them in managing risks. Each business unit/function has a risk coordinator who oversees & coordinates the deployment of risk management activities within the BU/function.
- **For non-routine business activities:**
  - Certain activities/decisions are non-routine and represent one-off transactions. These include activities such as mergers & acquisitions, divestments, entering new lines of business, ERP implementation etc. The Executive-in-charge of such a transaction has the responsibility for operationalizing risk management for such activities.

Monitoring:

CRO is entrusted with the responsibility to review and provide independent assurance on overall effectiveness and efficiency of the risk management process. While all risks cannot be audited, the CRO, External Audit, or any other function(s) entrusted by the Risk Committee may provide independent assurance on the effectiveness of defined risk mitigation strategies for certain areas. As part of their annual audit planning exercise, these functions shall take specific inputs from the Risk Committee on the level and extent of assurance required on specific risks. In addition, these functions through their regular audit/ fieldwork at various levels might identify additional risks, which will serve as an input for the subsequent risk identification and definition process.

Risk Management Structure:

The Risk Management Organization comprises of the following:

Primary role

A. Board of Directors (BoD).
B. Internal Risk Management Committee
C. BU Heads / Function Heads
D. Executive-in-Charge (for non-routine transactions)
E. Risk Owners
F. Mitigation Plan Owners ('MPO')

Support role

G. Risk Management Coordinator ('RMCO')
H. Assurance

5.6 Human Rights Due Diligence Survey at Indo Tech Transformers Limited

Companies must have an active commitment to respect human rights in their business relationships in line with the UN Guiding Principles or any other internationally accepted standards. There must also be a company-specific policy with a company-wide commitment and not just for a single site, business unit, or project.

Following the most recent international developments in the field of corporate non-financial disclosures, we have conducted Human Rights Due Diligence survey to assess policy awareness among employees and identify any violations of human rights, safety, and inclusivity. We are committed to keeping our organization fair for everyone and complying with internationally recognized frameworks such as the UN Guiding Principles on Business and Human Rights and the UN Global Compact, as well as relevant national and international laws pertaining to human rights.

We have conducted separate surveys for permanent employees, permanent women employees and contract/consultant employees to ensure all relevant points are covered.

5.6.1 Analysis of survey results conducted for Permanent Employees

The survey conducted among permanent employees to understand if they are aware of company policies and if their rights are being respected. We also enquired whether the employees had previously used the grievance redressal mechanism, whether their concerns were addressed, and if they were satisfied with the working conditions.

Human Due Diligence Survey (Permanent Employees)				
Sr. No.	**Questions**	**yes**	**No**	**Maybe**
1	Do you understand your employment terms like pay and other compensation terms?	**81%**	**5%**	**13%**
2	Does our company have proper policies and procedures in place to ensure the protection of data related to employees?	**79%**	**4%**	**17%**
3	Are you aware of your rights & responsibilities and company policies on fair treatment?	**73%**	**12%***	**15%***
4	Does our company have a non-discrimination policy that covers race, language, gender, marital status, disability, religion, and personal opinions?	**72%**	**12%***	**16%***
5	Does our company have procedures in place to address grievance related to any workplace violation, sexual harassment or discrimination?	**87%**	**5%**	**8%**
6	Does our company have a confidential and zero retaliation complaint mechanism to report issues concerning threats and discrimination in the workplace?	**68%**	**11%***	**21%***
7	Does our company encourage its employees to report threats and discrimination in the workplace?	**74%**	**12%***	**14%***
8	Have you experienced discrimination or unfair treatment at work?	**18%***	**72%**	**10%***
9	Do you feel comfortable reporting workplace issues?	**75%**	**15%***	**10%***

10	Do you know how to access grievance mechanisms?	**54%**	**37%**	**10%**
11	Have you ever been pressured to work overtime without fair compensation?	**17%***	**72%**	**11%***
12	Does our company have a transparent appraisal procedure in place that ensures no discrimination?	**73%**	**8%***	**19%***
13	Do you feel the company provides equal opportunities regardless of gender and other factors for career growth?	**87%**	**4%**	**9%**
14	Does our company provide adequate training and development opportunities to employees?	**85%**	**10%**	**5%**
15	Does our company provide health and safety related training?	**96%**	**2%**	**2%**
16*	Does our company provide paternity leave?	**44%**	**40%**	**16%**
17	Does our company provide maternity benefits?	**79%**	**4%**	**17%**
18	Does our company have a no child labor policy?	**91%**	**4%**	**4%**
19	Do employees have the ability to access areas such as canteen or restroom without restrictions?	**68%**	**23%***	**9%***
20	Does our company encourage the recruitment of differently abled people and provide adequate facilities for their ease of access and work?	**54%**	**9%***	**37%***
21	Does our company provide safe working conditions to all its employees, including women?	**97%**	**1%**	**2%**
22	What improvement would you suggest for fair workplace policies	**10% Answered**		

* Negative response + doubtful response exceeded 25%

How long have you been associated with the company?			
1-3 years	3-5 years	Less than 1 year	More than 5 years
34%	**10%**	**17%**	**39%**

Have you used the grievance mechanism before? (If Yes, was your concern addressed?)		
No	Yes, but my concern was not addressed	Yes, my concern was addressed
84%	**4%**	**13%**

How satisfied are you with your working conditions?				
Very satisfied	Very dissatisfied	Somewhat satisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied
48%	**1%**	**33%**	**3%**	**15%**

Table 50: Permanent Employees Survey Responses

Detailed interpretation of analysis

The permanent employees survey responses are shown in table 50. Out of 342 permanent employees at Indo Tech, 112 employees responded to the survey form, which is about 33% responses. The interpretation on low response would be as follows

- 70% and above is generally considered strong.
- 60–70% is acceptable but should be interpreted with caution.
- Below 60% may be too low for high-confidence organizational decisions.

The next step when low responses is recorded would be as follows;

- Look into why employees didn't participate (e.g., via anonymous pulse checks).
- Communicate action plans transparently based on feedback.
- Improve future participation through trust-building and better survey design.

On conducting discrete enquiry, it was understood that there was a communication gap on the reason for the survey and the impact of responses, due to which responses were low.

Hence, the mitigation strategy has been planned for all responses where a negative response plus the doubtful response percentages exceeded 25%. On a perusal, it can be seen that fair treatment, non-discrimination, zero retaliation, confidentiality, confidence to report, access to grievance redressal mechanism, have all shown consistent lack of either sufficient information on process, knowledge of existence of redressal forum or confidence in outcomes post complaints.

In order to strengthen the information, accessibility and trust, ESG department has planned to take up multiple platforms of communication on availability of forum, while bringing in leadership teams to instil assurance and trust.

The leadership team also looking in to the avenues for increasing differently abled persons in the workforce, paternity leave, transparent appraisal process as these questions also received response which translate to employees seeking higher expectations from the company.

A similar survey will be conducted again in March 2026 and the results will speak on successful implementation of the mitigation strategy based on May 2025 survey results.

5.6.2 For Permanent Women Employees

A separate survey was conducted specifically keeping permanent women employees in mind. It included questions about separate hygiene and sanitation facilities, procedures for addressing discrimination and sexual harassment, ensuring safe working conditions, and providing health and safety training. We also checked if Indotech encouraged women to report threats and discrimination, offered equal opportunities regardless of gender, and had a confidential sexual harassment mechanism that assures zero retaliation. Additionally, we looked at maternity benefits, training, resting rooms for women employees, and transparency.

These permanent women employees survey responses are shown in table 51. Based on the responses, an analysis of which you can see below, the main issue which women have raised is with regard to flexible working hours, increased child cares facilities and skill development training.one additional point of concern seems to be response of the HR department to women’s issues mentioned above.

100% response has been received from women permanent employees and hence the above issues are being taken up for discussion by HR department.

Human Rights Due Diligence survey (Women Employees)				
Sr. No.	**Questions**	**Yes**	**No**	**Maybe**
1	Do you feel safe and respected in your workplace?	**91%**	**9%**	**0%**
2	Have you ever faced or witnessed gender discrimination at work?	**0%**	**91%**	**9%**
3	Does the company have a mechanism to report sexual harassment?	**82%**	**9%**	**9%**
4	Is the mechanism to report sexual harassment confidential and assure zero retaliation?	**91%**	**0%**	**9%**
5	Does our company encourage women to report threats and discrimination?	**91%**	**0%**	**9%**
6	Do you have equal access to training, promotions, and leadership opportunities?	**82%**	**9%**	**9%**
7	Do you believe women have equal growth opportunities?	**100%**	**0%**	**0%**
8	Does our company provide gender specific basic hygiene and sanitation facilities?	**82%**	**9%**	**9%**
9	Does our company provide maternity benefits?	**100%**	**0%**	**0%**
10	Are maternity benefits and parental leave policies clear?	**73%**	**9%**	**18%**
11	Does our company provide any additional benefits to women employees, including training, childcare facilities, resting rooms, and wellbeing measures?	**45%**	**18%**	**36%**
12	Does your workplace support flexible working arrangements?	**55%**	**18%**	**27%**
13	Do you feel comfortable discussing workplace challenges with HR?	**73%**	**0%**	**27%**
14	What challenges do women face in your workplace?	**18% Answered**		
15	What policies or initiatives could improve gender inclusion?	**9% Answered**		

How long have you been associated with the company?			
1-3 years	3-5 years	Less than 1 year	More than 5 years
45%	**18%**	**9%**	**27%**

Have you used the sexual harassment reporting mechanism? (If yes, was your issue addressed?)		
Yes, my issue was addressed	Yes, but my issue was not resolved	No
9%	**0%**	**91%**

Table 51: Permanent Women Employees Survey Responses

5.6.3 For Contract/Consultant Employees

The survey for Contract/Consultant employees encompassed questions about their employment and working conditions. We assessed whether employees understood their pay and compensation terms, if they had a written employment contract and comprehended its terms and regulations, if they were compensated for overtime or compensatory work, and if they received company benefits. Additionally, it evaluated whether the company provided safe working conditions, ensured fair and non-discriminatory treatment, granted unrestricted access to facilities like canteens and toilets, and had a grievance mechanism to address workplace violations, sexual harassment, or discrimination.

The contract/consultant survey responses are shown in table 52.

Human Rights Due Diligence survey (Contract/Consultant Employees)				
Sr. No.	**Questions**	**Yes**	**No**	**Maybe**
1	Do you understand your engagement terms like pay and other compensation terms?	**100%**	**0%**	**0%**
2	Do you receive wages and benefits as per the contract?	**100%**	**0%**	**0%**
3	Are you paid for overtime or compensatory payment?	**96%**	**4%**	**0%**
4	Does the company have any grievance mechanism to report and remediate any workplace violation, sexual harassment or discrimination?	**95%**	**5%**	**0%**
5	Have you experienced unfair treatment or discrimination as a contract worker or consultant?	**91%**	**9%**	**0%**
6	Are you aware of whom to contact in case of a workplace issue?	**99%**	**1%**	**0%**
7	Does our company provide safe working conditions to all its employees?	**100%**	**0%**	**0%**
8	Do you receive safety training and protective equipment?	**100%**	**0%**	**0%**
9	Does our company treat all its employees fairly, equally without any discrimination?	**97%**	**3%**	**0%**
10	Do the employees get benefits as per the terms of engagement from the company?	**99%**	**1%**	**0%**
11	Are you provided with the necessary health and safety measures at work?	**100%**	**0%**	**0%**
12	Do you have equal access to workplace facilities and support as permanent employees?	**91%**	**9%**	**0%**
13	Are you provided rest breaks and reasonable working hours?	**100%**	**0%**	**0%**
14	Do you know how to report workplace grievances?	**100%**	**0%**	**0%**
15	Have you raised any concerns that have not been addressed?	**15%**	**85%**	**0%**
16	Any additional comments regarding your engagement with the company?	**0.37% Answered**		

How long have you been associated with the company?			
1-3 years	3-5 years	Less than 1 year	More than 5 years
37%	27%	23%	13%

Table 52: Contract/Consultant Employees Responses

The survey for contract/consultant employees in highlights strong compliance with employment standards. All 267 contract employees at Indotech responded to the survey. And no major concern has been seen on analysis of the responses.

6. ESG ROADMAP

6.1 Charting the ESG Journey

It is important now more than ever to implement necessary processes and drive top-down cultural change that multiple stakeholders are giving priority to. Stakeholder capitalism is becoming mainstream, stakeholders are increasingly interested in knowing **"How do you make profits" rather than "How much profit do you make"**

Regulators are setting high social, governance and environmental standards.
Investors invest in companies that are responsible sustainable and resilient.
Talented staff are prioritizing purpose over salaries.
Consumers are increasingly embracing brands that align with their social values.

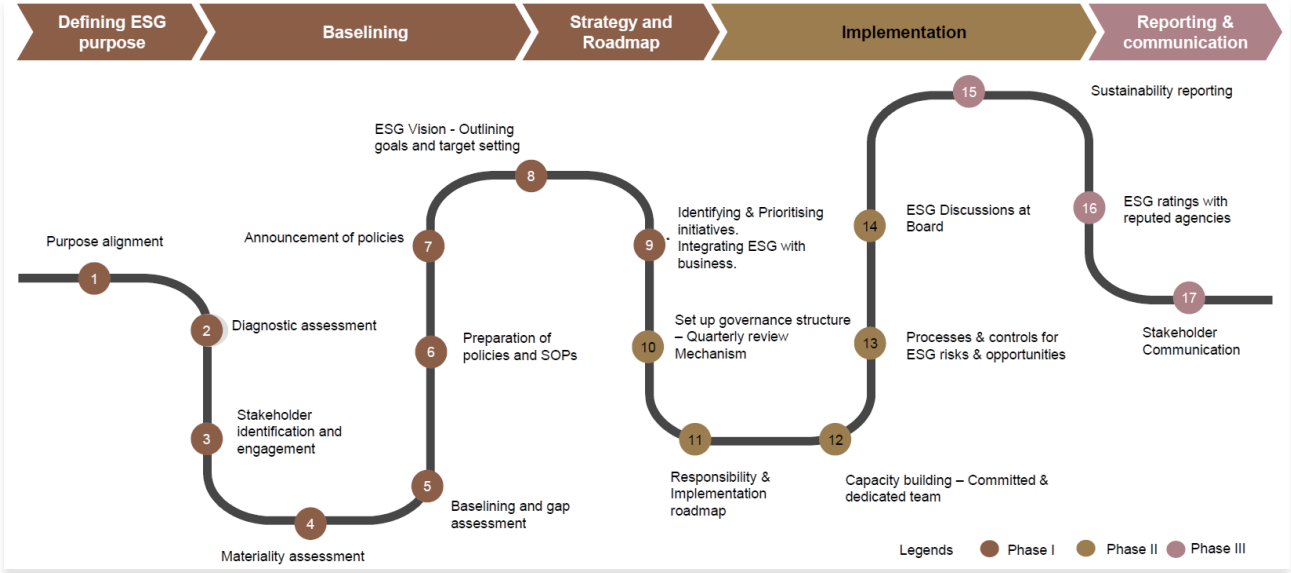


Figure 80: Typical phases of the ESG journey of a company

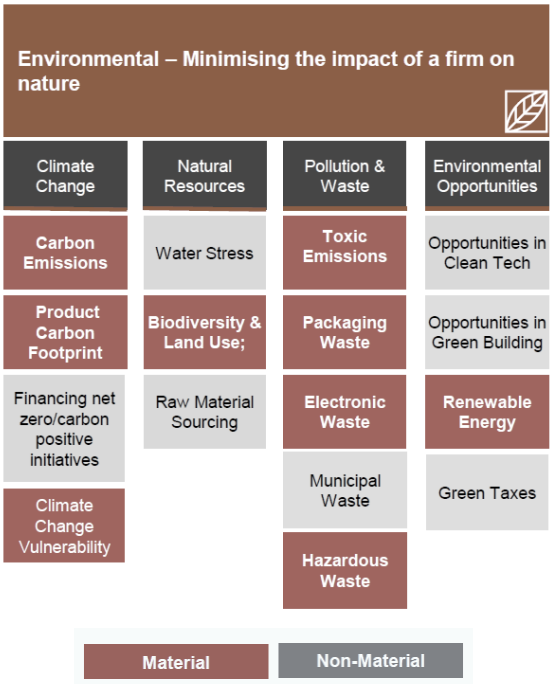


Figure 81: Key focus areas under Environment, E of ESG, for manufacturing companies

6.2 Corporate Sustainability Assessments

As we move towards implementing ESG into our business plans and corporate culture we need to understand from a global point of view what needs to be done to be recognized as a company that is driven by global standards of adherences.

Working backwards from achieving scores, we can make the journey more focused and thus a clarity of the path that we take.

Assessment Agencies that provide scores that are a touchstone to ESG adherences are multiple in number and also have slightly different assessment frameworks. The most popular and most respected are the DJSI scores which are given by S&P Global on an annual basis based on a CSA questionnaire that is answered by the participant company. This CSA – Corporate Sustainability Assessment is the basis for companies with the eligible market capitalization to be listed in the Dow Jones Sustainability Index – World, USA, Europe, Asia Pacific and Emerging Markets.

There are several other assessment agencies which provide scores on basis of disclosures done by the companies that they track which includes MSCI, Bloomberg, Sustainalytics. What is important for a good score is adherence to the respective guidelines, frameworks and standards of Environment Social and Governance standards advocated by global guidelines like UNSDGs, frameworks & standards like the SBTi, TCFD, CDP. It would be pertinent to mention the CII GreenCo Rating certification at this juncture.

The CII GreenCo Rating System is a first-of-its-kind framework that recognizes and facilitates the growth of top-notch green companies in India. This framework is developed by the CII Sohrabji Godrej Green Business Centre and launched in 2011. Total GreenCo Rated companies are 880+ and 1170+ companies are working on to get the GreenCo Rating.

This rating system reflects the collective wisdom and expertise of industry leaders, policymakers, and environmental experts. This collaborative effort ensures that the framework encompasses diverse perspectives and addresses the evolving needs of industries in achieving sustainability.

The objective of the GreenCo rating system is to assist companies in improving their environmental performance in a comprehensive manner and go beyond sheer compliance.

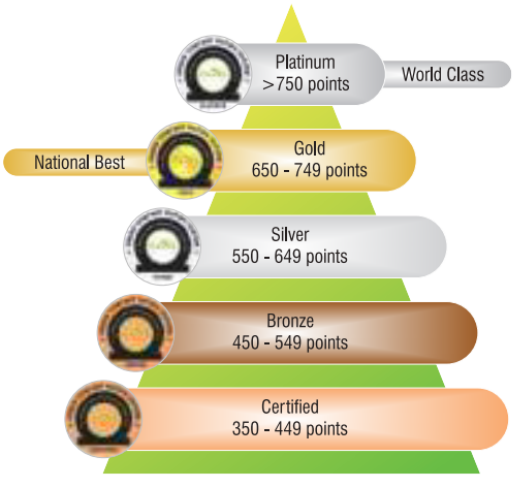
The GreenCo rating system embraces a life cycle approach that focuses on key environmental performance aspects addressing energy efficiency, renewable energy, water conservation, greenhouse gas emissions reduction, waste management, material conservation, green supply chain, product stewardship & life cycle assessment, innovation for environment and green infrastructure & ecology. These areas provide a framework for evaluating and enhancing sustainability practices across industries.

The rating system categorizes companies based on their total score, across Platinum, Gold, Silver, Bronze, and Certified, providing recognition and motivation for continual improvement.

The threshold criteria for certification levels are provided in the figure 80.

GreenCo Version IV

Rating Levels



Sl. No	Parameter	Points
1	Mandatory Requirements	-
2	Management Systems	75
3	Energy Management	150
4	Carbon Management	150
5	Water Management	125
6	Material Resource Management	125
7	Green Supply Chain	100
8	Product Stewardship & Life Cycle Approach	125
9	Innovation for Environment	50
10	Green Built Environment & Others	100
	Total	1000

Platinum+ Applicable to Platinum companies – continue to improve & excel to next higher level

Figure 82: CII GreenCo Rating Levels and Points

Under Environment of ESG the process would start with aligning the policies and activities of the companies with such standards and frameworks right from the structuring of the Environmental Policy.

The policies need to take into its drafting the Pillars on which it is being structured, what are the Operational processes, the Legal and regulatory matrix which is being adhered to, how and who support the Implementation of the policies, Influencers & Champions who are responsible to drive it and the Yardstick on which the YoY targets achievement will be measured.

The roadmap should include important ISO certification like ISO 14001:2015 - Environmental management systems, ISO 14064:2018 – GHG emission inventory and reporting standards, ISO 14067:2018 – Carbon Footprint of Products, ISO 14072:2024 – Life Cycle Assessment (LCA) and the ISO 50001 – Energy Management.

6.3 Climbing the ESG Ladder Through ISOs

Figure 83: Climbing the ESG Ladder

The International Organization for Standardization (ISO) announced the launch of the IWA 48:2024 in Nov 2024 in COP29 which provides guidance on environment, social, and governance principles - a new set of guidance aimed at enabling companies globally to improve ESG integration, performance, measurement and reporting.

IWA stands for International Workshop Agreement, which is a type of ISO standard. It is developed through a workshop process that is faster than the normal ISO committee process. An IWA is used for the sector to develop clear rules on an issue. It enables a more rapid response to requirements for standardization.

The new principles are being released, according to ISO, as companies face increasing ESG scrutiny and a substantial increase in ESG regulations, including the EU's CSRD, the UK's Modern Slavery Act, and the ISSB's IFRS S1 and S2 disclosure requirements, while sustainability reporting continues to suffer from inconsistencies and variations across different jurisdictions, company sizes and sectors, with the guidance aimed at enabling more consistent reporting. ISO said that the principles are applicable to organizations ranging from small businesses to multinational corporations, as well as ESG consultants, academia, research institutions, and NGOs.

According to ISO, the new principles are designed to support management of ESG performance, improve measurement and reporting under existing disclosure frameworks to enable consistency, comparability, and reliability of ESG reporting and practices globally, facilitate interoperability by aligning with existing reporting standards, and promote global consistency, to enable clear communication of sustainability efforts. ISO said that the guidance will provide a structure to help organizations integrate existing ESG requirements, establish KPIs, and assess maturity in their ESG practices.

To achieve global sustainability standards under E, S, & G there are several ISO certifications already developed and used, by following which over the period of 3

to 5 years an organization can claim advanced inroads as per the UN Sustainable Development Goals. Below are given the 17 UN SDGs:

Figure 84: UN Sustainable Development Goals

In order to release a Sustainability Report based on GRI principles and submit data to global assessment agencies, like the DJSI assessment done by S&P Global, we need to ensure all 17 UN SDG are ticked by our activities.

E,S,G	Sustainability Report (GRI Based)	Sustainability reporting has no set format, but broadly involves disclosure of a company's environmental, social, and governance (ESG) goals and communicating the company's progress and efforts to reach those goals.	
E,S,G	ESG Assessment (S&P Global - DJSI)	1. The S&P Global Corporate Sustainability Assessment (CSA) is a questionnaire-based process that evaluates a company's sustainability performance. 2. The CSA score is measured on a scale of 0–100, with 100 representing the maximum score.	

Table 53: ESG Reporting and Assessment

And the following three tables 54, 55 & 56 give the ESG Road Map through ISOs and other global certifications so that once we enter this journey, we will be at constantly incremental stages of ESG adherence.

Table 54: Environment Related ISOs & Other Global Certifications

ESG Road Map			
ESG	**Description of the Certificates**	**Requirements**	**UN SDG linkage**
E	ISO 14001: Environmental Management Systems	1. Environment Policy, Objectives and Targets. 2. Environmental Performance Monitoring and Documentations. 3. Environmental Impact Assessment. 4. Compliance obligations record. 5. Emergency preparedness and response. 6. Operational control. 7. Review Commite and Continuous Improvement.	
E	ISO 14064: Greenhouse Gases	1. GHG Inventory. 2. Accurate measurements, Record keeping and Reporting. 3. Emission reduction projects. 4. Third party audit/verification.	
E	ISO 14067:2018 :Greenhouse gases — Carbon footprint of products	1. Define the scope 2. Gather data 3. Calculate the carbon footprint of the product 4. Verify the results and communicate the results.	
E	ISO 14040/14044: Life Cycle Assessment (LCA)	1. Goal and Scope definition. 2. Life Cycle Inventory Analysis (LCI) 3. Life Cycle Impact Assessment (LCIA) 4. Life Cycle Interpretation Note : LCA done for 2 products - Name & Date	
E	ISO 50001: Energy Management Systems	1. Develop an Energy Management Plan(After energy audit completion). 2. Document and Implement the plan. 3. Perform an internal audit. 4. Undergo an external audit.	
E	ISO 14046: Water Footprint	1. Identify the scope 2. Develop a water footprint assessment 3. Conduct a third-party audit	
E	ISO 14068-1:2023 (Known as PAS 2060 untill 2025) : Climate change management — Transition to net zero	1. Commitment to achive Carbon Neutrality. 2. Select subject and boundary 3. Quantify GHG emissions and removals 4. Create a carbon neutrality management plan 5. Reduce and remove GHG emissions 6. Offset 7. Report 8. Claim	
E	ISO 14015:2022 : Environmental management — Guidelines for environmental due diligence assessment	1. Define the Scope 2. Environmental Aspects 3. Environmental Issues 4. Risk Assessments 5. Reccommendations 6. Documentation 7. Verification	

Table 55: Social Related ISOs & Other Global Certifications

ESG Road Map			
ESG	**Description of the Certificates**	**Requirements**	**UN SDG linkage**
S	ISO 45001: Occupational Health and Safety	1. Plam for implementation. 2. Plan for emergency 3. Ensure compliance 4. Conduct a gap analysis 5. Investigate Incidents 6. Maintain training records 7. Undergo regular audits 8. Continuously improve.	
S	ISO 26000:2010 Guidance on Social Responsibility	ISO 26000 is not a certification standard. It is a guidance standard that provides principles and frameworks for organizations to integrate social responsibility into their operations, policies, and practices. This can help demonstrate their commitment to social responsibility and sustainability, but it does not provide a formal certification.	
S	ISO 30415:2021 Human Resource Management – Diversity and Inclusion	1. Implementation of a diversity management model and measurement of the level of integration of gender equality principles in procedures 2. Demonstration of a commitment to valuing diversity and promoting inclusion in the workplace 3. Compliance with the ISO 30415 standard, including documentation and commentary 4. Evidence of ongoing commitment to diversity, equity, and inclusion.	
S	ISO 20400:2017 Sustainable Procurement	1. Develop a sustainable procurement policy and strategy aligned with the standard. 2. Implement sustainable procurement practices throughout the organization and supply chain. 3. Establish metrics and targets to measure and improve sustainable procurement performance. 4. Conduct internal audits and assessments to ensure conformance to the standard.	
S	SA 8000	1. Companies must provide a safe and healthy work environmen 2. Companies must pay employees a living wage that meets all minimum legal standards 3. Companies must not discriminate against employees based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, or political affiliation 4. Companies must protect the rights of workers to form and join trade unions and to bargain collectively 5. Companies must not engage in corporal punishment, mental or physical coercion, or verbal abuse of workers.	

Table 56: Governance Related ISOs & Other Global Certifications

ESG Road Map			
ESG	**Description of the Certificates**	**Requirements**	**UN SDG linkage**
G	CII GreenCo Rating	1. Employee welfare initiatives 2. Supply chain associates' welfare initiatives 3. Community welfare initiatives 4. Workplace Safety 5. Environmental Sustainability Efforts Beyond the Fence. 6. Innovation	
G	ISO 9001: Quality Management Systems	1. Top Management Commitment 2. Adequate resources 3. Employee Competence 4. Process Management 5. Quality planning 6. Product Service and Design 7. Customer complaint resolutions 8. Corrective actions 9. Documentation and Internal audits 10. Continuous Improvement	
G	ISO 31000:2018 Risk Management	1. ISO 31000 certification is not available, but organizations can demonstrate their competence in risk management by implementing a risk management process based on ISO 31000 principles and integrating it into their key business processes. Individuals can pursue certification through alternative standards or organizations offering risk management certifications. 2. The PECB (Professional Evaluation and Certification Board) offers certification in ISO 31000 risk management, which demonstrates an individual's competence in establishing and implementing a risk management framework based on ISO 31000.	
G	ISO 27001:2022 Information Security Management	1. Establish an Information Security Management System (ISMS) 2. Conduct a risk assessment 3. Develop security policies and procedures 4. Implement risk management processes 5. Review the ISMS's effectiveness 6. Communicate and train employees on the ISMS 7. Perform internal audits	
G	United Nations Global Compact (UNGC)	1. Commit to meeting fundamental responsibilities in the areas of: Human rights, Labor, Environment and Anti-corruption. 2. Publicly express support for the UNGC and its principles. 3. Implement the principles in our operations and business practices. 4. Report annually on our progress and actions taken to implement the principles.	
G	ISO 37001: Anti-Bribery Management Systems	1. Anti-Corruption policy 2. Appoint Compliance Manager 3. Employee training 4. Due diligence 5. Financial controls	
G	ISO 37301:2021 Compliance Management Systems	1. Compliance policy 2. Compliance culture 3. Competence, communication, and awareness 4. Policies, procedures, and controls 5. Due diligence	

6.4 Commonality of Core Issues – BRSR, UNSDG's & S&P CSA

THE S&P GLOBAL CSA STORY OF ESG SCORES VS BRSR REQUIREMENTS

	Topic	Topic weight	SEBI BRSR Principle
Environmental Dimension 35/100marks	Environment Policy & Mngt	4	P2, P6
	Energy	3	P2, P6
	Waste & Pollutants	3	P2, P6
	Water	1	P2, P6
	Climate Strategy	10	P2, P6
	Bio-Diversity	3	P2, P6
	Product Stewardship	8	P2, P6, P9
	Sustainable Raw Materials	3	P2, P6, P9
Social Dimension 30/100marks	Labor Practices	5	P1, P3, P5, P7, P8
	Human Rights	4	P5
	Human Capital Management	11	P3, P4
	Occupational Health & Safety	7	P3, P5, P8
	Customer Relations	3	P1. P2, P4, P9
Governance & Economic Dimension 35/100marks	Transparency & Reporting	1	P1
	Corporate Governance	8	P1, P8, P9
	Materiality	3	P7, P8,
	Risk & Crisis Management	3	P1, P2, P4
	Business Ethics	7	P1
	Policy Influence	2	P7
	Supply Chain Management	7	P3
	Information Security/ Cybersecurity	2	P9
	Product Quality & Recall Mgmt.	2	P9

6.5 Environmental activities – ESG Matrix – Low hanging fruit

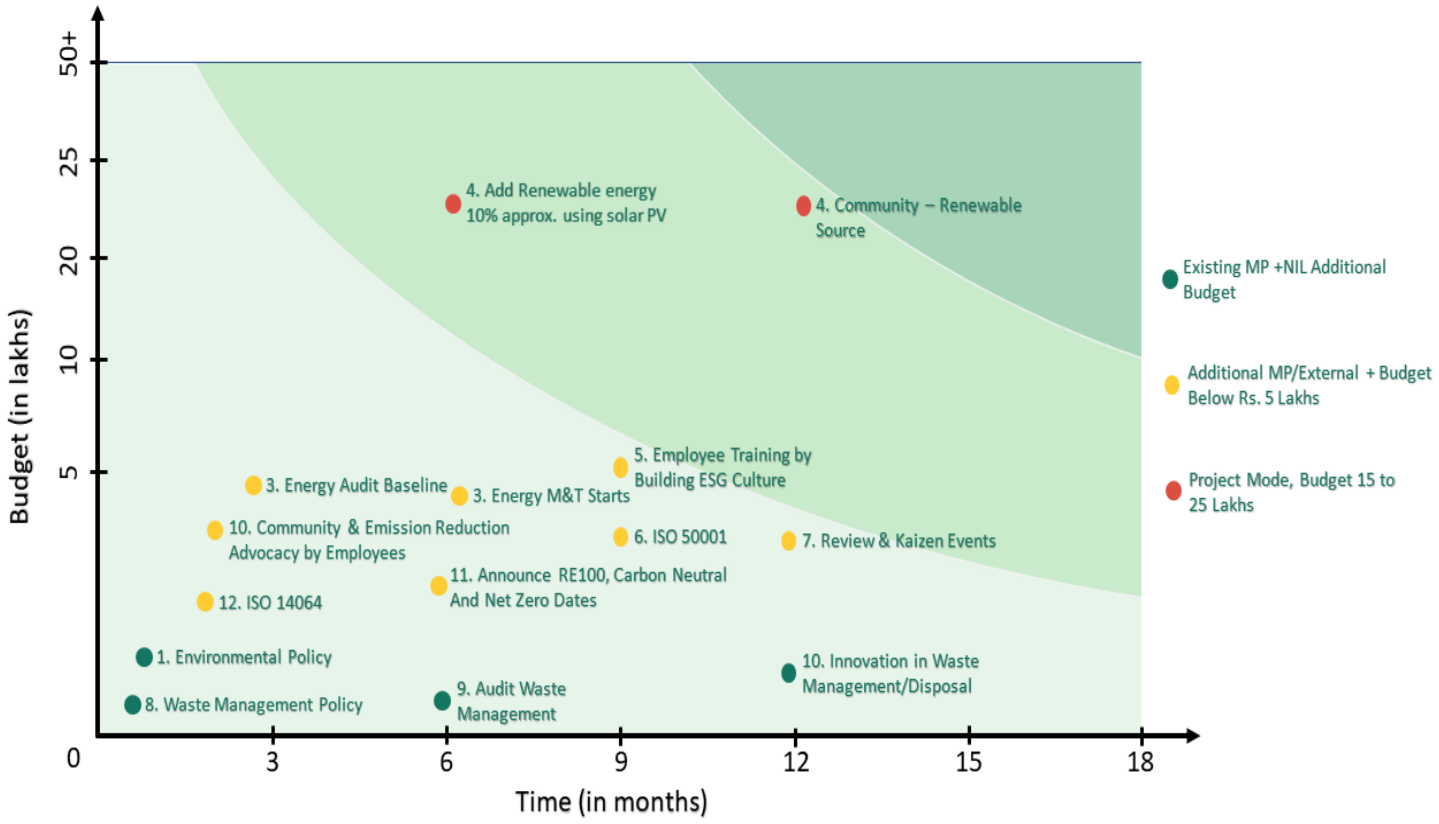


Figure 85: E of ESG Matrix

Table 57: E of ESG Activities

Sl.No	Topic	Activity
1	Environmental Policy	Public Disclosure & Reporting of Policy & Targets
2	Internal Energy Audit	Establish Energy Baseline) post installation of Smart Meters)
3	M& T - Compliance**	EnMS - ISO50001
		Process Efficiency Optimization
		Equipment Efficiency Optimization
4	Renewable Energy Integration**	Rooftop Solar PV- Rs 25L for Rooftop Solar PV to be installed by 6 months & increase renewable energy share by 5% (100MWh/year approx. of total of 2030MWh/year). Exact budget & capacity configurations pending
		PPA to be entered into after discussion for green energy from grid
		Wind being taken up from Indo Tech already
5	Training & Awareness**	Build energy culture - Awareness of energy conservation for all employees. Train & Test and give awards to best ideas from employees on energy saving - Incentivize new ideas from floor
6	Low Carbon Products**	To discuss with technical/Design/R&D teams - not included in the matrix
7	Continuous Improvement	Review
		Kaizen Events
8	Waste Management Policy	Policy to assure Public Disclosure & Reporting the goal of Zero Waste to Landfill
9	Waste Management Programs	Audit - Check Baseline vis-à-vis policy document
		Innovation to reduce waste - Zero Waste To Landfill
		Disposal of waste
10	Community Projects**	Emissions Reduction Advocacy in Schools & Colleges - Volunteering by Employees @ 8 hours per year per employee (approx 200 employees -1600hours)
11	Climate Governance - Emissions Reduction Announcements**	Board Level Committee - Emission Reduction Targets - Announce RE100, EV100, Carbon Neutral, Net Zero
12	Carbon Footprint Study**	ISO14064

6.6 Peers & Their ESG Scores (S&P Global)

Peers have shown the way in Environment Stewardship by implementing and showing excellent results in this area. A few examples from globally acclaimed Environment related activities are shown in table 59 and the peer ESG scores are shown in table 60.

Table 58: Peer ESG Scores (S&P Global)

Peer	Country	2023 Score	2024 Score
Schneider Electric S.E / ELQ	France	88	83
ABB Ltd / ELQ	Swiss Confed	65	65
Toshiba Corp / IDD	Japan	48	48
Hitachi Corp / IDD	Japan	38	53

ELQ - Electrical Components & Equipment
IDD - Industrial Conglomerates

6.7 Peer Strategy

Table 59: Peer Strategy

Peer	Emissions	Energy management
Schneider Electric S.E	• Have their **net-zero targets, validated by the SBTi.** • Since 2021, emissions from Schneider Electric's operations (Scopes 1 and 2) have **decreased by 31% in absolute**, • Scope 3 emissions **decreased by 7% from 2022 to 2023** • As part of the decarbonization approach to air transportation, the Group is committed to replace at least **5% of conventional jet fuel** use with **Sustainable Aviation Fuel (SAF) by 2030**	• Schneider Electric is part of the FTSE EO Energy Efficiency indices. • Targets to **increase energy efficiency** in its sites by **15% by 2025** and double energy productivity by 2030 compared to 2005 (EP100), • Has a Group's **Energy Policy**. • 128 Schneider Electric sites are **ISO 50001 certified** as part of the Group's Integrated Management System to **drive energy excellence**, focusing on the highest energy consuming sites.
ABB Ltd.	• Aims to **reduce absolute scope 1 and 2 emissions** by at least **80 percent by 2030** and by **100 percent by 2050**, versus 2019. • Has established **science-based, net-zero-aligned targets for 2030 and 2050and submitted for validation.** • Since 2019, has reduced **GHG emissions** by **76 percent**	• Plans to **electrify vehicle fleet**, amounting to more than 10,000 cars, source **100 percent of electricity from renewable energy sources by 2030.** • Implements **energy efficiency measures** across operations that include installation of **energy-efficient lighting**, upgradation of **HVAC** systems and implementation of building

		automation systems that enable a high level of efficiency.
Siemens Limited	• Aims to **achieve Net Zero** operations **by 2030** and in supply chain by 2050 • **Joined Science-Based Targets initiative (SBTi),** pledged to **reduce** emissions from its own operations (Scope 1 and 2) by **50%**and its value chain (Scope 3) **by 15% by 2030** compared to 2019. • Has **reduced VOC emis**sions by another **9%** from the previous year to 250 metric tons in fiscal 2023	• Siemen's is committed to **100% renewable electricity by 2030**. • Aims to improve overall **energy efficiency by 10%** by 2030 compared to 2021 • Has **increased energy efficiency** by **39%** in fiscal 2023 compared to fiscal 2021. • **45 Siemens sites** have implemented energy management systems compliant with **ISO 50001.**
Toshiba Corporation	• Plans to achieve **carbon neutrality** throughout the entire value chain by **FY2050.** • Aims for **100% reduction** of emissions generated from Toshiba Group business activities by **FY2030** • Achieved **70.4% of reduction** of **GHG emissions** in products and services associated with power supply (compared to FY2019)	• Promotes the development of energy technologies to realize decarbonization and to improve the **energy efficiency of products** • Toshiba Group Kawasaki headquarters with the purchases of FIT non-fossil certificated, the Centre is **100% powered by renewables.**

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ANNEXURES

GHG Emission Calculations:

INDOTECH - GHG Emission Calculations - FY 23-24 (Base Year)							
Sl. No	**Description**	**Activity Data**	**Unit**	**Emission Factor**	**Unit**	**Reference**	**Carbon Emission in tCO2e**
Scope 1 Emissions							
1	Refrigerant top up						
	R-22	8	kg	1760	t CO2/t	IPCC (AR5)	14.08
	R-32	0	kg	677	t CO2/t	IPCC (AR5)	0.00
	R-410A	0	kg	1924	t CO2/t	IPCC (AR5)	0.00
	R 134A	0	kg	1300	t CO2/t	IPCC (AR5)	0.00
2	CO2 used for refilling into fire extinguisher (66 kg)	65	kg	1	t CO2/t	IPCC (AR5)	0.07
3	Acetylene (used in Brazing, Cutting)	1838	kg	3.38	t CO2/t	Derived	6.22
4	Diesel used in DG sets	36000	L	2.68	kgCO2/l	IPCC	96.48
5	FO used in Thermic Fluid heater	167260	kg	3.144	tCO2e/t	IPCC	525.92
						Total	**642.77**
Scope 2 Emissions							
1	Net Power Consumed from GRID	2030393	kWh	0.716	tCO2/MWh	CO2 Baseline Database for the Indian Power Sector V.19	1453.76
2	Wind Power Export to Grid	509397	kWh	0	tCO2/MWh		0.00
						Total	**1453.76**
Scope 3 Emissions							
1	C4 - Upstream Transportation & Distribution	11304869.14	t-km	Refer calculation sheet		India GHG Program	715.07
2	C9 - Downstream T&D	17131009.00	t-km	Refer calculation sheet		India GHG Program	1094.7
3	Waste Disposal						
	Coper (Recycle)	70000.00	kg	0.18	t CO2/ts	EPA	13.889
	Corrugated Containers (Recycle)	185000.00	kg	0.11	t CO2/ts	EPA	22.432

	MS scrap (Mixed Metals) (Recycle)	87000.00	kg	0.23	t CO2/ts	EPA	22.057
	Process Waste, Residues and sludge (Landfill)	1.26	t	0.52033	t CO2/t	DEFRA	0.656
	Used/Spent Oil (Recycle)	2.75	t	0.0213	t CO2/t	DEFRA	0.059
	Repair job - used / Spent oil	1.40	t	0.0213	t CO2/t	DEFRA	0.030
	Waste & Residues containing oil	1.09	t	0.0213	t CO2/t	DEFRA	0.023
	Spent Solvent	1.60	t	0.0213	t CO2/t	DEFRA	0.034
	Discarded container	3.00	t	0.0213	t CO2/t	DEFRA	0.064
4	Business Travel						
	Air - Domestic	588618	Pass - km	Default	kg CO2/ pass-km	ICOA	48.568
	Road - Car - Petrol	226560	km	0.153	kg CO2e/k m	India GHG Program	34.66
5	Employee Commute						
	Car	330240	Pass - km	0.141	kg CO2/km	India GHG Program	46.56
	Bike	1451116.8	Pass - km	0.0356	kg CO2/km	India GHG Program	51.66
	Bus	5635718.4	Pass - km	0.0152	kg CO2/ pax km	India GHG Program	85.66
6	C3 Fuel & Energy related Activities		Refer C3 calculation sheet				711.95
						Total	**2848.08**
						Total Scope 1+2	**2096.53**
						Total Scope 1+2+3	**4944.61**

Note: Marked in red colour indicates the received activity data from site, after verifying with reference document it was corrected to actual value

INDOTECH - GHG Emission Calculations - FY 24-25 (H1)							
Sl. No	**Description**	**Activity Data**	**Unit**	**Emission Factor**	**Unit**	**Reference**	**Carbon Emission in tCO2e**
Scope 1 Emissions							
1	Refrigerant top up						
	R-22	0	kg	1960	t CO2e/t	IPCC (AR6)	0.00
	R-32	0	kg	771	t CO2e/t	IPCC (AR6)	0.00
	R-410A	0	kg	2255.5	t CO2e/t	IPCC (AR6)	0.00
	R 134A	0	kg	1530	t CO2e/t	IPCC (AR6)	0.00
2	CO2 used for refilling into fire extinguisher	0	kg	1	t CO2/t	IPCC	0.00
3	Acetylene (used in Brazing, Cutting)	593.61	kg	3.380	t CO2/t	IPCC	2.01
4	Diesel used in DG sets	16749.65	L	2.926	kgCO2e/l	IPCC	49.01
5	FO used in Thermic Fluid heater	88640	kg	3.144	t CO2/t	IPCC	278.71
						Total Scope 1	**329.73**
Scope 2 Emissions							
1	Net Power Consumed from GRID	930419	kWh	0.727	tCO2/MWh	CO2 Baseline Database for the Indian Power Sector V.20	676.87
2	Wind Power Export to Grid	208733	kWh	0	tCO2/MWh		0.00
						Total Scope 2	**676.87**
Scope 3 Emissions							
1	C4 - Upstream Transportation & Distribution	6013745.52	t-km	Refer calculation sheet		India GHG Program	378.62
2	C9 - Downstream T&D	2904824.00	t-km	Refer calculation sheet		India GHG Program	180.13
3	Waste Disposal						
	Coper (Recycle)	16093.00	kg	0.1800	t CO2/ts	EPA	3.193
	Aluminium (Recycle)	980.00	kg	0.0400	t CO2/ts	EPA	0.043
	Brass (Recycle)	239.00	kg	0.2300	t CO2/ts	EPA	0.061
	Mixed Electronics	1130.00	kg	0.0200	t CO2/ts	EPA	0.025
	Mixed Metals (MS, SS, CRGO) (Recycle)	33041.00	kg	0.2300	t CO2/ts	EPA	8.377
	Wood	51470.00	kg	0.0213	t CO2/t	DEFRA	1.096
	General Waste	63000.00	kg	0.0213	t CO2/t	DEFRA	1.342
	Used/Spent Oil (Recycle)	3200.00	kg	0.0213	t CO2/t	DEFRA	0.068
	Waste & Residues containing oil	5300.00	kg	0.0213	t CO2/t	DEFRA	0.113

	Discarded container	357.00	kg	0.0213	t CO2/t	DEFRA	0.008
4	Business Travel						
	Air - Domestic	297728	Pass - km	Default	kg CO2/ pass-km	ICOA	22.70
	Road - by Car	38509	km	Refer Calculation Sheet		India GHG Program	5.93
5	Employee Commute						
	Car	158928	Pass - km	0.141	kg CO2/km	India GHG Program	22.41
	Bike	695156	Pass - km	0.0356	kg CO2/km	India GHG Program	24.75
	Bus	2719640	Pass - km	0.0152	kg CO2/ pax km	India GHG Program	41.34
6	C3 Fuel & Energy related Activities		Refer C3 calculation sheet				329.69
						Total Scope 3	**1019.89**
						Total Scope 1+2	**1006.61**
						Total Scope 1+2+3	**2026.49**

INDOTECH - Carbon Emission - FY 24-25 (H2)							
Sl. No	**Description**	**Activity Data**	**Unit**	**Emission Factor**	**Unit**	**Reference**	**Carbon Emission in tCO2e**
Scope 1 Emissions							
1	Refrigerant top up						
	R-22	0	kg	1960	t CO2e/t	IPCC (AR6)	0.00
	R-32	0	kg	771	t CO2e/t	IPCC (AR6)	0.00
	R-410A	0	kg	2255.5	t CO2e/t	IPCC (AR6)	0.00
	R 134A	0	kg	1530	t CO2e/t	IPCC (AR6)	0.00
2	CO2 used for refilling into fire extinguisher	0	kg	1	t CO2/t	IPCC	0.00
3	Acetylene (used in Brazing, Cutting)	767.66	kg	3.380	t CO2/t	IPCC	2.59
4	Diesel used in DG sets	18000	L	2.926	kgCO2e/l	IPCC	52.67
5	FO used in Thermic Fluid heater	110000	kg	3.144	t CO2/t	IPCC	345.88
						Total Scope 1	**401.14**
Scope 2 Emissions							
1	Net Power Consumed from GRID (1429004)	1280463	kWh	0.727	tCO2/MWh	CO2 Baseline Database for the Indian	931.53

						Power Sector V.20	
2	Wind Power Export to Grid (357284)	148551	kWh	0	tCO2/MWh		0.00
						Total Scope 2	**931.53**
Scope 3 Emissions							
1	C4 - Upstream Transportation & Distribution	7708441.69	t-km	Refer calculation sheet		India GHG Program	480.72
2	C9 - Downstream T&D	12021921.10	t-km	Refer calculation sheet		India GHG Program	767.78
3	Waste Disposal						
	Coper (Recycle)	36637	kg	0.1800	t CO2/ts	EPA	7.269
	Aluminium (Recycle)	0.00	kg	0.0400	t CO2/ts	EPA	0.000
	Brass (Recycle)	0.00	kg	0.2300	t CO2/ts	EPA	0.000
	Mixed Electronics	0.00	kg	0.0200	t CO2/ts	EPA	0.000
	Mixed Metals (MS, SS, CRGO, OLTC) (Recycle)	163561.00	kg	0.2300	t CO2/ts	EPA	41.467
	Wood	65760.00	kg	0.0213	t CO2/t	DEFRA	1.401
	General Waste	89600.00	kg	0.0213	t CO2/t	DEFRA	1.908
	Used/Spent Oil (Recycle)	4586.40	kg	0.0213	t CO2/t	DEFRA	0.098
	Waste & Residues containing oil (Oil-soaked cotton waste)	835.00	kg	0.0213	t CO2/t	DEFRA	0.018
	Discarded container	331.20	kg	0.0213	t CO2/t	DEFRA	0.007
	Waste Transportation	52962.00	t-km	Refer calculation sheet			3.920
4	Business Travel						
	Air - Domestic	423903	Pass - km	Default	kg CO2/ pass-km	ICOA	33.19
	Road - by Car	94456	km	Refer Calculation Sheet		India GHG Program	13.77
5	Employee Commute						
	Car	170391	Pass - km	0.141	kg CO2/km	India GHG Program	24.03
	Bike	751725	Pass - km	0.0356	kg CO2/km	India GHG Program	26.76
	Bus	2696334	Pass - km	0.0152	kg CO2/ pax km	India GHG Program	40.98
6	C3 Fuel & Energy related Activities		Refer C3 calculation sheet				442.00
						Total Scope 3	**1885.33**
						Total Scope 1+2	**1332.67**
						Total Scope 1+2+3	**3218.00**


BIO
ECO
O_2
CO_2
H_2O
H_2O
ESG
O_2
ESG