

## Industry Standards Note on Business Responsibility and Sustainability Report (BRSR) Core

---

### BRSR-CORE REPORTING STANDARD

The BRSR Core Reporting Standard are prepared with the objective to help companies comply with the disclosure requirements on BRSR core made mandatory pursuant to Regulation 34(2) of SEBI LODR, 2015 and read with SEBI issued Circular SEBI/HO/CFD/CFD-SEC-2/P/CIR/2023/122 that incorporated BRSR Core into the BRSR Reporting Format.

This Reporting Standard has a normative reference to the BRSR Guidance note issued by SEBI for principle-specific guidance<sup>1</sup>.

#### Main aspects covered:

Part A General Requirements

Part B Attribute-wise requirements

### Part A General Requirements

#### 1. Intensity-based calculations

#### **Applicable to GHG Footprint (Attribute 1), Water Footprint (Attribute 2), Energy Footprint (Attribute 3), Embracing Circularity (Attribute 4)**

Reporting entities should report GHG emission intensity (Scope 1 and Scope 2 emissions), Water consumption intensity, Energy intensity, and Waste intensity. Entities have to report intensity ratio for revenue adjusted for Purchasing Power Parity and Output-based intensity.

#### **Revenue adjusted intensity for Purchase Power Parity**

##### **I. Purchasing Power Parity Calculation**

Purchasing Power Parities (PPPs) are the rates of currency conversion that try to equalise the purchasing power of different currencies, by eliminating the differences in price levels among countries. As of April 2024, conversion factor for purchasing power parity for India is 22.4 (Local Currency Units, that is INR) per international dollar (the purchasing power of 1 international US\$ is equivalent to the purchasing power of 1 US\$ in the United States). In other words, for example, in 2024, INR 22.4 had the same buying power in India as 1 US\$ had in the US.

##### **Calculating PPP Adjusted Revenue**

PPP Adjusted Revenue in USD = Revenue in INR/IMF PPP Conversion Factor

Source of PPP rates: The International Monetary Fund (IMF) publishes the PPP conversion rates for all currencies. Use the latest rate available for India on their website and disclose by way of note in BRSR the rate that has been used. For FY2023-24 disclosures, the reporting entity shall use the same PPP conversion rate for the previous financial year also.

---

<sup>1</sup> [Business responsibility and sustainability reporting by listed entitiesAnnexure2 p.PDF \(sebi.gov.in\)](#)

The PPP rate for India is available at:

<https://www.imf.org/external/datamapper/PPPEX@WEO/OEMDC>

### Example calculation to determine PPP-adjusted revenue

2023-24 revenue of reporting company A= 10,000 INR million

PPP conversion rate (latest available is for 2024) = 22.4 INR/Int. US\$

PPP adjusted revenue (US\$) for 2023-24 for company A= (10,000/22.4) = 446 USD million

Example calculation for intensity based on PPP-adjusted revenue Environmental Parameter

Environmental Parameter	Total Footprint	PPP-Adjusted Revenue (million \$)	Intensity (Units of footprint/million \$)
Scope 1+ Scope 2	10,000 tCO <sub>2</sub> e	446	22.4 tCO <sub>2</sub> e/million US\$
Water consumption	10,000 kL	446	22.4 kL/million US\$
Energy consumption	10,000 GJ	446	22.4 GJ/million US\$
Waste generation	10,000 MT	446	22.4 MT/million US\$

## II. Output based intensity calculation

Outputs vary for Manufacturing and Service sector.

Manufacturing entities should use the total output of products i.e., the **Total Production to report intensity figures**

Services entities should use input measures of **Full Time Equivalent to report intensity figures**

### Example calculation

#### Manufacturing – Steel Company

Total production of crude steel: 20tonnes

Total Scope 1 and Scope 2 emissions: 60tCO<sub>2</sub>e

GHG emission intensity: 60/20 = 3

#### Service – Information Technology company

Total Full Time Equivalent: 6,00,000

Total Scope1 and Scope 2 emissions: 95,000tCO<sub>2</sub>e

GHG emission intensity: 95000/600000 = 0.15

Reference BRSR Guidance Note Principle 6, Q No. 1, 3, and 6, entities may on voluntary basis provide intensity ratio based on other metrics – unit of product, production volume, size, number of full-time employees.

## 2. Spend-based Approach to Estimating Environmental Footprint:

While calculating emissions, energy consumption, and/or water consumption, where a reporting entity does not have primary data and only have annual spend data for the item, the reporting entity may use a spend-based approach to estimate the corresponding emissions, energy consumption, and/or water consumption. Refer Appendix I for detailed guidance on spend-based methodology.

### Part B Attribute-wise requirement

Attribute 1: Greenhouse Gas Footprint

Q. No.	Field Name/Reporting Parameter	Standard
P6/7E	Provide details of greenhouse gas emissions (Scope 1 and Scope 2 emissions) & its intensity, in the following format:	
	Total Scope 1 (tCO <sub>2</sub> e)	<p>To calculate Scope 1 and Scope 2 emissions (GHG in CO<sub>2</sub>e / Unit of Measure), reporting entities should refer to following recognized sources for emission factors for their latest available guidance:</p> <ul style="list-style-type: none"> <li>• NABL Accredited Lab</li> <li>• Intergovernmental Panel on Climate Change (IPCC)</li> <li>• International Energy Agency (IEA)</li> <li>• Department of Environment, Food &amp; Rural Affairs (UK DEFRA)</li> <li>• US Environment Protection Agency (EPA)</li> <li>• Country specific emission factors</li> </ul> <p>It is necessary that reporting entities disclose the source of emissions factor used.</p>
	Total Scope 2 (tCO <sub>2</sub> e)	<p>For Scope 2 emissions factors specific to grid power in India, use the latest applicable CEA-published grid emission factor, where measurable data is available.</p> <p>In case the reporting entity does not have measurable data, the entity shall use a spend-based method to calculate electricity consumption.</p> <p>However, spend-based methodology should be used in a restricted manner and only initially when a data measurement is not in place. It is suggested that every entity must eventually start measuring quantitative data and spend-based methodology can be used in initial years of reporting. Where used, the reporting entity must specify the source of the</p>

		<p>spend-based consumption factor and explain its suitability for the purpose.</p> <p>Companies should not go back to spend-based method after having and reporting measurable data.</p> <p>Details on Spend-based methodology is provided in <b>Annexure I (Carbon Accounting Proxy Methodology as attachment)</b></p>
--	--	---

Attribute 2: Water Footprint

Q. No.	Field Name/Reporting Parameter	Standard
P6/3E	Provide details of the following disclosures related to water, in the following format:	
	Total volume of water consumption (Mn L or kL)	<p>Reporting entities which have offices, outlets, branches, and other facilities where direct measurement of water is not available or practicable, should use guidelines established by the Central Ground Water Authority (CGWA)<sup>2</sup> to estimate water consumption.</p> <p>As per CGWA guideline, the estimated consumption is 45 litres per head per working day for offices. Thus, the quantification of water usage can be done by multiplying the number of employees and workers working within the office space by the stipulated 45 litres per head per working day.</p> <p>For other countries, use consumption rates representative of the country or region to the extent practicable.</p> <p>Offices, outlets, branches, or other similar situations where directly measurement of water withdrawal, discharge, and consumption data, are available at a larger facility-level, then the sub-unit level water withdrawal, discharge, and consumption should be estimated from facility-level data as follows:</p> <p>Sub-unit level data = (Facility level data including common area consumption) * (sub-unit area in sq. ft. ÷ total facility area in sq. ft)</p>

<sup>2</sup> <https://cgwa-noc.gov.in/landingpage/Guidelines/NBC2016WatRequirement.pdf>

**Attribute 3: Energy Footprint**

Q. No.	Field Name/Reporting Parameter	Standard
P6/1E	Details of total energy consumption (in Joules or multiples) and energy intensity, in the following format:	
	<p>Power delivered through the power connection may include many types of power. The different components of the power received should be properly accounted (this segregation will be required to calculate Scope 2 emissions).</p> <p>Power delivered through the local power connection may include:</p> <ol style="list-style-type: none"> <li>Wheeled renewable power procured from a captive renewable power plant, a third party, or power exchange.</li> <li>Wheeled non-renewable power procured from a captive power plant, a third party, or power exchange.</li> <li>Renewable power procured under 'green tariff' program of the state.</li> <li>Grid power.</li> </ol> <p>These components should be accordingly reported under renewable or non-renewable category.</p>	

**Attribute 4: Embracing circularity - details related to waste management by the entity.**

Q. No.	Field Name/Reporting Parameter	Standard
P6/9	Refer to BRSR Guidance Note for details	

**Attribute 5: Enhancing Employee Wellbeing and Safety**

Q. No.	Field Name/Reporting Parameter	Standard
P3/1(c)E	Spending on measures towards well-being of employees and workers (including permanent and other than permanent) in the following format	
	Cost incurred on well-being measures as a % of total revenue of the company	<p>As per BRSR Core, the KPI should include the 5 initiatives (i.e., health insurance, accident insurance, maternity benefits, paternity benefits, day care facilities) covered under question 1a and 1b under Principle 3 and additionally health &amp; safety measures including access to mental health.</p> <p>As mentioned in BRSR Guidance Note – Principle 3, Q No. 1, in case the entity desires to disclose any additional benefit, they can do so by adding additional columns.</p>

		<p>Listed entities should prepare a schedule of cost incurred on all the above initiatives and the same should be based on the expenditure included in the relevant ledger heads in the audited trial. The schedule should include the following expenditure on well-being of employees and workers (including permanent and other than permanent employees/workers) which has been charged to the Profit &amp; Loss account:</p> <p>a. Actual cost incurred by the company on health insurance, accident insurance, day care facilities. Any cost of health/accident insurance borne by the employee will be excluded. However, in case the health/accident insurance has been facilitated/negotiated by the company for its employees, this may be mentioned by way of a note.</p> <p>b. Cost for maternity and paternity benefits would include costs on any direct benefits provided to employees (such as Cabs for commuting, etc.) and actual salary paid to the employees during the maternity/paternity leave availed (as per Cost to company including variable pay, if the amount has been bifurcated employee wise).</p> <p>c. Cost incurred by the company on health &amp; safety measures (including mental health) like medical benefits to employees, annual health check ups, provision of doctors/ counsellors / clinics, fitness programmes, etc. should be included.</p> <p>Revenue shall mean “Total Revenue from Operations – From Audited P&amp;L Statement” as stated in Annexure I - Format of BRSR Core and should not include “Other Income”. In case of BFSI, Total Revenue shall mean:</p> <ul style="list-style-type: none"> <li>• “Interest Earned” and</li> <li>• “Other Income” except Profit / (loss) on sale of building and other assets (net)</li> </ul>
	<p>Number of Permanent Disabilities</p> <hr/> <p>Employees</p> <hr/> <p>Workers</p>	<p>The term "Number of Permanent Disabilities" is not used in the BRSR Form. However, the term "High Consequence Injuries/ Ill health" used in the guidance note appears to have the same meaning as “Number of Permanent Disabilities”, and therefore the same definition can be used to report under this indicator (Refer <b>Guidance Note</b> for BRSR format – Principle 3, Qs 11)</p>

Attribute 6: Enabling Gender Diversity in Business

Q. No.	Field Name/Reporting Parameter	Standard
P5/3(b)E	Gross wages paid to females as % of total wages paid by the entity, in the following format:	
	Current financial year	<p>The term "wages" has been used for both employees and workers (Reference: Principle 5 Essential Question 2).</p> <p>Therefore, the total wages should include:</p> <ol style="list-style-type: none"> <li>Salaries, wages and bonus as per the disclosure made in the audited financial statements (for BFSI, this will need to be extracted from "Payments to and provisions for employees" in the audited financial statements). The same would exclude retirement benefits, ESOPs and staff welfare expenses. Bonus accrued but not paid may be apportioned between male and female staff using an appropriate basis and the basis should be disclosed.</li> <li>For other than permanent employees/workers, actual wages paid to non-permanent employees/workers to be considered.</li> </ol>
	Previous financial year	
P5/7E	Complaints filed under the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, in the following format:	
	Complaints on POSH as a % of female employees / workers	Denominator should be considered as average of number of female employees/workers at the beginning of the year and as at end of the year
	Complaints on POSH upheld	Complaints on POSH upheld shall mean the complaints regarding which the Internal Committee in its Inquiry Report has arrived at the conclusion that the allegation has been proved, in accordance with Section 13 of The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.

Attribute 7: Enabling Inclusive Development

Q. No.	Field Name/Reporting Parameter	Standard
P8/4E	Percentage of input material (inputs to total inputs by value) sourced from suppliers	
	Directly sourced from MSMEs/ small producers	Reporting Entities shall refer to the following definitions for reporting for this parameter:

		<p>i. In case of ‘small producers’, the definition provided in the <b>Guidance Note</b> for BRSR</p> <p>ii. in case of ‘micro enterprise’, ‘medium enterprise’ and ‘small enterprise’ as defined in the Micro, Small and Medium Enterprises Development Act, 2006</p>
		<i>‘Input material’ and “total purchases” shall include all types of procurement such as raw material, spares, services, capex procurement items etc. as stated in Annexure I - Format of BRSR Core.</i>
		Input material in the form of services shall include all procured third-party services.
		Reporting under this KPI shall only be applicable to Indian entities within the reporting boundary
	Directly from within India	<i>‘Input material’ and “total purchases” shall include all types of procurement such as raw material, spares, services, capex procurement items etc. as stated in Annexure I - Format of BRSR Core.</i>
		Input material in the form of services shall include all procured third-party services.
		Reporting under this KPI shall only be applicable to Indian entities within the reporting boundary.
P8/5E	<p>Job creation in smaller towns – Disclose wages paid to persons employed (including employees or workers employed on a permanent or non-permanent / on contract basis) in the following locations, as % of total wage cost. (Place to be categorized as per RBI Classification System - rural / semi-urban / urban / metropolitan)</p>	
1.	<p>Rural Semi-urban Urban Metropolitan</p>	<p>The term ‘wages’ shall be reported as per guidance provided under Attribute 6.</p> <p>Salaries and wages paid to all employees/workers employed in small towns shall be reported in accordance with the RBI Classification.</p> <p>Reporting on jobs created by reporting entities for this parameter shall be calculated as follows:</p> <p>% of job creation in the specified locations i.e., rural, semi-urban, urban, metropolitan is equal to</p> $100 \times \frac{\text{total wages} + \text{total contractual payments for labour in}}{\text{total wages} + \text{total contractual payments for labour in}}$



		<p>a specified location for all employees, whether permanent or contractual) ÷ (total wages + total contractual payments for labour workers by the company in all locations within India for all employees, whether permanent or contractual)</p>
		<p>While reporting under this parameter, the reporting entities shall take into account the actual location of the job and not the location wherein the employee is situated.</p>
		<p>Reporting under this KPI shall only be applicable to Indian entities within the reporting boundary.</p>

Attribute 8: Fairness in Engaging with Customers and Suppliers

Q. No.	Field Name/Reporting Parameter	Standard
P9/7E	Provide the following information relating to data breaches:	
	(b) Percentage of data breaches involving personally identifiable information of customers	<p>Reporting entities shall report the number of cyber security incidents in accordance with their reporting during the year to CERT-In as per the direction dated 28 April 2022 issued by the Indian Computer Emergency Response Team, under the aegis of the Ministry of Electronics and Information Technology, under Section 70-B (6) of the Information Technology Act 2000.</p> <p>Reporting companies shall provide percentage of the cyber security incidents as reported to CERT-In that involved personally identifiable information of customers against the total cyber security incidents reported to CERT-In.</p> <p>For cyber security incidents in jurisdictions outside India, reporting may be done basis regulatory requirement/reporting, if any, in the respective jurisdiction. In the absence of the same, the guidance in CERT-In should be used.</p>

Attribute 9: Open-ness of business

Q. No.	Field Name/Reporting Parameter	Standard
P1/8E	Number of days of accounts payables ((Accounts payable *365) / Cost of goods/services procured) in the following format	
	Number of days of accounts payable	<p>The BFSI sector shall include relevant items under 'Other Liabilities' Schedule as reported in their financial statements.</p> <p>"Cost of Goods/Services Procured" shall be reported as per guidance for total purchases under Attribute 7.</p> <p>The relevant items under Trade Payables as reported in the financial statement shall be included against Accounts Payable</p>
P1/9E	Open-ness of business Provide details of concentration of purchases and sales with trading houses, dealers, and related parties along-with loans and advances & investments, with related parties, in the following format	
	Concentration of purchases:	'Purchases' for this parameter shall be reported as per the guidance under Attribute 7.
	(a) Purchases from trading houses as % of total purchases	<p>The definition for trading house shall be as follows:</p> <p><i>A "trading house" is a specialized legal entity primarily engaged in the business of export, import, and/or domestic trade of goods and services, facilitating such import, export and/or domestic trade and providing related services to support these transactions.</i></p>
	(b) Number of trading houses where purchases are made from	
	(c) Purchases from top 10 trading houses as % of total purchases from trading houses	
	Concentration of sales:	Sales shall mean sale of good and services. In case of the BFSI sector, total sales shall mean total revenue. Accordingly, reporting under the sub-parameters shall be total revenue for the sub-parameter as a % to the total revenue in case of the BFSI sector.
	(a) Sales to dealers / distributors as % of total sales	"dealer" or "distributor" means any person who whether for commission, remuneration or otherwise transfer or facilitates such transfer of the right to use any goods or services for any purpose (whether or not for a specified period) for cash, deferred payment or other valuable consideration.
	Share of related party transactions (RPTs) in:	The BRSR Core reporting shall use the definition of 'related party' and 'related party transaction' as defined under Regulation 2 (1) (zb) and
	(a) Purchases (Purchases with related parties / Total Purchases)	

	(b) Sales (Sales to related parties / Total Sales)	Regulation (1) (zc) of the LODR Regulations respectively.
	(c) Loans & advances (Loans & advances given to related parties / Total loans & advances)	Sales and Purchases will have the same meaning as in this Attribute above.
	(d) Investments (Investments in related parties / Total Investments made)	<p>It is clarified that investments with related parties (BRSR Core) shall be clarified to mean Investments in related parties.</p> <p>Loans and Advances and Investments should be taken as per relevant schedules in the audited Balance sheet.</p>

## 1. Introduction

Based on recent stakeholder inputs from the [Industry Standards Forum](#) (ISF), a significant number of Indian enterprises find it challenging to quantify their carbon footprint accurately using the quantity-based methodologies laid out in the SEBI BRSR Core guidance ([Annexure](#)). A meaningful barrier to this process is the lack of direct access to quantity-based data for fuel, refrigerant and electricity consumption. While it is vital that Indian companies improve their ability to internally aggregate and organise quantitative data around fuel consumption, electricity use and fugitive emissions to comply with BRSR requirements, there is a need for short-term guidance around a standardised, accessible and flexible carbon and energy accounting methodology that is based on more easily available ‘spend data’ for fuel, refrigerant and electricity consumption.

This document outlines a provisional ‘spend-based’ methodology for calculating Scope 1 and 2 carbon emissions that can be leveraged by enterprises in India for their BRSR Core disclosures in the absence of these companies having access to the more granular data required to undertake ‘quantity-based’ calculations. This approach leverages readily available financial data on fuel, refrigerant and electricity expenses, making the calculations simple and quick, with the goal of making carbon and energy accounting exercises more accessible to the thousands of enterprises.

There exists a precedent for similar spend-based guidance in international standards. For instance, the [GHG Protocol](#) allows for the use of multiple methodologies (quantity-based, spend-based, distance-based, supplier-specific, etc.) for estimating Scope 3 emissions. The US EPA provides similar guidance around using spend-based proxies for the emissions estimation of certain types of activities when quantity-based information is not available. This methodology extends the same principle to create a Scope 1 and Scope 2 carbon emissions and energy accounting framework for organisations that do not have access to quantity-based fuel, refrigerant and energy information. While the approach is conceptually aligned with international spend-based methods, it is important to note that these global frameworks do not typically recommend using spend-based estimations for Scope 1 and Scope 2 calculations. However, by providing a standard set of representative emission factors based on credible sources, this methodology is intended to enable Indian enterprises to estimate their carbon and energy footprint in a manner that allows for internal decision-making and external benchmarking.

The Annexures in this provisional Carbon & Energy Proxy (CEPA) document aggregate pricing information from official public sources with credible self-reported pricing information when no public source is available. However, there are inherent uncertainties when using spend-based methods, and this approach should thus be used only when access to more granular quantity-based data is unavailable. Our recommendation is that enterprises phase out the CEPA spend-based approach at the earliest stage possible in favour of a more accurate quantity-based methodology in compliance with the GHG Protocol.

## 2. Need for Provisional Spend-Based Methodology

Large enterprises in India often operate across diverse locations and regulatory environments, complicating the direct measurement of fuel and electricity usage. A quantity-based reporting of energy and carbon emissions requires precise data on the units and quantities of the fuels & electricity units consumed by the organisation, which may not be readily available or accurately measurable for all entities. This data gap significantly hinders the ability of these enterprises to comply with the regulatory disclosure requirements laid out in the BRSR Core guidance. A spend-based methodology to estimate carbon emissions offers a viable alternative by leveraging audited financial data, which is readily available and subject to a high degree of rigour in accordance with generally accepted audit practices.

## 3. Spend-Based Methodology Explained

The Carbon & Energy Proxy Accounting (CEPA) methodology estimates the direct (Scope 1) and indirect (Scope 2) carbon dioxide emissions (in units of kgCO<sub>2</sub>) by:

- First, using a spend-based approach to convert fuels, refrigerants and electricity usage data (in INR) to quantity estimates using credible pricing information.
- Then, using the existing BRSR guidance for applying quantity-based Intergovernmental Panel on Climate Change (IPCC) emission factors (or factors from other sources when IPCC factors are unavailable) to convert the above data (fuel / electricity usage) to emissions estimates.

The CEPA approach involves the following steps:

- **Data Collection:** Gathering relevant data from existing financial/accounting systems on expenses related to fuels, refrigerants and electricity use across the organisation, classified state-wise, where possible;
- **Price Adjustments:** Using the CEPA pricing database consisting of credible pricing information (price factors) to convert spend-based data to quantity-based data for each type of fuel and electricity unit consumed;
- **Application of Emission Factors:** Applying the appropriate IPCC quantity-based emission factors and energy factors to the estimated quantities in order to calculate carbon dioxide (CO<sub>2</sub>) emissions and total energy consumption.
- **Aggregation:** Aggregating the calculated CO<sub>2</sub> emissions across all the relevant categories to derive the total Scope 1 and Scope 2 emissions footprint.

$$\text{Carbon Emissions} = \sum \left( \frac{\text{Spend Data}_i}{\text{Price Factor}_i} \times \text{QuantityBased Emission Factor} \right)$$

$$\text{Energy Consumption} = \sum \left( \frac{\text{Spend Data}_i}{\text{Price Factor}_i} \times \text{QuantityBased Energy Factor} \right)$$

## 4. Uncertainties

While the spend-based approach facilitates carbon accounting for enterprises lacking quantity-based data, it inherently carries some uncertainties. These include:

- **Price Factor Inaccuracy due to Variability in Pricing Information:** Public pricing data (and the derived price factors) may not reflect actual prices paid due to negotiated contracts, bulk discounts, seasonal shifts or other factors. While standard deviations are provided for most pricing data (see Annexures), they might not be representative of dispersion due to the small number of data points in many instances. Users should assume these price factors carry an inherent uncertainty.
- **Methodological Inaccuracy due to Heterogeneity in Location / Business Unit Information:** Since the price factors are based on averaged proxies, incorrect or mislabeled financial entries on expenditure could result in inaccuracies in estimated emissions if users apply incorrect price factors to their expenditures.
- **Challenges with Baseline, Intercomparisons & Target-Setting:** Comparisons of carbon accounting estimations using spend-based approaches are inherently hard to reconcile due to limited consistency in pricing information. Enterprises should note that there is a significant benefit to shifting to quantity-based approaches at the earliest in order to estimate baselines, set targets and track performance.
- **Incomplete System Boundary:** The CEPA approach DOES NOT include a methodology to estimate a number of less common fuels, refrigerants and process emissions due to the lack of credible spend-based pricing data across these categories. Additionally, the quantity-based emission factors assumed here (for fuels and electricity) only provide estimates of CO<sub>2</sub> emissions and do not estimate other greenhouse gases like CH<sub>4</sub> and N<sub>2</sub>O.

Despite these uncertainties, the CEPA methodology should provide an accessible starting point for enterprises aiming to navigate the complexities of carbon and energy accounting. This methodology is developed to empower enterprises to overcome some of the data gathering requirements involved in the direct accounting of quantity-based emissions estimations when they are early in their sustainability journey. The goal of this methodology document is to provide an avenue for action and directional progress in the absence of perfect data, while emphasising the importance of continuous improvement and verification.

## 5. Conclusion

The adoption of the CEPA methodology for energy and carbon accounting offers a practical solution for enterprises in India that do not have quantity-based data readily available, enabling them to estimate their carbon and energy footprint and engage in meaningful carbon management practices. However, we recommend that enterprises only adopt this provisional approach in the event that they are unable to follow the official guidance in the BRSR. Enterprises should phase out the use of this approach as soon as possible via the collection of quantity-based data.

# Annexure-I

## Fuel Combustion (Scope 1)

### Spend-to-Quantity Conversion Price Factors for CEPA

- Quantity-based Emission Factors and Energy Factors are derived from the [IPCC Database](#) unless otherwise mentioned
- Pricing Data for all fuels is obtained from a credible governmental source when possible. When this data is not available, prices are solicited from credible private sources.

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Diesel	92.63 (INR/litre)	93.90 (INR/litre)	2.68 (kgCO2/litre)	36120 (KJ/litre)	<p>Average price has been determined using prices for 4 metro cities annualised for FY24 and FY23</p> <p><a href="#">Data</a> provided by the Petroleum Planning and Analysis Cell was referred to in order to determine the national annualised average price for Diesel</p> <p>Standard deviation in prices across cities (daily data) is INR 1.94/ litre for FY24 and INR 3.43/litre for FY23</p>
Petrol	102.83 (INR/litre)	104.49 (INR/litre)	2.27 (kgCO2/litre)	32782 (KJ/litre)	<p>Average price has been determined using prices for 4 metro cities annualised for FY24 and FY23</p> <p><a href="#">Data</a> provided by the Petroleum Planning and Analysis Cell was referred to in order to determine the national annualised average price for Petrol.</p> <p>Standard deviation in prices across cities (daily data) is INR 3.89/litre for FY24 and INR 5.53/litre for FY23</p>
CNG	86.83 (INR/kg)	No Data	2.69 (kgCO2/kg)	48000 (KJ/kg)	<p>Average price has been determined using prices for 24 states for only the month of March 2024. No other data was considered.</p> <p>The prices for CNG for 24 different states, as of March 2024, were obtained from Bharat Petroleum Corporation Limited</p> <p>Standard deviation in prices is INR 6.66/kg for FY24. FY23 prices for CNG could not be obtained from a credible source.</p>

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
					Quantity based factors from IPCC are for Natural Gas.
LPG	96.51 (INR/kg)	109.57 (INR/kg)	2.98 (kgCO2/kg)	47300 (KJ/kg)	<p>Average price has been determined using prices for Commercial Indane Gas for 4 metro cities annualised for 12 months of FY24 and FY23.</p> <p><a href="#">Data</a> provided by Indian Oil Corporation Ltd. was referred to in order to determine annualised average.</p> <p>Standard deviation in prices across the data is INR 5.37/kg for FY24 and INR 12.23/kg for FY23.</p>
Crude Oil	6,834 (INR/barrel)	7,507 (INR/barrel)	395 (kgCO2/barrel)	5378424 (KJ/barrel)	<p>Average prices have been determined using centralised prices provided for the last 24 months. The default unit USD/Barrel was converted to INR/Barrel using representative currency rates.</p> <p><a href="#">Data</a> provided by the Petroleum Planning and Analysis Cell was referred to in order to determine the national annualised average price for Crude Oil.</p> <p>Standard deviation in prices is INR 487.30/barrel for FY24 and INR 869.34/barrel for FY23.</p>
Kerosene	92,757 (INR / kilolitre)	112,697 (INR / kilolitre)	2518 (kgCO2 / kilolitre)	35040000 (KJ / kilolitre)	<p>Average price has been determined using prices for 4 metro cities annualised for 12 months of FY24 and FY23.</p> <p><a href="#">Data</a> provided by Indian Oil Corporation Ltd. for 4 metro cities over the past 24 months was obtained to arrive at an annualised average.</p> <p>Standard deviation in prices across states is INR 2055.26/kl for FY24 and INR 11481.83/kl for FY23</p>



# Annexure-II

## Coal Combustion (Scope 1)

### Spend-to-Quantity Conversion Price Factors for CEPA

- [Historical Data](#) from the Ministry of Coal dated 9th, May, 2024 has been used to obtain annualised average prices of 23 different grades of Coal.
- Based on the calorific value, each grade of coal is mapped to ‘Other Bituminous’, ‘Sub-Bituminous’, and ‘Lignite’ categories. The corresponding IPCC Emission & Energy Factors for these categories are then used.

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Coal - G1	9785 (INR/tonne)	15668 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 1744/tonne for FY24 and INR 2091/tonne for FY23.
Coal - G2	6505 (INR/tonne)	9390 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 361/tonne FY24 and INR 1776/tonne for FY23
Coal – G3	6203 (INR/tonne)	9052 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 320/tonne for FY24 and INR 1749 /tonne for FY23.
Coal – G4	6205 (INR/tonne)	9591 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 395/tonne for FY24 for INR 1850 /tonne for FY23.

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Coal – G5	5968 (INR/tonne)	8964 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 304/tonne for FY24 and INR 1710/tonne for FY23
Coal – G6	5385 (INR/tonne)	8195 (INR/tonne)	2441 (kgCO2/tonne)	25800000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 341/tonne for FY24 and INR 1711/tonne for FY23.
Coal – G7	3421 (INR/tonne)	4120 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 80/tonne for FY24 and INR 394/tonne for FY23.
Coal – G8	3227 (INR/tonne)	3963 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 78/tonne for FY24 and INR 396/tonne for FY23
Coal – G9	2826 (INR/tonne)	3530 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 80/tonne for FY24 and INR 375/tonne for FY23.

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Coal – G10	2663 (INR/tonne)	3516 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 121/tonne for FY24 and INR 437 /tonne for FY23
Coal – G11	1970 (INR/tonne)	2618 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 78/ tonne for FY24 and INR 329/tonne for FY23.
Coal – G12	1861 (INR/tonne)	2812 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 155/tonne for FY24 and INR 543/tonne for FY23
Coal – G13	1781 (INR/tonne)	2355 (INR/tonne)	1816 (kgCO2/tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 78/tonne for FY24 and INR 341/tonne for FY23
Coal – G14	1432 (INR/tonne)	2046 (INR/tonne)	1816 (kgCO2 / tonne)	18900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 81/tonne for FY24 and INR 335/tonne for FY23

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Coal – G15	1171 (INR/tonne)	1773 (INR/tonne)	1204 (kgCO2/tonne)	11900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 96/tonne for FY24 and INR 506/tonne for FY23.
Coal – G16	4591 (INR/tonne)	4149 (INR/tonne)	1204 (kgCO2/tonne)	11900000 (KJ/tonne)	Standard deviation in prices across 12 months is minimal for FY24 and INR 653/tonne for FY23.
Coal – G17	717 (INR/tonne)	642 (INR/tonne)	1204 (kgCO2/tonne)	11900000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 15/tonne for FY24 and INR 13/tonne for FY23.
Coal - ST-I	24737 (INR/tonne)	29074 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 3121/tonne for FY24 and INR 6959 /tonne for FY23
Coal - ST-II	22460 (INR/tonne)	26397 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 2833/tonne for FY24 and INR 6318/tonne for FY23

Fuel	Price for FY24	Price for FY23	Quantity-Based Emission Factors	Energy Factors	Methodology
Coal - W-I	5977 (INR/tonne)	6312 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 296/tonne for FY24 and minimal for FY23
Coal - W-II	4993 (INR/tonne)	5823 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 211/tonne for FY24 and INR 350/tonne for FY23
Coal - W-III	4348 (INR/tonne)	5823 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 369/tonne for FY24 and INR 497/tonne for FY23.
Coal - W-IV	3220 (INR/tonne)	3651 (INR/tonne)	2668 (kgCO2/tonne)	28200000 (KJ/tonne)	Standard deviation in prices across 12 months is INR 78/tonne for FY24 and INR 186/tonne for FY23.

# Annexure-III

## Refrigerant Leakage (Scope 1)

### Spend-to-Quantity Conversion Price Factors for CEPA

- Refrigerant prices (as of March 2024) are obtained from various public sources (such as marketplaces) and validated on the basis of credible inputs from private stakeholders in this domain when possible. Users should note that marketplace price estimates are likely higher than the wholesale prices offered to most users. Users might consider using lower price factors when possible to be conservative in their disclosures.
- Scope 1 emissions from this source are a result of leakage of the underlying refrigerant.
- Users should note that the lack of standardised official pricing data for refrigerants in India means that prices can often vary by a multiple of **3-5 times** depending on the quantity, location and vendor. Users should assume the values indicated below are generally indicative but not necessarily representative of their own purchases. Using these factors could therefore lead to large errors in certain cases.
- **Our recommendation to users is that they acquire and use the price factors that are specific to their operations by engaging with their vendors directly.**
- Quantity-based EFs are taken from IPCC AR6 and are in units of carbon dioxide equivalents (kgCO<sub>2</sub>e) unless otherwise mentioned in the methodology column.

Name of the Refrigerant	Price for FY24 (As of March '24)	Quantity-Based Emission Factors	Methodology
R-22 / HCFC-22*	565 (INR/kg)	1960 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are obtained from Indiamart marketplace. Users should exercise caution when using these averaged numbers given the range in prices.
R-32 / HFC-32	410 (INR/kg)	771 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number.
R-113	850 (INR/kg)	6520 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are obtained from Indiamart marketplace. Users should exercise caution when using these averaged numbers given the range in prices.
R-123*	1800 (INR/kg)	90.40 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are within the range of the indicated number.
R-124*	1450 (INR/kg)	597 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are obtained from Indiamart marketplace. Users should exercise caution when using these averaged numbers given the range in prices.
R-124a	333 (INR/kg)	2070 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are obtained from Indiamart

Name of the Refrigerant	Price for FY24 (As of March '24)	Quantity-Based Emission Factors	Methodology
			marketplace. Users should exercise caution when using these averaged numbers given the range in prices.
R-134a / HFC-134a	650 (INR/kg)	1530 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly lower than the indicated number.
R410A	750 (INR/kg)	1924 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly lower than the indicated number.
R407A	650 (INR/kg)	1923 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are obtained from Indiamart marketplace. Users should exercise caution when using these averaged numbers given the range in prices.  Quantity-based EF is taken from DEFRA 2023 (AR5).
R407C	750 (INR/kg)	1624 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are lower than the indicated number  Quantity-based EF is taken from DEFRA 2023 (AR5).
R1233zd	3550 (INR/kg)	3.88 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number  Quantity-based IPCC EF for R-1233zd(E) is utilised
R1234ze	3550 (INR/kg)	1.37 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number
R1234yf	3550 (INR/kg)	0.501 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).  Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number
R513a	3550 (INR/kg)	673.48 (kgCO <sub>2</sub> e/kg)	Prices as of March 2024 are provided by market participants (through CII).

Name of the Refrigerant	Price for FY24 (As of March '24)	Quantity-Based Emission Factors	Methodology
			<p>Users should note that prices provided by Indiamart for the same period are significantly lower than the indicated number.</p> <p>Quantity-based EF is derived using IPCC AR6 values and assuming a blend (R-1234yf and R-134a in 56:44)</p>
R290	480 (INR/kg)	0.02 (kgCO <sub>2</sub> e/kg)	<p>Prices as of March 2024 are provided by market participants (through CII).</p> <p>Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number.</p>
R600	290 (INR/kg)	minimal6 (kgCO <sub>2</sub> e/kg)	<p>Prices as of March 2024 are provided by market participants (through CII).</p> <p>Users should note that prices provided by Indiamart for the same period are significantly higher than the indicated number.</p>

\* Phased out as per [Ozone cell report](#)



# Annexure-IV

## Electricity Consumption (Scope 2)

### Spend-to-Quantity Conversion Price Factors for CEPA

- State-specific average electricity prices are taken from the Central Electricity Authority's (CEA) publication, '[Electricity Tariff & Duty & Average Rates of Electricity Supply in India.](#)'
- The analysis leverages consumption pricing for various consumer categories defined by their sanctioned load and consumption units to estimate the average electricity price.
- Data from the most recent edition (FY 2022-2023) was used to represent current pricing structures. Users should note the FY 2023-2024 pricing might differ from these numbers.
- For both commercial and industrial connection categories, state-wise price slabs reported by CEA were equally weighted to determine average prices for sanctioned loads.
- Below is a list of average price tables along with the corresponding sanction loads for each category considered in the average price calculation. Users should note that their specific rates might differ from these averages.
- Standard deviations are reported to provide a sense of the variation. However, given the small number of data points, standard deviations might not be representative of dispersion.
- A common national grid emission factor of 0.716 tCO<sub>2</sub>/kWh for the FY 2022-2023 is assumed based on guidance from the [CEA](#). **Users should note that the grid factor for FY 2023-2024 might differ.**

**Reference:** Central Electricity Authority. 'Electricity Tariff & Duty & Average Rates of Electricity Supply in India [Report - Mar 2023].

[https://cea.nic.in/wp-content/uploads/fs\\_a/2024/01/Book\\_2023.pdf](https://cea.nic.in/wp-content/uploads/fs_a/2024/01/Book_2023.pdf)

State level Electricity Tariff was obtained from PART 3 - Average Rates of Electricity Supply and Electricity Duty between page number 142-167.

Sr.No.	Category	Sub-category	Sanction loads considered for average price calculation	Average monthly consumption range (Units/month)
1	Commercial	<a href="#">Sanctioned Load &lt; 10 kW</a>	2, 5 and 10 kW	300 to 1,500
2		<a href="#">Sanction Load &gt; 10 kW to &lt; 30 kW</a>	20 and 30 kW	3,000 to 4,500
3		<a href="#">Sanction Load &gt; 30 kW to ≤ 50 kW</a>	40 and 50 kW	6,000 to 7,500
4	Small Industries	<a href="#">Sanctioned Load &lt; 15 kW</a>	5, 10 and 15 kW	750 to 2,250
5	Medium Industries	<a href="#">Sanction Load &gt; 15 kW to ≤ 100 kW</a>	50 and 100 kW	7,500 to 15,000

6	Large Industries	<a href="#">Sanction Load &gt; 100 kW to ≤ 20,000 kW (40% L.F.) (11 kV)</a>	250, 500, 1000, 5000, 10000 and 20000 kW	73,000 to 58,40,000
7		<a href="#">Sanction Load &gt; 100 kW to ≤ 20,000 kW (60% L.F.) (11 kV)</a>	250, 500, 1000, 5000, 10000 and 20000 kW	109,500 to 8,760,000
8		<a href="#">Sanction Load &gt; 100 kW to ≤ 20,000 kW (40% L.F.) (33 kV)</a>	5000, 10000 and 20000 kW	1,460,000 to 5,840,000
9		<a href="#">Sanction Load &gt; 100 kW to ≤ 20,000 kW (60% L.F.) (33 kV)</a>	5000, 10000 and 20000 kW	2,190,000 to 8,760,000
10		<a href="#">Sanction Load &gt; 20,000 kW to ≤ 50,000 kW (40% L.F.) (33 kV)</a>	50000 kW	14,600,000
11		<a href="#">Sanction Load &gt; 20,000 kW to ≤ 50,000 kW (60% L.F.) (33 kV)</a>	50000 kW	21,900,000
12	Power Intensive Industries	<a href="#">Sanction Load &lt; 50,000 kW (60% L.F.)</a>	50000 kW	21,900,000
13		<a href="#">Sanction Load &lt; 50,000 kW (80% L.F.)</a>	50000 kW	29,200,000
14	Agriculture	<a href="#">Sanction Load &lt; 10 HP</a>	2, 3, 5 and 10 HP	400 to 2000

## Commercial

### State-wise Price for Commercial Connection (Sanctioned Load $\leq 10$ kW)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factors (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Islands	10.94	1.89	0.716
Andhra Pradesh	10.54	0.76	0.716
Arunachal Pradesh	5.00	minimal	0.716
Assam	8.96	minimal	0.716
Bihar (Urban Areas)	8.81	0.23	0.716
Bihar (Rural Areas)	7.68	0.25	0.716
Chandigarh	5.21	0.42	0.716
Chhattisgarh	8.98	1.03	0.716
Dadra & Nagar Haveli	4.31	0.14	0.716
Daman & Diu	4.31	0.14	0.716
Delhi (BYPL/BRPL/NDPL-TPDDL)	10.80	1.69	0.716
Delhi (NDMC)	8.85	minimal	0.716
Goa	5.66	0.40	0.716
Gujarat	5.62	minimal	0.716
Gujarat- (Torrent Power Ltd., Ahmedabad)	6.13	0.09	0.716
Gujarat- (Torrent Power Ltd., Surat)	5.78	minimal	0.716
Haryana	7.16	minimal	0.716
Himachal Pradesh	5.98	0.20	0.716
Jammu & Kashmir and Ladakh	5.99	1.73	0.716
Jharkhand (Urban Areas)	6.88	0.15	0.716
Jharkhand (Rural Areas)	6.24	0.17	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal Corp. & all Urban)	10.98	0.07	0.716
Karnataka (Areas under Village Panchayats)	10.37	0.07	0.716
Kerala	9.84	1.79	0.716
Lakshadweep	9.35	0.67	0.716
Madhya Pradesh (Urban Areas)	8.63	0.03	0.716
Madhya Pradesh (Rural Areas)	8.39	0.03	0.716

Maharashtra	11.30	0.72	0.716
Maharashtra - Mumbai - (B.E.S.T)	8.97	0.71	0.716
Maharashtra - Mumbai - (Adani Electricity)	9.63	0.71	0.716
Maharashtra - Mumbai - (TATA's)	9.35	0.71	0.716
Manipur	7.95	0.21	0.716
Mizoram	8.92	0.05	0.716
Meghalaya	8.18	0.14	0.716
Nagaland	8.61	0.23	0.716
Odisha	7.57	0.42	0.716
Puducherry	7.48	0.41	0.716
Punjab	8.50	0.18	0.716
Rajasthan	10.20	0.27	0.716
Sikkim	5.50	0.60	0.716
Tamil Nadu	11.38	minimal	0.716
Tripura	7.78	0.43	0.716
Uttarakhand	6.78	minimal	0.716
Uttar Pradesh (Urban)	11.15	0.67	0.716
Uttar Pradesh (Rural)	6.70	minimal	0.716
West Bengal (Urban)	9.88	0.75	0.716
West Bengal (Rural)	9.87	0.75	0.716
D.V.C (Jharkhand Area)	5.45	minimal	0.716
Telangana	10.83	0.48	0.716

### State-wise Price for Commercial Connection (Sanctioned Load >10 kW to ≤ 30 kW)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Islands	14.20	0.3	0.716
Andhra Pradesh	11.46	0.1	0.716
Arunachal Pradesh	5.00	minimal	0.716
Assam	9.30	0.5	0.716
Bihar (Urban Areas)	9.07	minimal	0.716
Bihar (Rural Areas)	7.95	minimal	0.716

Chandigarh	7.95	3.1	0.716
Chhattisgarh	7.32	4.0	0.716
Dadra & Nagar Haveli	4.44	minimal	0.716
Daman & Diu	2.25	minimal	0.716
Delhi (BYPL/BRPL/NDPL-TPDDL)	11.77	minimal	0.716
Delhi (NDMC)	8.85	minimal	0.716
Goa	6.19	0.1	0.716
Gujarat	6.15	minimal	0.716
Gujarat- (Torrent Power Ltd., Ahmedabad)	7.16	minimal	0.716
Gujarat- (Torrent Power Ltd., Surat)	7.20	minimal	0.716
Haryana	7.89	0.6	0.716
Himachal Pradesh	6.87	minimal	0.716
Jammu & Kashmir and Ladakh	7.92	minimal	0.716
Jharkhand (Urban Areas)	7.03	minimal	0.716
Jharkhand (Rural Areas)	6.43	minimal	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal Corp. & all Urban)	11.07	minimal	0.716
Karnataka (Areas under Village Panchayats)	10.46	minimal	0.716
Kerala	11.41	minimal	0.716
Lakshadweep	10.07	minimal	0.716
Madhya Pradesh (Urban Areas)	9.58	minimal	0.716
Madhya Pradesh (Rural Areas)	9.27	minimal	0.716
Maharashtra	14.63	5.8	0.716
Maharashtra - Mumbai - (B.E.S.T)	9.76	2.2	0.716
Maharashtra - Mumbai - (Adani Electricity)	10.73	2.6	0.716
Maharashtra - Mumbai - (TATA's)	10.15	2.2	0.716
Manipur	8.18	minimal	0.716
Mizoram	8.98	minimal	0.716
Meghalaya	8.34	minimal	0.716
Nagaland	8.86	minimal	0.716
Odisha	8.02	minimal	0.716
Puducherry	7.92	minimal	0.716
Punjab	8.77	0.1	0.716

Rajasthan	11.54	minimal	0.716
Sikkim	6.56	0.6	0.716
Tamil Nadu	11.38	minimal	0.716
Tripura	8.26	minimal	0.716
Uttarakhand	7.36	0.8	0.716
Uttar Pradesh (Urban)	12.26	0.1	0.716
Uttar Pradesh (Rural)	6.70	minimal	0.716
West Bengal (Urban)	10.69	minimal	0.716
West Bengal (Rural)	10.69	minimal	0.716
D.V.C (Jharkhand Area)	5.45	minimal	0.716
Telangana	11.41	minimal	0.716

### State-wise Price for Commercial Connection (Sanctioned Load >30 kW to ≤ 50 kW)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Islands	14.65	0.08	0.716
Andhra Pradesh	11.55	0.02	0.716
Arunachal Pradesh	5.00	minimal	0.716
Assam	9.63	minimal	0.716
Bihar (Urban Areas)	9.09	minimal	0.716
Bihar (Rural Areas)	7.98	0.01	0.716
Chandigarh	5.76	0.01	0.716
Chhattisgarh	10.17	minimal	0.716
Dadra & Nagar Haveli	4.47	minimal	0.716
Daman & Diu	4.47	minimal	0.716
Delhi (BYPL/BRPL/NDPL-TPDDL)	11.77	minimal	0.716
Delhi (NDMC)	8.85	minimal	0.716
Goa	6.30	0.01	0.716
Gujarat	6.46	0.37	0.716
Gujarat- (Torrent Power Ltd. Ahmedabad)	7.16	minimal	0.716
Gujarat- (Torrent Power Ltd. Surat)	7.20	minimal	0.716
Haryana	8.28	minimal	0.716

Himachal Pradesh	6.87	minimal	0.716
Jammu & Kashmir and Ladakh	7.92	minimal	0.716
Jharkhand (Urban Areas)	7.03	minimal	0.716
Jharkhand (Rural Areas)	6.43	minimal	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal Corp. & all Urban)	11.07	minimal	0.716
Karnataka (Areas under Village Panchayats)	10.46	minimal	0.716
Kerala	11.41	minimal	0.716
Ladakh	7.84	minimal	0.716
Lakshadweep	10.13	0.01	0.716
Madhya Pradesh (Urban Areas)	9.58	minimal	0.716
Madhya Pradesh (Rural Areas)	9.27	minimal	0.716
Maharashtra	18.71	minimal	0.716
Maharashtra - Mumbai - (B.E.S.T)	11.29	minimal	0.716
Maharashtra - Mumbai - (Adani Electricity)	12.56	minimal	0.716
Maharashtra - Mumbai - (TATA's)	11.68	minimal	0.716
Manipur	8.20	0.01	0.716
Mizoram	8.98	minimal	0.716
Meghalaya	8.35	0.01	0.716
Nagaland	8.88	0.01	0.716
Odisha	8.06	0.01	0.716
Puducherry	7.96	0.01	0.716
Punjab	8.81	minimal	0.716
Rajasthan	11.57	0.01	0.716
Sikkim	7.02	0.01	0.716
Tamil Nadu	11.38	minimal	0.716
Telangana	11.47	0.01	0.716
Tripura	8.26	minimal	0.716
Uttarakhand	7.94	minimal	0.716
Uttar Pradesh (URBAN)	12.43	0.03	0.716
Uttar Pradesh (Rural)	6.70	minimal	0.716
West Bengal (URBAN)	10.74	0.01	0.716
D.V.C (Jharkhand Area)	5.45	minimal	0.716

## Industrial

### State-wise Price for Industrial Connection (Sanctioned Load $\leq 15$ kW - Small Industries)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Islands	9.27	1.02	0.716
Andhra Pradesh	8.20	minimal	0.716
Arunachal Pradesh	4.30	minimal	0.716
Assam (Urban Areas)	6.16	minimal	0.716
Assam (Rural Areas)	5.83	minimal	0.716
Bihar	8.67	minimal	0.716
Chandigarh	4.61	minimal	0.716
Chhattisgarh	6.16	minimal	0.716
Dadra & Nagar Haveli	4.54	0.39	0.716
Daman & Diu	4.72	minimal	0.716
Delhi (BYPL/BRPL/NDPL-TPDDL)	10.89	minimal	0.716
Delhi (NDMC)	10.89	minimal	0.716
Goa	4.78	0.13	0.716
Gujarat	5.79	minimal	0.716
Gujarat- (Torrent Power Ltd., Ahmedabad)	5.67	0.09	0.716
Gujarat- (Torrent Power Ltd., Surat)	5.39	0.16	0.716
Haryana	7.27	0.19	0.716
Himachal Pradesh	5.18	0.07	0.716
Jammu & Kashmir and Ladakh	5.41	minimal	0.716
Jharkhand	7.54	0.70	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal Corp. & all Urban)	8.33	0.33	0.716
Karnataka (Areas under Village Panchayats)	7.83	0.33	0.716
Kerala	6.64	0.24	0.716
Lakshadweep	6.87	minimal	0.716
Madhya Pradesh (Urban Areas)	9.52	minimal	0.716
Madhya Pradesh (Rural Areas)	8.68	minimal	0.716
Maharashtra	7.56	0.24	0.716



Maharashtra - Mumbai - (B.E.S.T)	7.24	0.21	0.716
Maharashtra - Mumbai - (Adani Electricity)	8.26	0.21	0.716
Maharashtra - Mumbai - (TATA's)	7.53	0.21	0.716
Manipur	6.07	minimal	0.716
Mizoram	8.27	0.17	0.716
Meghalaya	8.16	minimal	0.716
Nagaland	6.50	0.11	0.716
Odisha	6.78	0.02	0.716
Puducherry	6.38	minimal	0.716
Punjab	7.41	minimal	0.716
Rajasthan	7.90	0.10	0.716
Sikkim (Urban)	6.12	0.47	0.716
Sikkim (Rural)	4.49	0.57	0.716
Tamil Nadu	7.67	0.87	0.716
Tripura	8.04	0.14	0.716
Uttarakhand	6.20	minimal	0.716
Uttar Pradesh (Urban)	9.93	minimal	0.716
Uttar Pradesh (Rural)	9.18	minimal	0.716
West Bengal (Urban)	7.87	0.50	0.716
West Bengal (Rural)	7.67	0.48	0.716
D.V.C (Jharkhand Area)	6.41	minimal	0.716
Telangana	8.38	0.05	0.716

### State-wise Price for Industrial Connection (Sanctioned Load >15 kW to ≤ 100 kW - Medium Industries)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Islands	11.10	0.1	0.716
Andhra Pradesh	8.87	0.9	0.716
Arunachal Pradesh	4.30	minimal	0.716
Assam (Urban Areas)	8.13	minimal	0.716
Bihar	8.95	minimal	0.716

Chandigarh	5.64	minimal	0.716
Chhattisgarh	7.29	0.1	0.716
Dadra & Nagar Haveli	4.93	0.1	0.716
Daman & Diu	6.12	2.0	0.716
Delhi (BYPL/BRPL/NDPL-TPDDL)	10.89	minimal	0.716
Delhi (NDMC)	10.89	minimal	0.716
Goa	4.98	minimal	0.716
Gujarat	6.07	0.3	0.716
Gujarat- (Torrent Power Ltd., Ahmedabad)	7.13	0.8	0.716
Gujarat- (Torrent Power Ltd., Surat)	6.89	0.4	0.716
Haryana	8.50	0.3	0.716
Himachal Pradesh	7.08	0.7	0.716
Jammu & Kashmir and Ladakh	5.41	minimal	0.716
Jharkhand	8.78	1.2	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal Corp. & all Urban)	9.79	0.3	0.716
Karnataka (Areas under Village Panchayats)	9.27	0.3	0.716
Kerala	7.67	minimal	0.716
Lakshadweep	6.87	minimal	0.716
Madhya Pradesh (Urban Areas)	9.52	minimal	0.716
Madhya Pradesh (Rural Areas)	8.68	minimal	0.716
Maharashtra	10.70	minimal	0.716
Maharashtra - Mumbai - (B.E.S.T)	9.98	minimal	0.716
Maharashtra - Mumbai - (Adani Electricity)	11.14	minimal	0.716
Maharashtra - Mumbai - (TATA's)	10.20	minimal	0.716
Manipur	9.67	minimal	0.716
Mizoram	8.55	minimal	0.716
Meghalaya	8.16	minimal	0.716
Nagaland	6.98	0.1	0.716
Odisha	7.23	minimal	0.716
Puducherry	6.38	minimal	0.716

Punjab	8.29	minimal	0.716
Rajasthan	8.68	minimal	0.716
Sikkim (At 11 kV)	7.42	0.6	0.716
Tamil Nadu	9.06	0.6	0.716
Tripura	8.27	0.1	0.716
Uttarakhand	7.85	1.3	0.716
Uttar Pradesh (Urban)	10.72	1.1	0.716
Uttar Pradesh (Rural)	9.92	1.0	0.716
West Bengal (Urban)	9.26	0.1	0.716
West Bengal (Rural)	8.98	0.1	0.716
D.V.C (Jharkhand Area)	7.24	1.2	0.716
Telangana	8.38	0.1	0.716

**State-wise Price for Industrial Connection (Sanctioned Load >100 kW to ≤ 20000 kW (40% L.F.) (11 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.68	0.01	0.716
Andhra Pradesh	9.34	minimal	0.716
Arunachal Pradesh	3.85	minimal	0.716
Assam	8.04	minimal	0.716
Bihar	8.82	minimal	0.716
Chandigarh	5.29	minimal	0.716
Chhattisgarh	11.74	minimal	0.716
Dadra & Nagar Haveli	6.30	minimal	0.716
Daman & Diu	6.24	minimal	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.73	minimal	0.716
Delhi-(NDMC)	9.73	minimal	0.716
Goa	6.98	minimal	0.716
Gujarat	6.22	0.77	0.716
Gujarat-(Torrent Power Ltd., Ahmedabad)	6.34	0.15	0.716
Gujarat-(Torrent Power Ltd., Surat)	6.57	0.20	0.716

Haryana	8.12	minimal	0.716
Himachal Pradesh	7.04	0.13	0.716
Jammu & Kashmir	5.58	minimal	0.716
Jharkhand	8.55	0.23	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal)	9.43	0.13	0.716
Karnataka (Areas under Village Panchayats)	9.21	0.09	0.716
Kerala	7.68	minimal	0.716
Ladakh	5.58	minimal	0.716
Lakshadweep	9.77	minimal	0.716
Madhya Pradesh	9.91	minimal	0.716
Maharashtra (Continuous Industries)	10.93	minimal	0.716
Maharashtra (Non-continuous Industries)	11.24	minimal	0.716
Maharashtra - Mumbai- B.E.S.T)	8.88	minimal	0.716
Maharashtra - Mumbai- Adani Electricity)	9.57	minimal	0.716
Maharashtra-Mumbai-( TATA's)	9.13	minimal	0.716
Manipur	10.51	minimal	0.716
Mizoram	10.97	minimal	0.716
Meghalaya	8.80	0.01	0.716
Nagaland	7.29	0.02	0.716
Odisha	7.46	minimal	0.716
Puducherry	7.49	minimal	0.716
Punjab	8.81	0.35	0.716
Rajasthan	8.98	minimal	0.716
Sikkim	8.90	0.65	0.716
Tamil Nadu	9.28	minimal	0.716
Telangana	9.84	0.01	0.716
Uttarakhand	7.89	0.14	0.716
Uttar Pradesh (URBAN)	10.28	minimal	0.716
Uttar Pradesh (RURAL)	9.51	minimal	0.716
West Bengal	10.21	minimal	0.716
D.V.C. (Jharkhand Area)	6.74	0.17	0.716

**State-wise Price for Industrial Connection (Sanctioned Load >100 kW to ≤ 20000 kW (60% L.F.) (11 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.62	0.01	0.716
Andhra Pradesh	8.77	minimal	0.716
Arunachal Pradesh	3.85	minimal	0.716
Assam	7.55	minimal	0.716
Bihar	8.31	minimal	0.716
Chandigarh	5.07	minimal	0.716
Chhattisgarh	11.26	minimal	0.716
Dadra & Nagar Haveli	5.79	minimal	0.716
Daman & Diu	5.79	minimal	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.42	minimal	0.716
Delhi-(NDMC)	9.42	minimal	0.716
Goa	6.67	minimal	0.716
Gujarat	5.77	0.55	0.716
Gujarat-(Torrent Power Ltd., Ahmedabad)	5.93	0.10	0.716
Gujarat-(Torrent Power Ltd., Surat)	6.18	0.14	0.716
Haryana	7.91	minimal	0.716
Himachal Pradesh	6.60	0.04	0.716
Jammu & Kashmir	5.34	minimal	0.716
Jharkhand	7.11	0.23	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal)	9.11	0.12	0.716
Karnataka (Areas under Village Panchayats)	8.90	0.08	0.716
Kerala	7.19	minimal	0.716
Ladakh	5.34	minimal	0.716
Lakshadweep	9.58	minimal	0.716
Madhya Pradesh	8.22	minimal	0.716
Maharashtra (Continuous Industries)	10.32	minimal	0.716
Maharashtra (Non-continuous Industries)	10.63	minimal	0.716

Maharashtra - Mumbai- B.E.S.T)	8.39	minimal	0.716
Maharashtra - Mumbai- Adani Electricity)	9.08	minimal	0.716
Maharashtra-Mumbai-( TATA's)	8.64	minimal	0.716
Manipur	10.38	minimal	0.716
Mizoram	10.86	minimal	0.716
Meghalaya	8.50	0.01	0.716
Nagaland	7.29	0.01	0.716
Odisha	7.20	minimal	0.716
Puducherry	6.95	minimal	0.716
Punjab	8.46	0.27	0.716
Rajasthan	8.30	0.58	0.716
Sikkim	8.20	0.50	0.716
Tamil Nadu	8.55	minimal	0.716
Telangana	9.26	0.01	0.716
Uttarakhand	7.81	0.10	0.716
Uttar Pradesh (URBAN)	9.85	minimal	0.716
Uttar Pradesh (RURAL)	9.11	minimal	0.716
West Bengal	9.64	minimal	0.716
D.V.C. (Jharkhand Area)	6.20	0.17	0.716

**State-wise Price for Industrial Connection (Sanctioned Load >100 kW to ≤ 20000 kW (40% L.F.) (33 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.69	minimal	0.716
Andhra Pradesh	8.87	minimal	0.716
Arunachal Pradesh	3.50	minimal	0.716
Assam	8.04	minimal	0.716
Bihar	8.74	0.03	0.716
Chandigarh	5.29	minimal	0.716
Chhattisgarh	11.17	minimal	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.65	minimal	0.716

Delhi-(NDMC)	9.65	minimal	0.716
Goa	6.98	minimal	0.716
Gujarat	6.90	0.08	0.716
Haryana	8.01	minimal	0.716
Himachal Pradesh	7.23	minimal	0.716
Jammu & Kashmir	5.44	minimal	0.716
Jharkhand	8.46	0.26	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal)	9.52	0.01	0.716
Karnataka (Areas under Village Panchayats)	9.26	0.01	0.716
Kerala	7.68	minimal	0.716
Ladakh	5.44	minimal	0.716
Madhya Pradesh	10.85	minimal	0.716
Maharashtra	10.93	minimal	0.716
Meghalaya	8.46	minimal	0.716
Odisha	7.27	minimal	0.716
Puducherry (At 110/132 kV)	7.55	minimal	0.716
Punjab	9.10	minimal	0.716
Rajasthan	8.76	minimal	0.716
Tamil Nadu	9.28	minimal	0.716
Telangana	9.30	minimal	0.716
Uttarakhand	7.98	minimal	0.716
Uttar Pradesh	9.86	minimal	0.716
West Bengal	10.17	minimal	0.716
D.V.C. (Jharkhand Area)	6.66	0.19	0.716

**State-wise Price for Industrial Connection (Sanctioned Load >100 kW to ≤ 20000 kW (60% L.F.) (33 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.63	minimal	0.716
Andhra Pradesh	8.30	minimal	0.716
Arunachal Pradesh	3.50	minimal	0.716

Assam	7.55	minimal	0.716
Bihar	8.23	0.03	0.716
Chandigarh	5.07	minimal	0.716
Chhattisgarh	10.69	minimal	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.33	minimal	0.716
Delhi-(NDMC)	9.33	minimal	0.716
Goa	6.67	minimal	0.716
Gujarat	6.25	0.06	0.716
Haryana	7.80	minimal	0.716
Himachal Pradesh	6.73	minimal	0.716
Jammu & Kashmir	5.21	minimal	0.716
Jharkhand	7.04	0.26	0.716
Karnataka (Bruhat Bangalore Mahanagara Palike, Municipal)	9.17	0.01	0.716
Karnataka (Areas under Village Panchayats)	8.93	minimal	0.716
Kerala	7.19	minimal	0.716
Ladakh	5.21	minimal	0.716
Madhya Pradesh	8.77	minimal	0.716
Maharashtra	10.32	minimal	0.716
Meghalaya	8.17	minimal	0.716
Odisha	6.95	minimal	0.716
Puducherry (At 110/132 kV)	6.94	minimal	0.716
Punjab	8.69	minimal	0.716
Rajasthan	7.45	minimal	0.716
Tamil Nadu	8.55	minimal	0.716
Telangana	8.73	minimal	0.716
Uttarakhand	7.87	minimal	0.716
Uttar Pradesh	9.44	minimal	0.716
West Bengal	9.58	minimal	0.716
D.V.C. (Jharkhand Area)	6.14	0.19	0.716



**State-wise Price for Industrial Connection (Sanctioned Load >20000 kW to ≤ 50000 kW (40% L.F.) (33 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.69	--	0.716
Andhra Pradesh	8.87	--	0.716
Arunachal Pradesh	3.5	--	0.716
Assam	8.04	--	0.716
Bihar (AT 132 KV)	8.7	--	0.716
Chandigarh	5.29	--	0.716
Chhattisgarh	11.17	--	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.65	--	0.716
Delhi-(NDMC)	9.65	--	0.716
Goa (AT 33 KV)	6.98	--	0.716
Goa (AT 110 KV)	6.87	--	0.716
Gujarat (AT 33/66 KV)	7	--	0.716
Gujarat (AT 132 KV)	7	--	0.716
Haryana (AT 33 KV)	8.01	--	0.716
Haryana (AT 66/132 KV)	7.89	--	0.716
Haryana (AT 220 KV)	7.78	--	0.716
Himachal Pradesh	7.23	--	0.716
Jammu & Kashmir	5.44	--	0.716
Jharkhand (33 KV)	8.61	--	0.716
Jharkhand (AT 132 KV)	8.46	--	0.716
Karnataka Bangalore Metro Area (AT 33/66 KV)	9.53	--	0.716
Karnataka Other Areas (AT 33/66 KV)	9.27	--	0.716
Karnataka Bangalore Metropolitan Area (AT 110 KV)	9.52	--	0.716
Karnataka Other Areas (AT 110 KV)	9.26	--	0.716
Karnataka Bangalore Metropolitan Area (AT 220 KV)	9.5	--	0.716
Karnataka Other Areas (AT 220 KV)	9.24	--	0.716
Kerala	7.68	--	0.716

Ladakh	5.44	--	0.716
Madhya Pradesh (AT 33 KV)	10.85	--	0.716
Madhya Pradesh (AT 132 KV)	8.77	--	0.716
Maharashtra	10.93	--	0.716
Meghalaya	8.46	--	0.716
Odisha (AT 132 KV)	7.22	--	0.716
Puducherry (At 110/132 kV)	7.55	--	0.716
Punjab	9.1	--	0.716
Rajasthan	8.76	--	0.716
Tamil Nadu	9.28	--	0.716
Telangana	9.3	--	0.716
Uttarakhand	7.98	--	0.716
Uttar Pradesh	0	--	0.716
For supply at 33 KV & 66 KV	9.86	--	0.716
For supply at 132 KV	9.26	--	0.716
West Bengal (AT 33 KV)	10.17	--	0.716
West Bengal (AT 132 KV)	10.12	--	0.716
D.V.C. AT 33 KV (Jharkhand Area)	6.77	--	0.716
AT 132 KV (Jharkhand Area)	6.64	--	0.716

**State-wise Price for Industrial Connection (Sanctioned Load >20000 kW to ≤ 50000 kW (60% L.F.) (33 kV) Large Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	10.63	--	0.716
Andhra Pradesh	8.3	--	0.716
Arunachal Pradesh	3.5	--	0.716
Assam	7.55	--	0.716
Bihar (AT 132 KV)	8.19	--	0.716
Chandigarh	5.07	--	0.716
Chhattisgarh	10.69	--	0.716
Delhi-(BYPL/BRPL/TPDDL)	9.33	--	0.716

Delhi-(NDMC)	9.33	--	0.716
Goa (AT 33 KV)	6.67	--	0.716
Goa (AT 110 KV)	6.56	--	0.716
Gujarat (AT 33/66 KV )	6.32	--	0.716
Gujarat (AT 132 KV)	6.32	--	0.716
Haryana (AT 33 KV)	7.8	--	0.716
Haryana (AT 66/132 KV)	7.69	--	0.716
Haryana (AT 220 KV)	7.57	--	0.716
Himachal Pradesh	6.73	--	0.716
Jammu & Kashmir	5.21	--	0.716
Jharkhand (33 KV)	7.19	--	0.716
Jharkhand (AT 132 KV)	7.04	--	0.716
Karnataka Bangalore Metro Area (AT 33/66 KV)	9.18	--	0.716
Karnataka Other Areas (AT 33/66 KV)	8.94	--	0.716
Karnataka Bangalore Metropolitan Area (AT 110 KV)	9.17	--	0.716
Karnataka Other Areas (AT 110 KV)	8.93	--	0.716
Karnataka Bangalore Metropolitan Area (AT 220 KV)	9.15	--	0.716
Karnataka Other Areas (AT 220 KV)	8.91	--	0.716
Kerala	7.19	--	0.716
Ladakh	5.21	--	0.716
Madhya Pradesh (AT 33 KV)	10.75	--	0.716
Madhya Pradesh (AT 132 KV)	8.61	--	0.716
Maharashtra	10.32	--	0.716
Meghalaya	8.17	--	0.716
Odisha (AT 132 KV)	6.9	--	0.716
Puducherry (At 110/132 kV)	6.94	--	0.716
Punjab	8.69	--	0.716
Rajasthan	7.45	--	0.716
Tamil Nadu	8.55	--	0.716
Telangana	8.73	--	0.716
Uttarakhand	7.87	--	0.716

Uttar Pradesh	0	--	0.716
For supply at 33 KV & 66 KV	9.44	--	0.716
For supply at 132 KV	8.87	--	0.716
West Bengal (AT 33 KV)	9.58	--	0.716
West Bengal (AT 132 KV)	9.53	--	0.716
D.V.C. AT 33 KV (Jharkhand Area)	6.25	--	0.716
AT 132 KV (Jharkhand Area)	6.13	--	0.716

**State-wise Price for Industrial Connection (Sanctioned Load  $\leq$  50000 kW (60% L.F.) Power Intensive Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andhra Pradesh (AT 132 KV)	6.21	--	0.716
Arunachal Pradesh	3.25	--	0.716
Bihar	6.71	--	0.716
Chhattisgarh (AT 33 KV)	9.63	--	0.716
Chhattisgarh (AT 132 KV)	8.92	--	0.716
Dadra & Nagar Haveli	5.79	--	0.716
Daman & Diu	6.19	--	0.716
Goa (AT 33 KV)	6.67	--	0.716
Himachal Pradesh (AT 66 KV)	6.73	--	0.716
Jammu & Kashmir (AT 11 KV)	6.49	--	0.716
Jammu & Kashmir (AT 33 KV)	6.42	--	0.716
Kerala (AT 66 KV)	7.11	--	0.716
Kerala (AT 110 KV)	6.99	--	0.716
Kerala (AT 220 KV)	6.31	--	0.716
Ladakh (AT 11 KV)	6.49	--	0.716
Ladakh (AT 33 KV)	6.42	--	0.716
Madhya Pradesh (AT 33 KV)	8.1	--	0.716
Madhya Pradesh (AT 132 KV)	8.21	--	0.716
Maharashtra	10.32	--	0.716
Odisha (AT 11/33 KV)	6.95	--	0.716

Odisha (AT 132 KV)	6.9	--	0.716
Punjab	9.05	--	0.716

**State-wise Price for Industrial Connection (Sanctioned Load  $\leq$  50000 kW (80% L.F.) Power Intensive Industries)**

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andhra Pradesh (AT 132 KV)	6.21	--	0.716
Arunachal Pradesh	3.25	--	0.716
Bihar	5.92	--	0.716
Chhattisgarh (AT 33 KV)	9.39	--	0.716
Chhattisgarh (AT 132 KV)	8.68	--	0.716
Dadra & Nagar Haveli	5.54	--	0.716
Daman & Diu	5.85	--	0.716
Goa (AT 33 KV)	6.51	--	0.716
Himachal Pradesh (AT 66 KV)	6.46	--	0.716
Jammu & Kashmir (AT 11 KV)	6.34	--	0.716
Jammu & Kashmir (AT 33 KV)	6.27	--	0.716
Kerala (AT 66 KV)	6.86	--	0.716
Kerala (AT 110 KV)	6.74	--	0.716
Kerala (AT 220 KV)	6.08	--	0.716
Ladakh (AT 11 KV)	6.34	--	0.716
Ladakh (AT 33 KV)	6.27	--	0.716
Madhya Pradesh (AT 33 KV)	7.66	--	0.716
Madhya Pradesh (AT 132 KV)	7.67	--	0.716
Maharashtra	10.01	--	0.716
Odisha (AT 11/33 KV)	5.61	--	0.716
Odisha (AT 132 KV)	5.55	--	0.716
Punjab	8.83	--	0.716

## Agricultural

### State-wise Price for Agriculture Connection (Sanctioned Load ≤ 10 HP Agriculture)

Name of Utility	Average Price (Rs. / kWh)	Standard Deviation (Rs. / kWh)	National Grid Emission Factor (kgCO <sub>2</sub> / kWh)
Andaman & Nicobar Island	1.96	minimal	0.716
Andhra Pradesh - With Demand side Management measures (DSM)	3.50	minimal	0.716
Andhra Pradesh - Without Demand side Management measures (DSM)	4.50	minimal	0.716
Arunachal Pradesh	3.10	minimal	0.716
Assam	5.10	minimal	0.716
Bihar	5.74	minimal	0.716
Chandigarh	2.60	minimal	0.716
Chhattisgarh	5.55	minimal	0.716
Dadra & Nagar Haveli	0.90	minimal	0.716
Daman & Diu	0.90	minimal	0.716
Delhi-(BYPL/BRPL/TPDDL)	2.04	minimal	0.716
Delhi-(NDMC)	2.04	minimal	0.716
Goa	1.79	minimal	0.716
Gujarat	0.90	minimal	0.716
Gujarat-(Torrent Power Ltd., Ahmedabad)	3.40	minimal	0.716
Gujarat-(Torrent Power Ltd., Surat)	0.70	minimal	0.716
Haryana	6.67	minimal	0.716
Himachal Pradesh	4.44	0.09	0.716
Jammu & Kashmir	1.02	minimal	0.716
Jharkhand	5.10	minimal	0.716
Karnataka	0.0	minimal	0.716
Kerala	2.59	minimal	0.716
Ladakh	1.35	minimal	0.716
Madhya Pradesh	5.84	0.36	0.716
Maharashtra	3.52	minimal	0.716
Maharashtra-Mumbai-( B.E.S.T)	3.87	minimal	0.716

Maharashtra -Mumbai-(Adani Electricity)	5.47	minimal	0.716
Maharashtra Mumbai-( TATA's)	3.89	minimal	0.716
Manipur	4.79	minimal	0.716
Mizoram	3.99	minimal	0.716
Meghalaya	3.47	minimal	0.716
Nagaland	3.20	minimal	0.716
Odisha	1.59	0.02	0.716
Puducherry With Govt. Subsidy	0.0	minimal	0.716
Punjab With Govt. Subsidy	0.0	minimal	0.716
Punjab Without Govt. Subsidy	5.66	minimal	0.716
Rajasthan	5.74	minimal	0.716
Tamil Nadu	0.0	minimal	0.716
Telangana Corporate Farmers	2.55	0.03	0.716
Telangana Other than Corporate Farmers	0.05	0.03	0.716
Tripura	4.24	0.60	0.716
Uttarakhand	2.15	minimal	0.716
Uttar Pradesh (URBAN)	6.65	minimal	0.716
Uttar Pradesh (RURAL)	2.35	minimal	0.716
West Bengal	5.10	minimal	0.716
D.V.C. (Jharkhand Area)	3.15	minimal	0.716

# Annexure - V

## Example Usage

### Example 1: Fuel Combustion (Scope 1)

- Assume that a firm (named ABC) has spent INR 5 lakhs in FY24 on Diesel used in DG Sets at the corporate office and 3 lakhs on CNG in FY24 for vehicles owned by the company.
- To compute the emissions and energy consumption from both diesel and CNG, the following steps should be followed;

#### Available data from company ABC for FY24:

- Spend\_Data\_Diesel = INR 5,00,000
- Spend\_Data\_CNG = INR 3,00,000

#### Available Data from the CEPA methodology for FY24: (Figures based on Annexure-I)

- Price\_Factor\_Diesel = 92.63 INR/litre
- Price\_Factor\_CNG = 86.83 INR/kg
- QuantityBasedEF\_Diesel = 2.68 kgCO<sub>2</sub>/litre
- QuantityBasedEF\_CNG = 2.69 kgCO<sub>2</sub>/kg
- EnergyFactor\_Diesel = 36,120 KJ/litre
- EnergyFactor\_CNG = 48,000 KJ/kg

---

$$\text{Carbon Emissions} = \sum \left( \frac{\text{Spend Data}_i}{\text{Price Factor}_i} \times \text{QuantityBased Emission Factor} \right)$$

$$\text{Carbon\_Emissions (kgCO}_2\text{) from Diesel} = \frac{5,00,000}{92.63} \times 2.68 = 14,466.16 \text{ kgCO}_2$$

$$\text{Carbon\_Emissions (kgCO}_2\text{) from CNG} = \frac{3,00,000}{86.83} \times 2.69 = 9,294.02 \text{ kgCO}_2$$

#### Scope 1 Carbon Emissions (kgCO<sub>2</sub>) =

$$\begin{aligned} \text{Carbon\_Emissions (kgCO}_2\text{) from Diesel} + \text{Carbon\_Emissions (kgCO}_2\text{) from CNG} \\ = 14,466.16 + 9,294.02 \\ = \mathbf{23,760.18 \text{ kgCO}_2} \end{aligned}$$

---

$$\text{Energy Consumption} = \sum \left( \frac{\text{Spend Data}_i}{\text{Price Factor}_i} \times \text{QuantityBased Energy Factor} \right)$$



$$\text{Energy (KJ) from Diesel} = \frac{5,00,000}{92.63} \times 36,120 = 19,49,69,232.43 \text{ KJ} = 194.97 \text{ GJ}$$

$$\text{Energy (KJ) from CNG} = \frac{3,00,000}{86.83} \times 48,000 = 16,58,41,299.09 \text{ KJ} = 165.84 \text{ GJ}$$

**Fuel Energy Consumption (KJ) =**

$$\text{Energy (KJ) from Diesel} + \text{Energy (KJ) from CNG}$$

$$= 194.97 + 165.84$$

$$= \mathbf{360.81 \text{ GJ}}$$

### Example 2: Electricity Consumption (Scope 2)

- Assume that a firm (named ABC) spent 1.0 lakh in FY23 on electricity from the grid at one of its **offices** which is located in **Maharashtra** with a **sanction load (electricity supply) of 5 kW**.
- To compute the carbon emissions from electricity, the following steps need to be followed;

**Available data from company ABC for FY23:**

- Spend\_Data\_Electricity (Grid) = INR 1,00,000
- State = Maharashtra

**Available Data from the CEPA methodology for FY23: (Figures based on Annexure IV)**

- Type of Operations: Commercial (Corporate Office)
- Sanction load = < 10 kW

The above sanction load and type of operation decide which table to use from **Annexure IV** for factors. in this case, it is **Table- “State-wise Price for Commercial Connection (Sanctioned Load ≤ 10 kW)”**

- Price\_Factor\_Electricity (Grid) for Maharashtra = 11.30 INR/kWh
- NationalGridEF\_Electricity (Grid) for Maharashtra = 0.716 kgCO<sub>2</sub>/kWh

$$\text{Carbon Emissions} = \sum \left( \frac{\text{Spend Data}_i}{\text{Price Factor}_i} \times \text{QuantityBased Emission Factor} \right)$$

$$\begin{aligned} \text{Carbon\_Emissions (kgCO}_2\text{) from Electricity (Grid)} &= \frac{1,00,000}{11.30} \times 0.716 \\ &= \mathbf{6,336.28 \text{ kgCO}_2} \end{aligned}$$

Users can emulate the approach above to obtain the carbon emissions and energy consumption for other emission sources (e.g. coal and refrigerants).