

GHG Accounting Report 2023 (150 14064-1 and GHG Protocol aligned)

Prepared By: Nepra Environmental Solutions Private Limited Published in: July, 2024

TUVINDIA

Independent Assurance Statement

The inventory of Greenhouse Gas emissions attributable to

CSCI Steel Corporation India Pvt Ltd, D-2/6, Jolva Village, GIDC, Dahej- II-, Gujarat, India, Pin-392130



The inventory of Greenhouse Gas emissions of CSCI has been verified as per ISAE 3410 (GHGs), ISO 14064–1 and GHG protocol. With application of the mentioned standard, the GHG emissions was examined by TUV India Pvt. Ltd. regarding its correctness and completeness and conforms below results for the period 01st January 2023 to 31st December 2023.

Direct emissions (Scope 1) from stationary combustion (Diesel used in forklift, DG set, and Diesel Pumps, Natural Gas in Boiler, Oven and Furnace, LPG Gas used in Canteen, Acetylene Gas used in Welding Work) and fugitive emissions (Split AC & Package AC, Chiller & water dispenser, Air Dryer, Gas insulated Substation); indirect emissions (scope 2) on account of grid electricity import, and Scope 3 emissions attributable to purchased goods and services, capital Goods, fuel-and energy related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commute, downstream transportation and distribution, end-of-life treatment of sold products are considered. Detailed exclusion list is part of Annexure-1 of this assurance statement.

Scope-1 Emissions (tCO ₂ e) ¹	Scope -2 Emissions (tCO ₂ e)	Scope -3 Emissions (tCO ₂ e)	
13,685	11,845	36,355	
Application of Uncertainty - 5 % (''/0.95)			
14,406	12,469	38,269	

For and on behalf of TUV India Private Limited

Manojkumar Borekar Product Head – Sustainability Assurance Service



Date: 03/07/2024 Place: Mumbai, India Assurance Statement no: 8122418044 <u>www.tuv-nord.com/in</u>

This assurance statement is invalid without annexure 1 of this statement.

Head Office: 801, Raheja Plaza – 1, L.B.S Marg, Ghatkopar (W), Mumbai 400086, India I <u>www.tuv-nord.com/in</u>



¹ CSCI declared that, no activity occurrence (e.g. refill of CO₂ gas in fire extinguisher, company owned vehicles, processbased emissions, direct emissions from land use.) under direct GHG emission category during reporting period.

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1. INTRODUCTION

CSCI Steel Corporation India Pvt Ltd is a leading manufacturer and supplier of high-quality electrical steel sheets. With a strong commitment to sustainability and innovation, we serve a wide range of industries including automotive, home appliances, power, and toys. Through advanced manufacturing processes and a focus on Total Quality Management (TQM), we aim to enhance customer satisfaction, reduce costs, and continuously improve its competitive edge in both domestic and international markets.

CSCI was incorporated in the year 2011. We have 1 Corporate Office at Vadodara and 1 plant Office at Dahej, Bharuch in Gujarat, India. CSCI specializes in producing non-oriented silicon steel (CRNO) and is dedicated to meeting the growing demand for energy-efficient materials. By prioritizing sustainable practices, CSCI focuses on reducing its environmental footprint through efficient resource use, minimizing waste, and lowering emissions during manufacturing processes. This focus not only supports energy-efficient products but also contributes to reducing overall energy consumption and promoting sustainability in various industries.

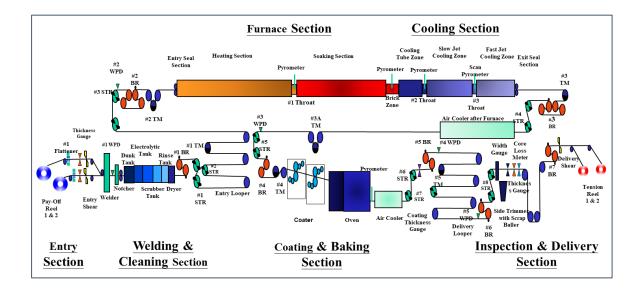
The report offers comprehensive insights into the organization's greenhouse gas (GHG) emissions forming the bedrock of our climate strategy. By accounting for our GHG emissions, we will proceed to identify effective approaches to facilitate the decarbonization of our operations.

About CSCI: Product Manufacturing Process

CSCI's advanced production techniques and rigorous quality control ensure that we deliver top-tier electrical steel coils that meet the highest industry standards. The Annealing and Coating Line (ACL) has been meticulously designed to ensure optimal performance and quality. It has been designed to uncoil, weld, clean, anneal, coat, bake & cool, side trim, divide and recoil. The cold rolled steel full hard coils as received from the cold reduction mill are used as input material. The slitting line can match requirement of small size width by manner of hoops.

- Uncoil: The coil opener and guide table provided to automatic thread the strip from the payoff reel into the entry pinch roll. The coil opener and guide table are hydraulically extended or retracted. A magnetic conveyor is furnished for the threading of strip.
- Weld: The welder is designed to connect two coils (proceed coil and the next coil), the welder shall be a lap seam resistance type complete with strip auto-positioning, entry and exit clamps, entry and exit strip centering device, strip shear, welding apparatus, automatic wheel dressers manual cutting tools hole punches and auxiliaries.
- Cleaning: The cleaning section has designed to clean the surface of steel strip by removing grease, residual oil and iron, loosen dirt, etc. by using alkaline solution, brush scrubbing & electrolytic process.

- Annealing (Furnace & cooling): The furnace is horizontal type for heat treatment of cold rolled strip. This facility is consisting of four sections heating, soaking, slow cooling, fast cooling.
- Coat: The coaters are horizontal type and include No.1 and No.2 coater capable of applying a precise metered amount of coating paint on both sides of strip simultaneously.
- Bake and cool: Oven is designed to thoroughly cure the coating on both sides of the strip and designed with sufficient flow-out time for all products. Hot air circulation method has been applied and then blower the cool the trip down to environment temperature.
- Side trim: The side trimmer is provided to trim the strip edges to meet the required width by means of rotary knives. The material of cutter is ultra-high strength steel.
- Divide and recoil: The tension reel rewinds the strip under tension into a straight-edge tight coil after shear cutting. Strip will be recoiled to match the order weight as product.
- Packing: Finish good packed by automatic walking beam type multi skid packing line equipment, to meet different packing style.
- Slitting line: Slitting line enhance customer requirement by slit ACL finish good according to required small width and size hoops.



CSCI's ACL Process Flow chart

Emission Summary for CY 2023 (Scope 1, 2 and 3)

Scope 1 Emission	Scope 2 Emission	Scope 3 Emission	Total GHG Emissions
(MT CO2e.)	(MT CO2e.)	(MT CO2e.)	(MT CO2e.)
13,685	11,845	36,355	61,885

Emission Summary for CY 2023 (As per ISO 14064-1 and GHG Protocol)

ISO 14064-1	GHG Protocol	Emission (MT CO2e.)
Category 1 Direct GHG emissions and removals	Scope 1 – Direct Emissions	13,685
Category 2 Indirect GHG emissions from imported energy	Scope 2- Indirect Emissions	11,845
Category 3 Indirect GHG emissions from	Category 4: (Upstream Transportation and Distribution) Category 6: (Business Travel)	23,471
transportation	Category 7: (Employee Commute) Category 9: (Downstream Transportation	
Category 4 Indirect GHG emissions from product used by	Category 1: (Purchased goods and services Category 2: (Capital goods)	10,145
organization	Category 3: (Fuel- and Energy-Related Activities) Category 5: (Waste Generated in Operations)	
Category 5	Category 12: (End-of-Life Treatment of Sold Products)	2,739
Indirect GHG emissions associated with use of products from organization		
	Total Emissions	61,885

CSCI's Navigating Climate Strategy: CSCI's Approach



Identify and implement energy efficiency measures across all operations

- Increase the use of Renewable Energy Sources
- Optimizing raw material usage to lower the carbon emission
- Examine Scope 3 emissions and identify reduction opportunities within the value chain
- Assess the impacts of climate risks and develop a cost-effective plan for mitigation



Set Measurable targets and outline a decarbonization roadmap based on Science Based Targets initiative (SBTi) criteria

CSCI's Initiative for Carbon Emission Mitigation

Natural Gas Usage Optimization Projects

We collaboratively implemented an energy saving project by:

- Installing energy savers in the furnace
- Adjusting the air-fuel ratio in the furnace
- Adopting a new cleaning chemical in the cleaning section •

We adopted a new cleaning chemical that eliminates the need for heating, resulting in significant energy and cost savings. This initiative will help in reducing Scope 1 emissions.

Installation of VFD based Compressor

We replaced the old compressors with new VFD-based ones in utility section, leading to significant energy and cost savings. This upgrade will greatly contribute to reducing the Scope 2 emissions.

Energy Conservation Initiative: Entry/Delivery Hydraulic System at ACL Plant

By implementing a strategy to operate only one pump at the entry and delivery points of the hydraulic system in the ACL Plant, we have effectively reduced electricity consumption. This upgrade not only optimizes energy usage but also plays a crucial role in minimizing Scope 2 emissions.

Process Scrap Reduction and Productivity Improvement Project in ACL Line

We are working to eliminate any remaining length of strip in the Pay-off Reel (POR) to reduce scrap. Currently, the average length remaining in the POR is 18 meters. In Phase 1, we have successfully saved an average of 4.9 meters of strip length in the POR. This reduction has decreased electricity consumption, thereby contributing to a reduction in Scope 2 emissions.

Pneumatic Air (PA) Consumption Reduction

To reduce Pneumatic Air (PA) consumption at the ACL plant, we have ceased air usage at three critical locations: the Entry Seal Roll, the Hot Air Dryer, and TM3. This strategic action has significantly decreased our overall air consumption, resulting in reduced electricity usage.

Aeration Tank Blower Automation project in ETP Biological Treatment Process

In the ETP Biological Treatment Process, the utility section has implemented an automation program for the aeration tank blowers. This project has successfully reduced electricity consumption by 120,450 kWh per year. As a result, this initiative has significantly decreased our Scope 2 emissions, contributing to our overall environmental sustainability efforts and helping to minimize our carbon footprint.



Additionally, the CSCI team is continuously striving to increase the share of renewable energy in the company's total energy consumption. This involves exploring and implementing various renewable energy sources such as solar and wind power to reduce reliance on non-renewable energy.

Furthermore, our production team is actively engaged in sustainability initiatives by reusing scrap materials and plastic in the packaging of finished goods. These efforts not only minimize waste but also contribute to a circular economy, showcasing our commitment to environmental responsibility and resource efficiency.

2.ORGANIZATIONAL BOUNDARY

The report includes the following owned and operational plant and office

S. No.	Unit Location	Details	Capacity
1	Brauch Plant	Corporate Registered Office	217800 TPA
2	Bharuch plant + Vadodara Office	Plant+ Corporate Registered Office	250 Employees

Exclusions: The current GHG inventory for CSCI does not include emissions from the residential township.

3.REPORTING BOUNDARY

The present GHG Inventory report is based on ISO 14064-1. Also, it is in line with the Green House Gas Protocol (GHG Protocol). The calculations are based on the Greenhouse Gas Protocol Corporate Value Chain Accountingand Reporting Standard.

4.REPORTING PERIOD

The reporting period is January 2023 to December 2023





Manufacturing	Electrical Steel Coil
Product:	
Core Applications:	In EV Motors, Industrial motor, Transformers and Pumps
Unique Feature:	- Uniform electrical and magnetic properties
	- Most suitable material for rotating machines
	- Low Hysteresis loss

5.METHODOLOGY

The GHG accounting and reporting procedure is based on ISO 14064-1. ISO (The international Organization of standardization) is a worldwide federation of National Standards bodies. ISO produces documents that supports to address climate change. ISO 14064-1 provides the framework for designing and developing GHG inventories for organization. This report is also aligned with 'The Greenhouse Gas Protocol: GHG Protocol: A Corporate Accounting and Reporting Standard. The standards were developed in a partnership between the World Resources Institute and the World Business Council for Sustainable Development and is the world's most widely used greenhouse gas accounting standards for companies.

The accounting is based on the principles of the ISO 14064-1

- Relevance: Select the GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of intended users
- Completeness: Include all the relevant GHG emissions and removals.
- **Consistency**: Enable meaningful comparisons in GHG -related information.
- Accuracy: Reduce bias and uncertainties as far is practical
- Transparency: Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence.

Scope1

Emissions include direct emissions from stationary or mobile combustion sources.

It is calculated for CSCI Bharuch Plant. It includes fuels like diesel, natural gas, LPG and acetylene gas. Diesel used in D.G sets and Forklifts at our units. Natural gas used in boiler, oven and Annealing furnace. The LPG gas is used in canteen. The acetylene gas is used for welding and fabrication process. The fuel data is captured from the bills. The emission factors are sourced from IPCC 2006 Guidelines for National Greenhouse Gas Inventories. The fugitive refrigerants have also been reported. Other fuel like Hydrogen and Nitrogen are used in Furnace. Also, Nitrogen, Argon and Oxygen are used during welding/ gas cutting work.

- Hydrogen is a clean fuel that does not emit any GHGs during combustion. The remnant of combustion is pure water.
- Argon is an inert gas, which means it does not undergo chemical reactions under normal conditions. As a result, it does not contribute to the greenhouse effect or climate change.
- Nitrogen gas itself does not directly produce greenhouse gas (GHG) emissions. Like argon, nitrogen is an inert gas and does not undergo chemical reactions under normal conditions.
- Oxygen is also considered a clean fuel because it does not produce harmful emissions when burned.

These fuels are considered as clean fuel as produces minimal or no harmful emissions during combustion, compared to traditional fossil fuels like coal, oil, and natural gas. Thereby significantly

reducing environmental impact. They contribute less to air pollution and greenhouse gas emissions, thus having a reduced impact on the environment and human health. Therefore, emissions from these fuels are considered in Scope 3 in category 3.

Scope 2

It includes indirect emissions from purchased electricity, steam, heating & cooling for own use. The electricity data is captured from the bills. CSCI's indirect energy sources include purchased electricity from the grid, as well as solar and wind energy. The renewable energy sources are procured through power purchase agreements. The factors are based on the CO2 baseline database for the Indian Power Sector version 19 published by the Ministry of Power, Central Electricity Authority GOI. The carbon emission factor of grid electricity used exclusive of Renewable Energy.

Scope 3

It includes indirect emissions from value-chain activities. We understand that achieving true decarbonization necessitates addressing the complete value chain, encompassing both upstream and downstream sectors. We actively engaged with all stakeholders involved in both the upstream (fuel and capital goods) and downstream (consumers and customers) aspects of the value chain. To ensure the scientific accuracy and credibility of our decarbonization efforts, we have conducted a comprehensive evaluation of greenhouse gas (GHG) emissions accounting for scope 3 emissions. We have identified total 9 categories out of 15 categories as mentioned below:

Category Code	Name of Category	Applicability	
S3C1	Purchased goods and services	Applicable	
S3C2	Capital Goods	Applicable	
S3C3	Fuel- and Energy-Related Activities	Applicable	
S3C4	Upstream Transportation and Distribution	Applicable	
S3C5	Waste Generated in Operations	Applicable	
S3C6	Business Travel	Applicable	
S3C7	Employee Commute	Applicable	
S3C8	Upstream Leased Assets	Not Applicable- We do not considered	
		subsidiaries in reporting boundaries for	
		GHG footprint.	
S3C9	Downstream Transportation and Distribution	Applicable	
S3C10	Processing of Sold Products	Applicable	
S3C11	Use of Sold Products	Not Applicable- As the finished goods of	
		CSCI becomes part of a final product	
		across varied sector and applications.	
S3C12	End-of-Life Treatment of Sold Products	Applicable	
S3C13	Downstream Leased Assets	Not Applicable- As there is no	
		downstream leased assets of CSCI	
S3C14	Franchises	Not Applicable - There is no franchises	
S3C15	Investments	Not Applicable - There is no investment in	
		any third party ventures/projects	

6.GREEN HOUSE GAS INVENTORY

S. No.	GHG Emissions	Units	CY 2021	CY 2022	CY 2023
1	Scope 1 – Owned Operations	MTCO2e.	17383	14616	13685
2	Scope 2 - Location Based	MTCO2e	17229	12842	11845
3	Scope 3- Applicable Categories	MTCO2e.	-	-	36355
3	Total GHG Emissions	MTCO2e.	34612	27458	61885
4	GHG Emission Intensity	MTCO2e./MT of Product	0.227	0.217	0.196 (Including Scope 1 & 2) 0.476 (Including Scope 1,2 &3)

Source Wise Details

Source	Energy (GJ)		Emissions (MTCO2e.)		/ITCO2e.)	
	CY 2021	CY 2022	CY 2023	CY 2021	CY 2022	CY 2023
Fuel						
Diesel	139.06	143.58	130.94	10.37	10.70	9.76
Natural Gas	285510.75	243939.07	234076.64	16064.69	13725.60	13170.67
LPG	1185.46	604.83	640.32	75.00	38.27	40.51
Acetylene	2.21	4.42	3.16	0.15	0.31	0.22
Electricity						
Purchased Grid (Non RE)	76574.16	57074.18	52001.604	17229	12842	11845
Purchased Solar (RE)	9087.80	8360.60	13181.64	-	-	-
Purchased Wind (RE)	0.34	12501.95	12923.11	-	-	-

Avoided GHG emissions are accounted for the purchased solar and wind energy:

Source	Avoided Emissions (MTCO2e.)			
	CY 2021 CY 2022 CY 2023			
Electricity- Purchased Solar (RE)	2045	1881	3002	
Electricity- Purchased Wind (RE)	0.08	2813	2944	

Emissions through refrigerant are accounted from various sources:

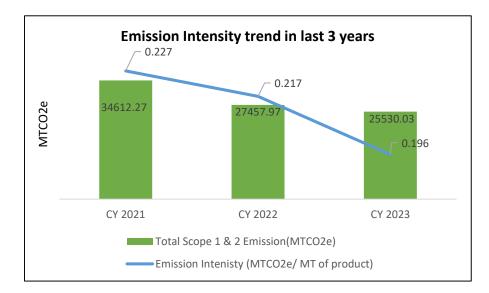
Type of Air Conditioning and Refrigeration	Refrigerant Used	Emissions (MTCO2e.)		
Equipment		CY 2021	CY 2022	CY 2023
Welder, Chiller, and Instrument Air Dryer	R-407C	38.98	50.73	0.00
Split AC & Package AC	R-22	817.34	513.74	325.60
Chiller & water dispenser	R-134 A	57.33	95.55	4.55
Air Dryer	R-404 A	295.73	181.38	110.40
Gas insulated Substation	SF6 (Sulfur hexa- flouride)	23.50	0.00	23.50

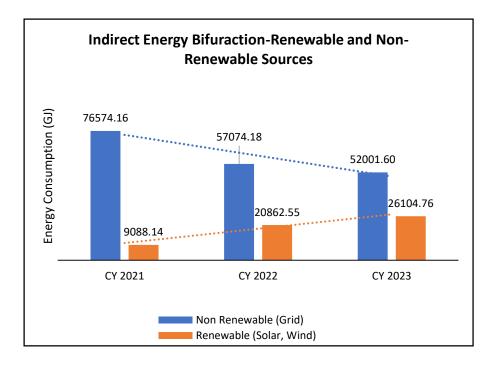
Note: Emissions through refrigerant used are included in scope 1 emissions. Besides these, there are no other process emissions directly resulting from production activities. All greenhouse gas (GHG) emissions are categorized under Scope 1(Fuel, Refrigerant), Scope 2 (Purchased Electricity), and Scope 3 are reported accordingly. GHG sinks and GHG removal has not been evaluated and hence is not reported.

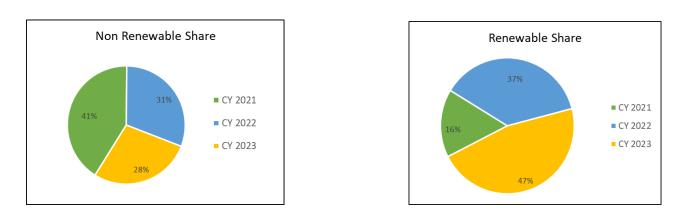
Scope 3 Emissions (CY -2023)- Category Wise Details:

Scope 3 categories	Emission Factor Database	Scope 3 emission (MT CO2e.)
Category 1:	EXIOBASE, ECOINVENT	2218
(Purchased goods and services)		
Category 2:	EXIOBASE, ECOINVENT	80
Capital Goods		
Category 3:	ECOINVENT, CEA	7744
Fuel- and Energy-Related Activities		
Category 4:	ECOINVENT	12691
Upstream Transportation and Distribution		
Category 5:	IPCC, ECOINVENT, DEFRA	103
Waste Generated in Operations		
Category 6:	IPCC, DEFRA	121
Business Travel		
Category 7:	INDIA GHG, IPCC	928
Employee Commute		
Category 9:	ECOINVENT	9731
Downstream Transportation and		
Distribution		
Category 12:	DEFRA	2739
End-of-Life Treatment of Sold Products		
	Total Emission (MT CO2e.)	36,355

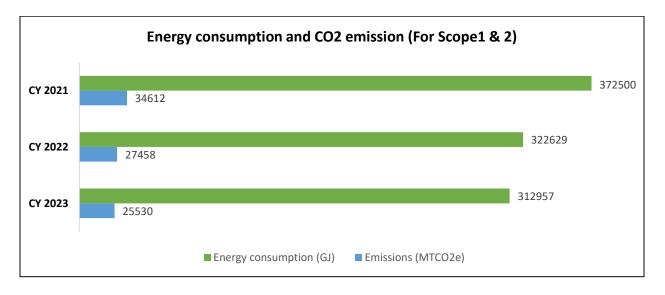
In the last three years, there has been a notable decrease in greenhouse gas (GHG) emissions and intensities. This downward trend is largely due to the growing use of renewable energy sources, particularly solar and wind energy. The adoption of these cleaner energy alternatives has played a significant role in reducing the carbon footprint. The bifurcation for indirect energy consumption graph clearly illustrates this positive shift, which shows an increasing reliance on renewable energy sources, with a significant rise in the use of solar and wind energy.

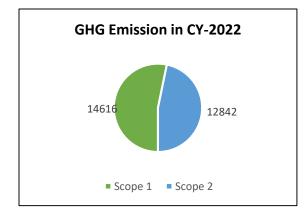


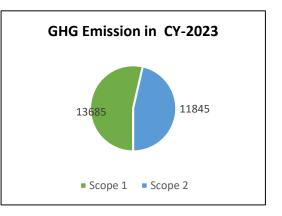


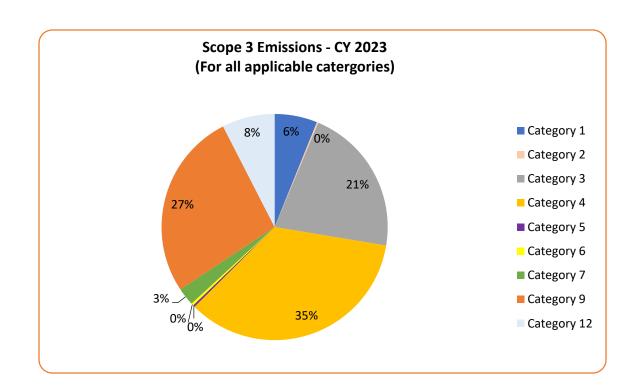


The graph presented here combines data on energy consumption and greenhouse gas (GHG) emissions from Scope 1 and Scope 2 for the years 2021, 2022, and 2023. It highlights a decreasing trend in both Scope 1 and Scope 2 emissions over these years. This reduction can be attributed to the implementation of various CO2 reduction initiatives within the production processes and operations.









The pie chart illustrates the greenhouse gas (GHG) emissions for various applicable categories in the year 2023. These categories include:

Category 1- Purchased goods and services,

Category 2- Capital Goods,

Category 3 Fuel- and Energy-Related Activities,

Category 4- Upstream Transportation and Distribution,

Category 5- Waste Generated in Operations,

Category 6- Business Travel,

Category 7- Employee Commute,

Category 9- Downstream Transportation and Distribution, and

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

Each segment of the pie chart reflects the proportion of total GHG emissions attributed by these specific categories, providing a representation of their respective impacts on the carbon footprint for the year 2023.

7. CONCLUSION

CSCI recognizes that the impacts of climate change are detrimental to the global economy and that the climate crisis requires urgent attention and concrete actions. CSCI can play a significant role in mitigating these impacts by contributing to the decarbonization of the economy.

CSCI has diligently addressed both direct and indirect emissions, encompassing all applicable categories under Scope 3. This year, CSCI also chose to have its GHG inventory assured by a third-party, ensuring accuracy and reliability in their reporting. In future, CSCI plans to revise its targets and finalize a comprehensive roadmap for further mitigating its carbon footprint. This proactive approach underscores CSCI's commitment to continuous improvement and leadership in sustainability.

Annexure I- Emission Factor References

The Reporting considers the following greenhouse gases converted to CO2 equivalents- CO2, CH4, N20

S. No.	Scope	References
1	Diesel, NG, LPG consumed in stationary Sources	2006 IPCC Guidelines for National Greenhouse Gas Inventories
2	Acetylene gas used in welding works	Use of Acetylene as an Alternative Fuel in IC Engine (Prabin K Sharma et al.)
3	Electricity Consumed	CO2 baseline database for the Indian Power Sector- Ministry of Power, CEA 2022
4	Refrigerant	GHG Protocol -AR5, DEFRA
5	Scope 3	Page. No.10 (Category wise details)

Annexure II- Emission Factor References as per GRI Reporting

Disclosure No.	Particulars	Section	Page No.
302-1	Energy Consumption within the organization	6. Green House Gas Inventory	11-13
302-3	Energy Intensity		
305-1 Direct Scope 1 GHG Emissions			
305-2 Energy Indirect Scope 2 GHG Emissions			
305-3	Other Indirect Scope 3 GHG Emissions		

Annexure III- Emission Factor References as per BRSR Reporting

Principle 6 Indicators	Particulars	Section		Page No.	
Essential-1	Total electricity consumption(D)	6.	Green Ho Gas Inventor	ouse	11-13
	Total fuel consumption (E)	Gas inventory			
	Direct Scope 1 GHG Emissions				
	Energy Intensity				
Essential -7	Total Scope 1 emissions				
	Total Scope 2 Emissions				
	Total (Scope 1 and 2) emission				
	Intensity				

Abbreviation

- BRSR : Business Responsibility and Sustainability Reporting
- CO2e : Carbon Dioxide equivalent
- ESG : Environment Social Governance
- GHG : Green House Gases
- GRI : Global Reporting Initiative
- ACL : Annealing and Coating Line
- ETP : Effluent Treatment Plant
- TPA : Tons per Annum

The present report and the related calculations have been prepared basis the data shared by the company.