Auroville Consulting

LeBracs
Rubber Linings Pvt. Ltd.

PROGRESS REPORT

FY 2021 – 2022

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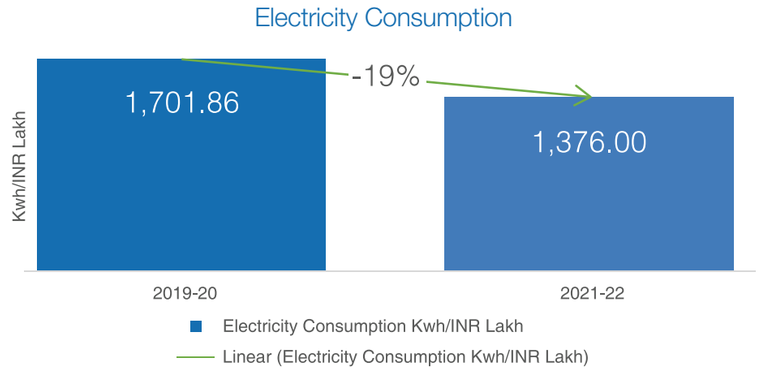
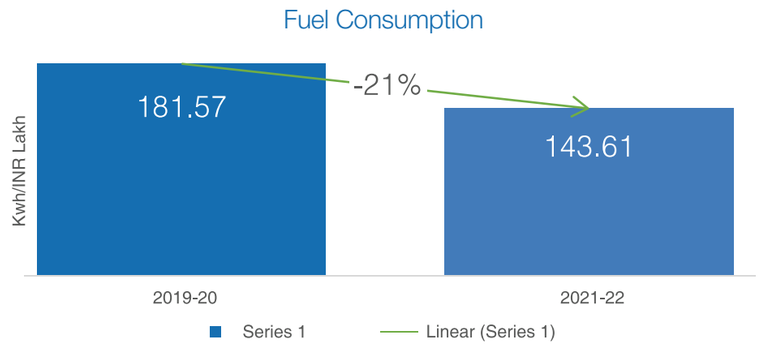
Summary

Category	Unit	2019-20	2021-22	Decrease
Fuel consumed	Litres/INR Lakh	181.57	143.61	21%
Scope 1 emissions	Kg CO2e/INR Lakh	509.73	395.52	22%
Refrigerant emissions	Kg CO2e/INR Lakh	7.65	3.33	56%
Electricity Consumption	Kwh/INR Lakh	1,701.86	1,376.00	19%
Scope 2/Electricity emissions	Kg CO2e/INR Lakh	1395.53	1173.30	16%





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Introduction

Climate change is one of the most pressing challenges faced by planet Earth today. Human activities have contributed to a global temperature rise of over 1°C from the pre-industrial era. This rise of temperature can be attributed to the presence of greenhouse gases (GHGs) in the atmosphere. The consequences can be seen in the form of extreme weather conditions, extinction of plant and animal species, rise in sea level, reduction in crop yields and scarcity of water, to name a few.

Companies across the world are increasingly aware of the global drive towards sustainable development. To ensure long-term success in a competitive business environment, companies are developing effective strategies to take early action.

LeBracs Rubber Linings Pvt. Ltd. (LeBracs) a manufacturing company in Pondicherry, decided to put together a GHG emissions progress report for the financial year 2021-22 to highlight their activities over the past few years. LeBracs, established in 1989, manufactures patented anti-corrosive and anti-abrasive rubber lining materials. The rubber linings are used in carbon steel process equipment by the chemical manufacturing, water treatment and desalination and pollution control sectors. The company supplies to engineering companies and other manufacturing companies both domestically and internationally.

Scope of work

This study is put together using the guidelines of the globally-recognised tool, the GHG Protocol: Corporate Accounting and Reporting Standard. The standard helps organisations identify, calculate and report their GHG emissions in an accurate, consistent and transparent manner.

The tool incorporates national emission factors where available or default global values to convert different organisational activities into the respective greenhouse gases emitted. The seven greenhouse gases reported under this standard include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbon (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). The combined emissions are expressed in kilograms of carbon dioxide equivalent (kg CO_2e), which compares all the greenhouses to carbon dioxide. The use of CO_2e helps simplify the accounting process and analysis as the emissions are represented by a single value.

The GHG Protocol mandates that the activities of organisations be split into three categories or scopes for a more transparent accounting structure. The activities covered under each scopes are shown below in Table 1:

Table 1: Definition of scopes for corporate accounting

Scope 1	Direct emissions	Emissions from sources owned and controlled by the company; e.g. emissions from equipment and vehicles owned by the company
Scope 2	Indirect emissions	Emissions from the generation of purchased electricity consumed at company facilities

This progress report focusses on the activities undertaken by the organisation to improve its environmental performance and showcase the impact such activities have on the overall emissions of the organisations. Since majority of the improvements have taken place in the Fuel and Energy related activities, the report has analysed only Scope 1 and Scope 2 based emissions.

Annual GHG Emissions

The sources of emissions covered under each scope are given below.

Scope 1

Emissions from machines and processes inside the operational control of the company, i.e. the factory premises in Sedarapet, Puducherry. The sources include:

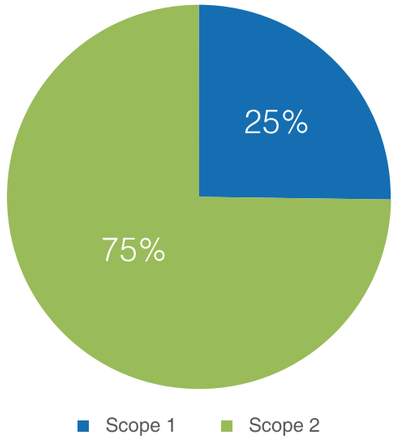
- Diesel burnt for operating of generators, compressors, cranes and company owned vehicles
- LPG for the fabrication process
- LPG for cooking in the canteen
- Refrigerant leakage from air conditioners in the form of HFCs and HCFCs

Scope 2

Grid-supplied electricity consumed by the factory or the electricity produced outside the factory premises by the state utility.

In addition to emissions generated, the report considers the CO2 sequestered by trees planted on site. No offsetting activities outside the factory have been carried out so far.

Figure 1: Emissions by scope (%)

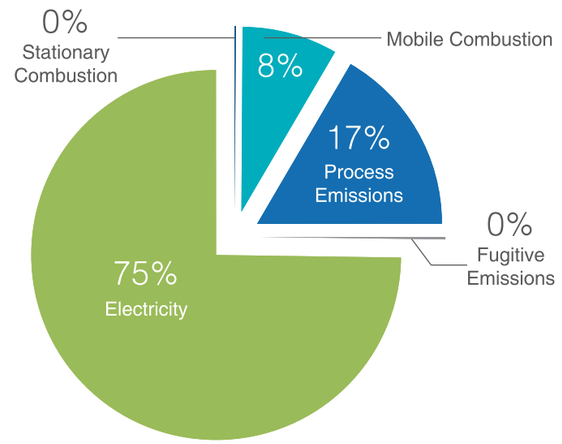


As seen in figure 1 , scope 2 emissions cover 75% (4,87,380 kg CO2e) and hence is the highest contributor and scope 1 at 25% (1,64,295 kg CO2e).

Emissions by category

The objective of analysing emissions based on category is to provide awareness on major causes of emissions, which can lead to targeted interventions. In addition, inputs on improving the quality of data and recommendations for future inventories have also been provided below.

Figure 2: Emissions by category (kg CO2e)



Fuels

The company uses fuels for manufacturing processes and in stationary and mobile equipment, all of which form part of scope 1 emissions.

The **process based emissions** include diesel, which is used for generating steam in boilers and LPG, which is used in cutting metal for production. With a total of 1,07,978 kg CO2e, process emissions contributes to 66% of total scope 1 emissions and is the highest contributing category of emissions.

Consumption of diesel in generators, cranes, process equipment and company owned cars form the sources of emissions under **mobile combustion**. With a total of 54,263 kg CO2e, mobile combustion contributes to 33% of the total scope 1 emissions and is the second highest contributor.

Figure 3: Annual emissions from fuel consumption

The diesel consumption data was collated based on purchase details through monthly bills from the local petrol station. The segregation between consumption for generators, cranes and cars was based on estimates. The data on the quantity of LPG was collected in the form of purchase records of cylinders and is found to be accurate.

Improvements taken place to reduce fuel-based emissions include:

- Maintaining machines regularly to ensure proper functioning and high fuel efficiency
- Using equipment at maximum loading capacity to improve efficiency for the fuel consumed
- Recording machine-wise fuel consumption to make sure machines are functioning properly and to improve data quality
- Maintaining equipment used for metal cutting to ensure efficiency and low consumption of LPG

Refrigerants

Fugitive emissions caused by the leakage of refrigerants from the use of air conditioners, which form part of scope 1 emissions, released 1,384 kg CO2e or 1% of the total scope 1 based emissions.

For this year's inventory, the data available was the number of air conditioners used by the company and the year of purchase. From this data, the total fugitive emissions was derived based on the average leakage and possible refrigerant type.

The following are some of the improvements undertaken to reduce fugitive emissions:

- Analysing Air conditioners based on usage patters and optimising usage of most efficient systems in longer running situations
- Upgrading all systems to use R32 refrigerant with a lower global warming potential and zero ozone depletion.

Electricity

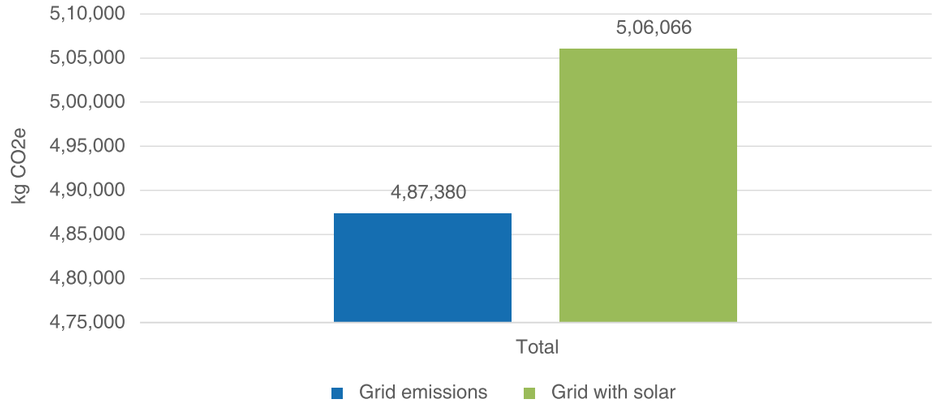
Grid-supplied electricity contributed to a total of 4,87,380 kg CO2e. The consumption data was collected through the utility bills, which is a reliable and accurate source of data.

The interventions undertaken to reduce energy demand:

- Upgrade to energy efficient pumps, motors and fabrication equipment
- Measure and monitor the consumption through energy audit to improve power supply system and maintain a consistent Power Factor above 0.99
- Replacement of all lighting, cooling and heating with latest energy efficient models

In FY 2020-21, the organization has begun transitioning to renewable sources of energy by installing a 28 KW on-site rooftop solar photovoltaic (PV) system. Through the rooftop solar system, the company avoided 7% of its total electricity emissions.

Figure 4: Potential emissions avoided through solar



Conclusion

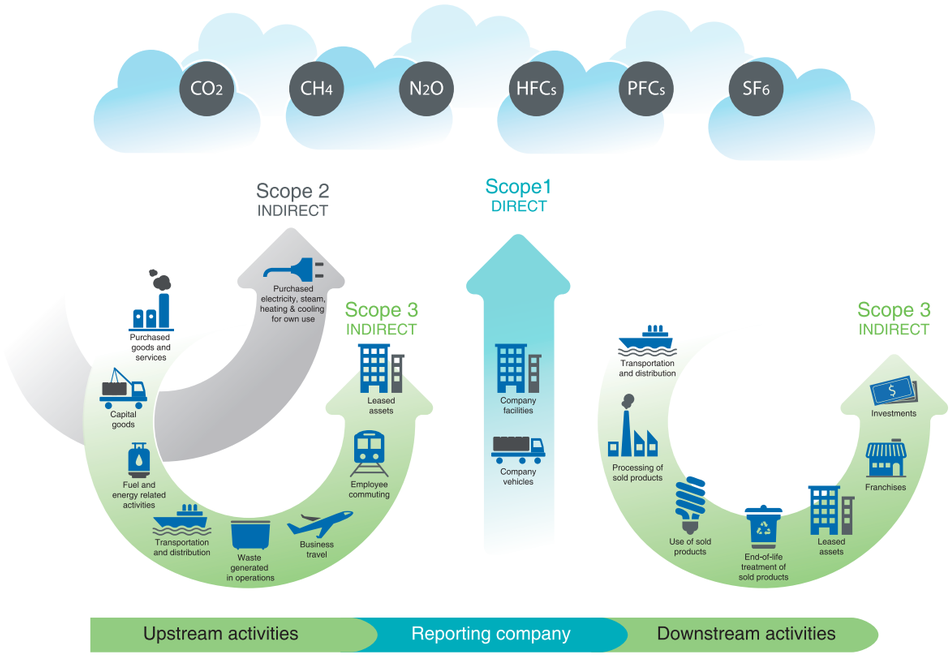
With this progress report, LeBracs has a broad overview of its GHG emissions.

The progress report builds on the emissions report published in FY 2019-20, and seeks to highlight the progress of the organization internally in working towards targeted emission reduction activities.

The category wise reduction in emissions and total consumption is a clear indication of the progress and effectiveness of the interventions and investments undertaken in the last two years. The next detailed inventory will give an indication of next steps for LeBracs Rubber.

Annexure A – Methodology

Figure 7: Overview of scopes and emissions across a value chain



For all emission sources, GHG emissions are estimated by multiplying activity data by an emission factor associated with the activity that is being measured. Activity data is a quantitative measure of an activity during a given period of time that results in GHG emissions (e.g. litres of diesel used, kilometres driven and tonnes of waste sent to landfill). An emission factor is a measure of the mass of GHG emissions relative to a unit of activity. For example, data on electricity consumed to power a factory, measured in kilowatt-hours (kWh), is multiplied by the emission factor for electricity (kgCO2/kWh) to estimate the total amount of GHG emissions
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Each GHG has different characteristics, the two most prominent ones for the purpose of measuring them are: the amount of heat it absorbs and its lifespan. This is measured by the Global Warming Potential (GWP) which describes the warming potential of one unit of a given GHG relative to carbon dioxide.

Emissions from each activity are reported in metric tonnes of GHGs emitted as well as their carbon dioxide equivalent (CO2e). CO2e is a universal unit that simplifies the accounting process by producing a single number to describe the impact of all the greenhouse gases; this is done by using the GWP of each GHG.

Annexure B – References

The sources of emission factors used to derive the Lebracs emissions inventory are listed below.

Table 2: Sources of emission factors

SL No.	Emission factory Category	Reference
1	Diesel	India GHG Program – India specific road transport emissions (2015)
2	LPG	The data taken from UK Government GHG Conversion Factors 2016 for Company Reporting.
3	Electricity	Electricity emission factor CEA report 2021

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