

# Towards a Sustainable Future: Reducing Warehouse Carbon Footprint



## WAREHOUSING

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Our world has become more aware and sensitive of the needs of the environment and the planet, as an increasing number of companies are making the move towards sustainability. Many companies are now making sure that they do not compromise the needs of the future generation while attaining their current corporate goals by adopting greener approaches for economic growth, environmental protection and social inclusion. According to a report in the MIT Sloan Management Review, 'Investing for a Sustainable Future,'[1] 90% of executives believe that a sustainability strategy is imperative for companies to stay competitive and relevant. However, only 60% of the companies surveyed actually have such a strategy in place. Another report by Statista[2] suggests that the renewable energy market is expected to be more

than INR 16 lakh crores worldwide by 2025. Many companies are therefore realising the need to adopt greener practices as they make a steady shift towards sustainability.

## What is 'carbon footprint'?

According to Britannica, carbon footprint refers to the amount of carbon dioxide (CO<sub>2</sub>) emissions related to all the activities of an individual or entity such as direct emissions from heating, transportation, manufacturing, etc. All companies, therefore, must be cognizant of their existing practices and calculate their carbon footprint to know their real impact on the environment.

Companies can calculate their warehouse carbon footprint using carbon footprint calculators. The result is calculated based on factors such as the total square footage of the warehouse, headcount and operational hours of the warehouse, etc. Additional factors such as waste generated by the warehouse, the lighting and equipment used are also taken into account. Companies must also answer questions such as the number and kind (propane or electric) of equipment used at the warehouse, number of fixtures, the kind of heating and cooling systems, etc. to get an accurate measure of their warehouse carbon footprint.

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## How do warehouses contribute to a high carbon footprint?

It is essential that companies realise the environmental damage caused by their warehouses and take adequate measures to minimise the damage. However, before adopting measures to reduce their carbon footprint and taking adequate action, they must reflect on the negative impact that warehouses pose on the environment.

### **Negative environmental impact of routine warehouse activities**

Warehouses are a major source of environmental pollution, caused by ventilation (heating and cooling) and lighting as well as mobile material handling equipment which produces considerable carbon dioxide emissions. They also consume large

amounts of energy, thereby increasing the overall carbon footprint of the company. It can be said that the bigger the warehouse, the larger is its carbon footprint. It has been found that the total carbon dioxide emissions increase by nearly 10% because of the higher electricity demand for ventilation. So, it is suggested that if goods do not require any special space conditioning, natural ventilation should be maintained for all types of logistical facilities.[3]

### **Harmful consequences of warehouse equipment**

Even though traditional warehouse equipment and machines such as diesel-powered forklifts are good for heavy lifting, they have a serious negative impact on the environment. These machines generate heavy carbon emissions. When used indoors, their exhaust may prove detrimental to the health of the employees.

Companies must realise the pivotal role of warehouses and associated practices to reduce their overall carbon footprint. To achieve this, they can adopt simple practices which will not only help them reduce their carbon footprint but also save costs.

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## **Ways to reduce warehouse carbon footprint**

A number of simple steps can be taken by most companies to minimise the negative impact of their activities on the environment:

### **Switching to greener suppliers**

The first step that companies should take is to switch to greener suppliers. The kind of raw materials chosen by the supplier ultimately impacts the material viability of the end product. Extracting and processing of raw materials can have different carbon footprints depending on factors such as the type of raw material, process involved, amount of energy produced, amount of waste generated, etc. So, if companies wish to reduce their carbon footprint, they must choose conscious, aware suppliers who support and practice green approaches.

### **Switching to greener vehicles**

Numerous warehouses still rely on fuel-powered vehicles such as forklifts. Although these vehicles are reliable and

familiar, they are neither fuel-efficient nor safe for the environment. Introducing battery-powered vehicles in the warehouse can help companies conserve energy and pave the way for self-driving vehicles. While the upfront costs of electric vehicles may be more, companies save costs in the long run as battery-powered vehicles require minimum maintenance. Distribution system is an integral part of warehousing activities and hence plays an essential role in the carbon footprint of a warehouse. Hence, companies must be mindful of switching to greener vehicles in and outside the warehouse. Varuna Group, for instance, has taken several steps to reduce its warehouse carbon footprint by reducing its dependency on electric supply. To shift the focus for greener vehicles, they also ensure fuel efficiency and comply with vehicle pollution as per OEM.

### **Switching to smart lighting**

Many warehouses still use outdated and inefficient lighting technologies such as high-pressure sodium lamps and metal halide lights. Switching to low-energy LEDs, which are fully and easily recyclable, can help companies save up to 60% of their carbon emissions in addition to saving money. Moreover, LEDs are not only up to 50 times more efficient than their counterparts, but also produce little to no heat. Motion sensors can also be used to control the lighting in the warehouse. These sensors monitor room occupancy and shut off when the warehouse is empty. Reducing carbon footprint is not just about longer-life bulbs; it can also mean consolidating the available space and reducing physical footprint. By building upwards instead of outwards, companies can reduce the amount of empty space they need to heat or cool, and keep more of their goods closer together – delivering logistical benefits as well as energy efficiency. Varuna Group implements these strategies and relies on renewable energy such as solar energy by setting up solar panels at the premise to do their bit for the environment.

## **The Way Forward**

Taking conscious efforts to reduce carbon footprint is no more a choice, but a necessity. Today's consumers have become more aware and conscious of their habits and their impact on the environment. Companies too must re-evaluate their existing practices to meet the needs and demands of their customers. There is a definite shift in focus towards coming up with more novel solutions to combat traditional problems that generate more carbon footprints. Adopting practices for improvement of carbon footprint, will support companies to cut costs, increase profits and productivity as well as satisfy all the stakeholders and preserve the environment and its resources.

### **References**

[1] MIT Sloan Management Review, 2016. Investing For a Sustainable Future. [online] Available at: [Accessed 19 October 2021].

[2] Jaganmohan, M., 2018. Projected renewable energy market size worldwide in 2017 and 2025 (in billion U.S. dollars)\*. [online] Available at: [Accessed 19 October 2021].

[3] Freis, J., Vohlidka, P. and Günthner, W., 2016. Low-Carbon Warehousing: Examining Impacts of Building and Intra-Logistics Design Options on Energy Demand and the CO2 Emissions of Logistics Centers. Sustainability, 8(5), pp.1-36.