

## **Operational and Strategic Approaches to Carbon Neutrality in an IT Engineering Office**

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### **Abstract**

The increasing urgency of climate change mitigation has compelled multinational organizations to systematically evaluate and reduce greenhouse gas (GHG) emissions across their global operations. Engineering offices, which function as critical support verticals for products and services, play significant role in achieving organizational carbon neutrality targets. This study presents comprehensive carbon-emission assessment of information technology (IT) engineering office of a multinational corporation located in Pune, India, employing approximately 2,500 personnel. Using 2023 as the baseline year, GHG emissions are quantified across Scope 1, 2 and 3 categories, encompassing fugitive emissions, purchased electricity, business travel, employee commuting, remote working, water consumption, and waste management. Based on the baseline assessment, immediate mitigation measures were implemented during 2024 and 2025, and strategic decarbonization roadmap was developed with medium-term targets for 2030 and a long-term objective of achieving complete carbon neutrality by 2050. The proposed strategy integrates operational optimization, energy efficiency improvements, renewable energy adoption, mobility management, and nature-based solutions, complemented by strategic use of carbon credits to neutralize residual emissions. The findings demonstrate that substantial emission reductions can be achieved in engineering office environments without adversely affecting operational performance and provide a replicable framework for similar facilities seeking to align with global climate commitments.

### **Keywords**

Corporate Sustainability, Carbon Neutrality, Decarbonization strategy, Carbon Credits, Net-Zero targets.