Seminar on ESG & BRSR

Sustainability through GHG Accounting: Strategies for Emission Reduction

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Case Study – 2 - Microsoft

Here's a case study summary on Microsoft's greenhouse gas (GHG) reduction strategy and performance — useful for ESG reporting, sustainability analysis, or academic/industry discussion:

Microsoft GHG Reduction Case Study

1. Background & Ambitious Climate Goal

• Carbon negative by 2030: Microsoft has committed not just to net zero, but to becoming *carbon negative* — meaning it will remove more carbon from the atmosphere than it emits across all emissions scopes (Scope 1, 2, and 3) by 2030. unfccc.int

• Historic removal goal by 2050: By 2050, Microsoft aims to *remove the cumulative emissions* it has produced since its founding in 1975. unfccc.int

This commitment goes beyond conventional corporate net-zero pledges by also targeting historical emissions.

2. Emissions Profile & Challenges

Microsoft's emissions have shown both progress and challenges:

• Scope 1 & 2 reductions: Direct (Scope 1) and electricity-related (Scope 2) emissions have declined in recent years due to renewables and energy efficiency. esgvoices.com

• Rising Scope 3 emissions: Indirect value chain emissions (Scope 3) now comprise the vast majority (>97%) of Microsoft's footprint and have *increased* substantially, driven by cloud and AI-related growth. Sustainability Magazine+1

• Data centre expansion: Rapid growth in AI infrastructure and data centres has made GHG reduction more complex, as these operations demand high energy, materials like cement, and extensive logistics support — increasing emissions rather than reducing them. Sustainability Magazine

Thus, while tackling operational emissions is underway, supply chain emissions remain the core challenge.

3. Strategy Components

a. Renewable Energy & Operational Emissions

• Microsoft has contracted tens of gigawatts (GW) of carbon-free electricity via long-term Power Purchase Agreements (PPAs) in many countries to reduce Scope 2 emissions. The Official Microsoft Blog
• Investments in energy-efficient cooling technologies (e.g., liquid cooling) also aim to cut GHG emissions from data centre operations. Source

Result: Increased renewable supply and efficiency help lower operational emissions and improve carbon intensity.

b. Carbon Removal & Market Development

Since reducing emissions alone isn't sufficient for carbon negativity, Microsoft is aggressively investing in carbon removal:

• Long-term carbon removal contracts: Between 2020 and FY24, Microsoft signed removal contracts for *millions of metric tons* of carbon dioxide removal (including nature-based and technological solutions). The Official Microsoft Blog
• Largest removal project backing: The company entered contracts for large bioenergy carbon capture and storage (BECCS) projects that aim to remove millions of tons of CO_2. Reuters
• Nature-based solutions: Extensive afforestation and reforestation agreements have been made to buy carbon credits generated from restoration projects in forests (e.g., Amazon, U.S. forests). Financial Times+1

These efforts help offset residual emissions and build high-quality carbon removal markets.

c. Supplier & Scope 3 Engagement

Recognising the importance of value chain emissions:

• Microsoft is requiring selected suppliers to transition to 100% carbon-free electricity for the goods and services they deliver. The Official Microsoft Blog
• The company is exploring sustainable fuels (aviation, marine) and greener logistics to reduce indirect emissions. The Official Microsoft Blog
• Guidance and supplier programmes are being introduced to accelerate Scope 3 decarbonisation.

Engagement across partners and suppliers is critical since most emissions arise outside direct operations.

4. Outcomes & Insights

Progress:

- Significant renewable energy procurement (multiple gigawatts). The Official Microsoft Blog
- Large volume of carbon removal contracts signed. The Official Microsoft Blog
- Operational gains in water efficiency and waste reduction accompany GHG strategies. The Official Microsoft Blog

Challenges:

- *Total GHG emissions* (especially Scope 3) have increased despite operational improvements, due largely to business growth, especially AI and cloud services. Sustainability Magazine
- Measuring and scaling high-integrity carbon removal remains complex and costly.
- Critics argue some offset strategies face scrutiny over their actual climate impact.

5. Conclusion — Lessons from Microsoft's Case Study

Microsoft's GHG reduction story highlights:

✔ *Ambitious corporate climate pledges* can galvanise action beyond traditional net-zero targets.

✔ *Blended strategies* — renewable energy, efficiency, carbon removal, supply chain engagement — are necessary to tackle all emission scopes.

✔ *Rapid business growth*, especially in tech infrastructure, can offset gains unless emissions are aggressively managed across the value chain.

This case exemplifies the complex interplay between corporate growth, technology demand, and climate responsibility, offering valuable lessons for other organisations aiming for deep decarbonisation.

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