

The logo for ALFA, featuring the word "ALFA" in a bold, white, sans-serif font. The letter "A" is stylized with a triangular cutout at the top.

# The Guide to Reducing Operational Zero Carbon in Buildings

Prepared By :

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The year "2024" is written in a large, white, sans-serif font, oriented vertically on the left side of the page. The background of the page is a black and white photograph of a city street at night, featuring several tall, modern skyscrapers with illuminated windows. The street in the foreground is blurred, suggesting motion or a long exposure.



# Breaking Down the Building Impact

The building sector stands at a critical juncture, responsible for almost 40% of annual CO<sub>2</sub> emissions (Global Alliance for Buildings and Construction 2018 Report). The building sector must act now to reduce its impact and align with global goals for reducing carbon emissions.

This guide provides a practical roadmap for organizations to transform their building operations towards zero carbon while creating lasting value for stakeholders and contributing to global sustainability goals.



# Business Case and Market Context

Regulatory measures such as the EU's Carbon Border Adjustment Mechanism (CBAM) and Corporate Sustainability Reporting Directive (CSRD) are transitioning from voluntary to mandatory compliance, requiring organizations to adopt transparent and measurable sustainability practices.

## Triple Bottom Line Benefits

1

### ENVIRONMENTAL IMPACT

- Reduced greenhouse gas emissions
- Lower resource consumption
- Enhanced biodiversity support

2

### ECONOMIC ADVANTAGES

- As much as 30% reduction in operational costs through efficiency
- Higher rental premiums and asset valuations for green buildings
- Meeting investor demands
- Enhanced employee productivity

3

### SOCIAL BENEFITS

- Improved occupant health and wellbeing
- Increased tenant satisfaction
- Transparency





# Regulatory Frameworks

## European Union

### Corporate Sustainability Reporting Directive (CSRD) and Corporate Sustainability Due Diligence Directive (CSDDD)

- Effective: CSRD in 2024 and CSDDD in 2027
- Mandatory ESG reporting
- Building performance disclosure and addressing improvements

### Energy Performance of Buildings Directive (EPBD)

- Zero-emission buildings by 2030
- Renovation requirements
- Energy performance certificates
- Financial support mechanisms

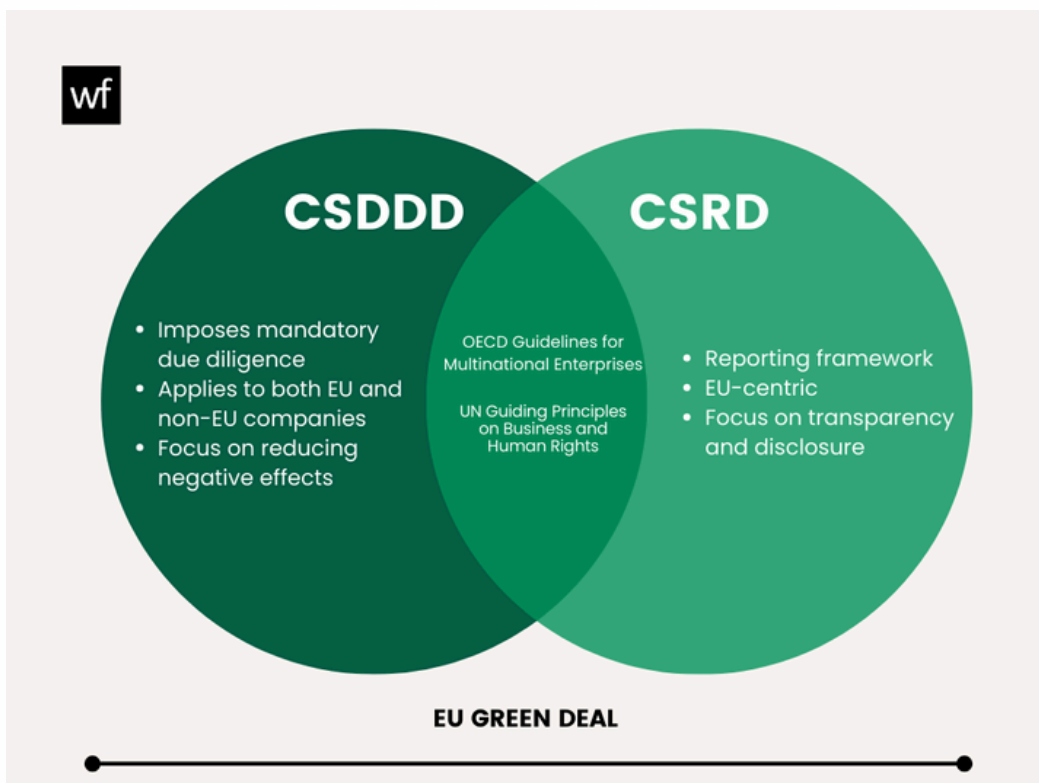
## United States

### NYC Local Law 97

- Buildings >25,000 sq ft
- Emissions caps by building type
- \$268/ton CO<sub>2</sub> penalty
- Implementation: 2024-2050

### California Title 24

- Energy efficiency standards
- Solar PV
- Regular updates
- Performance monitoring



# Implementation Roadmap

Achieving a zero-carbon footprint requires a structured approach, starting with understanding your current performance and setting a strong foundation for future reductions. This report outlines four critical stages: assessment and benchmarking to establish baselines, optimization to enhance efficiency, goal setting to define clear targets, and communication to ensure stakeholder alignment and engagement. Together, these steps provide a practical framework for transitioning to sustainable, high-performing building operations.



**Assessment &  
Benchmarking**



**Optimization**



**Goal Planning**



**Communication**





# 1 | Assessment & Benchmarking

The process should begin with establishing a clear baseline of current building performance. This includes:

- calculating carbon footprint (Scopes 1, 2, and 3)
- conducting energy audits
- evaluating current operational sequences

This data will allow for benchmarking and will guide the setting of realistic future performance targets.



## Industry Insights

### OPPORTUNITIES

- Initiating the zero-carbon process benefits stakeholders across the organization.
- Strong leadership ensures a smoother journey to zero-carbon goals.
- Early action fosters collaboration and strengthens internal partnerships.

### CHALLENGES

- Prioritizing the process remains a challenge.
- Success relies on clear focus and efficient tools for data collection.
- Striving for all perfect data can risk delaying carbon reductions in practice.



## 2 | Optimization

Optimization focuses on practical strategies to enhance building performance and cut emissions.

This step should foster collaboration across teams to identify achievable, innovative solutions to gain measurable progress toward carbon reductions.

Explore scalable improvements, such as advanced system upgrades, renewable energy integration, and smarter operational practices.



## Industry Insights

### OPPORTUNITIES

- Pilots are an excellent tool for determining feasible and effective solutions.
- Including financial incentives in optimization practices will drive increased participation.
- Early successes in optimization builds momentum for larger-scale sustainability initiatives.

### CHALLENGES

- Balancing innovation with operational feasibility, upfront costs, and scalability across portfolios.
- Aligning diverse teams to achieve practical solutions.



## 3 | Goal Planning

Establish clear, measurable targets for carbon reduction based on optimization strategies and aligned with science-based targets.

Translate strategic intent into actionable objectives by setting timelines allocating resources within the organization.

Effective planning ensures integration of reductions into long-term business operations.



## Industry Insights

### OPPORTUNITIES

- Goal-setting fosters stakeholder engagement and strengthens ESG reporting.
- KPIs ensure accountability
- Prioritizing the most impactful changes.
- The process aligns with future-readiness and risk management.

### CHALLENGES

- Stakeholder diversity.
- Balancing ambition with realistic timelines and budgets.





## 4 | Communication

Engaging upper management in clear and consistent internal communication fosters alignment across departments, ensures resources are effectively prioritized, and creates a unified effort toward achieving carbon reduction goals.

Effectively showcase efforts to investors and the public. Highlight progress through alignment to standards and certifications, which strengthens brand reputation, and builds trust.



## Industry Insights

### OPPORTUNITIES

- Diverse stakeholder perspectives are in fact an opportunity for collaboration (such as with renters).
- Strategic communication attracts investors and strengthens internal commitment.

### CHALLENGES

- Lack of education about key issues and drivers can slow progress.
- Regulations and certifications are varied and require careful consideration of which will bring the most value.

# Summary

This document outlines a roadmap for organizations aiming to reduce their buildings' carbon footprints, addressing the critical steps from assessment to implementation. It highlights the business case for action, including regulatory compliance, cost savings, and increased asset value.

Key stages include initiating the process through data collection and benchmarking, optimizing systems for efficiency, setting measurable goals aligned with science-based targets, and communicating progress effectively. Challenges and opportunities are explored at each stage, offering practical strategies for success.

By prioritizing action and strategic planning, the document aims to inspire organizations to take meaningful steps toward zero-carbon goals.

## Work with us

Alfa Sustainable Projects is a sustainable design and engineering firm pioneering high performance buildings targeting green building innovations and certifications (LEED, ILFI, WELL, NetZero etc.).

Our innovative building science practices create healthy environments that reduce carbon emissions and enhance energy efficiency.

We're dedicated to driving positive change in the built environment and building a more sustainable future for all.



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