Achieving Carbon Neutrality in Industrial Operations Training Course



23 - 27 Nov 2026

Cape town

4600 € (Per Person)

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Course Introduction / Overview:

The global imperative to address climate change has placed industrial operations at the forefront of the transition to a low-carbon economy. Achieving carbon neutrality is no longer a peripheral corporate social responsibility initiative but a core strategic necessity for resilience, regulatory compliance, and market leadership. This comprehensive training course is meticulously designed to equip professionals with the knowledge and tools to lead this transformation within their organizations. Drawing on established frameworks and forward-thinking strategies, the program provides a clear pathway from initial carbon footprint assessment to the full implementation of a net-zero strategy. As discussed by prominent thinkers like David J.C. MacKay in his seminal work "Sustainable Energy - without the hot air," the journey requires a rigorous, data-driven approach. BIG BEN Training Center has developed this course to demystify the complexities of decarbonization, focusing on practical, actionable solutions for energy efficiency, renewable energy integration, and innovative carbon reduction technologies. Participants will gain a deep understanding of greenhouse gas accounting, strategic planning, and stakeholder engagement, empowering them to drive meaningful and measurable environmental performance improvements in any industrial setting. This course is the definitive guide for turning carbon neutrality ambitions into operational reality.

Target Audience / This training course is suitable for:

- Environmental Managers and Specialists.
- Operations Directors and Plant Managers.
- Sustainability Officers and CSR Managers.
- Energy Managers and Engineers.
- Corporate Strategy and Planning Executives.
- Supply Chain and Logistics Managers.
- Health, Safety, and Environment (HSE) Professionals.
- Compliance and Regulatory Affairs Officers.
- Project Managers overseeing capital and operational projects.
- Finance and Investment professionals focused on ESG criteria.

Target Sectors and Industries:

- Heavy and Light Manufacturing.
- Oil and Gas and Petrochemicals.
- Power Generation and Utilities.
- Mining and Metals.
- Construction and Building Materials.
- Transportation and Logistics.
- Automotive and Aerospace.
- Food and Beverage Processing.
- Pharmaceuticals and Chemicals.
- Governmental bodies and regulatory agencies.

Target Organizations Departments:

- Operations and Production.
- Sustainability and Corporate Social Responsibility (CSR).
- Environmental, Health, and Safety (EHS).
- Engineering and Maintenance.
- Strategic Planning and Business Development.
- Supply Chain and Procurement.
- Research and Development (R&D).
- Finance and Asset Management.
- Facilities Management.
- Regulatory Compliance and Legal Affairs.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop a comprehensive carbon neutrality roadmap for industrial facilities.
- Calculate and manage greenhouse gas (GHG) emissions across Scopes 1, 2, and 3.
- Conduct detailed energy efficiency audits and identify key areas for improvement.
- Evaluate the feasibility of integrating renewable energy sources into operations.
- Analyze the role and effectiveness of carbon capture, utilization, and storage (CCUS) technologies.
- Design and implement effective carbon offsetting strategies with credible projects.
- Align decarbonization initiatives with broader business objectives and ESG reporting frameworks.
- Communicate sustainability performance effectively to internal and external stakeholders.
- Navigate the evolving landscape of climate-related regulations and policies.
- Lead change management processes to foster a culture of sustainability within the organization.

Course Methodology:

This training course from BIG BEN Training Center employs a dynamic and interactive learning methodology designed for maximum knowledge retention and practical application. The approach moves beyond traditional lectures to create an immersive educational experience. Sessions are built around real-world industrial case studies, allowing participants to analyze successful carbon neutrality projects and learn from the challenges faced by leading organizations. A significant portion of the training is dedicated to hands-on workshops and group exercises where participants will work collaboratively to develop mock carbon reduction plans, conduct risk assessments, and simulate stakeholder negotiations. Expert-led presentations will break down complex topics like GHG accounting and decarbonization technologies into understandable components. The methodology emphasizes peer-to-peer learning, with structured discussions and brainstorming sessions encouraging the exchange of diverse industry perspectives. Continuous feedback is provided by the instructor to guide participants in applying theoretical concepts to their specific operational contexts. This blended approach ensures that attendees leave not just with knowledge, but with the confidence and practical skills to implement effective carbon neutrality strategies immediately.

Course Agenda (Course Units):

Unit One: Foundations of Industrial Carbon Neutrality

- Introduction to climate science and its impact on industry.
- Understanding the concepts of carbon neutrality, net-zero, and climate positive.
- Global climate agreements and national regulatory frameworks.
- The business case for decarbonization: risk, opportunity, and competitive advantage.
- Identifying key stakeholders and their expectations.
- Introduction to greenhouse gas (GHG) sources in industrial operations.
- The role of corporate governance in driving climate action.

Unit Two: Carbon Footprint Measurement and Analysis

- Introduction to the GHG Protocol Corporate Standard.
- Defining operational and organizational boundaries for accounting.
- Calculating Scope 1 direct emissions from industrial processes.
- Calculating Scope 2 indirect emissions from purchased energy.
- Methodologies for assessing and calculating Scope 3 value chain emissions.
- Developing a robust GHG inventory and data management system.
- Setting science-based targets for emissions reduction.

Unit Three: Energy and Process Decarbonization Strategies

- Conducting comprehensive industrial energy efficiency audits.
- Implementing energy management systems (e.g., ISO 50001).
- Electrification of industrial heat and motive processes.
- Evaluating on-site and off-site renewable energy solutions (solar, wind, geothermal).
- The role of green hydrogen in decarbonizing hard-to-abate sectors.
- Optimizing industrial processes for lower energy and material consumption.
- Waste heat recovery and industrial symbiosis opportunities.

Unit Four: Advanced Reduction Technologies and Carbon Offsetting

- Introduction to Carbon Capture, Utilization, and Storage (CCUS).
- Evaluating the technical and economic feasibility of CCUS projects.
- Principles of the circular economy for industrial applications.
- Sustainable supply chain management and green procurement.
- Understanding the voluntary and compliance carbon markets.
- Criteria for selecting high-quality, credible carbon offset projects.
- Developing a balanced portfolio of internal reduction and external offsetting.

Unit Five: Implementation, Reporting, and Continuous Improvement

- Developing a phased carbon neutrality implementation roadmap.
- Integrating climate action into the corporate strategic plan.
- Frameworks for sustainability and ESG reporting (GRI, SASB, TCFD).
- Engaging and communicating with investors, customers, and regulators.
- Managing change and fostering a culture of sustainability.
- Monitoring, verifying, and reporting on progress towards targets.
- Future trends in industrial decarbonization and climate technology.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

Beyond compliance and cost savings, how can the pursuit of carbon neutrality become a primary driver of innovation and competitive advantage within an industrial organization?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by moving beyond theoretical discussions to provide a pragmatic and actionable framework for implementing carbon neutrality within complex industrial environments. While many programs focus solely on carbon accounting or high-level strategy, this training bridges the critical gap between planning and execution. Its core strength lies in its deep focus on operational realities, offering detailed modules on process optimization, energy efficiency audits, and the practical integration of renewable energy and advanced technologies like CCUS. The curriculum is built around a diverse portfolio of real-world industrial case studies, enabling participants to learn from the successes and failures of others rather than abstract models. Furthermore, the course places a unique emphasis on the financial and strategic integration of decarbonization, teaching participants how to build a compelling business case that aligns environmental goals with long-term profitability and market resilience. It is designed not just to inform but to empower, equipping leaders with the comprehensive skill set needed to navigate regulatory landscapes, manage stakeholder expectations, and drive a genuine cultural shift towards sustainable industrial operations.