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CERTIFIED DECARBONIZATION PROFESSIONAL - CDP OVERVIEW

ONLINE TRAINING BY KRISHNAJI PAWAR

LEED AP(BD+C),GSAS CGP,GCP,ISO 14001

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MODULE 1

Introduction and Course Outline

KRISHNAJI PAWAR - CEO & FOUNDER

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BRIEF ABOUT ME

Krishnaji PAWAR

CEO & FOUNDER

Krishnaji Pawar is founder and CEO of Beyond Smart Cities. Before being named CEO in January 2020, Krishnaji held leadership roles at Beyond Smart Cities in both Sustainability ,Energy & Environmental Consultancy.

Specialized in developing sustainable design strategies for Green Building Certification Systems (LEED, GSAS, etc.), Energy & Water Conservation, Commissioning, Environmental Impact Assessment & Environmental Management Systems.

Currently responsible for 3,787 million square feet Green Building /Energy modeling Consulting since January 2008 in UAE, India and Qatar.

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CERTIFIED DECARBONIZATION PROFESSIONAL - CDP OVERVIEW

The Certified Decarbonisation Professional Overview course covers climate change, sectoral decarbonization, built environment strategies, operational and embodied carbon in buildings, auditing certification, and exam sample questions.

Learning Objectives

- Introduction
- Climate change and sectoral decarbonization approaches
- Strategies for a decorbonization-built environment
- Building Operational and Embodied Carbon, Kyoto Protocol, and Beyond.
- Professional certification for decarbonization audits
- Carbon, GHG, and Sustainability Accounting
- Summary and Resources
- ASHRAE CDP Practice Test V.4.1: Test Your Knowledge!

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INTRODUCTION

- ASHRAE is an international membership society committed to advancing the arts and sciences of heating, ventilation, air conditioning, and refrigeration.
- The CDP certification program validates job competency in internationally recognized technical information.
- ASHRAE does not discriminate based on race, color, sex, religion, disability, or national or ethnic origin.
- The CDP certification validates the decarbonization professional's competency to assess, analyze, and develop sustainable strategies to reduce or eliminate the life-cycle carbon footprint of new and existing buildings.

ASHRAE'S CERTIFIED DECARBONIZATION PROFESSIONAL (CDP) CERTIFICATION PROGRAM

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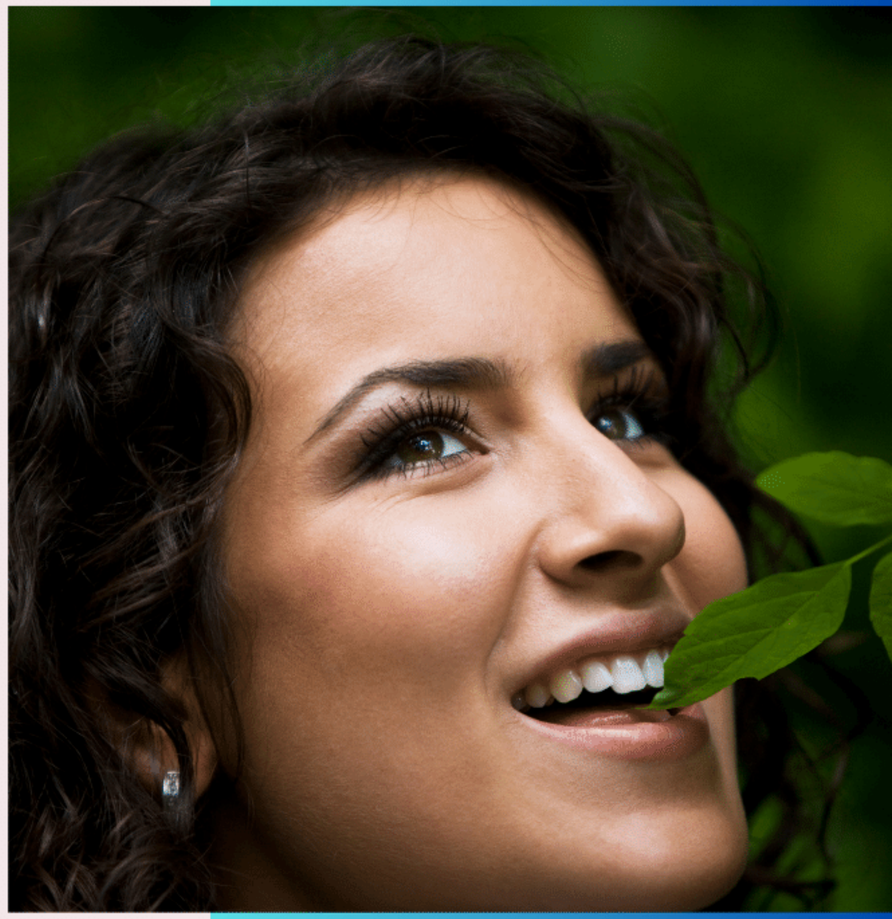
- Over 4,000 ASHRAE certifications have been earned in key built-environment fields, making them a must-have credential for professionals, employers, and building owners.
- ASHRAE-certified employees report increased recognition, credibility, improved career opportunities, and increased earning power.
- The CDP digital badge shares information about a candidate's knowledge, skills, and abilities, enhancing visibility and recognition.
- The ASHRAE CDP Exam Subcommittee developed the blueprint for the CDP certification exam after conducting an industry-wide job task analysis study.



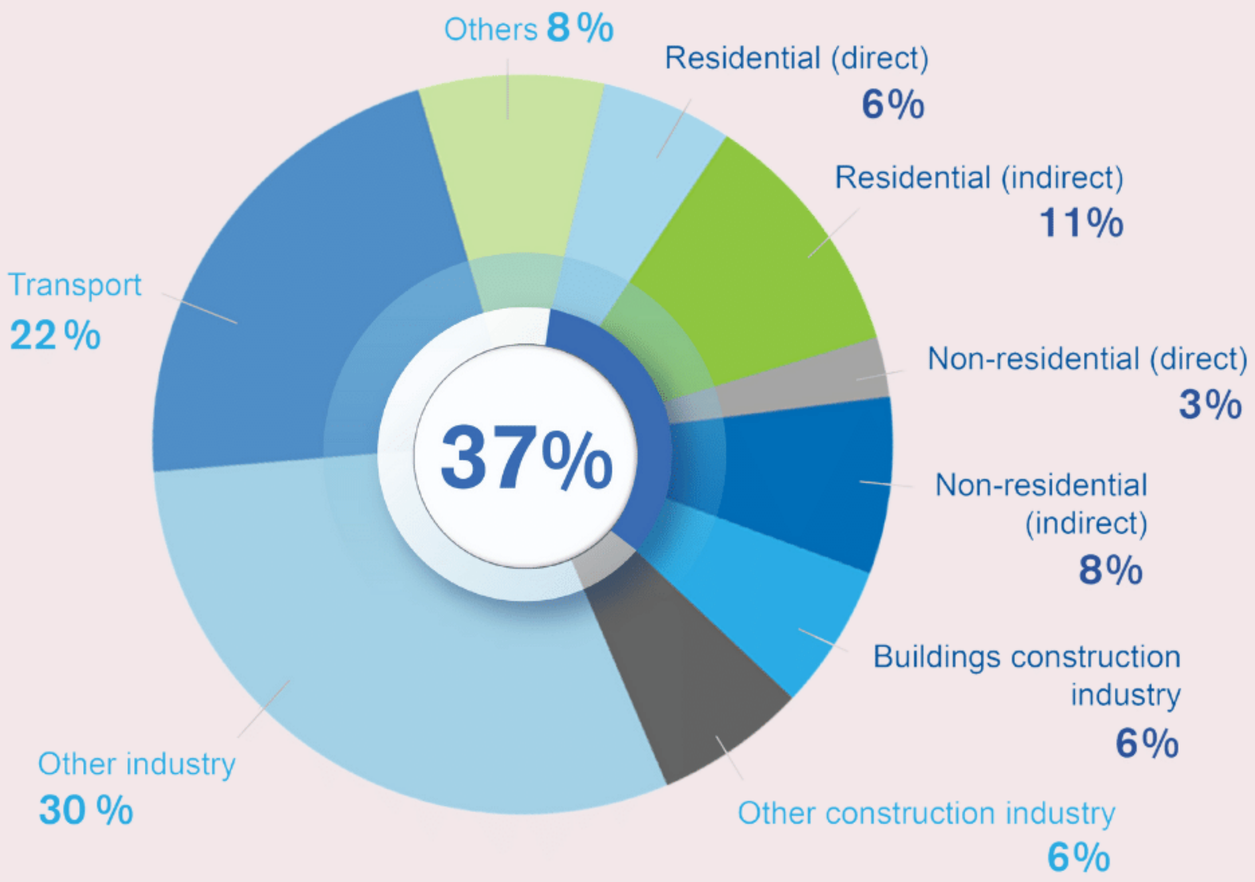
GHG EMISSIONS AND CLIMATE CHANGE

- The Certified Decarbonisation Professional Overview course covers climate change, sectoral decarbonization, built environment strategies, operational and embodied carbon in buildings, auditing certification, and exam sample questions.
- Corporates should adopt carbon-reducing measures and conduct carbon audits to identify carbon emissions sources.
- Energy professionals can benefit from this program, including cost avoidance, risk mitigation, competitiveness, productivity, shareholder value, community engagement, and branding.

WHAT DOES ASHRE DEFINE AS DECARBONIZATION?

Building decarbonization describes methods that reduce human made GHG emissions related to buildings. Building decarbonization encompasses a building's life cycle, including building design, construction, operation, occupancy, and end of life.

GLOBAL BUILDING SECTOR ENERGY- RELATED CO2 EMISSIONS 2021



- Buildings account for 40% of energy-related CO2 emissions.
- Global building stock is expected to double by 2060 due to urbanization, population growth, and economic trends.
- Building decarbonization reduces human-made GHG emissions from buildings.
- Lifecycle assessment includes design, construction, operation, occupancy, and end of life.
- Primary sources of GHG emissions include construction, energy use, methane, and refrigerants.
- Carbon dioxide equivalent (CO2e) is the standard metric for quantifying GHGs.

SCOPE 1 EMISSIONS OVERVIEW

- Direct emissions from organization-owned or controlled sources.
- Examples: manufacturing process emissions, fugitive emissions, and onsite electricity production.

SCOPE 2 EMISSIONS OVERVIEW

- Indirect emissions from electricity, steam, heating, and cooling purchases.
- 2015 GHG Protocol revision recommends location-based and market-based methodologies for Scope 2 emissions calculation.

SCOPE 3 EMISSIONS OVERVIEW

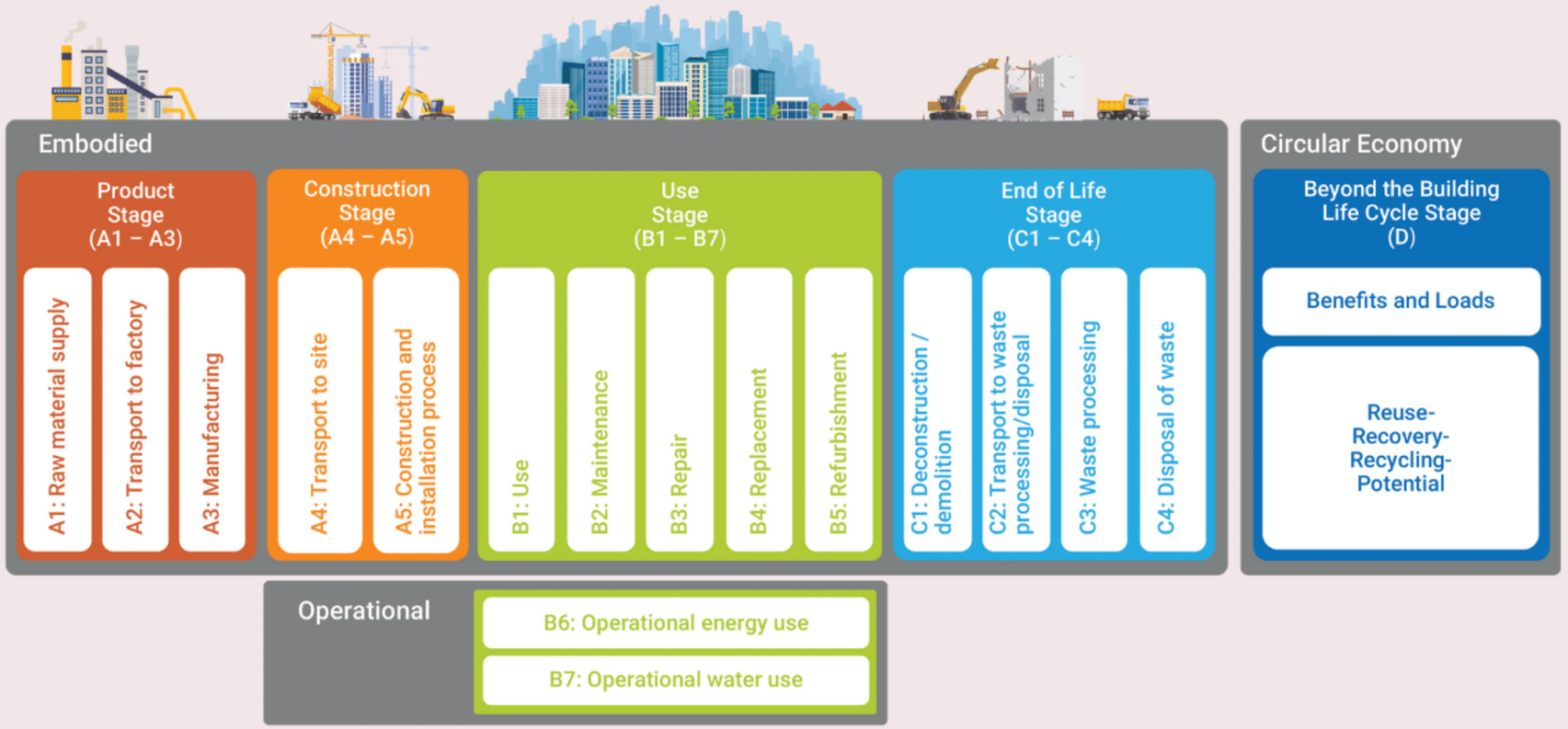
- Refers to indirect greenhouse gas emissions from non-owned or controlled sources.
- Accounts for 5.5 times more emissions than direct emissions.
- Offers opportunity for organizations to engage suppliers for global decarbonization.

REDUCING BUILDING GHG EMISSIONS

- Implementing efficiency measures and building electrification.
- Improving operations and maintenance.
- Managing low-GWP refrigerants.
- Utilizing renewable energy sources and energy storage.
- Integrating building-grid and real-time carbon signals.
- Embodied carbon and decarbonized electrical grid.

BUILDING WHOLE-LIFE CYCLE EMISSIONS

- Operational carbon: Carbon emitted during building operation, including energy and water-related emissions.
- Embodied carbon: Emitted from raw material extraction to end-of-life, including refrigerant emissions.
- Embodied carbon covers all aspects of the building's life not addressed by operational carbon.



DECARBONIZATION IMPACT ON TOMORROW'S BUILT ENVIRONMENT

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- Buildings account for 40% of carbon dioxide emissions.
- Low-carbon and net-zero policies are affecting new building design and construction.
- Decarbonization requires retrofits of existing buildings.
- Daniel Nall, a member of the Vision 2030 Built Environment team, emphasizes the need for technical proficiency in building design.
- Energy modeling and technical analysis are required for effective strategies evaluation.
- Decarbonization fits into the Vision 2030 initiative and has significant implications.

DECARBONIZATION TERMINOLOGY

Operating Carbon and Embodied Carbon

Operating Carbon:
- Direct GHG emissions from controlled or owned sources.
- Includes fugitive emissions like refrigerant leaking.

Indirect GHG Emissions:
- Emissions from purchasing electricity, steam, heat, or cooling for use in the building.

Embodied Carbon:
- Emissions from activities from assets not owned or controlled by the reporting organization.
- Includes carbon emissions outside of the physical footprint of the facility.

Embodied Carbon:
- Sum of all GHG emissions, mostly carbon dioxide, resulting from mining, harvesting, processing, manufacturing, transportation, and installation of materials incorporated in a building or long-term fabrication.

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ATMOSPHERIC GREENHOUSE GASES (GHGS) AND ZERO-CARBON BUILDINGS (ZCBS)

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- Common GHGs associated with buildings include carbon dioxide, methane, and many refrigerants.
- GHGs are measured by their global warming potential (GWP), comparing the global warming impact of a mass unit of a material to that of carbon dioxide.
- A ZCB is a highly energy-efficient building that produces or procures carbon-free renewable energy or high-quality carbon offsets to offset annual carbon emissions from building materials and operations.
- A single definition of ZCBs would enable the entire building industry to seek the same goal and compare strategies for carbon reduction.

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THANK YOU