
BEYOND
SMART CITIES
CERTIFIED RENEWABLE ENERGY SPECIALIST
CRES
wel come to
BEYOND SMART CITIES

BEYOND SMART CITIES

RENEWABLE ENERGY PROFESSIONAL

REP OVERVIEW

ONLINE TRAINING BY KRISHNAJI PAWAR

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

KNOWLEDGE IS POWER

LEARN.BEYONDSMARTCITIES.IN

BEYOND SMART CITIES

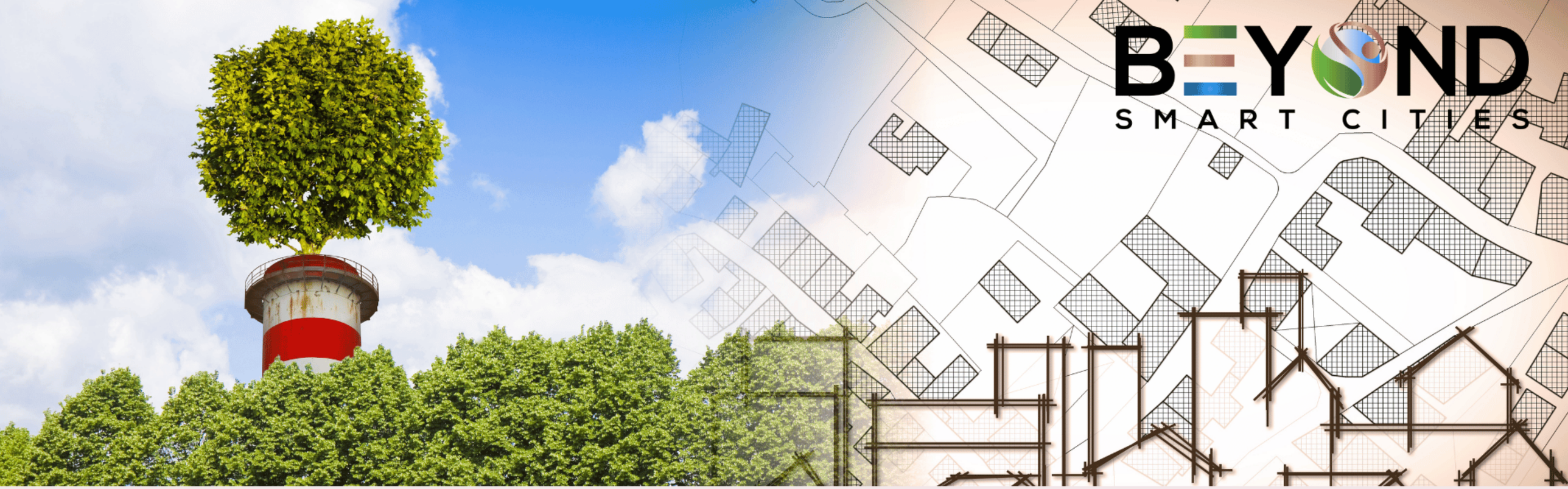
MODULE 3

Alternative Energy and Carbon Reduction

KRISHNAJI PAWAR - CEO & FOUNDER

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

WWW.BEYONDSMARTCITIES.IN



BEYOND SMART CITIES

RENEWABLE ENERGY PROFESSIONAL OVERVIEW

The global imperative to reduce carbon emissions and transition to sustainable energy systems has intensified due to the escalating impacts of climate change. As nations strive to meet international climate agreements, such as the Paris Agreement, there is a concerted push toward integrating alternative energy sources into the existing energy infrastructure

Learning Objectives

- Introduction
- Environmental Impacts
- Alternative Energy and Carbon Reduction
- The Future of Alternative Energy
- Energy Conservation and Efficiency
- Alternative Energy Strategies for Buildings
- Professional certification in Renewable Energy
- Summary and Resources
- REP Practice Test: Test Your Knowledge!

BEYOND SMART CITIES

INTRODUCTION

- The global need to reduce carbon emissions and transition to sustainable energy systems has increased due to climate change impacts.
- Countries are integrating alternative energy sources into their energy infrastructure to meet international climate agreements like the Paris Agreement.
- Alternative energy sources, including solar, wind, hydropower, geothermal, and biomass, can replace fossil fuels in electricity generation.
- Energy efficiency improvements, such as smart grid technology and carbon capture and storage (CCS) technology, facilitate the integration of alternative energy sources into the energy mix.

TRANSITION TO SUSTAINABLE ENERGY SYSTEMS AND ALTERNATIVE ENERGY

- Governments worldwide have implemented measures to promote alternative energy adoption, including subsidies, tax incentives, and renewable portfolio standards.
- Technological advancements and economies of scale have improved the economic viability of alternative energy sources.
- The shift towards alternative energy presents opportunities for job creation and economic growth.
- The integration of alternative energy will continue to advance global sustainability goals and ensure a resilient future.

INTRODUCTION TO CARBON EMISSIONS

- Carbon emissions, primarily CO2, are byproducts of fossil fuel combustion.
- Human activities have increased atmospheric CO2 concentrations by over 40% since the Industrial Revolution.
- The market for carbon emissions is evolving due to climate change awareness, regulatory pressures, and technological advancements.

Strategic Solutions to Climate Change

- Transitioning to renewable energy sources, enhancing energy efficiency, and adopting sustainable agricultural practices are strategic solutions.
- Renewable energy sources like solar, wind, hydroelectric, and geothermal energy are viable alternatives.
- Improving energy efficiency in buildings, transportation, and industrial processes can significantly reduce carbon emissions.
- Sustainable agriculture practices like agroforestry and organic farming enhance food security and contribute to carbon sequestration.

BEYOND SMART CITIES

IMPACT OF CARBON EMISSIONS ON ENERGY, ECONOMY, AND ENVIRONMENT

BEYOND SMART CITIES

- Energy sector is the largest source of global carbon emissions. Transitioning to low-carbon energy sources is essential to mitigate climate change.
- Climate change poses risks to economic stability, impacting sectors like agriculture, healthcare, and insurance.
- Carbon emissions have an environmental impact including air and water pollution, biodiversity loss, and habitat destruction.

Carbon Exchange Markets

- Carbon exchange markets, also known as carbon trading systems or cap-and-trade systems, regulate greenhouse gas emissions.
- Companies can buy and sell permits that grant them the right to emit a certain amount of carbon dioxide.

U.S. CLIMATE LEGISLATION +

- Key legislative milestones include the Clean Air Act and the Inflation Reduction Act of 2022.
- The Inflation Reduction Act of 2022 allocates substantial funding for clean energy projects, electric vehicle incentives, and carbon capture technologies.

Low-Carbon Economic Incentives

- Tax credits and subsidies for renewable energy installations, grants and loans, regulatory frameworks, and public-private partnerships are low-carbon economic incentives.

BEYOND SMART CITIES

GREEN BUILDING BENEFITS

BEYOND SMART CITIES

- Economic: 30%-50% energy and water savings, reducing carbon footprint.
- Maintenance cost reductions: Improved system integration and performance.
- Value: Increased net operating income and better public relations.
- Tax benefits: Specific green building investments offer tax benefits.
- Productivity improvements: 3%-55% productivity improvement.
- Health benefits: Reduced absenteeism.

GREEN BUILDING BENEFITS +

- Risk management: Faster lease-up and sales, lower exposure to odors.
- Marketing and public relations: Easier recruitment and retention of key employees.
- Fund-raising incentives: Funding incentives for colleges and nonprofits.
- Demonstration of commitment to sustainability and environmental stewardship.

BEYOND SMART CITIES

THE INTEGRATIVE APPROACH TO DESIGN AND CONSTRUCTION (IADC) OVERVIEW

BEYOND SMART CITIES

- IADC is a holistic methodology that emphasizes collaboration among all stakeholders in a construction project.
- It aims to optimize the performance of buildings and infrastructure by aligning the objectives and expertise of architects, engineers, contractors, clients, and users.

Core principles of the IADC include:

- Collaborative Decision-Making: Engaging all relevant stakeholders early in the design process to foster open communication and shared decision-making.
- Systems Thinking: Viewing the project as an interconnected whole rather than a series of isolated components.
- Lifecycle Considerations: Focusing on maintenance, operation, and eventual deconstruction or renovation.
- Sustainability: Encouraging the use of sustainable materials, energy-efficient systems, and designs that promote well-being and community engagement.

IMPLEMENTATION STRATEGIES FOR IADC

- Integrated Project Delivery (IPD): A contractual framework that aligns the interests of all stakeholders, promoting collaboration and shared risk/reward.
- Design Thinking: A user-centered approach to problem-solving that involves empathizing with end-users, defining problems, ideating solutions, prototyping, and testing.
- Continuous Feedback Loops: Regular check-ins and assessments allow teams to adapt quickly to changing circumstances and stakeholder needs.

Challenges and Considerations:

- Cultural Resistance: Organizations accustomed to traditional, siloed approaches may resist the collaborative ethos required for IADC.
- Complexity of Coordination: The need for continuous communication among diverse stakeholders can lead to complexity and potential conflict.
- Training and Expertise: Effective implementation of IADC requires training for all stakeholders in collaborative processes, systems thinking, and sustainable practices.

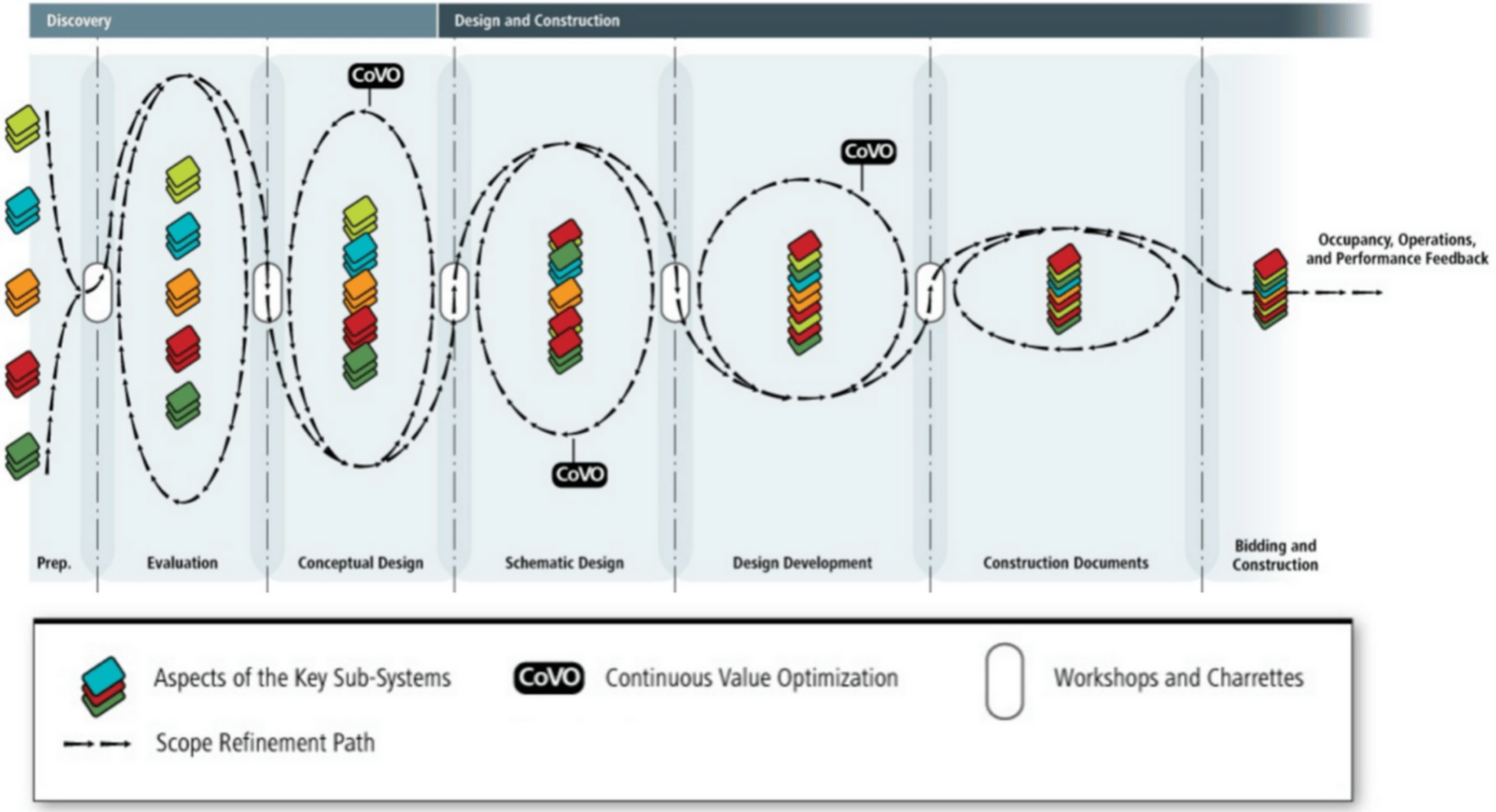
BEYOND SMART CITIES

THE INTEGRATIVE APPROACH TO DESIGN AND CONSTRUCTION

BEYOND SMART CITIES

- Provides a holistic approach to understanding a project's life cycle.
- Enables design professionals to identify synergies that unify a project.
- Requires regular workshops or charrettes, research promoting positive synergies, and continuous evaluation of designed systems.
- Considers the opinions of other stakeholders, including community members.
- Encourages community involvement in architectural review proceedings.

Integrative Process



BEYOND SMART CITIES

CONTACT US

+91 6363032722

info@beyondsmartcities.in

learn.beyondsmartcities.in

#55,HMR Layout ,Bengaluru ,India

BEYOND SMART CITIES

CERTIFIED RENEWABLE ENERGY SPECIALIST CRES

THANK YOU