Module 1

Getting Started

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e-coop

Enabling communities to respond to energy, social and environmental needs

Co-funded by the Erasmus+ Programme of the European Union

TABLE OF CONTENTS

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01

INTRODUCTION

INTRODUCTION TO ENERGY TRANSITION

- **Energy transition** refers to the global shift from fossil fuels to renewable energy sources like solar, wind, and hydroelectric power. This shift is crucial for reducing greenhouse gas emissions, combating climate change, and ensuring a sustainable energy supply.
- **Importance:** Addresses the need to reduce greenhouse gas emissions, combat climate change, and ensure sustainable energy supply.

INTRODUCTION

The objectives of this module are the following:

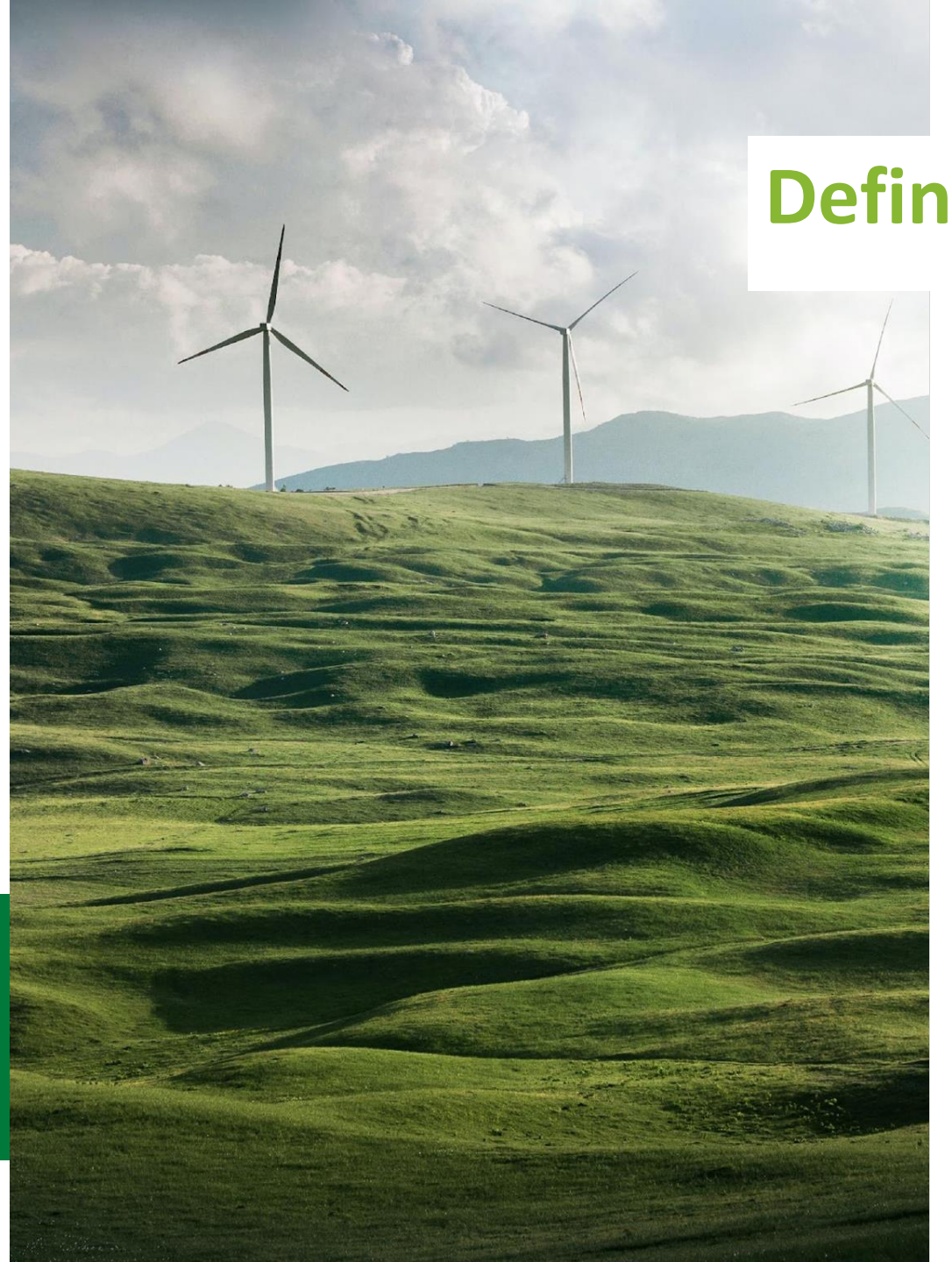
- Understanding the definition, historical context, and importance of energy transition.
- Emphasising energy efficiency's role in reducing overall energy demand.
- Learning about emerging technologies facilitating the energy transition.
- Exploring challenges and future prospects of innovation in energy technology.

02

HISTORICAL CONTEXT AND DEFINITION

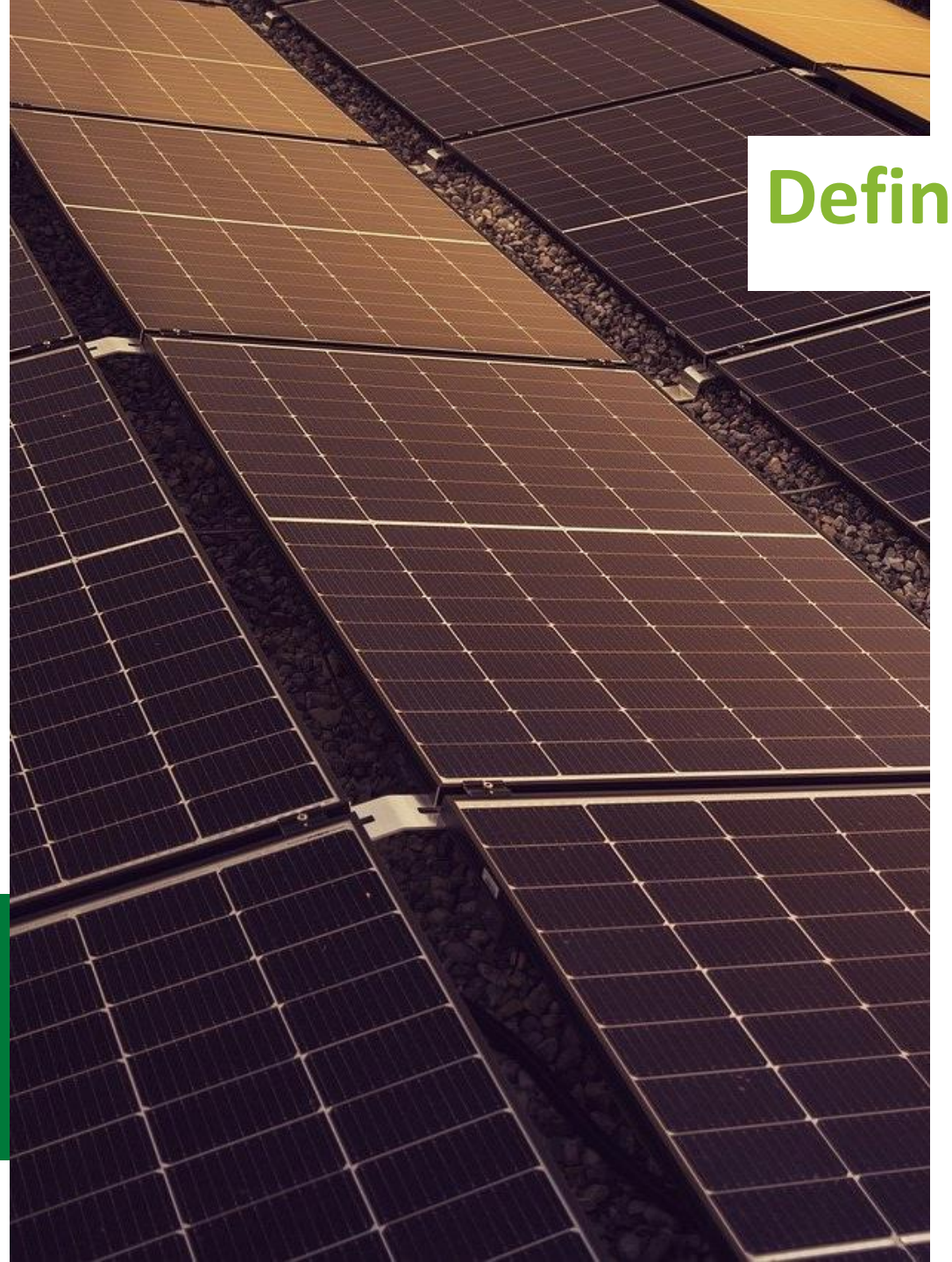
Historical Context

- Transition from wood and biomass to coal, then oil and natural gas.
- Shift towards renewable energy due to environmental and geopolitical issues.
- Advances in technology and policy support have made renewable energy more accessible and cost-effective.



Definition and Importance

- Energy transition involves shifting from fossil fuels to renewables and enhancing energy efficiency.
- Reduces greenhouse gas emissions and environmental pollution.
- Drives economic growth and job creation in new energy sectors.



Definition and Importance

- Promotes energy security and supports the United Nations Sustainable Development Goals (SDGs).
- Critical for mitigating climate change by reducing greenhouse gas emissions.
- It also minimizes environmental pollution, drives economic growth, and enhances energy security by reducing dependence on imported fuels.

Multi-Faceted Approach

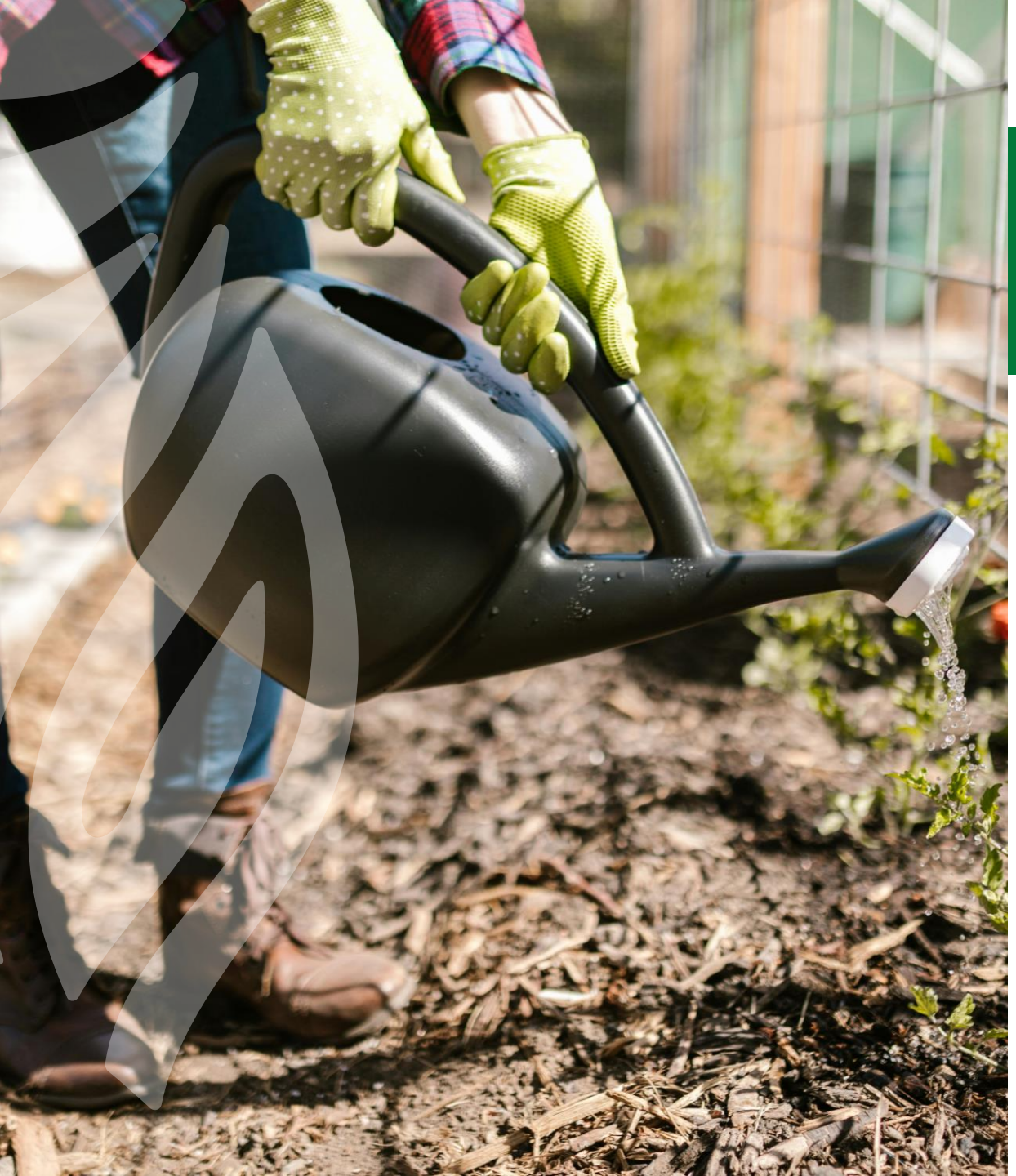
- Shifting to renewable sources (solar, wind, hydroelectric).
- Enhancing energy efficiency.
- Changing consumption patterns (electric vehicles, smart grids).
- Developing infrastructure (new grid systems, energy storage).

03

ENERGY TRANSITION

Drivers of Energy Transition

- Climate change and the need to reduce greenhouse gas emissions.
- Technological advancements making renewable energy feasible and cost-effective.
- Supportive policies like the Paris Agreement driving international efforts.



Challenges of Energy Transition

- **Innovations** like green and blue hydrogen, solar photovoltaics, and wind turbines have reduced costs and improved efficiency.
- Energy storage **solutions** and **smart** grids enhance the reliability and integration of renewable energy.

Challenges of Energy Transition

- **Infrastructure:** Need for new infrastructure to support renewable energy.
- **Economic and Financial:** High initial investments and financial mechanisms required.
- **Social and Political:** Job losses in fossil fuel industries and political resistance.

Energy Efficiency and Conservation

- Critical for reducing overall energy demand.
- Leads to cost savings and environmental sustainability.
- **Strategies:** Technological advancements, behavioral changes, policy measures, and incentives.

Role of Innovation and Technology

- **Key technologies:** Battery storage, smart grids, AI, and hydrogen technology.
- **Barriers:** High initial costs, lack of infrastructure, and regulatory challenges.
- **Future prospects:** AI for energy optimization, next-generation batteries, and carbon capture technologies.

04

MODULE ACCOUNTABILITY

Module Accountability

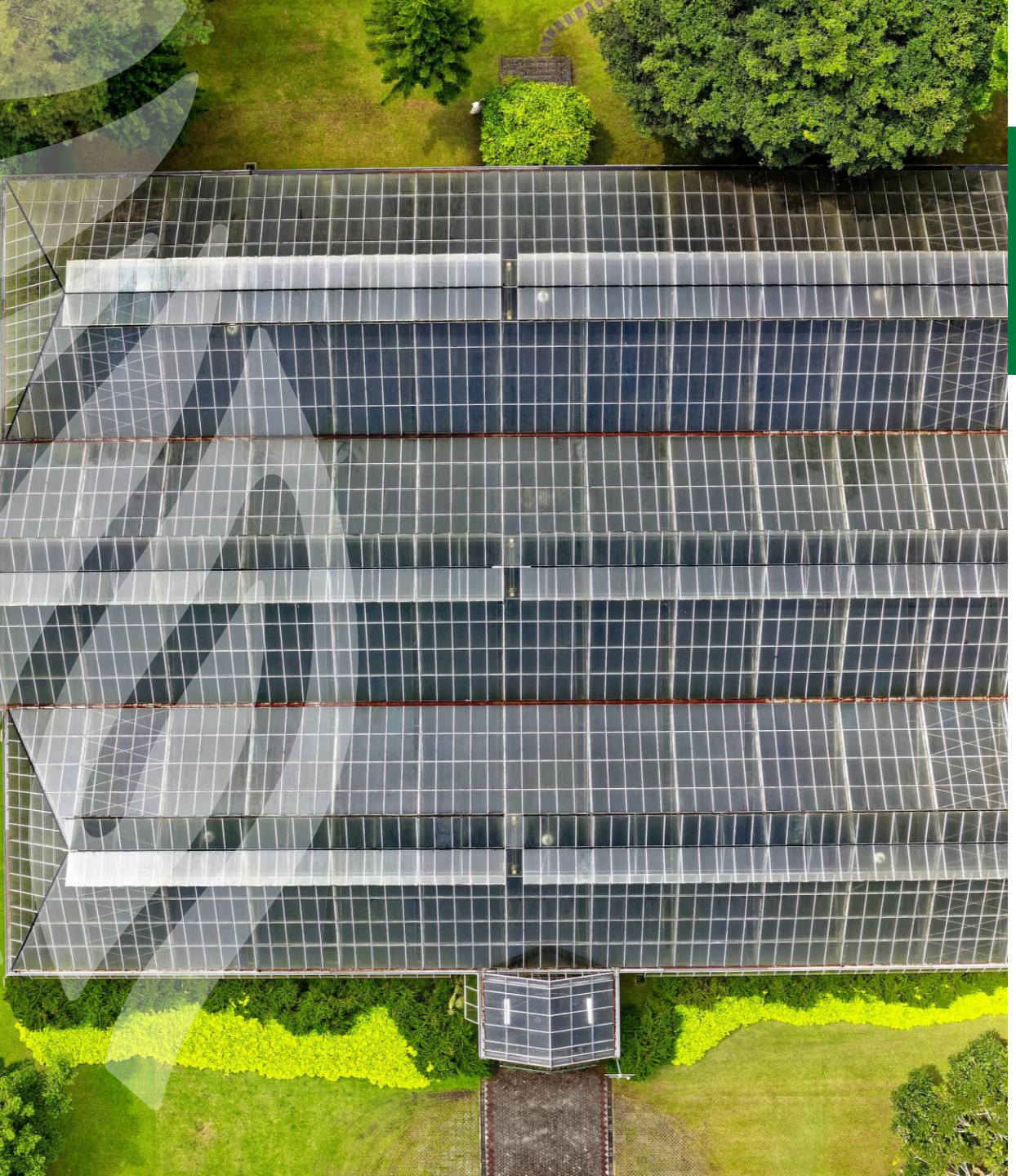
- **Introduction:** Definition and importance of accountability.
- **Theoretical Framework:** Types and mechanisms of accountability.
- **Regulatory Frameworks and Policies:** Global and national regulations, compliance, and enforcement.

Governance and Financial Accountability

- **Corporate Governance:** Importance of transparency and stakeholder engagement.
- **Funding and Investments:** Oversight of renewable energy project finances.
- **Economic Incentives:** Subsidies, tax incentives, and impact investing.

05

ENERGY JUSTICE AND EQUITY



Energy Justice and Equity

- Understanding and addressing energy justice.
- Strategies for equitable energy transition.
- Empowering vulnerable communities through case studies.

Monitoring, Reporting, and Verification

- Importance of Monitoring, Reporting and Verification (MRV) systems in energy transition.
- Examples of MRV applications.
- Challenges and solutions for effective MRV implementation.

06

BEST PRACTICE CASES

Case Studies and Practical Applications

- **European Union's Energy Efficiency Directive:** Binding measures for energy savings.
- **Japan's Top Runner Program:** Setting and updating energy efficiency standards.
- **LEED Certification in the USA:** Promoting sustainable building practices.

07

LESSON LEARNT AND CONCLUSIONS

Key learnings and conclusion

- Understanding the historical context and the critical need for this transition to address climate change and promote sustainability. It emphasizes the importance of enhancing energy efficiency and adopting emerging technologies like battery storage and smart grids.
- The module highlights the roles of various stakeholders, the economic and environmental benefits of renewable energy, and the challenges faced during the transition.
- It underscores the need for coordinated efforts, innovative solutions, and policy support to achieve a sustainable energy future.

08

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Thank you

Any Questions?

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