

Energy and Climate Change

DAY 1

Global Energy Resources, Generation, Delivery, and End-Use

Resources

Coal

Oil and gas

Nuclear

Solar

Wind

Biomass

Biofuels

Hydrogen

Generation Technologies

Combustion: Boilers, Steam Generators, Turbines, and Engines

Combined Heat & Power

Solar Photovoltaic (PV)

Concentrating Solar Power (CSP)

Wind Turbines

Geothermal

Wave, Current, And O-TEC

Fuel Cells

Electricity Transmission & Distribution Networks

Energy Access as SDG Goal

Transmission Lines

kV Range

Associated Land Requirements

Associated Thermal Energy Losses

Distribution

kV Range



Collection Rates

Regularization

End-use

Energy - Efficiency First

Electricity, Heating, Cooling, and Process Heat

Net - Zero Energy

Residential

Commercial & Institutional

Industrial

Transportation

District Energy

Off-Grid vs. On-Grid

Energy Storage and Controls Systems

DAY 2

The Trouble with Carbon

Sustainable Development Goals (SDG) Goals

Climate Change Mitigation vs. Adaptation

Extraction

Drilling

Mountaintop Removal

Carbon Content of Fossil Fuels vs. Natural Gas vs. Renewable Energy

Ozone and Greenhouse Gases

Decarbonizing Methods

Energy Efficiency

Renewable Energy

Reducing Emissions from Deforestation and Forest Degradation (REDD)

Carbon Capture and Sequestration

Cost Considerations

Price Data

Carbon Neutral Countries

United Nations Intergovernmental Panel on Climate Change (IPCC)

Interaction Among Emissions, Climate, Risks and Development Pathways: Characteristics of Mitigation Pathways

Economic and Social Costs and Benefits of Mitigation and Adaptation in the Context of Development Pathways

Adaptation and Mitigation Actions in the Context of Sustainable Development

Finance and Means of Support

DAY 3

Technical-Economic Considerations for Scaling Up Renewable Energy

Centralized vs. IPP vs. Decentralized Renewable Energy

Making Renewable Energy Projects Bankable Through Due Diligence

Pre-Feasibility Studies

Detailed Feasibility Studies

Project Preparation Facility

Technical Assessment

Available Resources

Global Atlas for Renewable Energy

Need for Local Data Acquisition

Capacity Factors

Translating CF Into Spreadsheet Analyses

Modeling

Variable Renewable Energy and Grid Stability

Economic Assessment

The Costs of Renewable Energy Systems

Power Purchase Agreements

De-Risking Instruments

Put Call Option Agreements (PCOAs)

Partial Risk Guarantees (PRGS)

Sovereign Guarantee

Financing Models Overview

Debt-Equity Ratios



Credit Enhancement

Self-Financed

Project Financing

Leasing

Renewable Energy Service Companies (RESCO)

Independent Power Producers (IPP)

PAYGO

DAY 4

Creating an Enabling Environment Conducive to Scaling Up Renewable Energy

Integrated Resource & Resilience Planning

National Long-Term Energy Planning

Project Preparation Facility

Net Metering

Community Energy

Renewable Portfolio Standards

Feed-In Tariffs

Single-Buyer Paradigm

Competitive Procurement

Public-Private Partnerships

Private Sector Assets and Motivations

Public Sector Assets and Motivations

Capacitating the Public Sector

DAY 5

Sources of Data for Informed Decision Making

International Energy Agency (IEA)

Fuels and Technologies

Analysis

Data

Analysis

World Energy Outlook



International Renewable Energy Agency (IRENA)

Country Profiles

Clean Energy Corridors

Global Geothermal Alliance

Parliamentary Network

Renewable Energy Roadmap (Remap)

Renewables Readiness Assessments

Small Island Developing States (SIDS) Lighthouses

Global Atlas for Renewable Energy

Sustainable Energy Marketplace

International Development Partners Promoting Climate Change Mitigation with Renewable Energy

International Foundations Promoting Climate Change Mitigation with Renewable Energy

Relevant Associations

C40

Compact of Mayors

Global Covenant of Mayors for Climate and Energy

Global Climate Change Alliance

International Renewable Energy Alliance

International Solar Alliance