



Social Learning Through Low Carbon and Green Economy Opportunities in Climate Action (SLATE)

ONLINE WORKSHOP

Topics

- Environment and Climate Change
- Circular Business Model
- Energy Transition
- Low Carbon Strategy
- Green Economy
- Green Skills

Date
9 Dec 2022 to 16 Dec 22

Time
16:30 - 19:30 CET



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Partners



Energy Transition & Low Carbon Strategy

Dr.-Ing. Ibrahim K. Muritala
Project Coordinator
Life Learning Development e.V. (LLD), Duisburg.

What will you learn in this lecture?

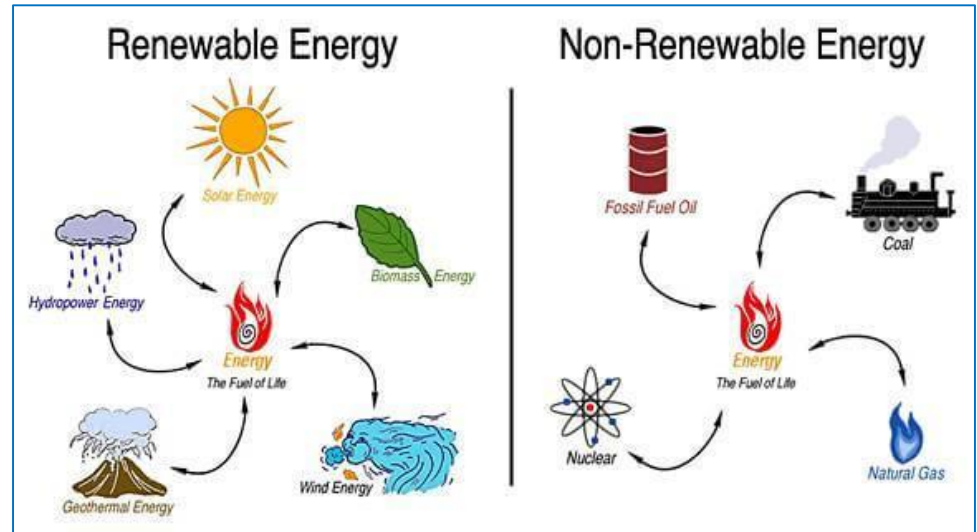
- **Energy mix**
- **Issues about Energy Transition**
- **Why we need to focus on Low Carbon Strategy.**

Lecture outline

- **Energy mix and energy transition.**
- **Low carbon strategy.**
- **Closing remarks & open discussion.**

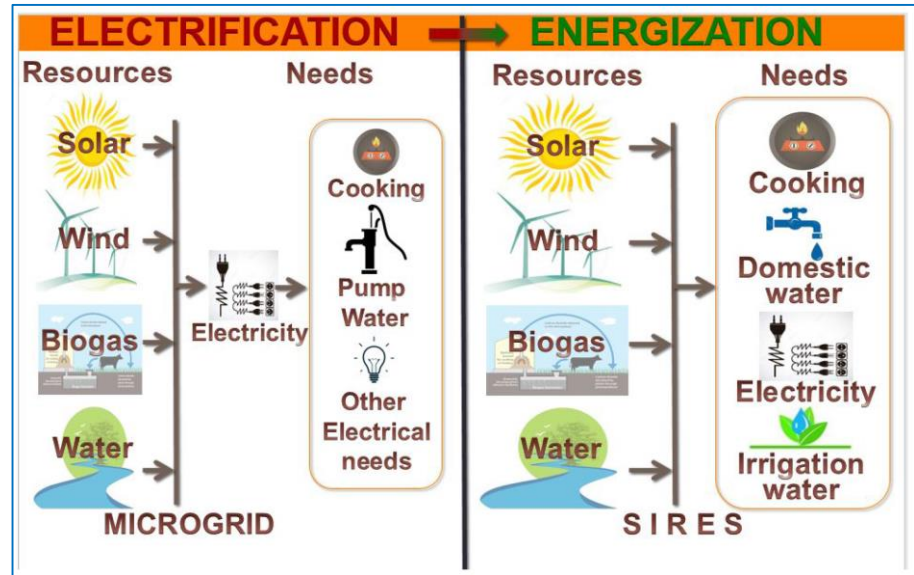
Energy mix

- Fossil fuels: crude oil, and natural gas & coals have been beneficial for the growth of the modern world.



Energy mix

- “Energization” Vs “Electrification”
- What does our energy mix look like today?
- Which region in Nigeria has the ‘cleanest’ energy mix?
- And are we making progress in shifting towards a low-carbon energy system?



SIRES (Smart Integrated Renewable Energy Systems) *Energies* **2017**, 10(8), 1145;
<https://doi.org/10.3390/en10081145>

Energy mix

- **The World's Projected Energy Mix, from 2018-2040**

The Policy Scenarios

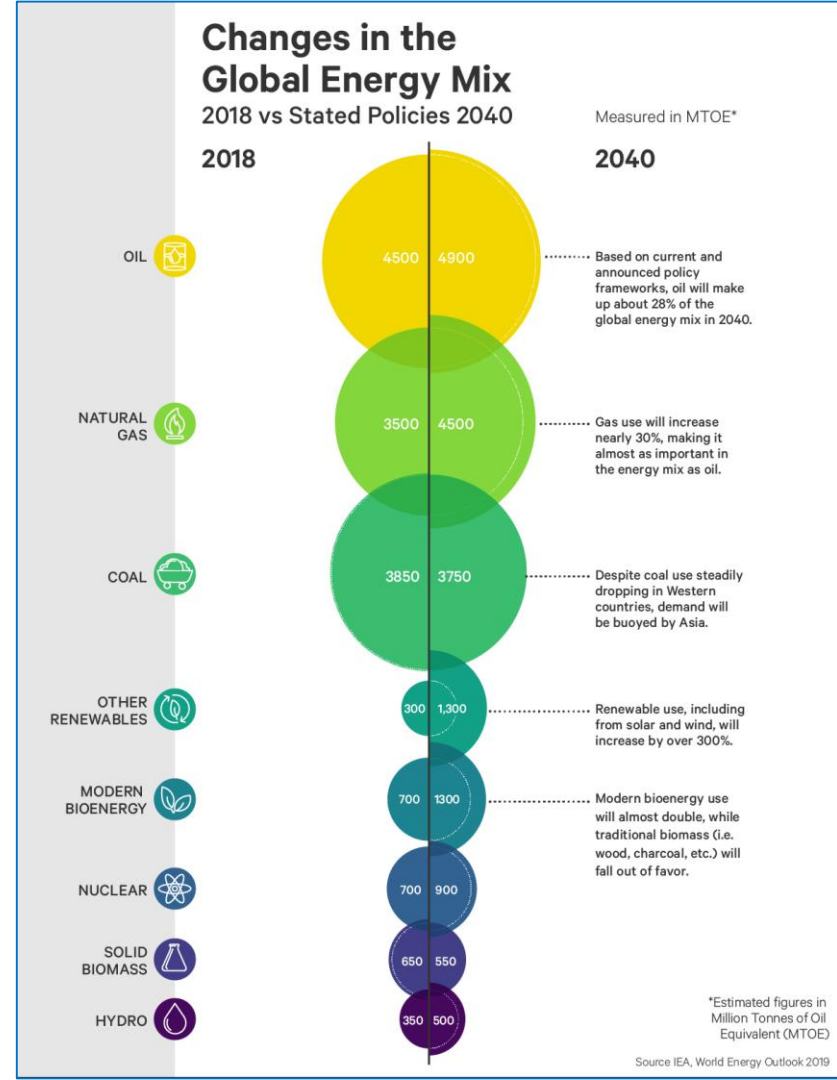
The IEA bases its projections based on two policy scenarios:

- **The Stated Policies Scenario**

This scenario is intended to reflect the impact of existing public policy frameworks, including announced policy intentions.

- **The Sustainable Development Scenario**

This scenario outlines a major transformation of the global energy system, aligned with achieving the energy-related components of the United Nations' Sustainable Development Goals (SDGs), such as reducing carbon emissions.



Energy transition



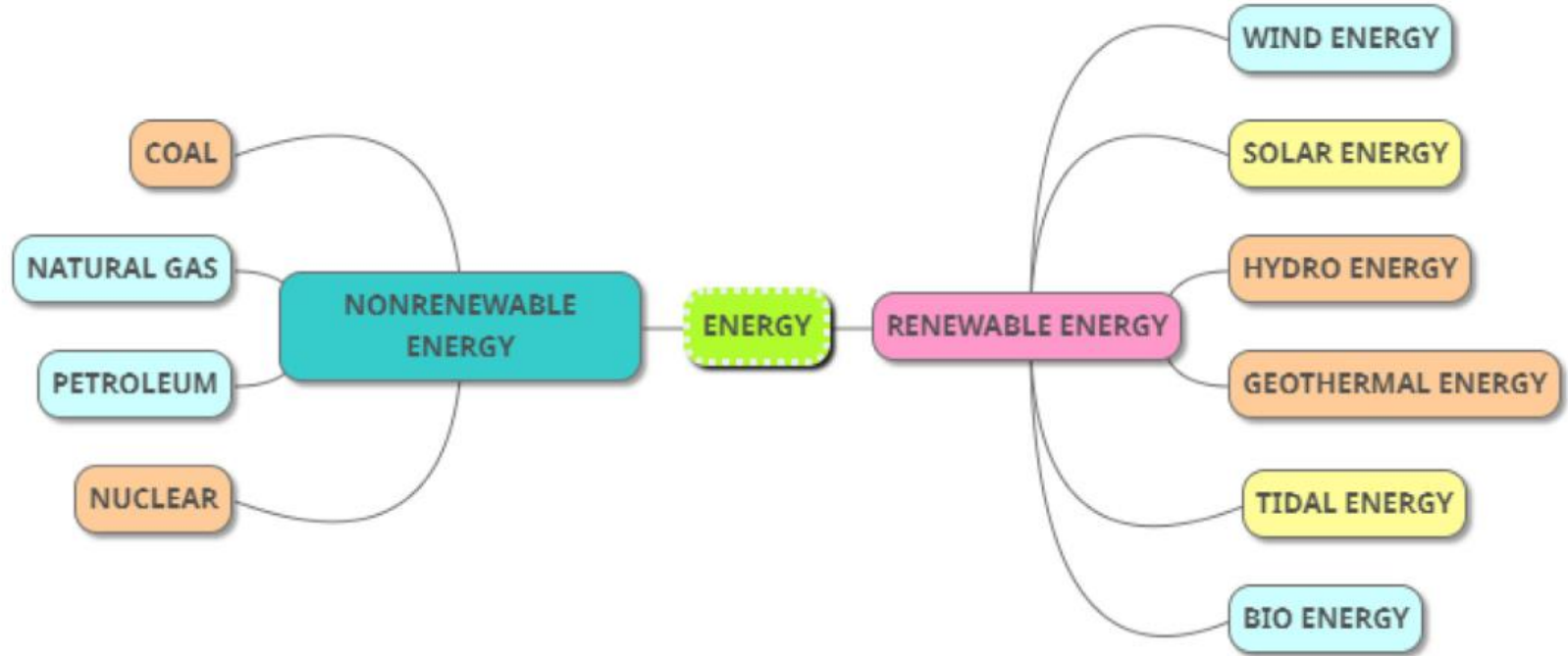
Energy transition

- IRENE (Industrial Renewable Energy Agency) defined **Energy transition** as the pathway toward the transformation of the global energy sector ranging from coal, oil, and fossil-based to renewable energy(zero carbon).
- It is a structural change in the energy system from transforming fuel-based energy to eco-friendly energy.

Why do we need energy transition?

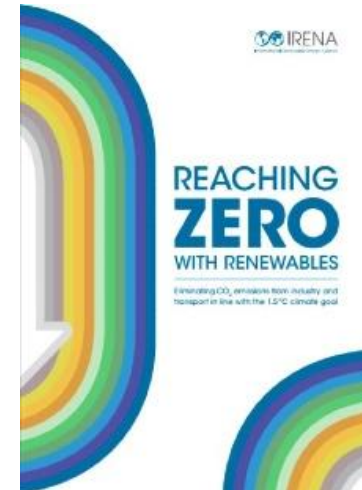
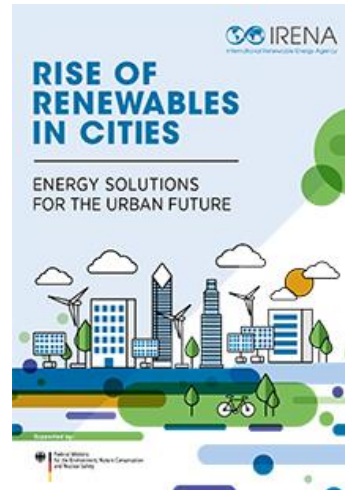
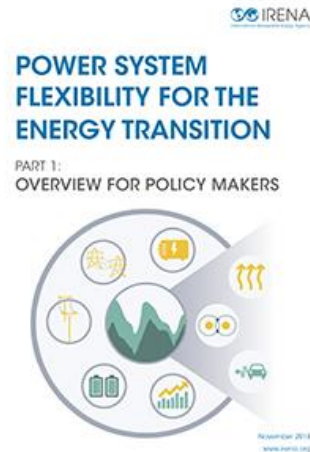
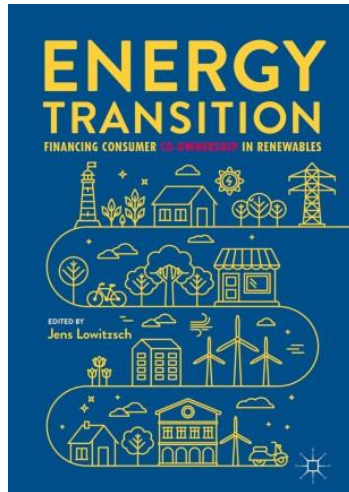
- **Traditional energy methods are harmful to human health as well as the environment.**
- **Burning fuel, coal, fuel, and fossil produce tons of carbon emissions worldwide and cause climate change.**
- **Depending on traditional energy sources is not a sustainable solution for the future world.**
- **As the climate is changing faster than before, to protect our planet and natural environment, it is essential to introduce Green renewable energy.**
- **The term "energy transition" refers to the change in the global energy industry away from fossil-based energy production and consumption systems, such as oil, natural gas, and coal, and towards renewable energy sources, such as biomass, wind, solar, and lithium-ion batteries.**

Renewable and non renewable energy sources

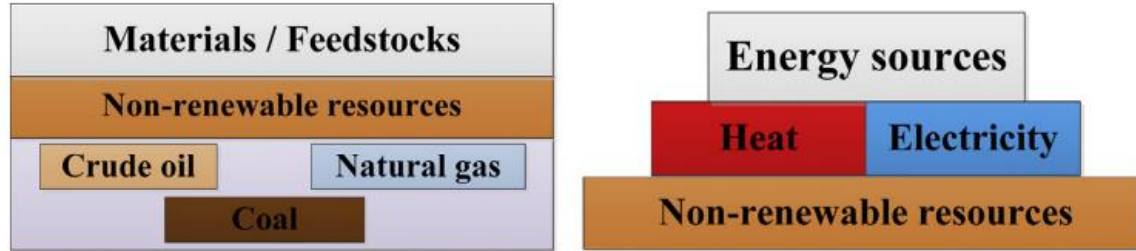


Energy transition

- The energy transition is a pathway toward transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century.
- At its heart is the need to reduce energy-related CO₂ emissions to limit climate change.

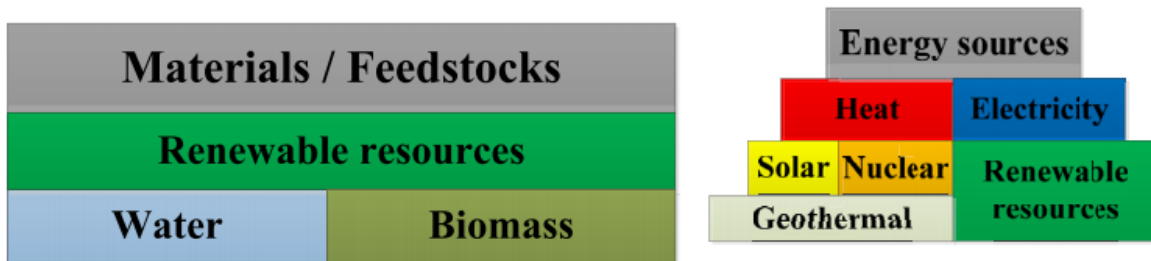


Energy transition



Some fossil based feedstocks and energy sources from non-renewable resources

Source: International Journal of Hydrogen Energy Volume 45, Issue 49, 2 October 2020, Pages 26156-26165
<https://doi.org/10.1016/j.ijhydene.2019.08.154>



Some non-fossil based feedstocks and energy sources from renewable resources.

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Low Carbon Strategy



Renewable energy sources



Biomass energy



Hydro energy



Wind energy



Wide observation
of the Nature



Geothermal energy



Solar energy



Tidal energy

Low Carbon Strategy

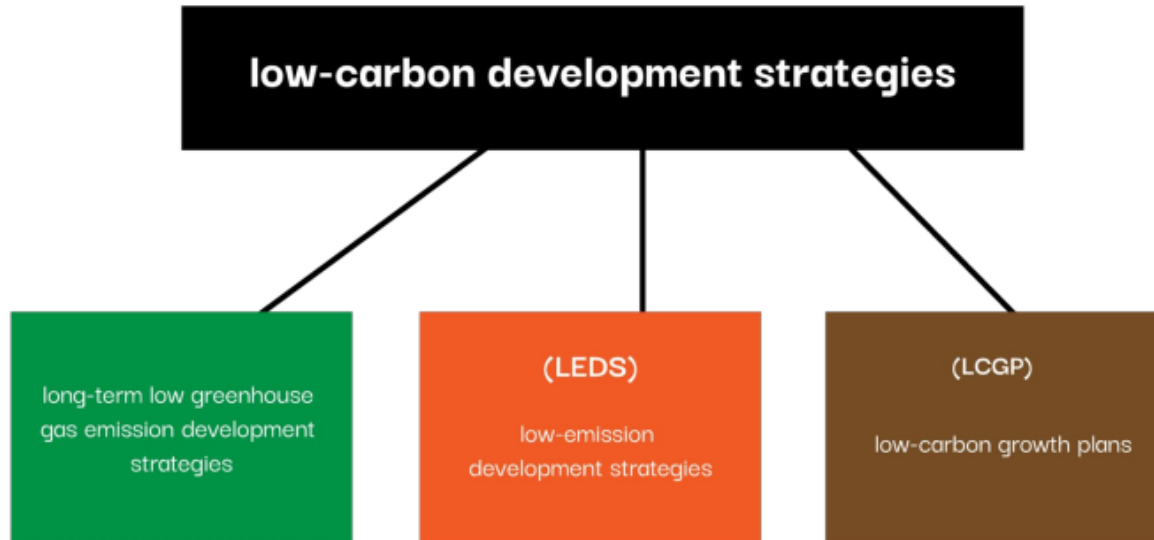
- Low carbon simply means less carbon dioxide (CO₂). Carbon dioxide is a key greenhouse gas that drives global climate change.

Low Carbon Strategy

- It is released through lots of different types of activities, such as deforestation, burning fossil fuels and production.
- Therefore, by lowering the amount of CO₂ we produce, we are being kind to our planet. To date, no definition of low-carbon strategy has been established and formally agreed.

Low Carbon Strategies

- In the context of the UNFCCC process, low-carbon development strategies are also referred to:



Low Carbon Strategies

- Transportation
- Advanced and Hybrids: Diesel and hybrids engines
- Fuel Blending: Blending biofuels with gasoline reduces emissions
- Hydrogen Fuel Cells
- Industrial Processes
- Carbon Capture and Storage (CCS)
- And others...



Thank you for your attention.



Ibrahim K. Muritala

Open discussion