

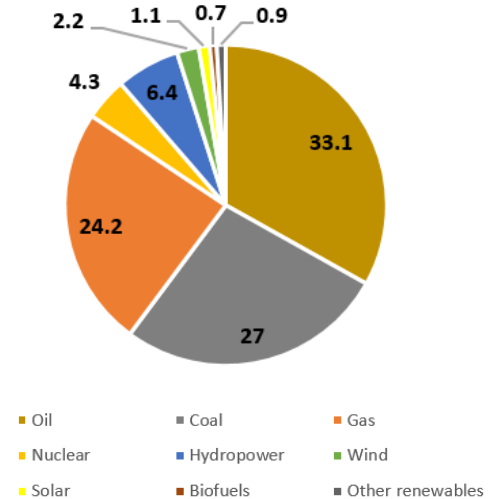
THE TRANSITION TO SUSTAINABLE ENERGY IN POST-COVID-19 ECONOMIC RECOVERY

Dr. ROMANAS SAVICKAS

CURRENT STATUS OF TRANSITION

- **Global energy mix** for electricity, heating and transport
- Fossil **fuels still dominate** and contribute to approximately **84%** of the generation mix
- **Three-quarters** of global greenhouse gas **emissions** come from the burning of **fossil fuels for energy**

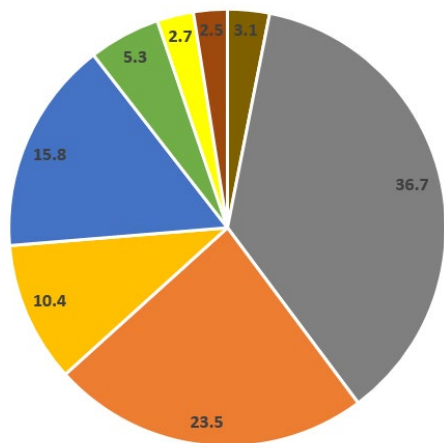
Global energy mix, 2019



Source: Our world in data

CURRENT STATUS OF TRANSITION: ENERGY SUPPLY

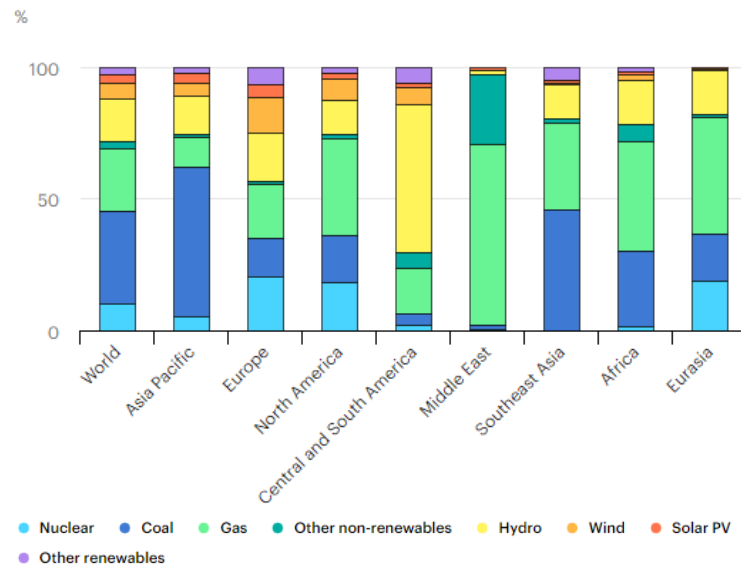
Global electricity supply mix



■ Oil ■ Coal ■ Gas
■ Nuclear ■ Hydropower ■ Wind
■ Solar ■ Other renewables

Source: Our world in data, 2019

Electricity supply mix by region

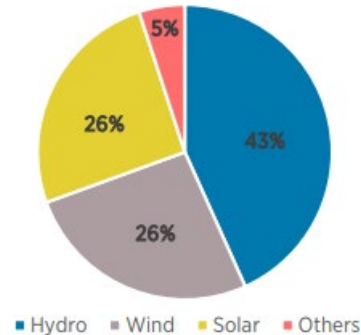


Source: IEA, 2020

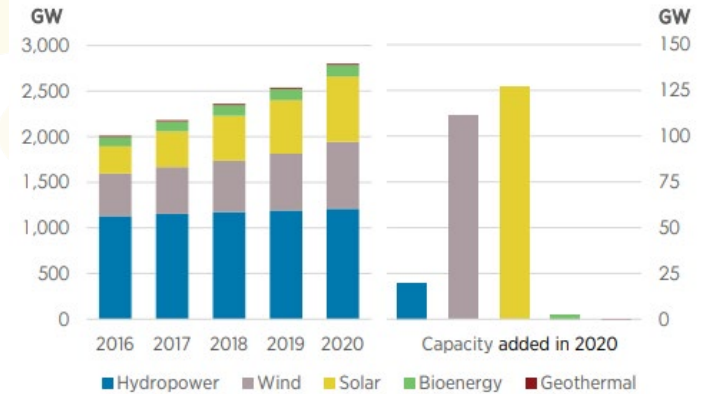
CURRENT STATUS OF TRANSITION: RENEWABLES

- Global **renewable generation capacity** at end of 2020: 2799 GW
- 10.3% (261 GW net increase) **growth** in renewable capacity during 2020
- **Wind** and **solar** share of new capacity in 2020 91%

Renewable generation capacity by energy source 2020



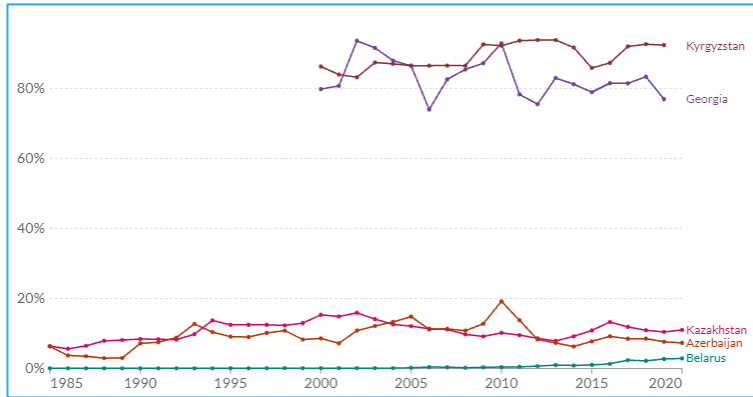
Renewable power capacity growth 2020



Source: IRENA

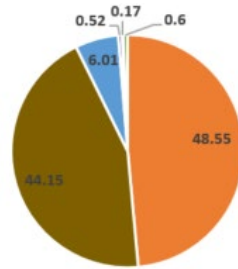
CURRENT STATUS OF TRANSITION: EASTERN EUROPE, CENTRAL ASIA, CAUCASUS, etc.

Share of electricity production from renewables in the Caucasus region

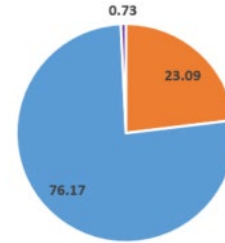


Source: Our world in data

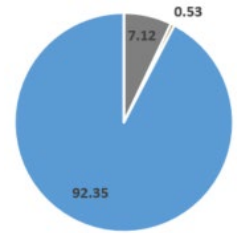
Azerbaijan



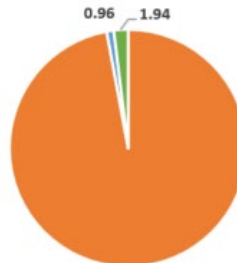
Georgia



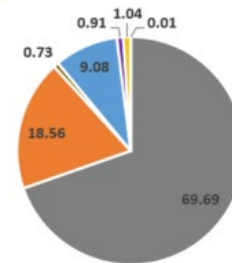
Kyrgyzstan



Belarus



Kazakhstan

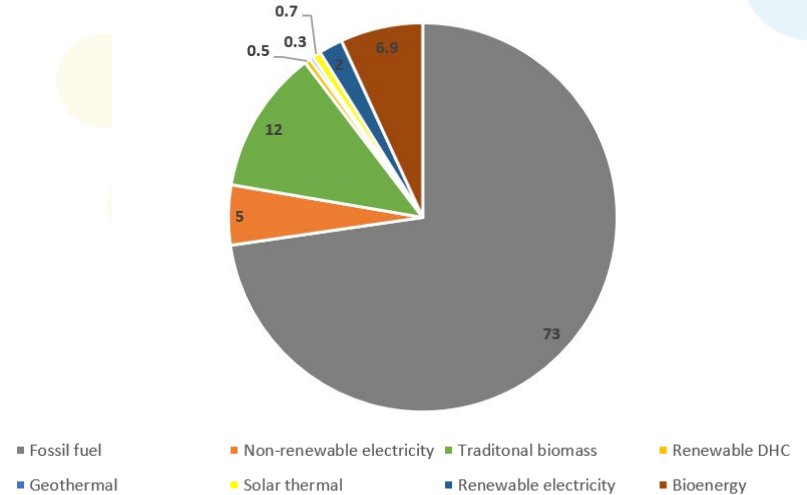


- Gas
- Oil
- Hydro
- Wind
- Solar
- Other renewables
- Coal

CURRENT STATUS OF TRANSITION: HEATING

- Fossil fuel largely **dominates** heating sector
- Easier to decarbonize electricity sector compared to heating and transport
- **Higher share of renewables** coupled with electrification of heating sector (e.g. heat pumps) and long term storage necessary **to decarbonize heating**

Global heat consumption by source



Source: IEA, 2019

CHALLENGES OF THE TRANSITION

Political and institutional challenges

- Lack of **political** commitment
- Weak **institutional structures**
- **Lack of awareness** among decision makers
- **Policy frameworks** built around fossil fuel-based energy systems



CHALLENGES OF THE TRANSITION

Financial and technical challenges

- **High upfront costs**, including investment and cost of capital
- Persistence of **fossil fuel subsidies** coupled with **low oil prices**
- Aging and **inefficient electricity infrastructure**
- **Lack of capacity**



OPPORTUNITIES OF THE TRANSITION

Economic opportunities

- Rapid **decline of renewable energy costs**
- **Cost** of **wind** and **solar** continue to **fall**
- Electrification opens up prospect of **decarbonised heating** and road transport
- Increasing **support** and assistance **from international agencies**



IMPACT OF COVID-19 ON ENERGY INDUSTRY

- Extreme oil price volatility due to **low demand** during the pandemic
- **Reduced energy consumption** has constrained outputs of fossil fuel generators and resulted in **low revenues**
- Oilfield services sector **lost 91,680 jobs** due to pandemic related demand decrease

Crude oil prices per barrel

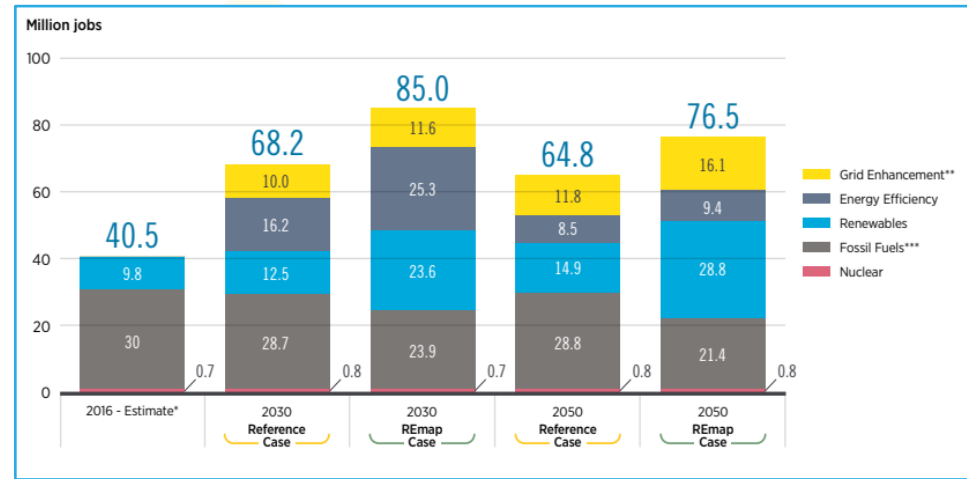


Source: Macrotrends

ROLE OF RE IN POST COVID ECONOMIC RECOVERY

- Pandemic **affected health, economy and energy systems**: best way to recover is **harnessing renewable energy**
- **Renewable energy** can revitalize the economy by creating **“green” jobs**, ensuring **energy security** and strengthening resilience

Employment in the overall energy sector



Source: IRENA

ROLE OF RE IN POST COVID ECONOMIC RECOVERY

SAVINGS ON IMPORT OF FOSSIL FUELS

Reduces dependency on fossil fuels and results in significant savings from transitioning to renewable power.
Increases energy security.

SAVINGS IN HEALTH SECTOR SPENDING

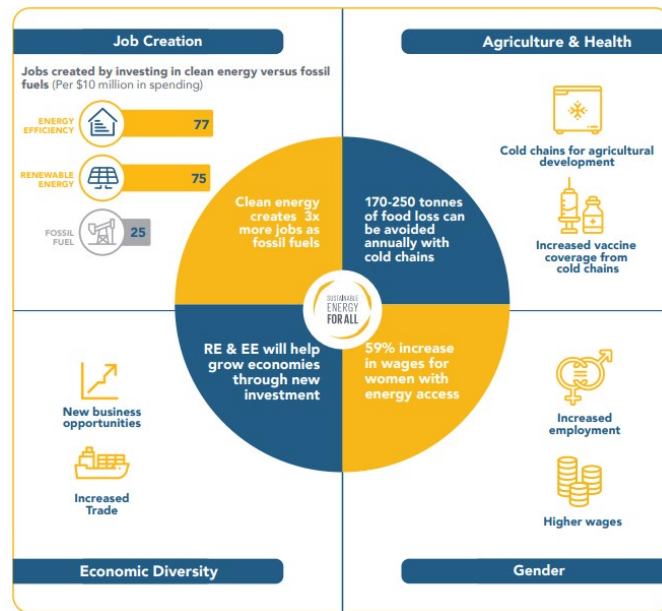
Globally 4 million premature deaths are linked to air pollution from energy sector.
Transition can help reduce pollution and control spending from health sector

INCREASE IN ENERGY ACCESS

Increase in access to cleaner energy improves living standards in disadvantaged communities by boosting economic growth.
This is linked to reliable supply of power.

ROLE OF RE IN POST COVID ECONOMIC RECOVERY

- Increasingly, **electricity generated from renewable technologies costs the same** or less than fossil fuel alternatives.
- It is estimated that for **every US dollar invested in the transition towards renewable energy**, an **additional USD 0.93 of GDP growth above business** as usual is expected to occur.
- Women represent about 32% of the renewable energy workforce versus just 22% for the oil and gas industry. **Wages for women with access to energy are 59% higher** than those without.

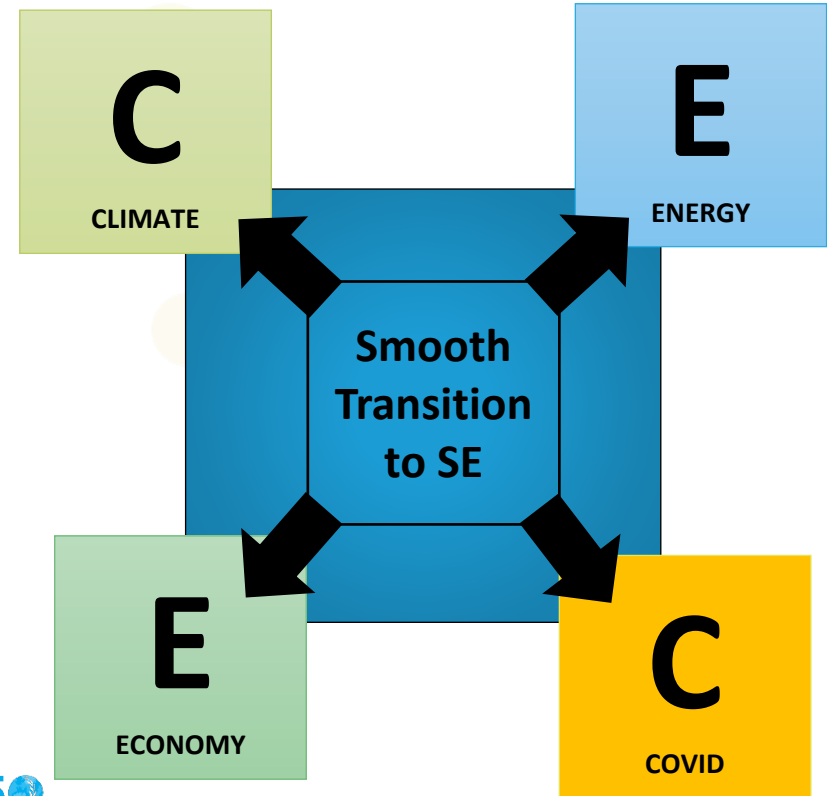


Source: SE for All

ROLE OF POST COVID-19 ON TRANSITION TO SUSTAINABLE ENERGY

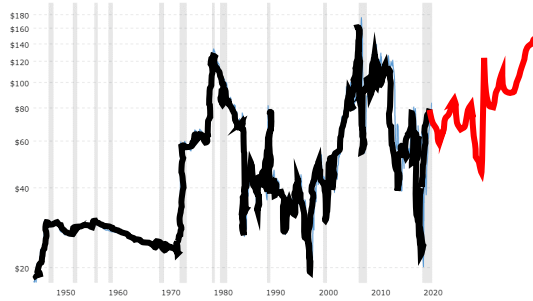
- Successful implementation of **Sustainable Energy Action Plan (SEAP)** largely depends on the **Human Factor**;
- Staff involved in SEAP implementation need to be empowered with:
 - clear **responsibilities**,
 - sufficient **resources** and
 - good **communications**.
- Today the **Smooth transition to Sustainable Energy** is influenced by the existing challenges of 4 Key Crisis factors/elements:

$$\textit{Transition_To_SE} = f(C_{\textit{Climate}}; E_{\textit{Energy}}; E_{\textit{Economy}}; C_{\textit{covid}})$$

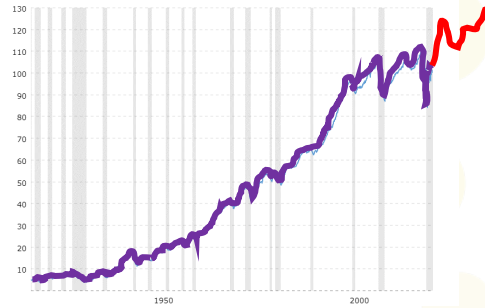


ROLE OF POST COVID-19 ON TRANSITION TO SUSTAINABLE ENERGY

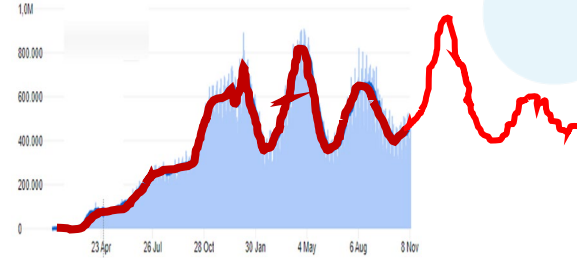
- In this Post COVID-19 situation most **Key Indices** show a positive trend direction towards to **Sustainable Energy Transition**;



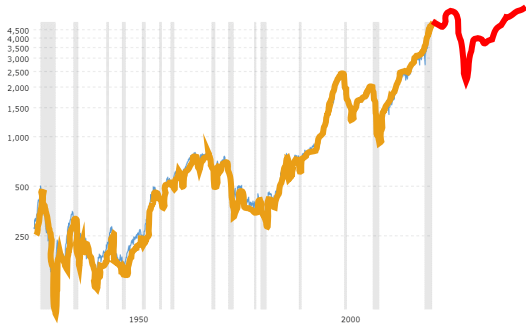
Crude oil prices almost "Back to normal"



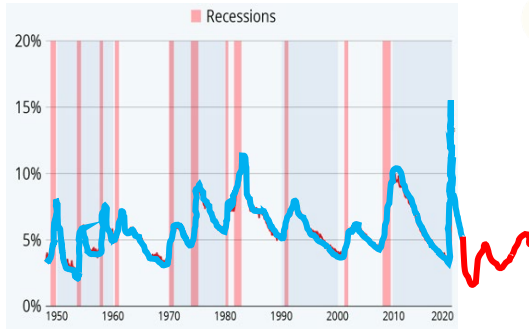
Industrial Production almost "Back to normal"



COVID-19 Cases unidentified



S&P 500 Index still "did not fail"



Unemployment Rate almost "Back to normal"



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THANK YOU