Economics Challenges in the Integration of Renewable Resources in EU and Albania

Jean Monnet Module: Energy Markets In The Framework Of EU Integration

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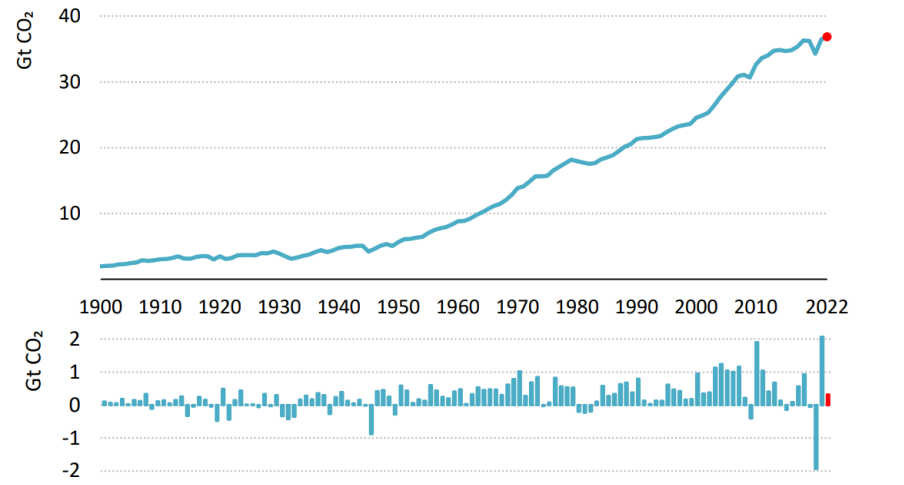
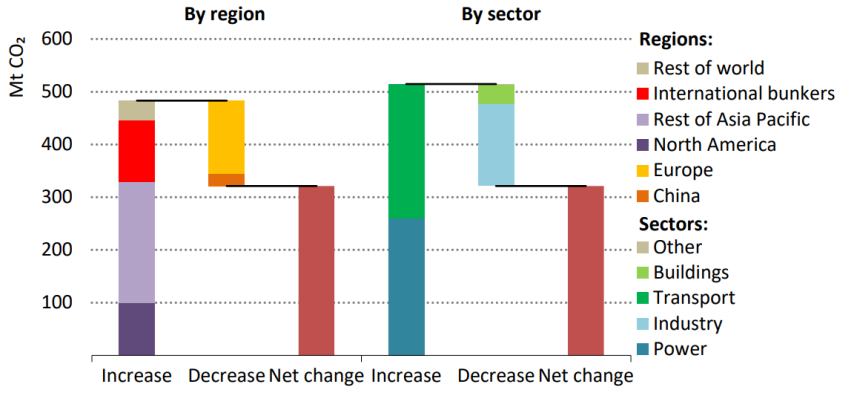
Statistics

Figure 1: Global CO_2 emissions from energy combustion and industrial processes and their annual change, 1900-2022



IEA. CC BY 4.0.

Figure 2: Change in CO_2 emissions by region and by sector, 2021-2022



IEA. CC BY 4.0.

Note: Transport includes international bunkers.

Overview

Energy efficiency enables economic growth with lower energy inputs. In the twentieth century, the average growth rate of energy demand was 3%, about the same as the growth rate of global GDP. In recent decades, improvements in energy efficiency have broken this link. Primary energy demand is now forecast to grow at 1% a year in the period to 2040.

Growth of renewables. Renewables have emerged as the fastest growing energy source.4 The main renewable energy sources are bioenergy, geothermal, hydropower, ocean, solar and wind. Among these, solar energy and wind power are undergoing very rapid growth, while the others are growing more A New World 16 gradually.

Electrification. Electricity accounts for 19% of total final energy consumption, but its share is expected to grow as increased electrification of end-use sectors takes place.9 The deployment of heat pumps and electric vehicles, for example, permits electricity to be used for heating, cooling, and transport. Electricity has been the fastest growing segment of final energy demand, growing twothirds faster than energy consumption as a whole since 2000.

The forces of change

I. Declining cost

II. Pollution and climate change

III. Renewable energy targets

IV. Technological innovation

V. Corporate and investor action

VI. Public opinion

Why renewables will transform geopolitics

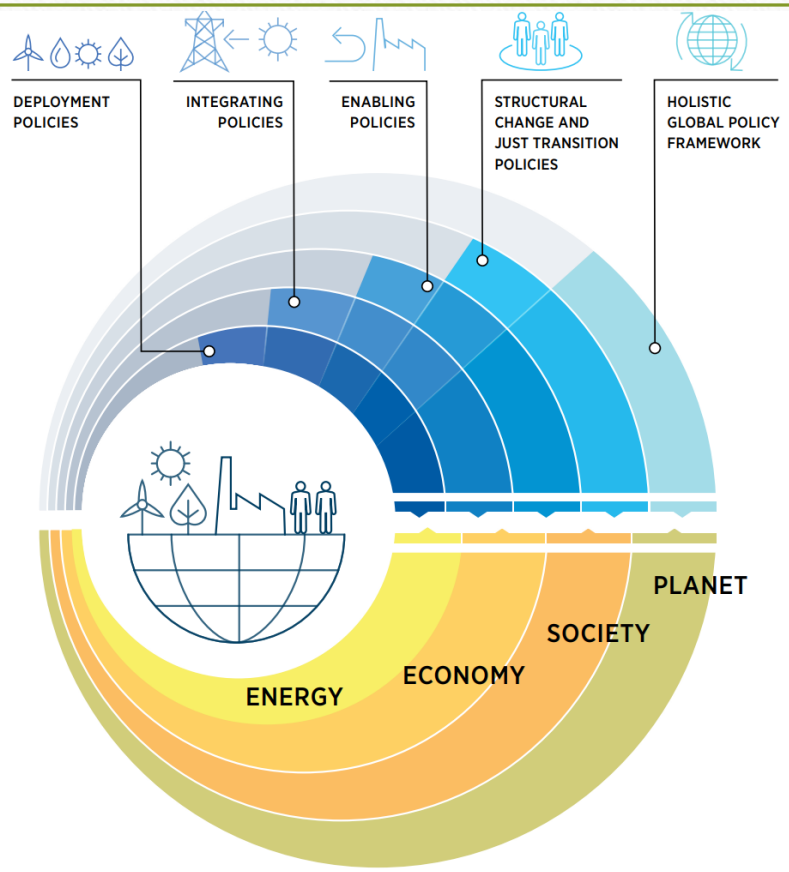
First, renewable energy resources are available in one form or another in most countries, unlike fossil fuels which are concentrated in specific geographic locations. This reduces the importance of current energy choke points.

Second, most renewables take the form of flows, whilst fossil fuels are stocks

Third, renewable energy sources can be deployed at almost any scale and lend themselves better to decentralized forms of energy production and consumption.

Fourth, renewable energy sources have nearly zero marginal costs, and some of them, like solar and wind, enjoy cost reductions of nearly 20% for every doubling of capacity.42

Policy



Sources: IRENA (2021a)

- Policy makers need to understand how the energy transition interacts with the economy at large and societal and planetary systems

Geopolitical Map

- Power shifts
- Repositioning of states
- The rise of renewable energy leader
- New relations between states

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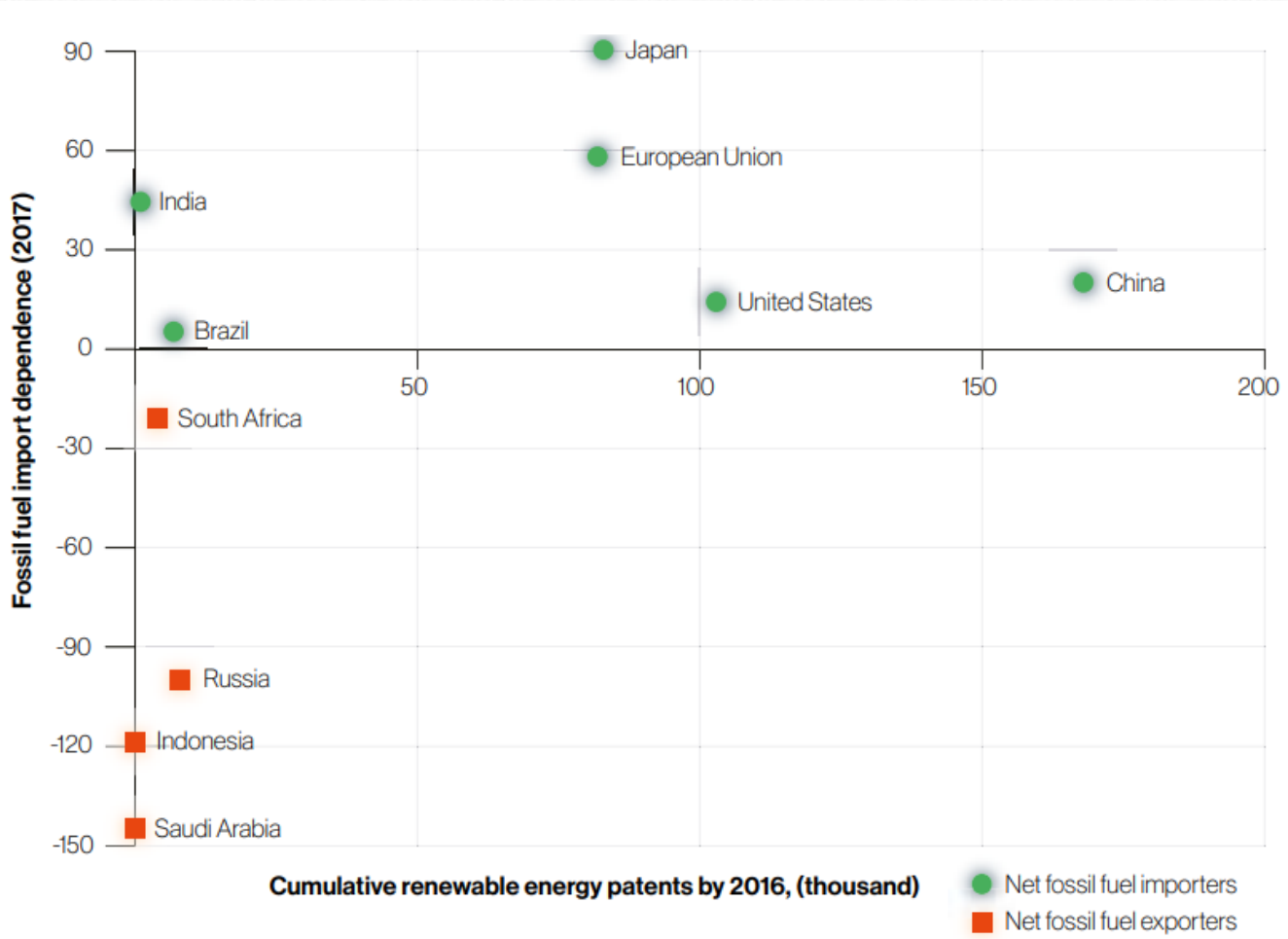
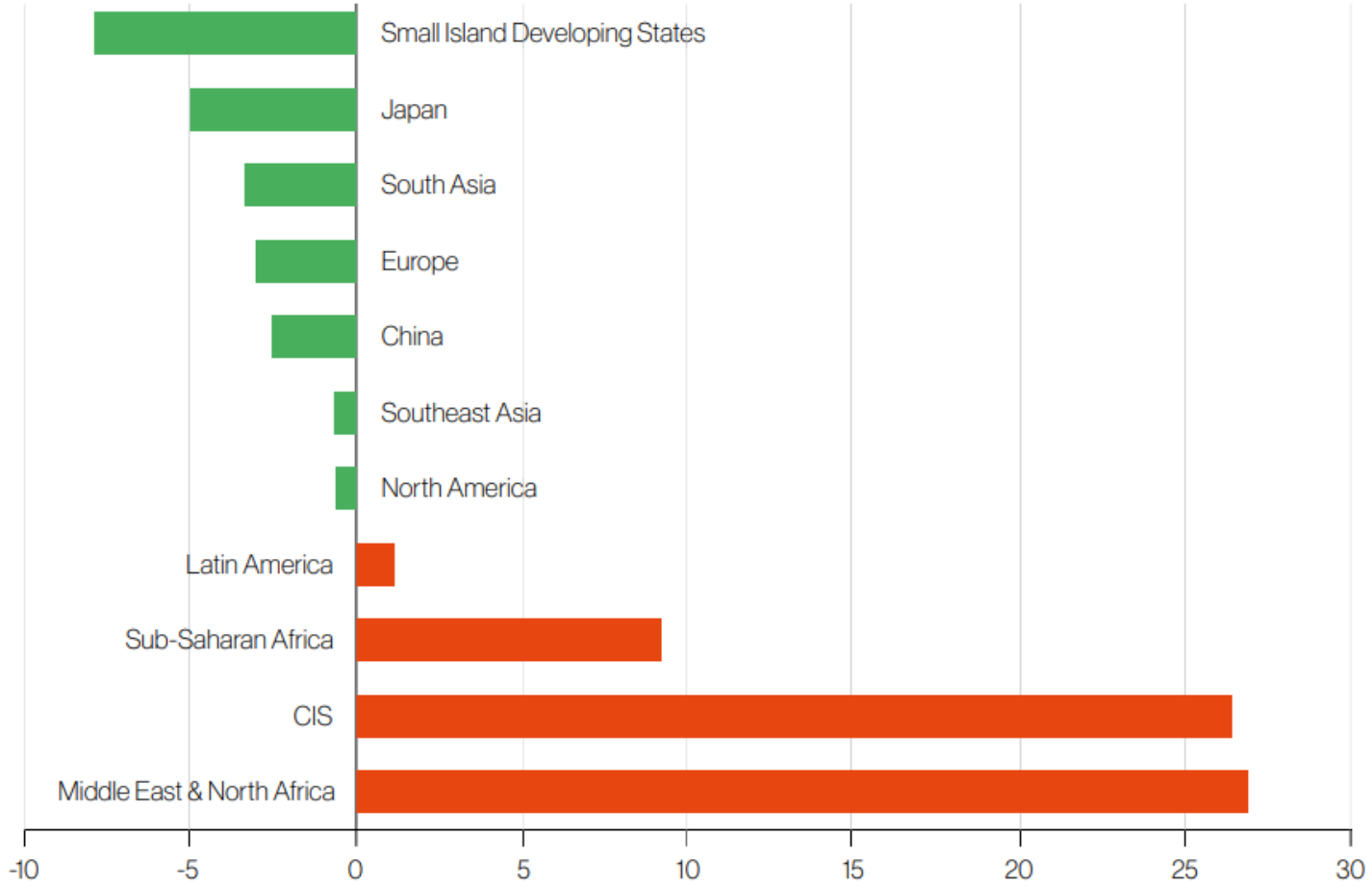


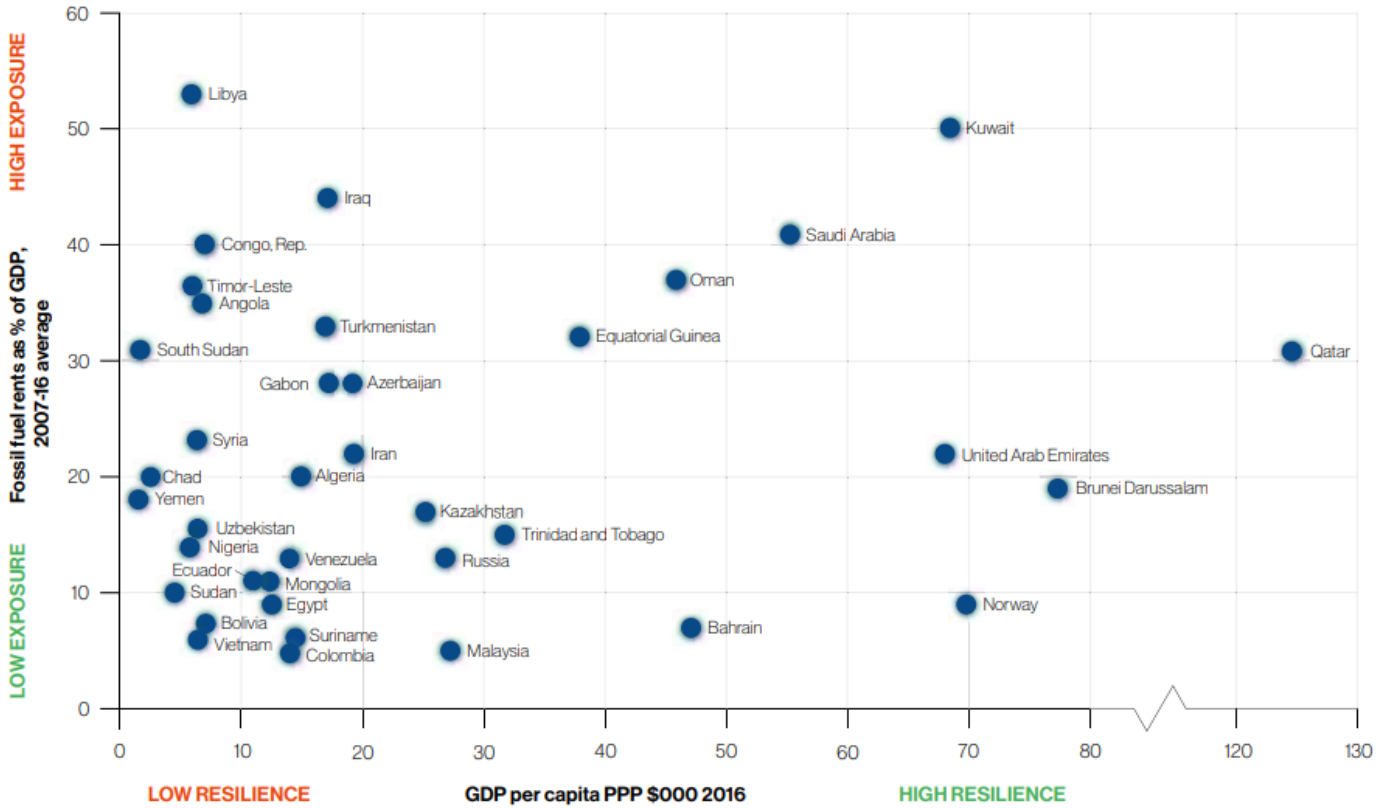
Source: BP, IRENA.

Figure 5. Regional impact of the energy transition



Source: World Bank, IMF.

Figure 7. The relative preparedness of fossil fuel producing countries for the energy transition

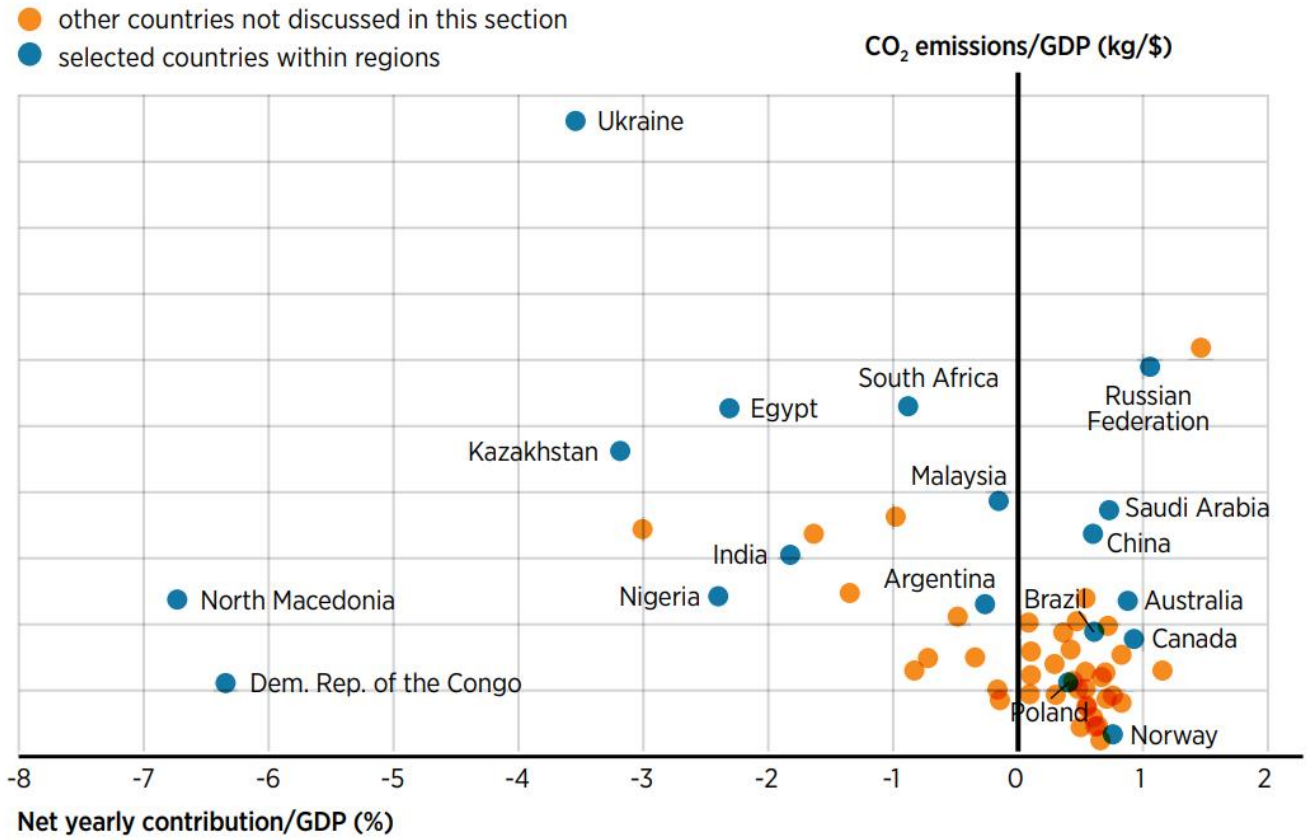


Note: The chart includes countries in which fossil fuel rents account for more than 5% of GDP. The GDP of Syria dates from 2010.

Source: IMF World economic outlook database April 2018, World Bank.

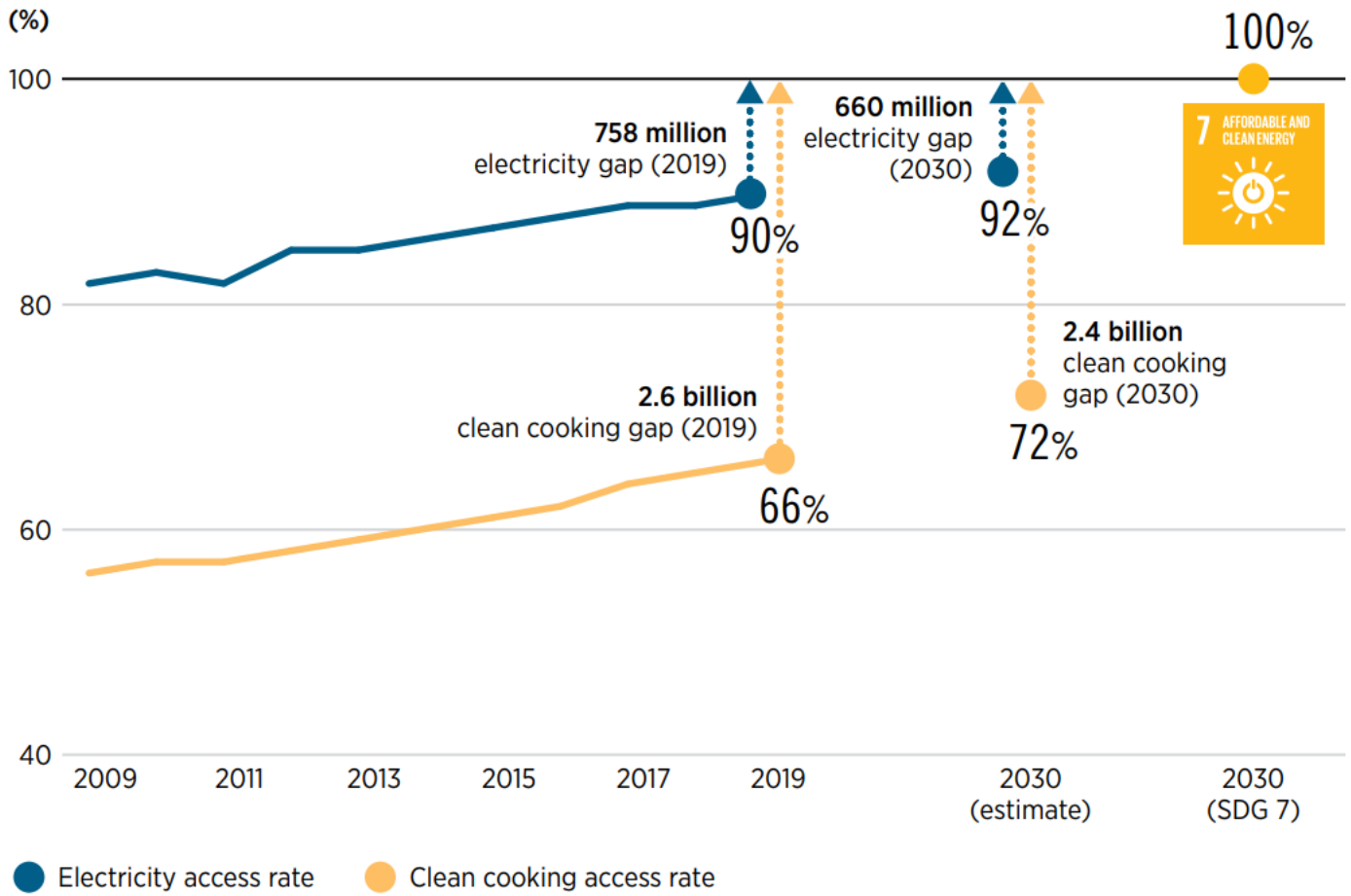
Country sensitivity

FIGURE 3.7 **Country sensitivities to introduced policy changes: Emission intensity and relative weight of international co-operation, 2030**



With climate change impacting food and water security and efforts to meet SDGs, energy access is also crucial for adaptation measures

FIGURE 4.1 **Electricity and clean cooking access rates, global, 2009 to 2019, and forecasted for 2030**

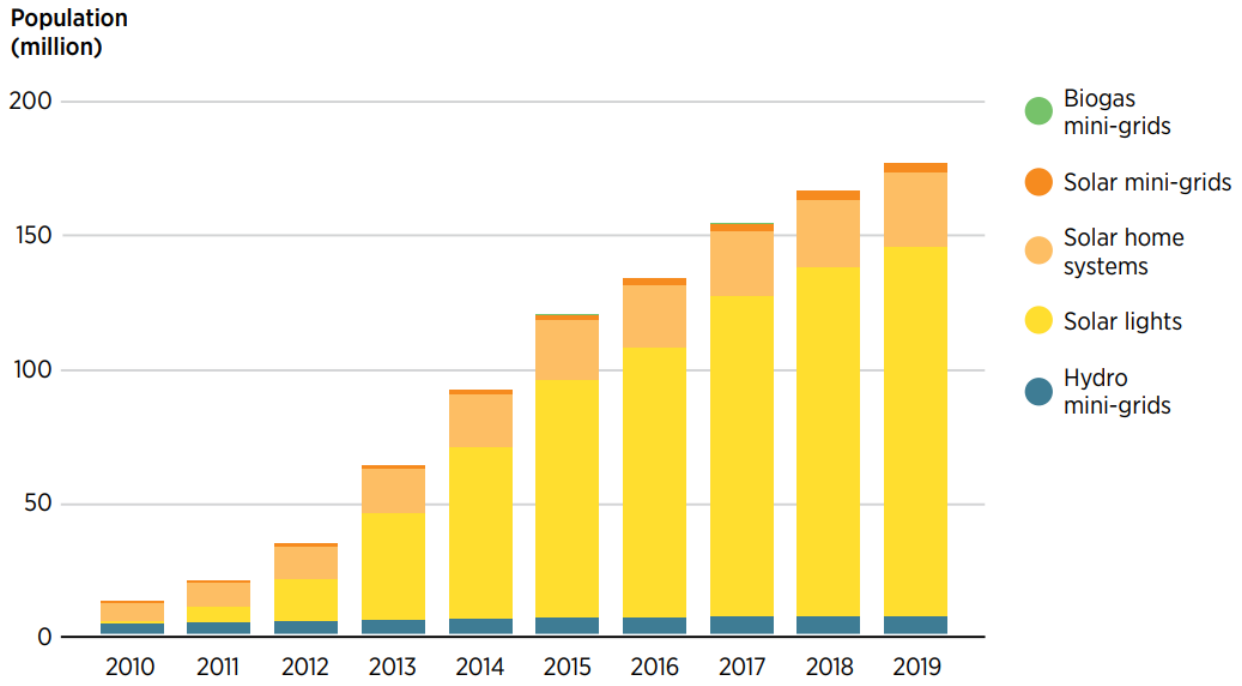


Sources: World Bank, World Health Organization, and IEA.

Note: SDG 7= Sustainable Development Goal 7.

Decentralization

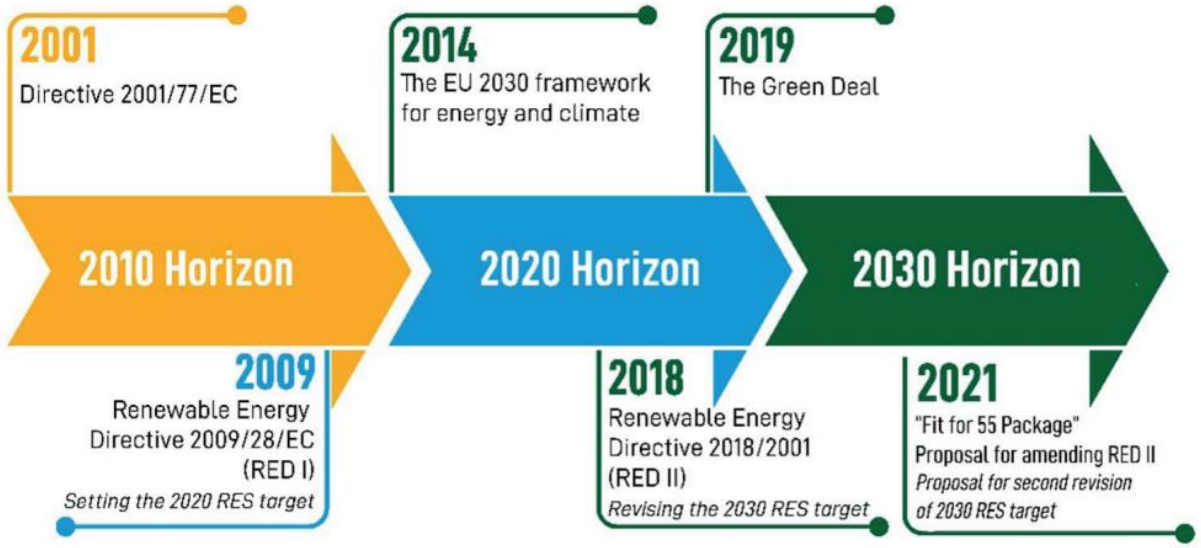
FIGURE 4.2 **Population served by decentralised renewable energy solutions globally, 2010–2019 (million)**



Source: IRENA, 2021d.

Market and industry trends

Figure 18: Overview of EU policies and legislation related to renewable energy



Thank you for your attention!