

# Global context

*“Renewable energy is the only credible way forward if the world is to avoid climate catastrophe”*  
António Guterres<sup>14</sup>



In recent decades, global energy consumption has been on a steady upward trajectory, driven by population growth, industrialization and rising living standards, especially in developing countries. As a result, global energy consumption varies significantly between countries, influenced in turn by their levels of industrialization and urbanization (see Figure 2).

From 2012 to 2022, total primary energy consumption<sup>15</sup> increased by 14.4%. Recently, consumption has increased to 442 EJ, and around 80%<sup>16</sup> of the world's primary energy demand, required for industries, transportation and households, is met by fossil fuels (coal, oil and natural gas). In 2022, coal accounted for about 27% of the world's primary energy mix, oil, the most widely used energy source, accounted for 32%, and natural gas, prized for its cleaner combustion properties relative to coal and oil, accounted for about 23%<sup>17</sup> (see Figure 3).

As for electric power, data in 2022 shows that coal contributed about 35% of its generation, gas generation remained at 23% which is close to its ten year average<sup>18</sup>, and renewables experienced the largest growth, reaching 14% of total power and surpassing nuclear power, which accounts for 5% of the total.

<sup>14</sup>António Guterres is the current Secretary-General of the United Nations, where he has been an influential voice on global issues, including climate change, human rights and sustainable development.

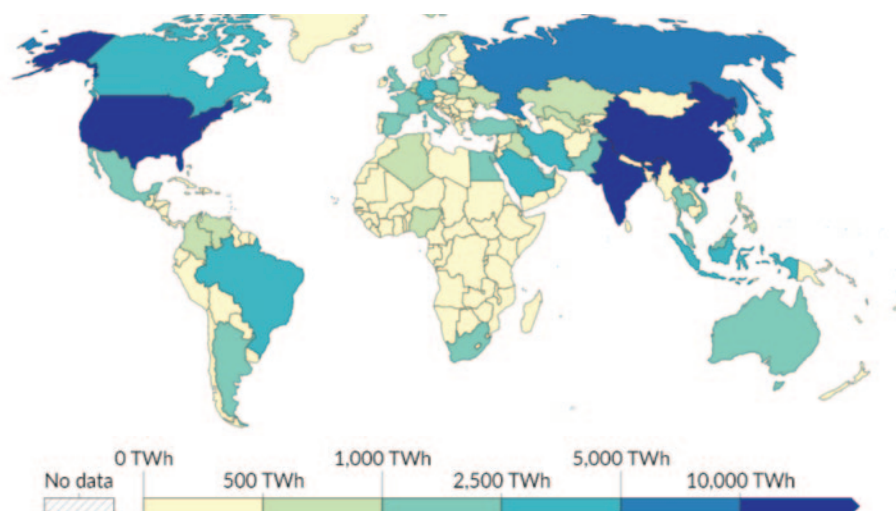
<sup>15</sup>Primary energy: energy from renewable and non-renewable sources that has not undergone any conversion or transformation process (RAE).

<sup>16</sup>Source: U.S. EIA "International Energy Outlook 2021 (IEO2021)."

<sup>17</sup>Energy Institute: "Statistical Review of World Energy".

<sup>18</sup>ibid.

Figure 2. World primary energy consumption in 2022.



Source: Our world in data, "Energy production and consumption" 2022.

The fight against climate change requires reducing dependence on fossil fuels in order to achieve a carbon neutral society based on sustainable energy sources. Globally, there is a commitment to renewable energies as a means to achieve this neutrality, as they do not emit greenhouse gases during electricity generation.

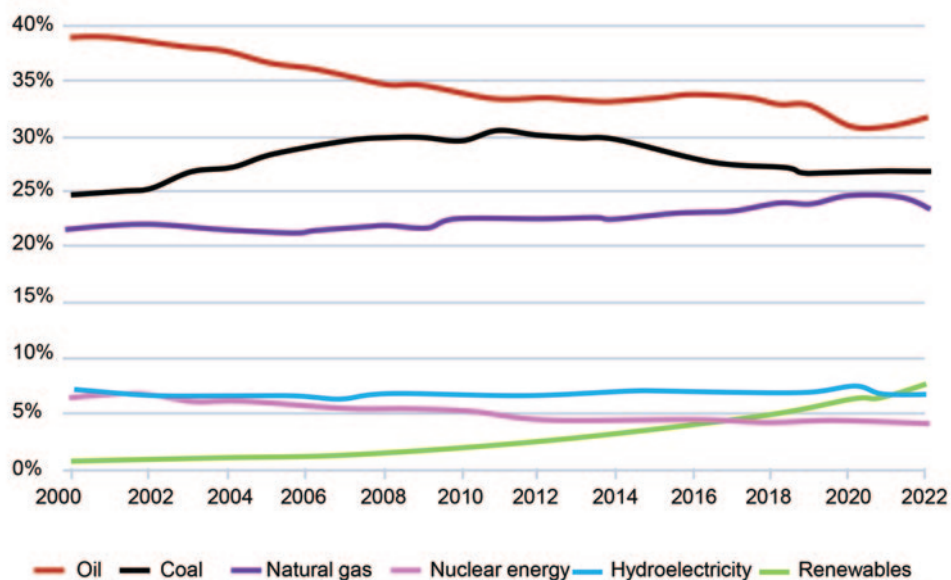
However, these energy sources have drawbacks, as they have environmental impacts (potential extensive land use, impacts on flora and fauna, etc.) and present challenges in terms of accumulation and storage of the energy produced, due to variability in generation.

In this context, hydrogen can play an essential role in accelerating the transition to a carbon-neutral energy system. It can be produced from renewable energy sources, stored

efficiently, used to balance their variability and contribute to increasing their share in the global energy mix

In addition, this element could also play a relevant role in energy distribution due to the possibilities it offers for its transportation and for transforming potential in those sectors where electrification presents more inconveniences and limitations.

Figure 3. World primary energy consumption.



Source: Energy Institute. "Statistical Review of World Energy 2023."

