



2.1 The future of energy

Combat climate change

Climate change is one of the most significant and urgent challenges facing humanity. Confronting this serious threat requires not only the commitment of companies and consumers, but also that of regulators and public institutions, which should adopt appropriate energy policies and regulations.

The year 2020 saw the fifth anniversary of the Paris Agreement, in which it was agreed to limit the increase in the global temperature to less than 2°C by the end of the century and to continue the efforts to limit the increase to 1.5°C, with a commitment to reach peak GHG emissions as soon as possible and begin to reduce them until achieving carbon neutrality. Since then a total of 189 countries have signed this Agreement.

The energy sector is an important player, responsible for over 75% of CO₂ emissions, for which reason its contribution is essential to achieving the Paris Agreement's decarbonisation targets, and neutrality by 2050.

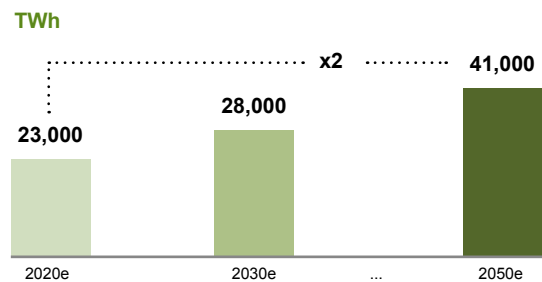


Current energy context

According to the IPCC¹, achieving this goal will require a 45% reduction in emissions by 2030 compared to those in 2010 and achieving zero net emissions by 2050. This puts electricity from renewable sources at the epicentre of decarbonisation, with the need to electrify sectors like transport and buildings, in which polluting energies still play a predominant role.

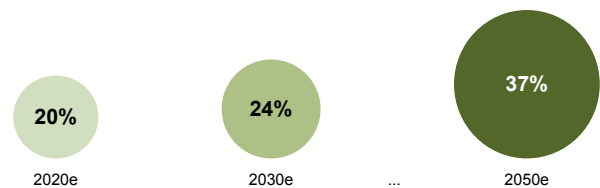
Increase in electricity demand

Several bodies, including the International Energy Agency (IEA), emphasise that progressive electrification of the economy will cause global demand for electricity to increase over the period, reaching 41,000 TWh² by 2050.



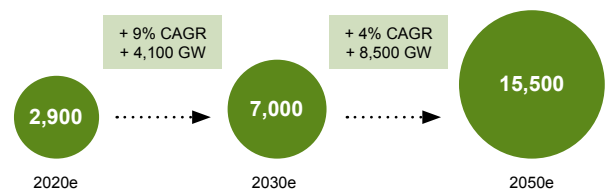
Electrification of final demand

Electricity's share of total energy consumption is thus expected to rise from 20% this year to 37% by 2050².



Mass use of renewable resources

This electrification of consumption will require 2.5 times current renewable capacity, to around 7,000 GW, by the end of this decade³, in order to replace existing thermal capacity and meet the demand arising from new uses like transport, buildings and industry, etc.

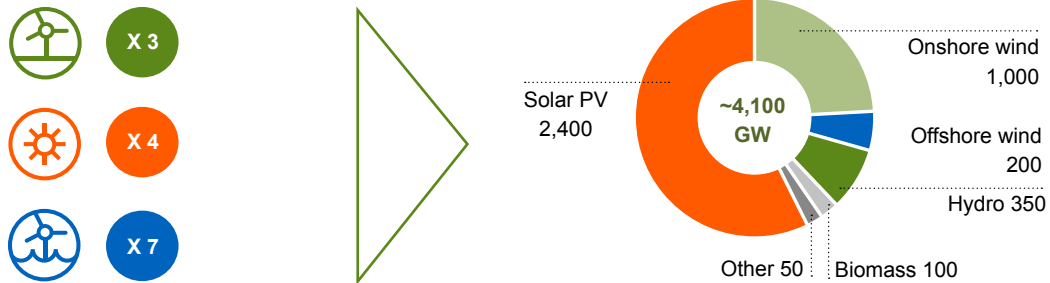


(1) Special Report of the Intergovernmental Panel on Climate Change (IPCC) on Global Warming of 1.5 °C.
 (2) Source: Data calculated internally based on the Sustainable Development scenario in the International Energy Agency's *World Energy Outlook 2020*.
 (3) *Bloomberg New Energy Finance (BNEF) (2020). New Energy Outlook.*



Electricity generation

The progressive reduction in the costs of investment and operation of the various renewable technologies will favour an increase in their share of the energy mix, leading to an increase in the installed capacity of these technologies, estimated to be some 4,100 GW over the decade, mainly in solar photovoltaic and wind.

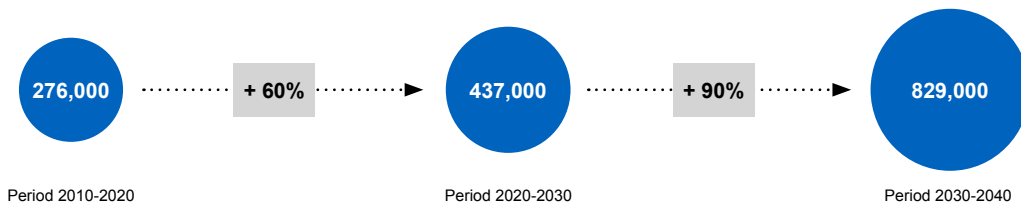


Growth in installed capacity, 2030 vs 2020¹

Additional capacity in 2030 by technology (GW)¹

Power transmission and distribution

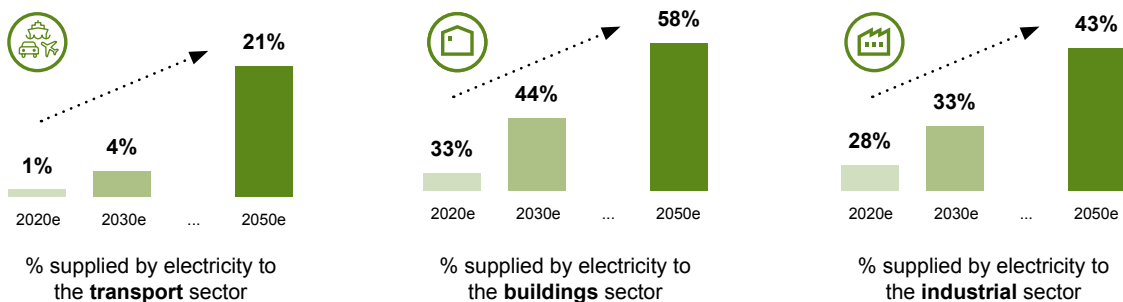
The electrification of the economy accords an essential role to an efficient, smart and flexible electricity transmission and distribution infrastructure, capable of integrating more renewable energy and meeting new requirements in terms of connectivity, digitalisation and demand management.



Annual average investment in grids (\$M)²

Uses of electricity

The challenge of decarbonisation means that electrification from renewable sources is an increasingly necessary option in every sector, which means that electricity demand will grow rapidly in those sectors that implement it as the most efficient solution for reducing their CO₂ emissions.



An innovative use of renewable electricity generation will be the production of **green hydrogen** through the use of electrolyzers. Green hydrogen will enable progress on two fronts: emissions reduction in sectors that currently consume hydrogen, produced by processes that emit CO₂, and the adoption of hydrogen in sectors that are difficult to electrify (such as heavy, air and sea transport).

(1) Source: Data calculated internally based on the Sustainable Development scenario in the International Energy Agency's *World Energy Outlook 2020*.
(2) Source: Sustainable Development scenario in the International Energy Agency's *World Energy Outlook 2020*.