

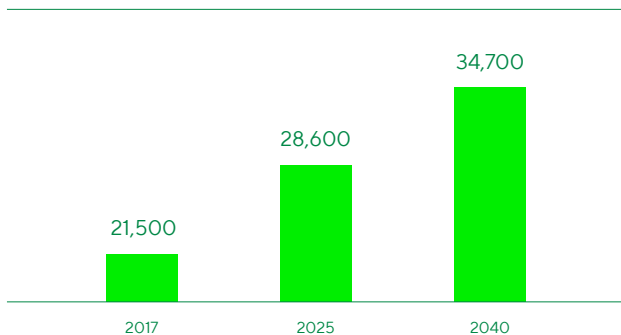
2.1 The Future of Energy

Social Expectations and Needs

Social progress involves our expectations and needs, which affect the energy sector. There are four large associated trends: a sustained increase in demand for energy over time; the need for decarbonisation of energy and of the economy as a whole; greater attention to the efficiency of supply activities; and greater connectivity, which influences relations with all stakeholders, especially customers.

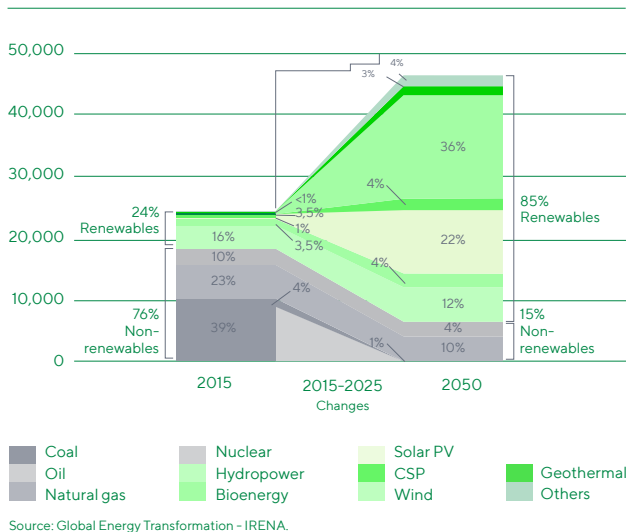


Electricity demand in TWh



Source: *World Energy Outlook 2018*.

Electricity generation
Breakdown of electricity generation, by source (TWh/year)



Source: Global Energy Transformation - IRENA.

More energy and more electrification

The process of decarbonisation of the economy has begun with the electric sector, and will be completed through a phase of electrification of the economy as a whole, especially industry and transport.

The *EU Roadmap*¹ forecasts that electricity will at least double its share in final energy demand to 36–39% by 2050, which would contribute to a reduction in carbon emissions from heating systems, industry and the transport sector. The main scenario of the *World Energy Outlook 2018*² also forecasts that electricity will play a more important role in the world energy system, exceeding the growth of all other sources, to become almost one fourth of total final energy consumption by 2040.

It is expected that policies promoting sustainable mobility, like the clean mobility package of the European Commission³, will cause the number of electric vehicles to increase from the current 3 million to approximately 300 million by 2040, representing approximately 720 TWh of annual consumption. In addition, policies to reduce emissions due to warming seek to reduce the use of fossil fuels, and will entail approximately 45% growth in demand for electricity to heat buildings by 2040. In industry, heat pumps will satisfy approximately 3% (some 240 TWh) of demand for additional low temperature heat by 2040.

In developing economies, one must also factor in the demand associated with the almost one billion people throughout the world who currently lack access to electricity².

(1) *Energy Roadmap 2050 of the European Parliament*.

(2) *World Energy Outlook 2018 - International Energy Agency*.

(3) 14% reduction in CO₂ emissions from new passenger cars and light industrial vehicles by 2030 and 30% reduction by 2050.

Decarbonisation: Fight against climate change

The fight against climate change has driven the strategy of Iberdrola, which has been committed to a sustainable, safe and competitive energy model for the last two decades. Reaching a decarbonised energy model is currently feasible. The group is in an optimal position to take advantage of the opportunities that this economic transition offers thanks to its leadership in renewable energy, smart grids, storage and digitisation. The Board of Directors formalised Iberdrola's commitment to decarbonisation in the Policy against Climate Change, which deals with mitigation and adaptation activities, the company's active participation in the global climate agenda and the promotion of a corporate culture focused on promoting the awareness and engagement of all of its Stakeholders in this area.

Iberdrola's objectives

- Reduce the intensity of emissions of CO₂ 50% by 2030 compared to those in 2007 and be carbon neutral by 2050. Objectives recognised as Science Based Targets (SBTi).
- Support international climate change negotiation processes, private sector participation in the global agenda, the creation of partnerships and raising climate awareness.

Partnerships and actions

The company plays its role as an agent of transformation through its engagement in different platforms, coalitions and world organisations, including: *European Commission, UN Global Compact. We Mean Business, World Business Council for Sustainable Development* and *Corporate Leaders Group (CLG)*. It has also formally supported various initiatives, including the CLG declaration on net-zero emissions by 2050. For all of the foregoing reasons, Iberdrola has been recognised as a **UN Global Compact LEAD** company for its contribution to global sustainability.

2018 milestones include the following:

- **Active participation** in the main processes formally driven by the United Nations and other international bodies. These include those held for purposes of the Katowice Climate Change Conference (COP24), the California Global Climate Action Summit and the U.N. General Assembly. Iberdrola was also one of the few companies participating in all high-level phases of the Talanoa Dialogue.

- Progress on its commitment to implement the recommendations of the *Task Force on Climate-related Financial Disclosures* (TCFD) in its public reports by 2020.

- Iberdrola supports the goal of net-zero emissions by 2050 of the climate strategy of the **European Union**, convinced of the feasibility thereof and of the opportunities of this scenario and the central role of the electricity sector.

Efficiency

The growing use of renewable sources of energy is being driven by a rapid evolution of technology that is reducing the costs of production⁽¹⁾. This trend makes a sustainable energy model compatible with a positive evolution of cost for the end user. It is expected that renewable energy will increase its weight in electricity production to 85% by 2050⁽¹⁾. This growth especially includes wind and photovoltaic technologies.

Connectivity and customers

Urban/technological lifestyles require the establishment of on-line, immediate and simple channels. This greater connectivity in turn allows for more personalised and efficient products and services.

A greater presence of distributed generation and the growth of electric vehicles, together with the digitisation of relationship channels, will foster a more active role by customers.

(1) *Global Energy Transformation – IRENA 2018.*