

Study on renewables:

In 2022 alone, renewables saved up to €1,600 on electricity for domestic consumers (around €133 per month), and contributed €3.7 billion to GDP.

By 2030, the impact will be €17 billion.

- Study indicates that the production of electricity from Renewable Energy Sources (RES) had a **net positive impact** of around €17.1 billion in the period 2018 – 2022, of which €13 billion respect the year of 2022;
- In 2022 alone, RES generated **annual savings on the electricity bill**, on average, of up to around €1,600 for a domestic consumer and up to €160,000 for a non-household consumer;
- The cumulative contribution of RES to **GDP** exceeded €19 billion from 2018 to 2022 – an average of €3.9 billion per year. By 2030, renewables will account for 5.9% of GDP, equivalent to €17 billion;
- During this period, **private direct investment** in RES-based power plants averaged around €921 million annually. By 2030, cumulative private investment is expected to be €32 billion, with an additional €3.7 billion to achieve storage and electrolysis targets;
- Between 2018 and 2022, RES generated an average of 50 thousand jobs annually, with an added value per average employee about twice as high as the national average;
- Between 2018 and 2022, the Portuguese State collected, on an annual average, around 232 million euros in corporate **income tax**, which will reach 1.1 billion euros in 2030;
- In the period from 2022 to 2030, the sector will represent around €13 billion of accumulated contributions to the IRS;
- The contribution to **Social Security**, from €494 million in 2022, will reach €2.9 billion in 2030;
- In 2022, electricity producers had a net contribution of around €279 million to VAT, and the annual value is expected to reach around €2 billion in 2030;
- Between 2018 and 2022, RES saved approximately €13.2 billion in coal and natural gas imports.

The Study on the Impact of Electricity from Renewable Sources was presented today, an analysis by the consulting firm Deloitte for the [Portuguese Renewable Energy Association \(APREN\)](#), in an event with the participation of the Secretary of State for Energy and Climate.

The study evaluated the impact and contribution of electricity from renewable sources on consumers' bills, on the electricity system and on the national economy, between 2018 and 2022. Likewise, it also projected its effects in the context of energy policy and objectives set out in the proposal for the National Energy and Climate Plan for Portugal until 2030, presented by the Portuguese Government to the European Commission this year.

The study thus analyses the relevance achieved by the sector and the impact of Renewable Energy Sources (RES) in the following areas:

- Electricity consumers' bills;
- Socioeconomic;
- Fiscal;
- Employment;
- Environmental;
- Energy dependence;
- Electricity market.

In addition to the points mentioned, the study also aims to determine the strongly positive impact that electricity production based on Renewable Energy Sources (RES) had on the price borne by the consumer in 2022.

APREN will discuss these results and other topics relevant to the renewable electricity sector at its annual conference, the [Portugal Renewable Energy Summit](#), which will take place on the 29th and 30th of November at Culturgest, in Lisbon.

Savings for the consumer:

The price of electricity borne by businesses and private consumers comes from costs related to the production and sale of electricity, transmission and distribution networks, and the supply of electricity.

In MIBEL (Iberian Electricity Market), which is by definition a marginal market, the offers for the purchase and sale of electricity by traders and producers are aggregated, allowing the formation of supply and demand curves. The intersection of these curves defines the market break-even point, the daily market price of electricity for the respective hour.

Renewable Special Regime Production (PRE) has, in general, a zero marginal cost (or very close to it), contributing to the insertion, in MIBEL, of electricity offers at a lower cost in the market, thus reducing the daily market price of electricity for a given hour, which is designated by effect of the Order of Merit.

The impact of renewable sources positively influences the market price of electricity traded in the Iberian Market due to its low marginal cost, which in 2022 allowed savings of around €11 billion.

In 2022, the price of electricity was about three times higher than in 2018, standing at €168/MWh. This was driven by the increase in natural gas prices, which emphasises the role of renewables in reducing the price of electricity.

Considering the cost differential of the PRE, there was a positive net impact of around €17.1 billion in the period from 2018 to 2022. The year 2022 stood out with more than 13 billion, in which there was a PRE overgain differential of 2.4 billion.

In 2022, RES generated annual electricity bill savings of up to around €1,600 on average for a domestic consumer and up to €160,000 for a non-household consumer.

Socio-economic impact:

The cumulative contribution of RES to GDP exceeded €19 billion from 2018 to 2022, corresponding to an annual average value of approximately €3.9 billion in the period, although there has been a drop in the last two years.

In the context of RES, the wind sector had the greatest impact on GDP in 2022, with more than 45% of total RES. Regarding the contribution per MW, the different renewable technologies recorded an average annual contribution of 257k €/MW between 2018 and 2022.

According to the targets set by 2030, the total GVA (Gross Value Added) from RES is estimated to grow to around €17.2 billion in 2030, which will represent a contribution of around 5.9% to GDP.

By 2030, it is estimated that electricity produced from solar will be the largest contributor to GDP, accounting for almost 70% of the total, followed by wind with about 21%.

Between 2018 and 2022, RES generated, on an annual average, around 50 thousand jobs, with an added value per average employee about twice as high as the national average. Wind and hydro sources generated the highest volume of employment in this period: 69%, on average, of the total RES.

With the expected growth in installed capacity and electricity generation from renewable sources in the coming years, the impact of the RES sector on employment will continue to increase, in particular due to the growth of solar energy.

By 2030, it is estimated that social security contributions from RES will reach approximately €3 billion and that the value of personal income tax from employees associated with RES will exceed €2.7 billion.

On an annual average, between 2018 and 2022, the Portuguese State collected around 232 million euros in corporate income tax and around 15 million euros with the Derrama from the RES sector. It is estimated that by 2030, the total annual value will grow to around €1.2 billion.

In 2022, electricity producers had a net contribution of around €279 million to VAT, and the annual value is expected to reach around €2 billion in 2030.

Between 2015 and 2022, private direct investment in RES-based power plants registered an annual average of around €921 million, with the largest volume of investments in hydro and solar Energy.

It is expected that by 2030 direct private investment in RES-based power plants will continue, resulting in a cumulative investment of approximately €32 billion, with solar and wind energy being the main focus of investment. In addition, by 2030, investment in batteries, pumping and electrolyzers is expected to reach a cumulative value of approximately €3.7 billion to achieve the targets set in the PNEC2030 for storage capacity and electrolysis.

Environmental impact of the sector:

By replacing more polluting sources such as natural gas, electricity from renewable sources avoided the emission of 11.1 million tons of CO₂ equivalent in 2022. This figure is expected to continue to grow in the coming years.

By 2030, the total annual savings are expected to amount to €4,413 million with CO₂ allowances, almost five times higher than in 2022. This is associated with around 30 million tonnes of CO₂ equivalent avoided at an expected price of €147.2/t.

Impact of the sector on energy dependence:

Between 2018 and 2022, the production of electricity from renewable sources saved approximately €13.2 billion in coal and natural gas imports.

With the increase in RES electricity production foreseen in PNEC, the volume of fossil fuel imports avoided will also increase until 2030, when it is estimated that the import of around 81 TWh will be avoided.

The investment in the production of electricity from endogenous and renewable sources will tend to reduce energy dependence abroad by values that could represent 30 percentage points in 2030.

Lisbon, 7th November de 2023.

About APREN:



The [Portuguese Renewable Energy Association \(APREN\)](#) is a non-profit association founded in October 1988. It's mission is to coordinate and represent the common interests of its members, promoting renewables energies in the electricity field.

APREN works closely with the government and other official entities, both on a national and international levels. APREN participates actively in the definition of energy and environmental policies, valuing natural resources for electricity production, namely hydric, wind, solar, geothermal, biomass, biogas, and urban solid waste.