



bulATOM

25 BULGARIAN
YEARS ATOMIC
FORUM

2025

**ELECTRICITY
SECTOR FACT
SHEET**

The 2025 Electricity sector fact sheet is a summary of the Report on the dynamics of changes in the main indicators in the BULATOM database on the main characteristics of the electricity sector of Bulgaria in 2025, prepared by order of the Association "Bulgarian Atomic Forum" – BULATOM by the company "SELMEDA" EOOD



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2025 ELECTRICITY SECTOR FACT SHEET

1. ELECTRICITY SECTOR MAIN PERFORMANCE INDICATORS

1.1. ELECTRICITY PRODUCTION

1.1.1. According to the official data of the Energy and Water Regulatory Commission (EWRC), after several consecutive years of decline, **electricity production in 2025 stabilized above the 2023 level, reaching 36 TWh, but still remaining 21% below the maximum production recorded in 2022.**

1.1.2. **Gross electricity production in 2025**, according to the data from the Electricity System Operator (ESO EAD), **reaches 40.2 TWh**, demonstrating the same trends as the EWRC data on produced electricity.

1.1.3. The electricity production from Kozloduy NPP in 2025 (14.5 TWh) is the lowest in the last five years. Nevertheless, according to EWRC data, **the NPP retains its leading position as a producer of electricity, comprising 40.4% of the total production in the country.**

1.1.4. According to ESO EAD data, **gross electricity production from thermal power plants in 2025 stabilizes and even exceeds that of 2024, reaching 13.7 TWh**, which is 34% of the total gross production during the year, maintaining the share of thermal power plants in the country's energy mix.

This is confirmed by EWRC data, according to which, **electricity production from lignite-fired power plants is also higher in 2025 than in 2024 and, with its 9.2 TWh, comprises 25.7% of the total electricity produced**, which gives this type of power plants second place (after the nuclear power plant) in the ranking of the type of generating capacity supplying the country's energy system.

1.1.5. According to EWRC data, the increase in electricity produced by RES in 2025 maintains its high growth rate, reaching a total of 7.6 TWh. **This represents an increase of more than 2.5 times over the last five years and is entirely due to the growth in production from Photovoltaic Power Plants, which is 6.3 TWh and comprises 17.5% of the total production in 2025.**

1.1.6. In 2025, electricity **production from hydropower plants**, according to EWRC data, **continues to decrease to 2.27 TWh**, which demonstrates a persistent downward trend over the last five years by more than 55%.

At the same time, **in 2025 electricity produced by PSHPPs reaches 580 GWh**, which is the highest result for the period after 2021.

1.1.7. During 2025, according to the EWRC official reports, **the share of the different producers in the country's total electricity generation** is as follows:

- NPP - 40%
- Renewables - 25%
- Condensing thermal power plants - 24%
- HPP owned by NEK - 5%
- District heating plants - 5%
- Industrial TPP - 1%

1.1.8. According to EWRC data, battery energy storage systems (BESS) already represent a significant element in the country's energy mix, both as part of consumption and as part of electricity generation. In 2025, the electricity supplied to the system from independent BESS is almost 73 GWh, which reaches 12.6% of the production of PSHPP.

1.2. ELECTRICITY CONSUMPTION

1.2.1. According to data from ESO EAD, after the reversal of the downward trend in 2024, **in 2025 the final electricity consumption in the country continues to grow and is the highest since 2018, reaching a level of 33.58 TWh**.

As a result of this, as well as due to the increasing consumption for charging the BEES, **in 2025 the total consumption marks a seven-year maximum of 38.9 TWh**.

1.2.2. However, **household consumption in 2025 decreases by 3.6% to 13.62 TWh** after a 15% jump in 2024, when its highest value for the entire period tracked in the DB-ES was recorded.

The growth in total consumption in 2025 comes from non-household customers with a consumption of 19.31 TWh (+4.2%) and from the new storage load of 452 GWh.

1.2.3. The increase in total consumption (excluding pumps and BESS) to 38 TWh registered in 2025, as well as the trend of increasing total consumption in recent years, is below the maximum forecast scenario of ESO EAD and is above the **forecast scenario of consumption development presented in the National Energy and Climate Plan**.

1.2.4. For the first time, the EWRC reports for 2025 include **detailed data on household and non-household customers who produce electricity for their own needs** and on the number of installed photovoltaic installations and batteries:

- a total of 2,680 household and 9,863 non-household photovoltaic installations;
- a total of 845 batteries;
- approx. 374 GWh of own production (205 GWh in 2024).

1.3. TRANSMISSION AND CROSS BORDER EXCHANGE OF ELECTRICITY

1.3.1. According to the data of the electricity transmission network operator ESO EAD, **the transmission of electricity through the country's electricity transmission network of 33.7 TWh in 2025 is a 2.7% increase compared to 2024** and is the largest for the entire period presented in the DB-ES.

1.3.2. ESO EAD data shows that in 2025, net physical exports of 1.3 TWh are 34% higher than the minimum recorded in 2024 but remain far from the maximum exports recorded in 2022.

1.3.3. According to ESO EAD, the largest trade exchanges with the neighbouring power systems in 2025 were executed as follows:

- The **largest import of electricity was from Romania, with a volume of 6.3 TWh** (which represents an increase for the second consecutive year by 8%), followed by imports from Greece with a volume of 3.5 TWh (an increase of over 20% compared to 2024);
- The **largest export of electricity was again realized to Romania, with a volume of 6.8 TWh** (an increase of almost 16% compared to 2024), followed by exports also again to Greece with a volume of 3.3 TWh (representing a decrease of almost 10% compared to 2024).

1.4. DISTRIBUTION AND INTERNAL CONSUMPTION OF ELECTRICITY

1.4.1. **In 2025, Kozloduy NPP EAD retains its leading position on the electricity market with a share of 52.6%** of hourly sales, according to ESO EAD data.

In second place is Maritsa East 2 TPP EAD with 14.4%, followed by sales of the SPPs connected to the Electricity Transmission Network with a share of 11.1%, AES-3C Maritsa East 1 EOOD - 10.9% and Bobov DoI TPP EAD - 6.3%.

1.4.2. According to EWRC data, **the largest share of the transmitted electricity in 2025 again belongs to the company "Electric Distribution Networks West" EAD with 41.74% or 9.3 TWh**, in second place is "Electric Distribution South" EAD with 35.74% or 8.0 TWh and in third place is "Electric Distribution North" AD with 22.23% or 5.0 TWh.

1.4.3. According to data from ESO EAD, slight changes have been observed in the percentage ratio of electricity distribution between the regulated and free markets in all electric distribution companies (EDCs) in the last three years. Nevertheless, **for all three main EDCs, electricity for the regulated market remains above 50%.**

1.4.4. According to EWRC data, **the number of household customers, who are practically entirely supplied by the regulated market, has been growing steadily over the past five years.** At the same time, total electricity consumption by household customers decreases to 13.6 TWh in 2025, or by 3.7% compared to the previous year.

1.4.5. According to Decision of the EWRC No. Ц-13 of 01.07.2026, the **estimated required amount of electricity for household customers for the regulatory period July'26 - June'27 is 13.87 TWh**, which represents a slight increase of 1.9% compared to the previous regulatory period.

After the changes made in June 2025 to the Energy Act of 01.07.2025, the required amounts of electricity for the regulated market are provided by the end suppliers. For this purpose, the end suppliers purchase the electricity from the organized exchange market.

1.4.6. In accordance with the EWRC decisions during the years, the growth of the average electricity price for the regulated market for the period after 2020 is 32.87%. **The average increase in electricity prices for the regulated market for the last regulatory period (3.05%) is significantly lower than the average price growth rate - 5.48% per regulatory period.**

2. GENERATING CAPACITIES PERFORMANCE TRENDS

2.1. INSTALLED POWER

2.1.1. According to data from ESO EAD, **the total installed capacity in the country significantly increased in five years, going from 12,839 MW at the end of 2020 to 18,668 MW at the end of 2025**, which is an increase of 45.4% or 9.08% on average per year. Moreover, **the rate of increase in 2025 is**

practically twice as high as the average, with the growth in total installed capacity amounting to 17.8%.

2.1.2. The analysis of ESO EAD data shows:

- The process of **increasing the capacity of photovoltaic power plants from 1,121 MW at the end of 2020 to 6,104 MW at the end of 2025** continues, representing a growth of over 540%.
- It should be noted, however, that the growth in these capacities in 2025 is significantly lower (33.6%) than the growth achieved in 2023 (79.1%) and marks the **second consecutive year of a decrease in the pace of construction of new SPPs** (after a growth of 47.7% reported in 2024).
- **The sharp penetration of BESS, which reached 1,382 MW** in 2025 compared to just 86 MW in 2024, currently representing 7.4% of the total installed capacity, makes them a key factor in the country's electricity mix.

2.1.3. As a result of these changes, at the end of 2025 the capacities of **the SPPs consolidate their leading position in the ranking of the structure of installed capacities in the country with a share of 32.7%, and BESS reached the fifth position with 7.4%, immediately after the nuclear power plant with 10.7%.**

2.1.4. ESO EAD data shows that, according to the announced investment plans, **in the period 2026-2035, a total of 19,952 MW of new capacities are planned for construction** including:

- 11,420 MW of which are RES;
- 7,610 MW BESS.

2.2. USE OF INSTALLED CAPACITY

2.2.1 According to the data of ESO EAD, the average annual load factor of the installed capacities during the last several years is characterized by:

- **about 90% utilization of installed capacity at Kozloduy NPP**, which, however, has decreased by more than 6% over the last five years;
- **reduced utilization of installed capacities in condensing power plants**, around and below 30%;
- **relatively constant utilization of installed capacities in district heating plants**, within the range of 41%-47%
- **variable utilization of industrial thermal power plants and biomass power plants** within the range of 22%-35% and 25%-46% respectively

- **continuously decreasing utilization of hydroelectric power plants**, which in 2025 reaches 10.2%.
- **relatively stable utilization of wind power plants** in the range of 21%-25%
- **variable utilization of solar power plants** above 13% with the highest value of 21.1% recorded in 2023.

2.3. NPP

2.3.1. **In recent years, Kozloduy NPP has reported a decrease in net electricity production from 15.67 TWh in 2021 to 14.56 TWh in 2025**, which is a result of the reduced capacity utilization factor from 90% (2021) to 84.31% in 2025.

2.3.2. According to the financial statements of Kozloduy NPP, **56% of the electricity sold by the plant in 2025 was through sales on the exchange market**. This represents a decline for the fourth consecutive year compared to 2021, when this share exceeded 80% and is due both to sales at regulated prices until mid-2025 and to sales by NEK as a balancing group coordinator in the second half of the year.

2.3.3. For the first time, ESO EAD's forecast balance considers the construction of new nuclear capacity, as **for 2035 electricity production from nuclear power plants is expected to increase to 26.6 TWh from 16.5 TWh in 2030**.

2.4. TPPs

2.4.1. In 2025, electricity production from thermal power plants shows a stabilization trend. **The reported production of 12.1 TWh represents a growth of 7.3% compared to the previous year, which is mainly due to an improvement in the capacity utilization factor of condensing power plants**, which increases to 29.1% (26.3% in 2024).

2.4.2. **The production of condensing thermal power plants for 2025 - 9.35 TWh, is also 7.3% higher than in 2024**. Furthermore, there is a significant increase in the production of district heating and other thermal power plants, which is the highest in the last four years.

2.4.3. According to the ESO EAD information, **there are plans to commission additional 921 MW of natural gas and combined cycle generating capacities in the period 2026-2035**.

2.5. RENEWABLE ENERGY SOURCES

2.5.1. According to the register of the Sustainable Energy Development Agency (SEDA), ***the total installed capacity of facilities in operation to produce electricity from renewable sources reached 7,977 MW in 2025***, which is an increase of more than 80% within four years.

The largest share corresponds to facilities using solar energy, which is 4,941 MW at the end of 2025, according to SEDA data, followed by facilities using hydropower with 2,295 MW.

2.5.2. As a result, the growth of ***installed solar power capacity maintains the trend established in 2022 in an annual increase in electricity production from solar energy***, as according to SEDA data, this production for 2025 marks an increase of over 12% compared to the previous year.

At the same time, it should be noted that there is a ***significant slowdown in the growth rate of this electricity production according to SEDA data***, given that in 2024 this growth was 49%, and a year before that as high as 54%.

2.5.3. According to ESO EAD, based on announced investment intentions, a total of 11,420 MW of new RES capacity are planned for construction in the period 2026-2035, including:

- 7,452 MW of solar power plants;
- 3,206 MW of hydro power plants;
- 747 MW of wind power plants.

2.5.4. As a result, ***by 2035 more than half (55.5%) of domestic consumption needs are expected to be met by electricity produced from RES***