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Overview of the current energy market

The energy sector encompasses four primary markets: electric power; gas; heating; and petroleum products.

In 2024, fossil fuels powered roughly 58% of North Macedonia's electrical generation, with coal representing approximately one-third of the entire energy portfolio. Clean energy sources supplied about 29% of electricity, predominantly through hydropower facilities, which accounted for over two-thirds of this renewable segment. Natural gas and imported electricity provided around 20% and 13% of the mix, respectively, while photovoltaic installations contributed nearly 5%. In 2025, photovoltaic capacity experienced dramatic growth and may have overtaken hydropower production.

Natural gas is exclusively sourced through imports, with 3,735,851,163 kWh distributed across domestic networks, and centralised heating facilities operate entirely on natural gas fuel.

During 2024, petroleum product imports totalled 1,313,693 tonnes. Diesel dominated these imports at 67.66% of the total volume, with gasoline comprising 13.29%, aviation fuel at 7.58%, heavy fuel oil (mazut) at 5.84%, liquefied petroleum gas (propane-butane) at 4.07%, and extra-light fuel oil (EL-1) at 1.57%.

Overview of energy policy

As an EU candidate nation, the Republic of North Macedonia confronts the task of aligning with European energy standards while transposing and adopting EU energy directives and regulatory frameworks. The country has committed to both the Energy Charter Treaty and the Energy Community Treaty, which drive the harmonisation of its energy laws with the EU related to energy, environmental protection, renewable resources, efficiency measures and petroleum reserves.

Following independence in 1991, North Macedonia became party to significant international energy agreements, including the Energy Charter Treaty, the Energy Community Treaty, and the United Nations Framework Convention on Climate Change alongside the Kyoto Protocol. These commitments catalysed substantial reforms in the legal framework governing energy markets, pursuing deeper alignment with Energy Community obligations while advancing towards market liberalisation and establishing a sustainable energy infrastructure. The national Energy Law demonstrates strong conformity with EU energy sector directives and has partially transferred regulatory authority to system operators through grid code provisions. The legislation also addresses matters relevant to full EU accession. Accordingly,

the Government, via the Ministry of Economy, has established the comprehensive Energy Development Strategy 2040, outlining optimal pathways for long-term sectoral growth to ensure reliable, high-quality energy delivery to consumers. This Strategy charts potential trajectories for North Macedonia's energy evolution, considering global and European policy developments particularly within the Energy Community framework. Contemporary energy paradigms emphasise accelerated movement towards low-carbon economies, positioning renewable sources and efficiency improvements as pivotal enablers of this transformation. The Strategy incorporates proven EU approaches to renewables and efficiency while addressing decarbonisation objectives through realistic targets and implementation timelines calibrated to national characteristics and governmental priorities. To realise the 2040 vision, three pathways are outlined: Reference; Moderate Transition; and Green Scenario.

North Macedonia has pledged to eliminate coal-based generation by 2027 through its Powering Past Coal Alliance participation, although the National Energy and Climate Plan suggests that the Bitola facility's closure may occur in 2027, with possible delays until 2029. These accelerated retirement schedules stem primarily from depleted economically recoverable coal reserves – the Suvodol deposit contains a two-year supply while Brod-Gneotino holds sufficient resources to last a decade.

Oil sector

Under current regulations, the crude oil, petroleum products, biofuels, and transport fuels market in the Republic of North Macedonia operates through import and export activities for crude oil and refined products, crude oil transportation via pipeline infrastructure, refining operations, petroleum product manufacturing, and biofuel production, alongside distribution and retail of petroleum products.

Throughout 2024, procurement and commercial activities for petroleum products in the Republic of North Macedonia were conducted by 18 licensed entities authorised for wholesale trading in crude oil, petroleum derivatives, biofuels, and transport fuels. Total petroleum product imports into the Republic of North Macedonia during 2024 reached 1,313,693 tonnes, representing a 2.65% decline relative to 2023 import volumes. Notable was the 32.75% surge in aviation fuel imports compared to 2023, accompanied by increases in gasoline and diesel imports during 2024. Conversely, 2024 witnessed a substantial reduction in heavy fuel oil imports of 49.71%, along with decreases in extra-light fuel oil (EL-1) and liquefied petroleum gas compared to 2023 figures.

Domestic market sales of petroleum products in 2024 totalled 964,886 tonnes, reflecting a 4.21% decline from 2023 sales volumes. Diesel fuels dominated domestic petroleum consumption in 2024 at 73.95%, followed by unleaded gasoline at 11.37%, heavy fuel oil at 7.01%, and liquefied petroleum gas at 5.29%.

Petroleum product exports in 2024 reached 330,673 tonnes, marking a 4.56% reduction compared to 2023 (346,463 tonnes). Diesel fuel led 2024 exports at 48.32% of total volume, with aviation fuel accounting for 29.90%, motor gasoline at 18.50%, and heavy fuel oil at 3.28%.

Gas sector

The natural gas market in the Republic of North Macedonia achieved full liberalisation in 2015, permitting market participants to establish prices freely. The Energy Regulatory Commission exclusively regulates tariffs for transmission and distribution activities as controlled energy operations. Nevertheless, the natural gas market remains in early developmental stages, characterised by modest consumption levels and limited active trading and supply entities. From early 2023 onwards, enhanced interconnector capacity with Bulgaria has facilitated increased market competition in natural gas, and it has been recently expanded to include hydrogen in addition to natural gas. Throughout 2024, state-controlled Natural Gas Transmission Skopje Joint Stock Company for Energy Activity (NOMAGAS) operated the transmission infrastructure, conveying 3,735,851,163 kWh of natural gas and maintaining consumption comparable to the previous year.

Combined heat and power facilities, along with district heating installations, constitute the predominant natural gas consumers in North Macedonia at 85%. Industrial users, particularly metallurgical sector enterprises linked to the transmission network, represent the subsequent largest category at 13% of consumption, while distribution system consumption accounted for 2% in 2024.

After the sharp escalation in natural gas pricing during 2022, downward trends emerged in 2023 and 2024. Retail market end-user prices across all consumer categories in 2024 averaged between 45 and 80 EUR/MWh, representing approximately half the 2023 levels. A notable 2024 milestone was the certification of the Natural Gas Transmission System Operator of the Republic of North Macedonia – the state-owned NOMAGAS Skopje.

Within the Republic of North Macedonia, the following natural gas distribution networks have been established:

- Technological Industrial Development Zone (TIDZ) Skopje 1 and Skopje 2, situated in Bunardzik village, featuring a 7.7km distribution network;
- the Kumanovo Municipality, with a 22.5km distribution network; and
- the Strumica Municipality, with 44km of constructed distribution infrastructure.

These distribution systems facilitate natural gas delivery to industrial and commercial users, public sector facilities, and residential consumers.

The transmission infrastructure in the Republic of North Macedonia consists of a primary interconnection pipeline with the Republic of Bulgaria, entering North Macedonia at Deve Bair/Zhidilovo, extending 98km through Kriva Palanka, Kratovo, and Kumanovo before reaching Skopje. Additionally, a pipeline distribution network branches from the main line to Kriva Palanka, Kratovo, Kumanovo, the Skopje TIDZ (Bunardzik), TAV Makedonija Petrovec, and Skopje spanning 32km, plus urban gas pipeline networks totalling 80km (covering Kriva Palanka, Kratovo, Kumanovo, and Skopje), aggregating 210km overall.

The transmission system incorporates a GMS (primary metering station) positioned at the national entry point, along with six GMRS (primary metering and regulation stations) installed at entry points to Kriva Palanka, Kratovo, Kumanovo, two Skopje locations – Skopje Sever (North) and Skopje Jug (South) – plus one at the Skopje TIDZ and TAV Makedonija Petrovec.

The natural gas transmission system's total capacity stands at 800 million nm^3 annually, operating at 54 bar pressure through a 530 mm diameter main pipeline. System capacity can extend to 1,200 million nm^3 annually, with the main pipeline's maximum flow rate reaching 180,000 nm^3/hour.

A novelty in the gas sector has been the introduction of hydrogen as an energy source with the new Energy Law of 2025 (Official Gazette of R.N. Macedonia Nos 101/25 and 135/25). It is included in the definition of the term "gas" as an energy source, which specifically includes natural gas and hydrogen. As such, the legal framework that regulates the gas market also covers the use of hydrogen. Being a recent adoption, it will be interesting to see how it will enter the market and further develop as an energy source.

Power sector

Electricity market liberalisation and structure

Since July 1, 2019, complete liberalisation of the electricity market has enabled every electricity consumer to independently choose their supplier from the marketplace. This followed the wholesale electricity market liberalisation, which permitted electricity suppliers, traders, and producers to execute bilateral sale and purchase agreements without requiring prior Energy Regulatory Commission consent or approval.

Throughout 2024, the electricity market was stable. During this period, under half of total electricity consumption – 49.84% – was procured through the open electricity market, reflecting a gradual restoration of consumer confidence in electricity suppliers alongside more competitive pricing offers. The

national day-ahead electricity market operator, managed by the organised electricity market operator MEMO DOOEL Skopje, sustained operations, concluding December 2024 with 37 registered participants in the day-ahead market. Total electricity trading volume on the day-ahead market in 2024 reached 969,554.7 MWh.

During 2024, 21 active electricity suppliers were in operation, serving consumers at freely determined market prices. This competitive market environment enabled consumers outside the small consumer category to secure prices that were 8.56% lower on average when compared to 2023 pricing for this segment.

EVN HOME DOO Skopje functioned as the universal and last-resort electricity supplier in 2024, serving households and small consumers who either did not select a liberalised market supplier, opted for the universal supplier, or found themselves without a supplier due to specific circumstances. Household sales comprised 88.83% of EVN HOME DOO Skopje's electricity sales in 2024, with small consumers accounting for 11.17%. The Energy Regulatory Commission lacks legal authority to establish electricity sales prices; instead, the universal electricity supplier determines sales prices while the Commission monitors the application of the tariff system governing these price determinations.

Generation capacity and renewable energy growth

Total installed electricity generation capacity reached 2,983.9 MW in 2024. New electricity producers added 351.3 MW of installed capacity during the year, representing a 13.35% increase compared to 2023. For the first time, renewable energy power plants, including large hydropower facilities, dominated total installed capacity, achieving a 55.72% share in 2024. The majority of new producers were photovoltaic installations totalling 341.5 MW of installed capacity, ranking second in terms of the total 2024 installed capacity share.

Thermal power plants held a 34.65% capacity share, followed by photovoltaic installations at 28.40%, hydropower plants at 24.13%, and combined electricity and district heating cogeneration plants at 9.63%, with remaining technologies comprising 3.19%.

Electricity production and consumption

Total domestic electricity production in 2024 amounted to 6,129 GWh, representing a 6.47% decrease compared to 2023, yet 8.79% higher than 2022 levels. Domestic production satisfied 88.97% of gross electricity consumption, with imports providing 11.03%. Renewable energy resources accounted for 41.03% of total electricity production. Most notable was photovoltaic electricity generation, which surged 186% in 2024 compared to 2023, totalling 853 GWh.

The prosumer count (measured by metering points) increased to 1,598 in 2024, comprising 785 legal entities and 813 households, with combined installed capacity of 25 MW. Total electricity transmitted by prosumers to the distribution system reached 12.3 GWh, marking a 90% increase compared to 2023.

Electricity pricing determinations

Two pricing decisions were issued in 2024 for consumers supplied by the universal supplier. The first, adopted in late 2023 pursuant to regular procedures prescribed in the tariff system for universal and last-resort supplier electricity sales, applied from January 1 to June 30, 2024. The second decision, adopted in June 2024 following margin percentage adjustments resulting from new universal supplier selection tendering, applied from July 1 to December 31, 2024.

Primary energy sources and generation technologies

In the Republic of North Macedonia, electricity generation utilises thermal power plants employing lignite, heavy fuel oil (mazut), and natural gas as primary energy sources, alongside renewable energy power plants harnessing hydropower, wind, solar energy, biomass, and biogas.

In recent years, the Republic of North Macedonia developed import dependency regarding electricity requirements, commencing lignite imports for electricity generation with direct reliance on domestic production capacity. Historically, electricity imports ranged from 20% to 30% of overall gross consumption. Notably, 2023 marked a first with electricity imports at merely 2.75%, contrasting sharply with 20.70% in 2022 and 33.15% in 2021. During 2024, net electricity imports constituted 11.03% of total gross consumption.

Total nominated electricity imports in 2024 were 2,200 GWh, declining by 724 GWh or 24.79% compared to 2023 imports. Importantly, these imported quantities were not entirely consumed by Republic of North Macedonia end-users, as portions were subsequently exported.

Renewable energy support mechanisms

Under existing legislation, renewable energy source support measures apply exclusively to electricity production, aimed at encouraging investments for optimal utilisation of available renewable energy potential in the Republic of North Macedonia while ensuring energy supply security, achieving national mandatory renewable energy participation goals in total energy consumption, and satisfying environmental protection and climate change mitigation requirements. Available support measures include feed-in tariffs and premium tariffs for electricity production from renewable energy sources.

The feed-in tariff mechanism was established in 2007, with initial power plants selling electricity under feed-in tariff arrangements commencing operations in 2010. The 2018 Energy Law introduced premium tariffs as an additional support measure. Premium tariffs represent supplemental amounts added to prices that preferential producers achieve by selling generated electricity in the electricity market. Preferential producers utilising premium tariffs are selected through tender procedures via auction, conducted by the Ministry of Energy, Mining and Mineral Resources.

Among 1,502 domestic electricity producers, 1,494 utilise renewable energy sources; of these, 179 employ feed-in tariffs and 53 use premium tariffs, while 1,262 power plants operate without production support measures. Producers using support measures represent 16% of total renewable energy source installed capacity and 9% of total Republic of North Macedonia installed capacity.

Transmission system operations

The state-owned joint-stock company for electricity transmission and power system management (JSC MEPSO Skopje) exclusively performs electricity transmission activities, fulfilling obligations in accordance with the Energy Law and issuing electricity transmission licences for the territory of the Republic of North Macedonia.

Distribution system operations

Within the Republic's territory, electricity distribution activities are performed by two distinct and independent distribution system operators as separate legal entities – Elektrodistribucija DOOEL Skopje and JSC ESM Skopje – operating pursuant to the Energy Law and distribution activity licences issued by the Energy Regulatory Commission. Elektrodistribucija DOOEL Skopje, which is privately owned, conducts electricity distribution across approximately 98% of the Republic's territory.

JSC ESM Skopje, the second distribution grid operator, represents a significantly smaller entity, performing electricity distribution within the specific territory of the former Rudnici i Zelezarnica – Skopje industrial complex, located in the Butel and Gazi Baba Municipalities. Fewer than 100,000 users connect to JSC ESM Skopje's electricity distribution system.

Transmission network infrastructure

The electricity transmission network's highest voltage level is 400 kV, with 110 kV representing the lowest level. The 400 kV transmission lines form the network's backbone, assembling a 400 kV ring

connecting the country's northern region – where the largest consumer concentration resides – with the southern area, which hosts fewer consumers but accommodates the largest generation facilities and renewable energy sources. Many renewable installations connected to the distribution grid frequently injected generated electricity into the transmission system during 2024. Simultaneously, 400 kV lines facilitate interconnection with neighbouring electrical power systems.

International interconnections

The Republic of North Macedonia's electricity transmission system connects to the transmission systems of all neighbouring countries except Albania, through five 400 kV interconnections:

- Kosovo: via 400 kV transmission line TS Skopje 5–TS Ferizaj 2 (Uroshevac).
- Serbia: via 400 kV transmission line TS Shtip–TS Vranje 4.
- Bulgaria: via 400 kV transmission line TS Shtip–TS Mogila.
- Greece: via two 400 kV transmission lines, TS Bitola 2–TS Meliti and TS Dubrovo–TS Thessaloniki.

The electricity transmission system is not connected to the Republic of Albania's transmission system. A planned project involves constructing the 92km 400 kV transmission line from Bitola to Elbasan, alongside construction of TS 400/100 kV/kV Ohrid. This project will complete "Corridor 8" construction, providing interconnection between North Macedonia, Bulgaria, Albania, Montenegro, and Italy. During 2024, JSC MEPSO Skopje conducted activities at TS 400/100 kV/kV Ohrid and TS 400/100 kV/kV Bitola 2, where a 400 kV line is under construction. According to the 10-year electricity transmission network development plan, this project is expected to be completed in 2026.

Distribution network infrastructure

The Republic of North Macedonia's electricity distribution network comprises transmission lines at 110 kV, 35 kV, 20 kV, 10 kV, 6 kV, and 0.4 kV voltage levels, along with transformer stations TS 110/(20)10 kV/kV, TS 110/35/(20)10 kV/kV/kV, TS 35/10 kV/kV, and TS 10(20)/0.4 kV/kV. Total distribution network length spans 29,298km, of which 99.42% or 29,128km is managed by Elektrodistribucija DOOEL Skopje. The remaining 170km is owned and managed by JSC ESM Skopje. In 2024, JSC ESM Skopje's distribution network length remained unchanged. According to Elektrodistribucija DOOEL Skopje, total network length reached 29,218km in 2024, indicating a 351km or 1.21% increase.

Cross-border capacity allocation

JSC MEPSO Skopje allocates cross-border transmission capacities in accordance with the Rules on Allocation of Cross-Border Transmission Capacities (Official Gazette of R.N. Macedonia Nos 228/19 and 294/2020) approved by the Energy Regulatory Commission. These rules permit cross-border capacity allocation via coordinated auction or joint auction with neighbouring transmission system operators, with one share (50%) of available cross-border transmission capacity allocated unilaterally. At the Greek and Kosovo borders, coordinated auctions are conducted through the Coordinated Auction Office in Southeast Europe in Podgorica, Montenegro.

At the Bulgarian and Serbian borders, joint auctions occur at annual, monthly, daily, and intra-day levels. At the Serbian border, JSC MEPSO Skopje conducts annual and monthly auctions, while Elektromreza of Serbia, Serbia's electricity transmission operator, conducts daily and intra-day auctions. At the Bulgarian border, JSC MEPSO Skopje conducts annual and monthly auctions, while Elektroenergetski Sistem Operator of Bulgaria, Bulgaria's electricity transmission system operator, conducts daily auctions. Intra-day auctions are not conducted at this border. Bilateral rules for joint auctions at both borders have received Energy Regulatory Commission approval.

District heating

Within the Republic of North Macedonia, centralised heating infrastructure operates exclusively in Skopje, where three systems function:

- The centralised heating network operated by state-owned joint-stock company for electricity generation ELEKTRANI NA SEVERNA MAKEDONIJA Skopje, representing the largest system and serving over 63,000 connected consumers throughout 2024 with aggregate engaged capacity of 530 MW.
- JSC ESM Skopje's centralised heating network, subsidiary Energetika, serving approximately 2,100 connected consumers with combined engaged capacity of approximately 40 MW.
- JSC ENERGY ECOLINK Skopje's centralised heating network, serving approximately 485 connected consumers with total engaged capacity of approximately 8.6 MW.

Since 2024, aggregate district heating generation capacity, encompassing the unregulated producer, has stood at 794 MW, while the total distribution network span has reached 278.9km.

Among the more notable district heating market activities during 2024 were licence applications submitted by steam and hot water supply company ENERGY ECOLINK AD Skopje (previously Toplana Skopje Sever) in November 2024 for performing regulated production, distribution, and supply of district heating energy. Subsequently, the Energy Regulatory Commission issued production and supply licences while suspending the distribution licence pending additional documentation.

In December 2024 and January 2025, companies filed extraordinary requests for regulated income and tariff modifications for district heating, responding to upward natural gas price trends. Following these submitted applications, the Energy Regulatory Commission adopted decisions in January and February 2025, amending the 2024 decisions, establishing maximum regulated revenue and tariffs, resulting in average district heating price increases of 5% for households and other consumer categories.

Overview of recent developments (including judicial decisions) impacting the energy market and future energy policy

There have been no impactful judicial decisions to date. Almost all procedures in the energy sector are debt collections or administrative processes against decisions of the Energy Regulatory Commission.

On May 14, 2025, North Macedonia's Parliament approved a new Energy Law that has revamped the country's energy market structure and harmonised national legislation with the EU Clean Energy Package (as well as introducing hydrogen in the energy mix). The goal of this law is alignment with: Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU (CELEX No. 32019L0944); Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market in electricity (CELEX No. 32019R0943); Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard security of gas supply and repealing Regulation (EU) 994/2010 (CELEX No. 32017R1938); Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) 715/2009 with regard to gas storage (CELEX No. 32022R1032); Regulation (EU) 1227/2011 of the European Parliament and of the Council of 25 October 2011 on the integrity and transparency of wholesale energy markets (CELEX No. 32011R1227); and Regulation (EU) 2015/1222 of the European Commission of 24 July 2015 establishing guidelines on capacity allocation and congestion management (CELEX No. 32015R1222). The main takeaways from the new law are the introduction of hydrogen in the energy mix, and that all new solar and wind power plants must now include storage systems equal to at least 20% of their capacity, with the ability to charge and discharge electricity at full power for a minimum of two hours. The law introduces comprehensive rules for developing energy storage systems, including standalone projects,

storage paired with power plants, and storage integrated into the electricity grid, and the Annual Plan for the Construction of Energy Facilities as the legal framework for approving new energy projects. The approval procedure applies to larger power plants over 1 MW, high-efficiency cogeneration facilities, hydrogen and synthetic fuel facilities, energy storage systems, and smaller projects if first approved through local municipal plans.

Regulation specific to renewable energy sources has moved away from the new Energy Law of 2025 as a new law is in preparation. In the meantime, renewable energy source provisions from the previous Energy Law (Official Gazette of R.N. Macedonia Nos 96/18, 96/19, 236/22, 134/24 and 147/24) and its by-laws will be applicable.

The North Macedonia Assembly recently enacted the Energy Efficiency Law, harmonised with European standards. This legislation establishes the EU's "energy efficiency first" doctrine and incorporates a comprehensive long-term framework for renovating residential, governmental, and commercial structures. Key takeaways include annual reconstruction of no less than 3% of governmental buildings being mandated, and solar collector installation becoming compulsory for all construction or renovation projects involving educational facilities, early childhood centres, and public institutions. The legislation requires a threefold increase in public sector energy conservation, and additional provisions encompass financial assistance mechanisms for solar panel installations, geothermal infrastructure, and intelligent technology systems. Furthermore, real estate cadastral records will incorporate energy performance certification documentation.

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