

General information	State	Republic of North Macedonia
General information	Status EU membership	Candidate for accession since 2005, Accession Negotiations opened in July 2022 ¹
	Population	2,081,104 (2022) ²
	Land area (km²)	25,713 (2022) ³
	Urban population (%)	58% (2022) ⁴
Socio-economic situation	GDP (current US\$)	13.889 million (2021) ⁵
	GDP per capita (US\$)	6,720.9 (2021) ⁶
	Annual net earnings (Single person without children earning 100% of average earning (EURO))	5,847.84 (2022) ⁷
	Median hourly earnings (EURO)	2.59 (2018) ⁸
	World Bank economic classification (2021)	Upper middle-income economy ⁹
	Unemployment (% of total labor force)	15.8% (2022) ¹⁰
Energy situation in general	Current energy sources	<ul style="list-style-type: none"> - Main electricity generation capacity consists of coal-fired thermal power plants and hydropower plants. The total installed capacity is 2.09 GW with 49.5 % thermal power plants (coal), around 33.4 % large and small hydropower plants, 13.8 % gas combined heat and power plants and 3.2 % other renewables.¹¹ - Electricity mix – total gross electricity production in September 2022 (preliminary data): 48.9% thermal power plants, 30.4% CHP plants; 18.4% hydro power plants; 1.6% wind power; 0.4% solar power; and 0.3% biogas plants.¹² - North Macedonia has one of the highest shares of import of electricity among the countries in the region; the share fell from 33.5 % in 2015 to 24.4 % in 2019.¹³ - In case of electricity generation in 2020, 1 475 GWh (28 %) is generated from renewable sources¹⁴, from them: <ul style="list-style-type: none"> ○ Hydro and marine: 1 277 GWh (24 %) ○ Solar 24 GWh ○ Wind 117 GWh (2%) ○ Bioenergy 57 GWh (1%)¹⁵ - Renewables installation has grown very slowly but is expected to speed up.¹⁶ - The share of renewable energy in gross final energy consumption (calculated with actual values) in 2020 is 17.7%¹⁷ - Share of households in the total number of households by primary energy commodity used for heating in 2019: 49.18% fuelwood; 31.30% electricity; 10.25% district heating; 8.49% pellets; 0.51% heating oil; 0.17% coal; and 0.10% LPG¹⁸ - In 2021, the installed capacity of PV is 45 MW¹⁹
	Climate protection targets	<ul style="list-style-type: none"> - Second Nationally Determined Contribution (NDC) adopted, with a target of 51 % GHG emission reductions by 2030 compared to 1990 levels.²⁰ - North Macedonia intends to decrease the GHG emissions by 82% compared to 1992, by promoting the transition of the energy sector to

	<p>low carbon technologies. Key goals include: gradual closure of the only coal-fired power plants TPP Oslomej and TPP Bitola by 2027, and the acceleration of the use of renewables for electricity production in combination with energy efficiency measures in all sectors.</p> <ul style="list-style-type: none"> - A CO₂ tax will be introduced, to accelerate the phasing out of conventional fuels and stimulate investment in renewables and energy efficiency.²¹ - According to the Energy Strategy, coal phase-out is planned by 2025²²
Renewable energy targets	<ul style="list-style-type: none"> - In 2019, renewable energy sources accounted for 16.8 % of gross final energy consumption, lower than in previous years, due to poor hydrological conditions.²³ - The country has not reached its estimated share of renewables of 23% in the final energy consumption by 2020²⁴. - The draft NECP states a target of “38 % share of renewable sources in gross final energy consumption by 2030”.²⁵ - The share of renewables in electricity is set at 46 % by 2025, with an intermediate target of 34 % for 2022, and 37 % for 2023.²⁶ - According to the draft national energy and climate plan (NECP), the objective is to install up to 400 MW in PV rooftop systems by 2040 – either by the prosumers or systems from which the overall produced electricity will be used for self-consumption.²⁷
Renewable energy potential	<ul style="list-style-type: none"> - According to IRENA, the renewable energy potential includes around 65% of land area for the annual generation per unit of installed PV capacity (KWh/kWp/y) of 1200-1400; around 85% of land area for wind power density at 100m height (W/m) of below 260; and average net primary production of biomass (tC/ha/yr) of 5.5²⁸ - 79 242 households in 2019 had installed solar collectors, out of which 78 093 were in use²⁹ - Potential of solar and wind is underused.³⁰ - Estimated moderate potential for wind power throughout the country, on patches of lands mostly located in some of its larger valleys and plateaus.³¹ - “Large and small hydropower plants, solar power plants, and those fueled by biogas and biomass, with a combined capacity of 795 MW, together produced 1,662 GWh in 2021, or 31.4% of the country’s total electricity output. Large hydropower plants accounted for most of the output, or 68%, followed by small hydropower plants, 19%, and wind farms, 6%. The biggest drivers of the green energy growth in 2021 were large hydropower plants, with an increase in production of over 10%, and photovoltaic power plants, whose output rose 38%, from 37 GWh in 2020 to 51 GWh.”³²
Renewable energy support regime	<ul style="list-style-type: none"> - A more updated renewables incentives scheme compared to its neighbours, - Expensive and damaging feed-in tariff scheme in place for small hydropower, giving it an advantage over other less damaging sources of energy.³³ - Will continue its current support mechanisms for renewables electricity generation via feed-in tariffs and feed-in premia with auctions (granted in a tendering procedure). - Will promote further utilization of RES in the electricity sector (without incentives), but also in the other sectors through the introduction of the ‘prosumer’ concept, as well as by increasing the biofuels consumption in the transport sector.”³⁴

Relevant laws, policies, and plans

- The Energy Law, adopted in 2018, transposed the Third Energy Package in the electricity and natural gas sector, introduced a new renewable energy support system.³⁵
- The **Energy Efficiency Law** adopted in February 2020, with the relevant by-laws, transposes the EU Energy Efficiency Directive 2012/27/EU, Energy Performance of Buildings Directive 2010/31/EC and a package of regulations for energy efficient products (labelling and eco-design).³⁶
- “An **Energy Strategy** was adopted in December 2019. The Energy Strategy depicts three scenarios – Reference, Moderate Transition and Green – which reflect different dynamics of energy transition.”³⁷
- “Development of a **Long-term Strategy** and a **Law on Climate Action** is underway as of May 2021.”³⁸
- The National Energy and Climate Plan (NECP) adopted in 2022, covering the period from 2021 to 2030.³⁹ NECP envisages savings of 20.8% for the consumption of final energy and 34.5% for primary energy compared to the business-as-usual scenario.”⁴⁰
- In July 2022 households were grouped into 4 blocks based on their energy consumption (210 kWh; 211-630 kWh; 631-1050 kWh; and above 1050 kWh) which correspond to a block tariff with a corresponding price – respectively (4,3484 denar/kWh; 4,7017 denar/kWh; 5,2877 denar/kWh, and 14,1025 kWh)⁴¹

Regulatory framework for citizen energy

Legal and political framework for citizen energy

- With the new Law on Energy from 2018 **consumers can become active actors in the electricity market** and start producing electricity for their own needs, and when they have a surplus of their production, to **transfer that surplus to the electricity network**.⁴²
- The terms “prosumers” or “citizen energy” have not been officially used until recently. The new **National Energy and Climate Plan** submitted to the Energy Community in its final draft in early October 2020, provides for about 400MW of solar energy to be generated by households PVs and included into the country’s energy mix. This provision is opening a pathway for citizen energy, energy communities and prosumers; the Ministry of Economy used the term during an official press.”⁴³
- “In accordance with the **Law on Energy from 2019**, prosumers have been introduced as power market participants in North Macedonia. In June 2022, the Minister of Economy presented the changes in the rulebook on renewable energy sources, to enable citizens and companies to produce electricity on their roofs and sell it to a buyer or the power distribution company. The amendments came into force in July 2022.”⁴⁴
- The electricity market liberalization process in the country decreased prices for small commercial customers by about 32 per cent in 2019 as a result.”⁴⁵
- New supportive regulations for energy prosumers introduced in July 2022⁴⁶
- Program for Promotion of Renewable Energy and Support of Energy Efficiency in Households for 2021.⁴⁷ It aims to co-finance solar collectors, windows, pellet stoves and PVs. Certain measures address vulnerable consumers.
- Program for Protection of Energy Vulnerable Consumers for 2022⁴⁸ (less about citizen energy, but still of relevance)
- The most important development is the introduction of the possibility of natural persons since July 2022 to sell the excess electricity from PV to the grid.⁴⁹ However, there has been reports about many administrative obstacles and no official reports about the implementation of this measure in practice despite reports about citizens’ interest

Evaluation of the legal framework

The report “The Political Economy of Energy Transition in Southeast Europe – Barriers and Obstacles”⁵⁰ provides some insights:

- The **political will** for energy transition seems to exist, but there is **lack of capacity and professional staff at the local and national level**, and financial resources are insufficient to implement existing legislation.⁵¹
- **Cooperation and coordination** between central government institutions, as well as between government and municipalities is weak; local government measures are often not in line with national policies and plans.⁵²
- Energy poverty in households needs a systematic approach that reaches also the most marginalized groups.⁵³
- Explicit links between energy poverty and energy/climate policies (NECP, Energy Strategy, Energy Law, Renewable Energy Strategy, Household Support Program).⁵⁴ Overall issue is the lack of implementation of policies due to lack of funds and human capacities

*Energy Community provides an updated assessment of implementation performance and key energy sector data, including in the field of renewable energy and energy efficiency⁵⁵

Existing citizen energy projects and/or research	Citizen energy projects	
	Research and capacity building activities	A description of potentially favorable conditions and likely supportive NGOs is provided by Srgjan Vidoeski (2021) in a Policy Brief by the Heinrich Böll Stiftung in Sarajevo ⁵⁶ “Transformation Towards Energy Democracy” events in 2020 and 2021, webinars organized by Green European Foundation and Sunrise ⁵⁷
Relevant actors and stakeholders	NGOs	<ul style="list-style-type: none"> - Center for Climate Change - Macedonian Solar Association - Macedonian Academy of Sciences - Youth Eco-Activism Education for Climate Change Social Inclusion for Green Economy - SUNRISE (Association for Sustainable Social and Economic Development- ASSED) from the civil sector^{58,59} - Association for Education Development EKVALIS in Skopje, North Macedonia⁶⁰ - Community Development Institute - Center for environmental research and information Eko-svest - Macedonian Ecological Society
	Governmental bodies	<ul style="list-style-type: none"> - Ministry of Economy of North Macedonia - Ministry of Transport and Communication - Regulatory Commission for Energy of North Macedonia
	Local governments	<ul style="list-style-type: none"> - Municipality of Brvenica - Municipality of Karposh, Skopje - Municipality of Centar, Skopje
	Private actors	
	International/supra-national actors	<ul style="list-style-type: none"> - UNDP Macedonia - Heinrich Böll Stiftung – Regional Office Sarajevo - Friedrich-Ebert-Stiftung Skopje Office
	Academia	<ul style="list-style-type: none"> - Central European University - EHT Zürich
	Others	<ul style="list-style-type: none"> - Association for Education Development EKVALIS in Skopje, North Macedonia, one of the co-founders authored the Policy Brief (2021) for Heinrich Böll Stiftung Sarajevo on “North Macedonia: Energy Transition and Democracy”; Activist and co-founder of

- Centre for Social Sciences, Hungary / Analytica, North Macedonia / ZIP Institute, North Macedonia
- Bidi Zelen, North Macedonia

Summarizing evaluation

- Fields of Action**
- Needs include: **Legislative changes; Simplification of the procedure for installing solar photovoltaics** on households and connecting them to the distribution network; **changes in the implementing legislation for the Energy Law** and enabling consumers who are supplied by the universal supplier to be able to become prosumers and build photovoltaic power plants on their roofs.⁶¹
 - Further promotion of RES, education, awareness raising, capacity building is needed, increased public participation by networking between relevant stakeholders
 - Energy poverty, energy efficiency and renewable energy remain topics rarely mentioned by national media.⁶² Journalists' expertise on the topic should be developed.
 - "Local authorities need to adapt their plans to the national ones as well as proposing national-level measures. They need to support the measures with additional local funds and to implement the schemes, if necessary, pro-actively seeking international funds for more complex projects."⁶³
 - Lobbying to increase governmental financial support for CE projects, or on municipal level, and educating interested parties on other ways to finance their CE projects in development
 - Further promotion of the possibilities for connecting own produced electricity and supporting the NGOs in their efforts and background work, while engaging the local communities to give their support as well
 - Collaboration and exchange of experiences, both on local and national level, and internationally through partnerships from the region and EU
 - Further work in supporting the several initiatives eager to officially form energy cooperatives, further support of researchers engaging the actors and creating networks
 - Work on visibility and promotion of the legal changes that allow development of CE projects, and increased collaboration between local authorities and other actors for smoother and faster permitting process.

Projects supported by the German Environment Foundation (DBU)

Nostra Nova Domus - Forging more effective partnership and capacity building for efficient use and management of solar energy (AZ 38687/01-43/0)

Duration: 12/2022-03/2024

Lead: Solare Zukunft e.V., Freiburg im Breisgau, Germany

Cooperation Partner: Community Development Institute Macedonia – CDI, Tetovo, North Macedonia

Empowering energy vulnerable citizens by establishing Energy Communities in North Macedonia (AZ 38820/01-43/0)

Duration: 07/2023-07/2025

Lead: nexus Institut für Kooperationsmanagement und Interdisziplinäre Forschung GmbH, Berlin, Germany

Cooperation Partner: ZIP Institute, Skopje, North Macedonia

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¹ 1st Intergovernmental Conference on accession negotiations was held on 19 July, 2022 https://ec.europa.eu/neighbourhood-enlargement/enlargement-policy/north-macedonia_en

²<https://statisticstimes.com/demographics/country/north-macedonia-population.php><https://data.worldbank.org/indicator/SP.POP.TOTL?view=chart>

- ³ <https://www.worlddata.info/europe/northmacedonia/index.php>
- ⁴ <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?view=chart>
- ⁵ <https://countryeconomy.com/countries/macedonia>
- ⁶ <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=MK>
- ⁷ <https://vlada.mk/node/28192>
- ⁸ https://ec.europa.eu/eurostat/databrowser/view/earn_ses_pub2s/default/table?lang=en, here: Median hourly earnings, all employees (excluding apprentices) by sex
- ⁹ <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- ¹⁰ <https://data.worldbank.org/indicator/SL.UEM.TOTL.NE.ZS?locations=MK>
- ¹¹ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ¹² https://www.stat.gov.mk/pdf/2022/6.1.22.69_mk.pdf
- ¹³ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ¹⁴ https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Europe/North%20Macedonia_Europe_RE_SP.pdf
- ¹⁵ Ibid.
- ¹⁶ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ¹⁷ <https://www.stat.gov.mk/PrethodniSoopstenijaOblast.aspx?id=64&rbrObl=21>
- ¹⁸ <https://www.stat.gov.mk/publikacii/2021/6.4.21.01%20915.pdf>
- ¹⁹ https://www.erc.org.mk/odluki/2022.04.29_RKE%20GI%202021-FINAL.pdf
- ²⁰ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ²¹ <https://balkangreenenergynews.com/north-macedonia-first-in-western-balkans-adopts-national-energy-and-climate-plan/>
- ²² <https://www.economy.gov.mk/mk-MK/news/strategii-2759.nspk>
- ²³ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ²⁴ Energy Community Secretariat, Annual report 2019 https://www.energy-community.org/dam/jcr:a915b89b-bf31-4d8b-9e63-4c47dfcd1479/EnC_IR2019.pdf
- ²⁵ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ²⁶ The total installed capacity of renewable power plants was 782 MW at the end of 2020, and it is expected to reach 1,493 MW by 2025. <https://balkangreenenergynews.com/north-macedonias-renewables-target-set-at-46-percent-by-2025/>
- ²⁷ <https://balkangreenenergynews.com/north-macedonias-renewables-target-set-at-46-percent-by-2025/>
- ²⁸ https://www.irena.org/IRENADocuments/Statistical_Profiles/Europe/North%20Macedonia_Europe_RE_SP.pdf
- ²⁹ <https://www.stat.gov.mk/publikacii/2021/6.4.21.01%20915.pdf>
- ³⁰ https://ba.boell.org/sites/default/files/2021-03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf
- ³¹ According to the Global Wind Atlas, the areas with a good wind potential, based on the average wind density and the speed for harvesting wind power and development of wind farms, are located predominantly in the western, central and southeastern parts of the country. Some patches of land viable for development of wind projects can also be found in other parts of the country, such as the northeast valley of Ovche Pole. https://ba.boell.org/sites/default/files/2021-03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf
- ³² <https://balkangreenenergynews.com/north-macedonias-green-energy-output-rose-14-7-in-2021/>
- ³³ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ³⁴ <https://balkangreenenergynews.com/north-macedonias-renewables-target-set-at-46-percent-by-2025/>
- ³⁵ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ³⁶ Ibid.
- ³⁷ The Energy Strategy does not choose between the scenarios but presents the options based on different levels of ambition regarding energy efficiency, renewables deployment, use of electric vehicles, and dates of entry into the EU Emissions Trading Scheme (ETS) (2023, 2025 or 2027). (...) in late 2020 an update was carried out, which as of late May 2021 does not appear to have been approved <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ³⁸ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ³⁹ The National Energy and Climate Plan prescribes the path to achieve the goals set for 2030. North Macedonia was the first Energy Community contracting party to submit its draft NECP to the organization's secretariat. <https://balkangreenenergynews.com/north-macedonia-first-in-western-balkans-adopts-national-energy-and-climate-plan/>
- ⁴⁰ NECP envisages a number of policies and measures in order to reduce energy consumption in buildings (households, commercial and public buildings), the industry and transport sectors and to reduce losses in the transmission and distribution grids. <https://balkangreenenergynews.com/north-macedonia-first-in-western-balkans-adopts-national-energy-and-climate-plan/>
- ⁴¹ <https://www.erc.org.mk/odluki/229.06.2022%20ODLUKA%20-%20EVN%20HOME%202022.pdf>
- ⁴² Unfortunately, this measure is still not used enough and only a **very small number of producers have entered this category of participants in the electricity market**. The biggest reason is the fact that only consumers, i.e. households, which enter the free electricity market can become electricity prosumers, and not those who continue to be supplied by EVN Home, which is the 'universal supplier' in North Macedonia. But the low regulated household electricity prices by EVN Home do not stimulate households to change supplier, and together with a **lack of funds**, this results in **very little progress with the use of e.g. solar energy in households**. Another reason is a lack of clear and well-explained steps for the public on how to enter the free electricity market and become prosumers <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>
- ⁴³ https://ba.boell.org/sites/default/files/2021-03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf
- ⁴⁴ According to the ministry's rulebook, a "prosumer", defined as consumer-producer, is a household, small consumer or budget user that can build a unit for the production of electricity from a renewable energy source for own consumption and

deliver the surplus to the distribution grid. Accounting period for prosumers is six months. Every household, firm and state institution can sign a contract with a power supplier, including the universal supplier. Surplus is calculated according to the average purchase price of electricity that the universal supplier procures for the supply of households and small consumers, the accounting period for prosumers is six months, starting on July 1. Finally, homeowners in multiapartment buildings can form a community and build a rooftop solar power system of up to 6 kW

<https://balkangreenenergynews.com/north-macedonia-enables-prosumers-to-sell-surplus-electricity/>

⁴⁵ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>

⁴⁶ <https://www.energetika.net/eu/novice/envision/n-macedonia-abolishes-grid-fee-for-prosumers>

⁴⁷ <https://economy.gov.mk/Upload/Documents/PROGRAMA%20EE%20OIE%20SUBVENCII.pdf>

⁴⁸ <https://economy.gov.mk/Upload/Documents/ProgramaRanlivi2022.pdf>

⁴⁹ <https://www.dw.com/mk/од-1-јули-фотоволтаиците-влегуваат-на-голема-врата-во-с-македонија/a-62139893>

⁵⁰ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>

⁵¹ Ibid.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ <https://doi.org/10.1016/j.enpol.2022.113181>

⁵⁵ https://www.energy-community.org/implementation/report/North_Macedonia.html

⁵⁶ [https://ba.boell.org/sites/default/files/2021-](https://ba.boell.org/sites/default/files/2021-03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf)

[03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf](https://ba.boell.org/sites/default/files/2021-03/POLICY%20BRIEF_North%20Macedonia%20Energy%20transition%20and%20Democracy.pdf)

⁵⁷ <https://gef.eu/event/transformation-towards-energy-democracy-skopje/>, <https://gef.eu/event/transformation-towards-energy-democracy-2/>, <https://www.youtube.com/watch?v=fixnHuJDe0s>

⁵⁸ <https://gef.eu/partner/sunrise/>, <http://www.izgrejsonce.mk/en>

⁵⁹ "SUNRISE is an association of citizens, active in the field of ecology and environmental protection, established in 2009. SUNRISE achieves its goals through activities for raising awareness and increased citizen participation, implementation and participation in projects, as well as organizing educational, informative and professional events." <http://www.izgrejsonce.mk/en/about-us/>

⁶⁰ The mission of Association for Educational Development Ekvalis- Skopje is to involve the citizens in the processes of social change through the cycle of education, critical approach, analysis and taking action. <https://ekvalis.org.mk/about-us/>

⁶¹ <https://library.fes.de/pdf-files/bueros/sarajevo/18313.pdf>

⁶² Ibid.

⁶³ Ibid.