

Main page » Renewable Energy

The Use of Renewable Energy Resources in Azerbaijan

14-06-2023 14:18

Azerbaijan is one of the countries with high potential for renewable energy sources. Thus, the technical potential of our country's onshore renewable energy sources is 135 GW and offshore is 157 GW. The economic potential of renewable energy sources is estimated at 27 GW, including 3 000 MW of wind energy, 23 000 MW of solar energy, 380 MW of bioenergy potential, 520 MW of mountain rivers. Although it is rich in energy resources and recognized as an energy exporter in the world, the use of renewable energy sources are paid special attention in the Republic of Azerbaijan. One of the main goals of the energy security policy implemented under the leadership of the President of the Republic of Azerbaijan Mr. Ilham Aliyev is to strengthen the use of renewable energy sources in the country.

Azerbaijan Renewable Energy Agency under the Ministry of Energy of the Republic of Azerbaijan was established by the Decree No. 1159 of the President of the Republic of Azerbaijan dated 22 September 2020 and the Charter of the Agency was approved.

Relevant laws and normative legal acts have been adopted in order to develop the renewable energy sector in our country, to improve the legislative and institutional environment in this area. In recent years, the work carried out in the field has been continued and the law of the Republic of Azerbaijan No 339-VIQ, dated 31 May 2021 On the use of renewable energy sources in the production of electricity, which makes a special contribution to the development of renewable energy has been approved. The implementation of relevant measures in the direction of development of sub-legislative documents is continued in order to ensure the application and implementation of the law.

The paragraph 5 (Clean Environment and Green Growth Country) of the document Azerbaijan 2030: National Priorities for Socio-economic Development approved by the Order of the President of Azerbaijan Republic dated 2 February 2021 covers the issues of climate change and the fight against it, as well as the application of renewable energy in all sectors of the economy based on the principles of green energy in our country. Thus, in line with the priorities for the country's socio-economic development, more attention is being paid to the use of renewable energy sources and the expansion of the application of green technologies in the current and future periods. Within the work carried out in this area, cameral investigations were continued throughout the country in the direction of identification and prioritization of areas with potential for

renewable energy sources. The above-mentioned national priorities are of particular importance in the direction of implementation of the obligations arising from the UN “World Transformation: Agenda sustainable development until 2030”.

The total power generation capacity of Azerbaijan is 7954 MW, the capacity of the power plants on renewable energy sources, including large HPPs is 1312 MW, which is 16.5 % of the total capacity.

Hydropower capacity is 1159.2 MW (30 stations, 20 of which is SHPP), wind power capacity 66.1 MW (8 stations, 2 of which is hybrid), bioenergy capacity 37.7 MW (2 stations, 1 of which is hybrid), solar energy capacity 51.9 MW (12 stations, 2 of which is hybrid). Two hybrid power plants (Gobustan) are equipped based on wind-2.81 MW, solar-3.8 MW and bioenergy-0.7 MW. SPPs with a total capacity of 39 MW are commissioned in Nakhchivan AR. Installed capacity on renewable energy sources excluding large hydropower plants, was 201.5 MW in 2022 and it made up 2.5 % of total electricity generation capacity.

In 2022, electricity production in the Republic amounted to 28.9 billion kWh. During the reporting period, electricity generation at HPPs to 1595.7 mln kWh, and at other sources (WPP, SPP and Solid household waste plant) to 349.5 mln kWh in comparison. 83.3 mln kWh of electricity was generated at WPPs, 60.9 mln kWh at SPPs, and 205.3 mln kWh at the solid household waste incineration plant. Electricity generated from renewable energy sources made up 7 % of total production.

In addition, a number of steps are being taken to assess the potential for the electricity generation at the expense of the renewable energy generation, and a number of the steps and measures are being taken to use this potential. 8 territories were selected in the direction of identification and prioritization of areas with potential for renewable energy sources. Relevant measures are already being taken to implement pilot projects in the selected 3 areas. In addition, it is planned to implement projects in the regions in the coming years in order to use solar energy potential available throughout the country in comparison with wind energy, unsuitable agricultural lands, to distribute electricity generation capacities on renewable energy sources. The work on investment in selected and prioritized renewable energy sources in areas with high potential has been continued through auctions. Currently, the project “Support to Renewable Energy Auctions in Azerbaijan” is being implemented with European Bank for Reconstruction and Development (EBRD). Within the project, the auction rules, a set of conditions for the auctions, as well as the preparation of a contract for the sale and purchase of electricity, a document for determining qualification eligibility and a request for proposal (RFP) will be provided.

On 12 December 2015, in accordance with the Paris Agreement adopted at the 21st Conference of the Parties, the Republic of Azerbaijan submitted its contributions to the Convention Secretariat determined at the intended national level. As a contribution to global climate change mitigation initiatives, Azerbaijan has set a target to maintain a 35% reduction in greenhouse gas emissions by 2030 compared to the base year (1990). In November 2021, at the COP26 conference in Glasgow, Azerbaijan adopted a new commitment to reduce emissions by 2050 by 40% as a voluntary commitment and to create a “Netto Zero Emission” Zone in the liberated territories. To achieve these goals, by 2030, the Ministry of Energy has set the main target to increase the share of the installed capacity of renewable energy to 30% in the country's overall energy balance. For this purpose, it is planned to create a total of 1500 MW new generation capacities at the expense of renewables.

On 9 January 2020, implementation agreements were signed on the implementation of pilot projects on renewable energy between the Ministry of Energy and ACWA Power (Saudi Arabia) and Masdar (United Emirates) at the Cabinet of Ministers of the Republic of Azerbaijan. According to the agreements, pilot projects will be implemented for the construction of wind power plants with a capacity of 240 MW with ACWA Power, and for the construction of solar power plants with a capacity of 230 MW with Masdar.

On 30 December 2020, Investment agreement, Power Purchase agreement and Transmission Connection agreement were signed on 240 MW wind power plant between the Ministry of Energy, Azerenergy OJSC and ACWA Power. On 6 April 2021, Investment agreement, Power Purchase agreement and Transmission Connection agreement were signed on 230 MW solar power plant between the Ministry of Energy, Azerenergy OJSC and Masdar of the United Arab Emirates.

On 13 January 2022, the foundations of the Khizi-Absheron Wind Power Plant with a capacity of 240 MW and on 15 March 2022, of 230 MW Garadagh Solar Power Plant were laid. The President of the Republic of Azerbaijan Ilham Aliyev attended both events.

In 2022, Environmental Impact Assessment (EIA) and Interaction Plan with stakeholders of the project on the Khizi-Absheron Wind Power Plant was prepared and presented. The project is being implemented in Absheron-Khizi near Pirakashkul and Sitalchay. Since March 2020, during 2 years, 7 measuring-observation stations have been built at an altitude of 100 m, topographic and preliminary geodetic works have been carried out, environmental impact assessment has been completed in accordance with international standards. On 16 May 2023, the first solar panel was installed at the Garadagh Solar Power Plant with the participation of Energy Minister Parviz Shahbazov and Jameel Al Ramahi, Chief Executive Officer of Masdar Mahammad.

In order to ensure the implementation of the instructions given by the Presidential Decree of the Republic of Azerbaijan No. 1209, dated 29 May 2019 On accelerating reforms in the energy sector of the Republic of Azerbaijan, the cooperation is being carried out with the International Financial Corporation, which is part of the World Bank Group, on the development of the road map on offshore wind energy in order to create new production capacities in the field of renewable energy in the country and to attract private, including foreign investments in the field. For this purpose, Memorandum of Understanding on cooperation in the field of using offshore wind energy between the Ministry of Energy of the Republic of Azerbaijan and the World Bank Group. The work envisaged on the Memorandum of Understanding is being carried out within the IFC Offshore Wind Development Program.

It was noted that the process of preparing the "Road map on the development of the use of offshore wind industry in Azerbaijan" will cover such issues as geospatial mapping and zoning, economic analysis, financial analysis, environmental and social analysis, impacts assessment, permitting, consenting, regulatory and legal framework, transmission upgrades and supply chain analysis.

According to preliminary analysis, the total technical potential of wind energy in the Azerbaijani part of the Caspian Sea was estimated at 157 GW (35 GW in shallow water basins and 122 GW in deep water basins). The project also provides support for the organization of tenders related to offshore relevant projects, determination of partnerships with the private sector, implementation of subsidiary investments. Effective use of offshore potential will create new jobs, as well as opportunities that add value to the country's economy.

In addition, on 2 August 2022, a decision was made by Masdar to allocate a loan package by international financial institutions in the amount of 114.2 million USD for the Garadagh project with a capacity of 23 to be built in Azerbaijan. It envisages the allocation of 21.4 million USD to EBRD, 50 million USD to ADIB, 21.4 million USD to JICA and 21.4 million USD to ADB. In addition, assessment work is underway to strengthen the energy network of our country between Masdar, TAQA, TRANSCO and Azerenergy. On 2 November 2022, The Order of the President of the Republic of Azerbaijan was signed on approval of the Direct Agreement on Investment Agreement between the Government of the Republic of Azerbaijan, Masdar Azerbaijan Energy LLC and AccessBank CJSC. On 4 June 2022 within the special session of the Baku Energy Week in Shusha, the Ministry of Energy and the UAE company Masdar signed an Implementation Agreement on the evaluation, development and implementation of 1 GW utility scale onshore solar and 1 GW wind energy projects in the Republic of Azerbaijan and Implementation Agreement for the evaluation, development and implementation of 2 GW integrated offshore wind and green hydrogen projects". A Framework Agreement was signed between Ministry of Energy and Australia's Fortescue Future Industries (FFI) on joint cooperation on the study and development of renewable energy projects and the potential of green hydrogen in Azerbaijan on 15 December 2022. The agreement envisages the investigation and implementation of projects with a total capacity of up to 12 GW for the production of renewable energy and "green hydrogen" in Azerbaijan.

On 17 December 2022, the Agreement on Strategic Partnership in the Development and Transmission of Green Energy between the Governments of the Republic of Azerbaijan, Georgia, Romania and Hungary was signed in Bucharest. On 7 February 2023, President Ilham Aliyev signed a decree on the approval of the agreement. On 1 June 2023, within the Baku Energy Week, the 3rd Ministerial Meeting was held for the implementation of the Agreement on Strategic Partnership in the field of Green Energy Development and Transmission between the Governments of the Republic of Azerbaijan, Georgia, Romania and Hungary.

Within the pilot project "Knowledge Exchange and Technical Assistance on the Development of Floating Solar Panels System" implemented with the support of Asian Development Bank, the installation of a photovoltaic system with a capacity of up to 100 kW on Boyukshor Lake, as well as the development of business models to encourage the participation of the private sector in the installation of solar panels, strengthening national capacity through trainings are envisaged. Investigations are underway within the relevant project for the implementation of large-scale projects on water basins in the future.

On 22 February 2021, the Ministry of Energy of the Republic of Azerbaijan and bp signed a Memorandum of Understanding on cooperation in assessing the potential and conditions required for large-scale decarbonized and integrated energy and transport systems, including renewable energy projects in the regions and cities of Azerbaijan. The memorandum was signed in the context of Azerbaijan's economic diversification, the creation of a competitive energy market, a clean environment and a country of "green growth" and bp's announcement of "net zero emissions" targets in 2050. According to the memorandum, it is planned to create a Steering Committee and a Working Group for the implementation of the activity, as well as to prepare a Master Plan on decarbonization for the relevant regions and cities of Azerbaijan. The Master Plan will cover clean energy projects, low-carbon transport, green buildings, waste management, clean industry, natural climate solutions, integrated partnerships, as well as the development of integrated and decarbonized energy and transport systems. In addition, on 3 June 2021, the Ministry of Energy of the Republic of Azerbaijan and bp signed an implementation agreement on cooperation in the field of evaluation and implementation of the project for the construction of a 240 MW solar power plant in the Jabrayil region.

Cooperation within the implementation agreement covers such areas as feasibility study of the solar energy project, plant design, financing and final investment decision.

On 3 May 2021, the President of the Republic of Azerbaijan Ilham Aliyev signed an order on measures to establish a Green Energy Zone in the liberated territories of the Republic of Azerbaijan. An agreement was signed between the Ministry of Energy and Japanese Company TEPCO in the direction of attracting a specialized international consulting company for the implementation of the instructions arising from the order, as well as preparation of the concept and master plan for the establishment of the Green Energy Zone in the liberated territories. During the relevant period, the measures envisaged in the framework of the contract were carried out and as a result, a concept document on the establishment of the Green Energy Zone was prepared. In order to ensure the implementation of part 3 of the Order of the President of the Republic of Azerbaijan No. 2620 dated May 3, 2021 On measures related to the creation of a green energy zone in the liberated territories of the Republic of Azerbaijan, the Action Plan for the creation of a green energy zone in the liberated territories of the Republic of Azerbaijan for 2022-2026 was approved by the order of the Cabinet of Ministers of the Republic of Azerbaijan No 357s dated 21 June 2022. The first meeting of the Working Group on Coordination and Monitoring, established by the Order of the Cabinet of Ministers of the Republic of Azerbaijan No. 459s dated 3 August 2022, on the application of green technologies and energy efficiency requirements in the liberated territories of the Republic of Azerbaijan was held.

About 25% of Azerbaijan's internal water resources falls to the share of the liberated territories, which is approximately 2.56 bcm annually. In particular, it should be noted that there is a favorable potential for the implementation of solar energy projects in the liberated territories. Thus, Zangilan, Jabrayil, Gubadli and Fuzuli regions are the second most favorable regions in the country followed by Nakhchivan AR according to the solar radiation observed. Based on preliminary studies, comparative analysis of topography, climate conditions, network proximity, energy production potential, transport infrastructure and other technical factors for solar energy projects, the territories of Jabrayil and Zangilan districts was considered appropriate. The presence of favorable wind potential in the liberated territories, especially in the mountainous parts of Lachin and Kalbajar, was determined according to preliminary studies. In previous years, relevant scientific research has been carried out on the existence of geothermal energy sources in the liberated territories. Geothermal energy is mainly used for electricity generation (with favorable temperature and debit), thermal power supply and tourism-balneological purposes. Preliminary analysis shows that there are geothermal sources in the mountainous part of the Lesser Caucasus (4000-5000 cubic meter per day (30-74°C)). Based on preliminary observations, it is more expedient to use this potential for heat supply and balneological purpose, respectively.

Working groups consisting of representatives of relevant institutions were established in both directions according to the implementation of the subsection "Expanding the bioenergy and geothermal energy use opportunities" under action direction 5.2.3. "Increasing the use of renewable energy sources" of the Action Plan of the "Socio-economic development strategy of the Republic of Azerbaijan for 2022–2026" approved by the Order of the President of the Republic of Azerbaijan No. 3378 dated 22 July 2022. As a result of the activities of the mentioned Working Groups, data on the bioenergy and geothermal energy potential assessment were collected and analyzed, and the project directions considered effective were determined.

In accordance with the implementation of the subsection Development of the National Plan for Electromobility mentioned in the 5.2.5 action directions of the mentioned strategic document, the work on the

establishment of the working group has been started. In order to prepare this document, Terms of the References were developed to attract an international consulting company. On 22 December 2021, Ministry of Energy and the European Bank for Reconstruction and Development (EBRD) signed a Memorandum of Understanding on technical support for the development of the electric power sector of the Republic of Azerbaijan. The memorandum, aimed at low-carbon power development, will foster the renewable energy advancement, improve the energy efficiency, reduce methane emissions, as well as provides for the phased research cooperation and application of innovative technologies, including "green hydrogen". Within this cooperation, the Technical assistance to increase the share of renewable energy in the electric power system of Azerbaijan project will be implemented by the CESI consulting company with the support of the World Bank. The technical support envisages designing a road map with recommendations on the relevant policy and decarbonization technology for the energy sector.

On 3 February 2023, within the 9th Ministerial Meeting of the Southern Gas Corridor Advisory Council and the 1st Ministerial Meeting of the Green Energy Advisory Council, the Ministry of Energy and the Kingdom of Saudi Arabia ACWA Power signed an Implementation Agreement on the implementation of the offshore wind project up to 1.5 GW, Implementation Agreement relating to an Onshore Wind Project with capacity of up to 1 GW and Memorandum of Understanding on the development of battery energy storage systems in the Republic of Azerbaijan.

In order to conduct research on hydrogen production and use in the Republic of Azerbaijan and prepare proposals, a working group consisting of representatives of relevant bodies was established under the co-chairmanship of the Ministry of Energy. The country report on the Low carbon hydrogen economy market research was prepared by the international consulting company with the support of the European Bank for Reconstruction and Development (EBRD) to assess the production capabilities of green and blue hydrogen species in Azerbaijan, their use in the domestic market, as well as the technical capabilities and economic efficiency of their export. The results of the report were announced at the 28th Baku Energy Forum on 2 June 2023. In the results of the market research, it was suggested that green hydrogen production is economically efficient, as well as export to regional energy markets and application areas for domestic consumption. The report provides information on future steps, areas where green hydrogen can be consumed in the domestic market, the Levelised Cost of Hydrogen (LCOH), export routes and other issues.

A Memorandum of Understanding was signed on cooperation in this field of energy transition between the Ministry of Energy of the Republic of Azerbaijan and Maire Tecnimont within the Baku Energy Week on 31 May 2023. The purpose of the memorandum is to strengthen cooperation between the parties on energy issues, including renewable energy, the green energy transition and energy efficiency. The document also includes exploring opportunities for the cooperation in areas such as low-carbon technologies, energy production from waste, green hydrogen, biofuels, as well as reducing methane emissions.

A Memorandum of Understanding was signed between Azerbaijan's Energy Ministry and China Gezhouba Group Overseas Investment on the implementation of renewable energy projects with a capacity of 2 GW. The Memorandum includes cooperation on utility scale solar energy, onshore and offshore wind power, energy storage and integrated smart energy systems, as well as capacity assessment for investment in green hydrogen production projects in Azerbaijan. The document also provides for the study of the possibilities of connecting projects to the grid by the company, environmental impact assessment, geological and topographic surveys.

On 3 June 2023, at the special session on green energy potential of Nakhchivan and Eastern Zangezur held in Nakhchivan Autonomous Republic within the Baku Energy Week, Memorandums of Understanding signed on cooperation with Nobel Energy Management on the construction of a 400MW solar power plant in the Nakhchivan Autonomous Republic and the export of electricity to be generated to the Republic of Turkey, and with TotalEnergies on the assessment and implementation of 250 MW onshore wind, 250 MW solar power plants in the Nakhchivan Autonomous Republic, as well as energy storage systems projects.

 FACEBOOK

 TWITTER

 PRINT

 E-MAIL

Other news

11-04-2020 19:20

Renewable Energy Around the World



Ministry

History

Minister

Deputy Ministers

Administration of the Ministry

Regulations

Ministerial Board

Documents

The Constitution of the Republic of Azerbaijan

Laws of the Republic of Azerbaijan

Decrees and Orders of the President of the Republic of Azerbaijan

Resolutions and Orders of the Cabinet of Ministers

Ordinances of the Ministry of Energy

Normative legal acts of the Ministry of Energy

Drafts of normative legal acts of the Ministry of Energy

Rules of Ethical conduct of civil servants

Program and Reports

State Programs

Reports

In-Depth Review of the Energy Efficiency Policy

Electronic Information Booklet on electricity supply

International Cooperation

Intergovernmental Commissions

International organizations

International agreements

Covenant of Mayors

Public relations

Press service

News archive

Articles and interviews

Open data

Announcements

Tenders

Photo gallery

Video gallery

SITE MAP



AREA

AzərEnerji



AZƏRİŞİQ
AZƏRİŞİQ CƏMİYYƏTİ

SOCAR



azəriqaz

AZƏRİSTİLİKTƏCHİZAT
ASAN

asan



xidmət



Commission on Business
Environment and
International Rankings

