European Union SWITCH Asia II programme project
"Promoting Energy Efficiency and Renewable Energy Production in the Community-Based Tourism Sector in Central Asia"

# Report on the Analysis of the Energy Sector, Energy Production from RES in the Community-Based Tourism Sector in the Republic of Tajikistan

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**Please visit www.switch-asia.eu for more information on the project.**

# FOREWORD

***About the project:***

The project "Promoting Energy Efficiency and Renewable Energy Production in the Community-Based Tourism Sector in Central Asia" of the European Union SWITCH Asia programme aims to reduce the carbon footprint of the tourism sector in Kyrgyzstan, Uzbekistan and Tajikistan and aims to create an enabling environment for increased energy efficiency (EE) and strengthen sustainable consumption and production of renewable energy sources (RES) by MSME actors in the community-based tourism sector.

This analysis is carried out to be the analytical basis for developing a roadmap and improving policies to increase renewable energy generation and consumption, the widespread introduction of EE in the tourism sector, and the reduction of the carbon footprint.

The Energy Sector Analysis Report has been prepared for publication by the national experts Jahongir Dehkanov, Galiya Rabieva and national consultant Rafika Musaeva and presented to a wide range of stakeholders, private sector actors, the public, government officials, decision makers and development partners.

The publication and presentation of the report and analysis is intended to engage the parties in a country and regional dialogue - discussing the results of the analysis of the economic problems of the sector and assessing the impact of the implemented policies on the development of production, clean energy consumption in the tourism sector.

The main objective of the first phase of the project to promote increased energy production and consumption of renewable energy and energy efficiency in the community-based tourism sector, is to determine the actual business environment and to communicate the results of the Small Energy Sector Analysis to the public.

The report provides background and analytical information reflecting the state of the energy sector. The publication presents the methodology of the study, the results of economic analysis of the components of growth and development of clean energy production (generation) based on RES, utilization of EE potential, assessment of the legal business environment and identifies gaps in the implemented policies.

Based on this problem study and the results of the discussion, the Inter-ministerial Working Group will start developing a Draft Road Map.

***Disclaimer:***

# CONTENTS

# ABBREVIATIONS

| | |
|---|---|
| CBT | Community Based Tourism |
| CC RT | Civil Code of the Republic of Tajikistan |
| CC RT | Customs Code of the Republic of Tajikistan |
| CIS | Commonwealth of Independent States |
| CSO | Civil Society Organizations |
| EE | energy efficiency |
| FEC | fuel and energy complex |
| FGD | focus group discussion |
| GW | gigawatt - a unit of power |
| HPP | hydroelectric power plant |
| IWRM | integrated water resources management |
| kV | kilovolt is a unit of voltage measurement |
| kWh | kilowatt-hour - unit of measure for electrical energy |
| LC RT | Land Code of the Republic of Tajikistan |
| LEGU | local executive government units |
| MEWR | Ministry of Energy and Water Resources of the Republic of Tajikistan |
| MFIs | Microfinance institutions |
| MJ | megajoule - unit of measurement of energy |
| MSMEs/(B) | micro, small, medium entrepreneurship or business |
| MW | megawatt - power unit |
| NDS-2030 | National Development Strategy of the Republic of Tajikistan till 2030 |
| NLA | normative legal acts |
| OJSHC | Open Joint Stock Holding Company |
| PPP | public-private partnersip |
| RES | renewable energy sources |
| RT | Republic of Tajikistan |
| SHPP | small hydroelectric power plant. |
| SUE | state unitary enterprise |
| Tajikstandart | Agency for Standardisation, Metrology, Certification and Trade Inspection under the Government of Tajikistan |
| TC GRT | Tax Committee under the Government of Republic of Tajikistan |
| TC RT | Tax Code of the Republic of Tajikistan |
| UN | United Nations |
| UNDP | United Nations Development Programme |
| VAT | value added tax |

# THE CONTEXT AND OBJECTIVES OF THE ANALYSIS

This analysis is carried out during Phase 1 of the Project to assess the legal, institutional and policy framework for renewable energy production and consumption and for increasing EE in the CBT sector, to identify gaps in implemented policies and to develop measures to overcome them.

The main objectives of the analysis are:

- to identify the list of NLAs, sectoral policies and programmes that need to be developed or amended to ensure their positive impact on increasing RES-generated energy consumption and increasing EE in the CBT sector in Tajikistan.
- to identify, analyze and preliminarily assess normative legal acts (NLAs) and policy documents of the Republic of Tajikistan (RT) with impact on RES, EE, CBT, micro generation and local energy supply development of tourism facilities, and systematize them by areas and sectors of regulation;
- to identify existing gaps and collisions in NLAs that have a negative impact on RES, EE and CBT sector development; prepare an identified list of problems arising from regulatory and policy implementation, covering cross-sectoral issues;
- to conduct a preliminary assessment of the NLAs and policy documents in the field of utilisation of RES, increasing of EE in the CBT sector through questionnaires, focus group discussions, individual consultations with representatives of stakeholders and beneficiaries of the Project.

In order to carry out the analysis, identification of regulatory problems arising from the implemented policies, legal regulation of relations (legislation), methods of Desk Research and Sociological Research (surveys and questionnaires), focus group discussion with the participation of stakeholders on the issues and problems under study have been used.

Analysis and assessment of the impact of NLAs and policy documents on the development of RES, EE, CBT sectors was hampered by the fact that there are no current statistics and indicators (for 2019-2020) in open access for Tajikistan reflecting the state of the MSME sector, sectoral small-scale energy and self-generation (micro generation), energy consumption based on RES and the EE situation of properties, engineering systems, used equipment, household appliances, appliances in the CBT sector.

# INTRODUCTION

73% of Tajikistan's population lives in rural areas, including more than 10% in remote mountainous areas, in difficult climatic conditions with limited access to infrastructure, as well as significant deterioration of energy equipment and utilities and a lack of capacity, which results in periodic power outages. According to experts, about 2.5 per cent of the country's population, over 700 villages have no access to electricity. Most of these settlements are newly established settlements. The most difficult areas for electrification are the settlements in Khatlon province bordering Afghanistan. The remaining settlements are relatively close to the centralised grid and their connection depends on the financial situation of JSHC Barki Tojik.[1]

Ensuring energy security and efficient use of electricity is highlighted in the National Development Strategy of the Republic of Tajikistan until 2030, approved by Decree No. 636 of the Majlisi Namoyandagon of the Majlisi Oli of RT dated 1 December 2016 (hereinafter - NDS-2030) as one of the strategic goals of the country. The ambitious goal is to make Tajikistan a leader in the efficient development and use of the country's energy potential and, on this basis, to promote national energy interests in foreign markets, both through appropriate energy diplomacy and through the use of market mechanisms.

According to the management of the main monopoly power supply company, it is not economically feasible to draw power transmission lines, install separate transformers or build substations, and these works are the responsibility of the local executive authorities, which do not have the necessary funds, so the best option for power supply in these villages is the installation of solar panels.[2]

Lack of energy constrains the socio-economic development of these settlements and local communities, although due to their identity and the wealth of natural resources they have significant potential for CBT development, which, in turn, would reduce unemployment and poverty among the local population and solve other social problems at the community level and in the district as a whole.

The issue of diversification of available energy sources, the use of RES is becoming increasingly relevant. The share of renewable energy in the final energy consumption of the country is less than 2% and accounts for small hydro power plants (SHPPs), there are no other official data on the production of renewable energy by other entities, nor are there data on the costs of renewable energy (micro-generation), except for model calculations of the cost and price of electricity produced by SHPPs.

In the context of RES utilization, it should be noted that Tajikistan has 4% of the world's hydropower potential and is one of the world leaders in renewable hydropower resources, which could theoretically generate up to 527 billion kWh of electricity per year. Tajikistan ranks first and second respectively in terms of specific hydropower potential per square kilometre of territory and per capita, and sixth in the world for the use of "green energy" production resources.

The country also has significant solar energy potential: 280 to 330 sunny days a year, with an annual total radiation value of 7,500 to 7,800 MJ/m2 when the sky is clear.

Widespread use of RES, primarily solar energy, in Tajikistan (especially in rural and mountainous areas) will not only improve the energy supply of the population, improve living standards and preserve the environment, but will also contribute to the development of new modern technologies and the creation of knowledge-intensive production in the country.

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[1] Blackout 2020 in Tajikistan. In whose hands should the electricity sector be handed over to make it work efficiently? TAJWEEK.TJ, 30.11.2020 г. http://news.tajweek.tj/view/blekaut_2020-v-tadzhikistane-v-chi-ruki-peredat-sektor-elektroenergetiki-chtoby-on-effektivno-rabotal/#:~:text=%D0%9E%D0%BA%D0%BE%D0%BB%D0%BE%202%2C5%20%D0%BF%D1%80%D0%BE%D1%86%D0%B5%D0%BD%D1%82%D0%B0%20%D0%BD%D0%B0%D1%81%D0%B5%D0%BB%D0%B5%D0%BD%D0%B8%D

[2] More than 700 villages in Tajikistan have been counted without electricity. STANRADAR, 16.02.2018 г. https://stanradar.com/news/full/28465-v-tadzhikistane-naschitali-svyshe-700-sel-bez-elektrichestva.html

For the successful implementation of this urgent task, it is important to create an appropriate legal framework, the existence of a developed package of legal, regulatory and technical documents that would not create unjustified obstacles for producers/suppliers and consumers of RES-produced energy in the form of complex administrative and permitting procedures, high taxes and fees, excessive interference in economic activities, numerous duplicate inspections.

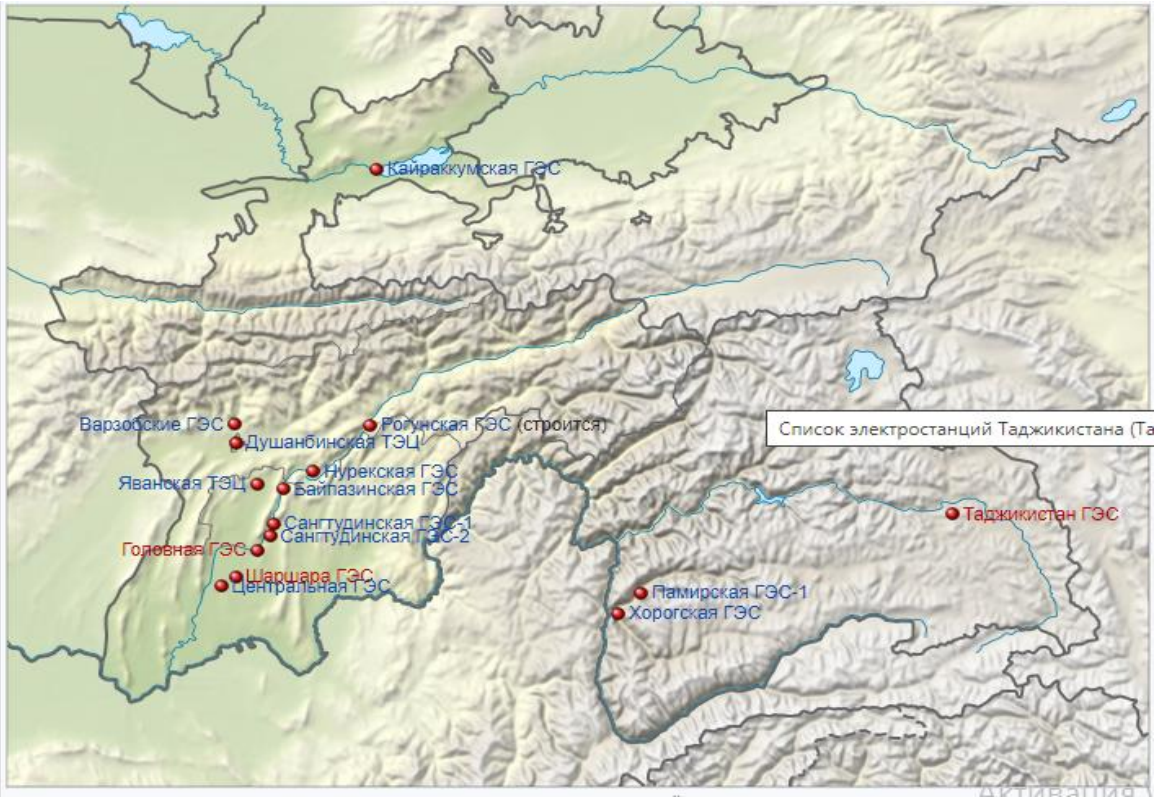
In this regard, the legal analysis conducted, taking into account the synthesis of stakeholder views explored through a survey and a focus group discussion, will contribute to developing recommendations and necessary actions for increasing the use of RES, increasing EE in the CBT sector in Tajikistan.

# 1. ANALYSIS OF THE STATUS OF RENEWABLE ENERGY PRODUCTION AND ENERGY EFFICIENCY IN THE COMMUNITY-BASED TOURISM SECTOR IN TAJIKISTAN

## *1.1. An overview of the country's main indicators. The importance of the energy sector for the national economy.*

Tajikistan is a mountainous country. The country borders Afghanistan, China, Kyrgyzstan and Uzbekistan. At the beginning of 2020, the country's population reached more than 9.3 million, with an average annual growth rate of about 2% to 2.2%. The country's gross domestic product in 2020 was 82.5 billion somoni, with a real growth rate of 4.5%. In the last 20 years, the poverty rate in the country decreased from 83% in 2000 to 26.3% in 2020.

The country has large hydropower resources. Hydropower has a special place in this context. Tajikistan's technically possible and economically feasible hydropower resources amount to 317 billion kWh per year, of which about 5% have so far been exploited. The country has 4% of the world's hydroelectric potential. In terms of specific indicators of hydropower potential per square kilometre of territory and per capita, Tajikistan ranks first and second in the world, respectively. Tajikistan ranks sixth in the world in the use of "green energy" production resources. The National Report on Implementation of the Country's Strategic Documents in the context of the Sustainable Development Goals notes that hydropower should be considered not only as a basis for achieving energy security and environmental sustainability, but also as a prerequisite for achieving "green" growth.[3]




**Generation.** Tajikistan's power system consists of two constituent parts, the western and eastern (Pamir) power systems, which operate in isolation. The electricity sector is managed by the Open Joint Stock Holding Company Barki Tojik, which is state-owned. The company controls

[3] National progress report on the implementation of the country's strategic documents in the context of the Sustainable Development Goals. Dushanbe. 2018. p.17.

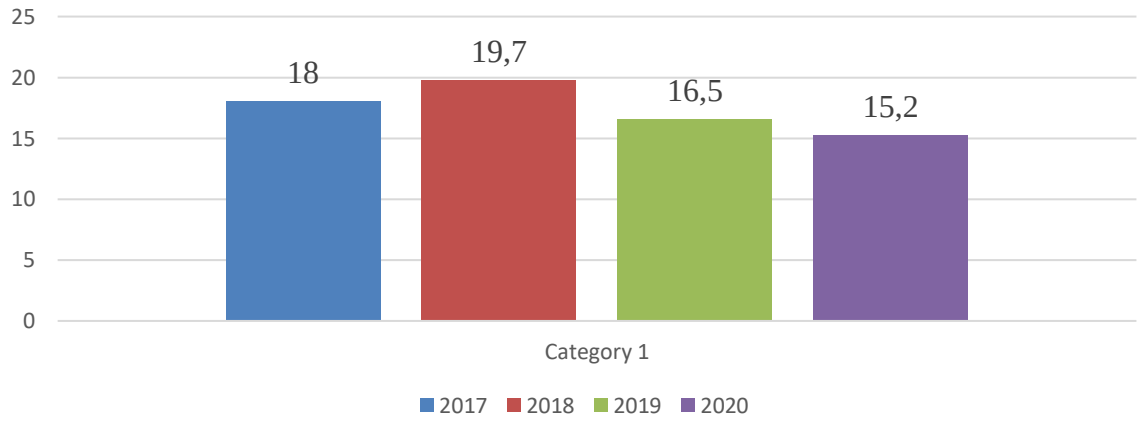
the power plants and grids, electricity generation, transmission and distribution in the Republic, with the exception of the Gorno-Badakhshan Autonomous Oblast (GBAO). In December 2002, the GBAO power grid was transferred from Barki Tojik to a private company, Pamir Energy, based on a 25-year Concession Agreement. Currently, the GBAO power supply system operates in isolation, i.e. it has no connection to the main power grid of Tajikistan. Pamir Energy, operates eleven small and mini hydropower plants with a total installed capacity of 44.16 MW and a 35/10/0.4 kV transmission line with a total length of 2609 km.

The capacity of Tajikistan's power system is 5757 MW, with hydro power plants accounting for 87.6% of the total installed capacity and thermal plants a total of 718 MW, i.e. about 12.4%.

**Production.** Electricity generation in the Tajik energy system, consisting mainly of hydropower plants, amounted to 19.7 billion kWh. It should be noted that more than 95% of the electricity generated in Tajikistan is generated in hydroelectric power plants, including 94% in large and medium-sized plants.

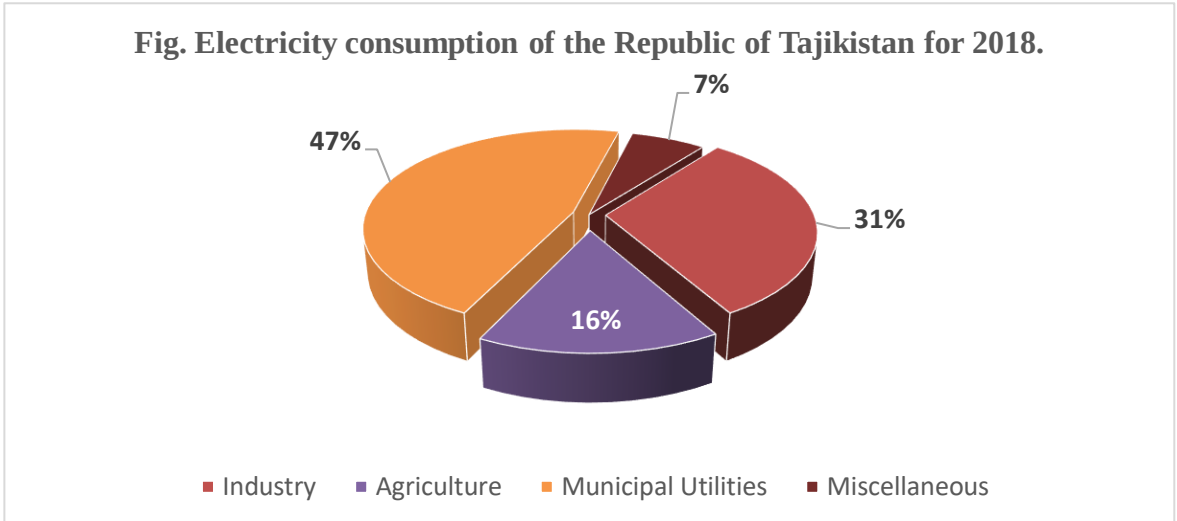
The electricity generated by hydropower plants is seasonal and depends on the flow of water in the rivers. The lowest level of electricity production is in the autumn-winter period (October to April/May), while the demand for electricity is the highest. At the same time, electricity supply is most reliable during the summer period, as there is a surplus of 3-7 billion kWh of electricity at this time of year.

**Fig. Total of electricity generation in Tajikistan for 2017-2020 (bn kWh) kWh)**



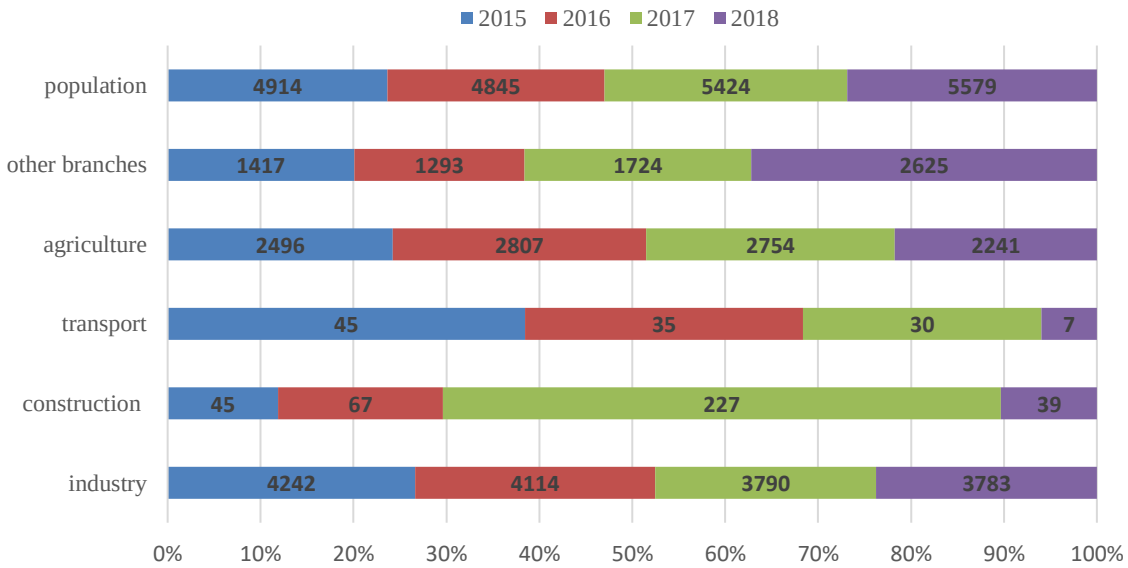

**Consumption.** The latest data on electricity consumption in different sectors of the economy of the Republic of Tajikistan shows that the main consumers of electricity in the country are the public utilities/population, accounting for almost 47% of the total electricity consumption. The

**Fig. Electricity consumption of the Republic of Tajikistan for 2018.**



second largest consumer of electricity is industrial enterprises, which consume 41.11%. Agriculture ranks third, using 16% of the total consumption.

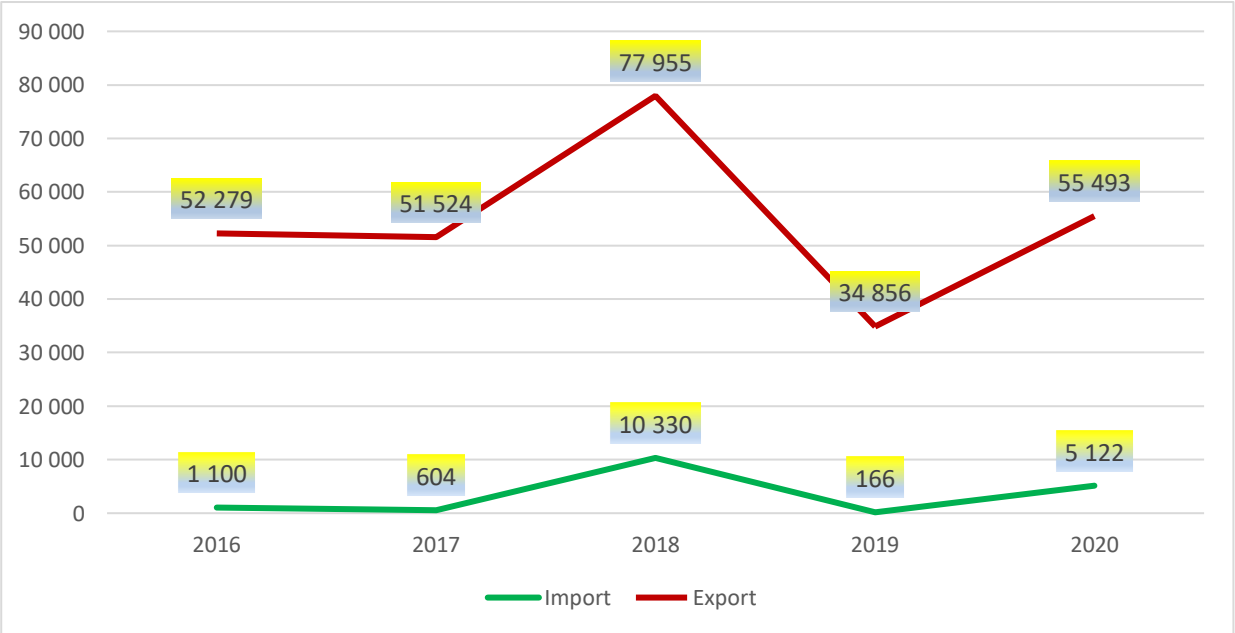
**Fig. Electricity consumption, million kWh.**




As electricity production increases, domestic electricity consumption increases accordingly. In 2018, 8.4% more electricity was consumed compared to 2015.

**Imports and exports.** In the commodity nomenclature of the FEA, electricity exports and imports play an important role. The main importing countries of Tajik electricity are Afghanistan, Uzbekistan and Kyrgyzstan. During the autumn-winter season (during the low-water season), Tajikistan partially purchases electricity from Uzbekistan and Kyrgyzstan to supply its northern territories with electricity. For export-import supply of electricity between Tajikistan and neighbouring countries, there are 13 transmission lines of different voltage, of which 3500 MW are between Tajikistan and Uzbekistan, 500 MW between Tajikistan and Kyrgyzstan and 570 MW between Tajikistan and Afghanistan.

***Fig. Export and import of electricity (thousand USD)[4]***




[4] Exports and imports of the Republic of Tajikistan by CN FEA

Of these lines, the 220 kV Sangtuda-1 - Puli Khumri (Afghanistan) and 110 kV Geran - Kunduz (Afghanistan) lines, the 220 kV Kanibadam - Aigultash (Kyrgyzstan) and the 110 kV and 35 kV lines to Kyrgyzstan are partially used today.

Due to limited capacity to export electricity in winter period due to lack of surplus electricity inside Tajikistan itself, these lines are currently used partially. For example the 220 kV line "Sangtuda-1 - Pul-i-Khumri (Afghanistan)" has a summer capacity of over 300 MW, while in winter it hardly reaches 50 MW.

Data from the Customs Service under the Government of Tajikistan shows that in recent years the export of electricity in the country is not sustainable and depends on weather conditions and due to low water and decreasing water levels in reservoirs, indicating the effects of climate change in the region.

**Energy saving and energy efficiency**. The development of hydropower, as the main area for sustainable development in Tajikistan, is also linked to the need for energy efficiency and energy saving, which shows itself as an effective, less capital-intensive and rapidly feasible area for solving energy problems. Losses of energy in Tajikistan at production and transportation stages are up to 15%, and in the consumption sector - up to 30%. The energy saving potential in the country is about 2.5 billion kWh.

Tajikistan's energy policy attaches great importance to energy efficiency along with construction of new energy sources. Law of RT "On use of renewable energy sources", Decree of the President of RT "On additional measures for economical use of energy" were adopted. In order to implement the requirements of the above-mentioned laws and the Decree, the Energy Saving and Energy Efficiency Standardisation Programme for 2010-2012 was adopted and implemented. Also, 8 standards in the area of energy savings and renewable energy have been developed based on directives and standards regulations of the European Union, Russia, Ukraine and Kazakhstan.

During the implementation of a loss reduction project in Sughd Oblast in 2017 in Khujand, a reduction of technical losses by up to 10% was achieved through the introduction of the Automatic Energy Control System (ASKUE), and the level of cash collection for electricity supplied to consumers was brought to 100%. Negotiations are underway with development partners to implement similar projects in other major cities and districts of the country.

*Industry:* The industrial sector is the second largest consumer, accounting for more than a third of electricity use. The potential for technological efficiency and energy saving in this sector is estimated at around 25-30 per cent.

*Fuel and energy sector:* The existing hydro power plants have been in operation for more than 30 years and their technical capacities have been fully exhausted. More than 50% of the equipment, distribution networks and substations are in need of systematic and major repairs. Grid losses are 14.1%, whereas normally they should be 8-10%. In addition, the existing heat supply networks are obsolete and dilapidated as a consequence of poor maintenance and, together with the thermal power plants, are in need of modernisation. The country inefficiently uses RES and EE resources to meet the needs of the population (and in particular MSMEs and CBT entities) living in remote and hard-to-reach regions of the country for a number of reasons, including:

- low awareness and education of the population to decide on the use of RES and EE,
- limited access to information on the use of RES and EE,
- existence of problems related to access to technologies, particularly, imported technologies and equipment for production of solar, wind, geothermal energy are subject to taxation (VAT) and are not exempt from customs duties, unlike equipment and component parts for large hydro power plants and industrial objects, which leads to increase of their cost and import of cheap low-quality equipment from abroad
- lack of full-fledged market and reliable information on selling RES and EE equipment (mini hydro generators, solar panels, solar collectors, heat pumps).
- local producers of RES and EE equipment face financial difficulties, limited working capital, lack of soft loans, clear system of state incentives, tax and administrative

preferences, underdeveloped grant support for both equipment producers and MSMEs generating energy,
- complicated procedure for allocation of a land plot and administrative barriers,
- tax relations of MSMEs engaged in RE and EE production and use are not regulated,
- although there are plans by the state to install solar plants to cover the deficit in electricity production during the autumn-winter seasons, they are not implemented and put on hold due to lack of tax and customs preferences, lack of funding and budget constraints. There are problems related to tariff regulation for RES and EE production.

*Agriculture:* The equipment in most of the pumping stations supplying water for irrigation is 90% deteriorated and consequently low energy efficiency and high levels of energy wastage are everywhere. This is an example of the inefficient use of electricity in irrigation systems and pumping stations need to be equipped with new efficient electric motors and electronic meters for accurate metering. Accordingly, the low energy efficiency of pumping stations is reflected in the increased cost of agricultural production, although Barki Tojik has introduced preferential tariffs (from 7.78-22.66 dirams) for electricity for pumping irrigation of agricultural land. There are large debts of farms to electricity producers due to their financial instability, which leads to systemic problems in the area of energy supply. Great potential for reduction of energy losses in agricultural production through introduction of drip and sprinkler irrigation technologies. Also, RES and EE could be efficiently used in greenhouse production (lighting, creation of microclimate, heating, etc.).

*Domestic consumers:* In order to ensure efficient use of electric energy, the Government of Tajikistan adopted a decree banning use of traditional incandescent lamps and switching to energy-saving fluorescent lamps. In order to implement this Decree, 4 plants for production of energy saving lamps have been constructed in the country and recycling facilities have been established. Two laboratories for testing the quality and safety of fluorescent lamps have been established in Dushanbe and Khujand. Taking into account the increasing demand for electric household appliances for efficient use of electrical appliances, a standard was developed - ST RT GOST R 51388-2010 "Energy saving, informing consumers on energy efficiency of household and public utility products. General requirements". There is also great potential for reducing energy consumption in households associated with improving energy efficiency and thermo-modernization of buildings. For example, the practice of improving the thermal insulation of one four-storey residential building in Dushanbe has reduced its energy consumption by 28%.

***Importance of the energy sector for the national economy*.** Hydropower is a key source of energy for the population and the national economy of Tajikistan. The development of 00hydropower of large capacity in the Republic of Tajikistan in the future can be significant, there are more than 80 already selected and surveyed sites for the construction of large HPPs. This primarily concerns completion of the Rogun HPP, which will not only make it possible to eliminate the problem of electricity deficit, but also to solve a number of social problems, first of all those related to inclusive access to electricity, creation of jobs, development of production and tourist services.

Tajikistan's energy development objectives, which include the construction of both large and medium and small hydropower facilities, are not only economically relevant but also vitally important, playing a key role in preserving the country's independence and reducing poverty, creating conditions for the development of human potential through access to well-functioning economic sectors, housing and sanitation services and a healthy lifestyle. On this basis, Tajikistan attaches utmost importance to ensuring energy security through the development and expansion of large, medium-sized and small hydropower plants. Taking into account geo-economic and geopolitical trends of modern development, the Government of Tajikistan considers further development of hydropower not only as a tool of key importance for sustainable development, but also as a factor on which security and stability of the Central Asian region largely depend.

The notion of "energy security" has not yet been introduced in the legislation of Tajikistan. The only noteworthy thing is Article 18 of the Law of the RT "On Security", dated June 28, 2011, No. 721 which links "preservation and strengthening of resource and energy basis of the economy" with "economic security" and states that "decisions and actions contradicting interests of formation and uninterrupted functioning of unified and independent communication and energy systems of the country shall not be permitted". Nevertheless, based on the analysis of the measures envisaged in NDS-2030 and programme documents in the sphere of ensuring energy security, studies and scientific works of national experts, it can be concluded that the country adheres to the World Energy Council's definition of this concept as "confidence that energy will be available in the quantity and quality required under given economic conditions".

NDS-2030 proposes the objective of development of the power sector of the country on the basis of the 10/10/10/10 concept: increase of the design capacity of the power system up to 10 GW; annual export of electricity to neighbouring countries up to 10 billion kWh; ensuring diversification of capacities of the power system of the country by not less than 10% (increase of capacities of other energy sources, including coal, oil, gas and other renewable energy sources); reduction of losses of electricity in the country up to 10%. At the same time, the goals of generating capacity development include the task of increasing the use of solid and liquid carbon-fuel resources. An important sub-objective is the use of renewable energy resources for energy generation, and a growth rate of 10% can be achieved through diversification of renewable energy based generation suppliers.

***Public administration inertia and "monopoly thinking".*** The structure and patterns of national energy development in the system of planned socialist economy were based on the dominant role of the state, which could pool all necessary economic resources (factors of production) to create a centralised energy system in Central Asia. This predetermined the development policies of the sector for many years, which is how the natural monopolists emerged.

In order to effectively manage the fuel and energy sector in April 2018. The government adopted a decree "On the restructuring of the single electricity company into three separate companies - transmission, distribution and generation. Barki Tojik remains an electricity generating company. The state owns 100% of the shares of all three companies.

By the end of 2019, a number of commercialisation activities had been implemented, including the establishment of two separate companies (transmission and distribution), international financial reporting standards had been implemented and adapted, boundaries of responsibility and other property issues had been defined, the process of decommissioning physical and obsolete fixed assets had been established, management staff of the established units had been appointed and approved, fixed assets had been partially revalued, a grid code had been developed, etc.

To develop efforts for the functional and legal transformation of Barki Tojik, on 15 April 2019 the Government approved the State Financial Recovery Programme of Barki Tojik Energy Company, aimed at improving its operational efficiency and financial position through the introduction of a cost-recovery tariff methodology. This programme is also aimed at restructuring Barki Tojik's debts, writing off fines and penalties for servicing overdue debts, increasing electricity payment collection rates, and reducing technical and commercial electricity losses.

To date, significant progress has already been made in implementing this Programme, including reforming the electricity tariff structure, regular tariff increases in line with Government commitments and the implementation of the listed priority measures to improve Barki Tojik's operational and financial performance[5]. The result of these activities has been an increase in electricity usage charges.

### 1.2. Overall progress in the energy sector. Current challenges.

[5] World Bank. Increasing fiscal risks in Tajikistan. Report on the Economy. Autumn issue. 2019. p.19-20.

Over the years of the previously adopted programmes for the development of the fuel and energy sector, 29 major energy projects have been implemented in the country at a total cost of 2.6 billion. As a result of these projects, Tajikistan has made significant progress in the development of the energy sector. In particular, a number of large hydroelectric power plants have been renovated in the country - the Nurek, Sarband and Kayrakkum HPPs. As a result, Tajikistan's electricity production has reached 20 billion kWh, which represents over 90 percent of the electricity produced by small, medium-sized and large HPPs. The first two units of the Rogun HPP, which are now operating at a minimum capacity depending on the level of the reservoir, have been put into operation and by November 2020 they had produced more than 2 billion kWh of electricity. In the autumn-winter period, MBG-2 with a design capacity of 400 MW, 1.5 billion kWh of electricity and 234 Gcal of thermal energy was commissioned, which significantly reduced the load on the electricity grid and increased the reliability of electricity supply in Dushanbe.

Within the framework of ensuring diversification of energy sources, the need to continue the development and efficient use of hydropower potential through the construction of new and modernisation of existing HPPs and TPPs in compliance with environmental requirements has been set. According to the data from the Ministry of Energy and Water Resources of Tajikistan, about US$ 475133 thousand were actually spent on reconstruction of the existing HPPs. According to the data of Ministry of Energy and Water Resources of the Republic of Tajikistan, about US$ 475133 thousand was spent for rehabilitation of the existing HPPs, and 2.1 million somoni was spent for construction of small HPPs.In the direction of implementation of the Small Hydropower Development Programme and monitoring of previously constructed SHPPs in remote villages of the Republic 9 SHPPs with a total capacity of 2,925 MW have been commissioned, providing regular power supply to the population of these villages. By the end of 2019, these power plants had generated more than 5.0 million kWh of electricity, which had a direct and significant impact on electricity supply in remote and mountainous areas.

As a result of the implementation of the "Renewable Energy and Small Hydro Power Development Programme 2016-2020", 18 new jobs were created, 1,550 households, 6 schools, 5 health centres and 109 other public facilities were supplied with electricity in selected villages. Three more small hydro power plants with a total capacity of 11,375 MW are under construction and design. A pre-feasibility study for 6 SHPPs with a total capacity of 26,870 MW has been developed.

Due to the construction of new power plants (801.5 MW) and reconstruction of existing capacities (8 MW), the capacity of the energy system has increased, which has increased electricity production and removed restrictions in electricity consumption of the population with access to centralized electricity supply networks, However, there are still more than 700 villages in remote and hard-to-reach areas without access to these networks, and there is a need to develop alternative RES and EE in these villages.

### 1.3. Investment and feasibility of achieving strategic development goals.

In order to ensure a reliable energy supply to the economy, a number of investment projects are being implemented in the country that envisage increasing the development of hydropower potential by constructing large and small hydropower plants, reducing electricity (capacity) losses, implementing energy saving and energy efficiency improvement programmes both in energy production and consumption. In order to ensure guaranteed access to energy sources for the population in remote areas, a programme for the development of small hydropower is being implemented, which also contributes to the development of small and medium-sized businesses. Measures have been taken to improve the regulatory and legislative framework of the domestic energy sector. The project for construction of a power transmission line (transmission line-500) that connects the energy-deficient northern part of the country to the southern part, which has a significant potential of hydropower resources, has been successfully implemented, which significantly contributes to reduction of energy poverty in the northern regions of the country.

An investment fund has been established at Barki Tojik to upgrade fixed assets and develop the energy sector. Modernisation and reconstruction of existing energy facilities was carried out. Positive experience has been gained in public-private partnership in the energy sector in the form of concession agreements, construction of autonomous energy sources (Pamir Energy Company is an innovative partnership between the Government of Tajikistan and the international community, which helps Tajikistan to cope with the difficult task of reliable energy supply). Measures have been implemented to improve metering and reduce energy losses.

Attempts have been made to involve the country in international projects aimed at realising the export potential of the domestic hydropower industry, one of which is the construction of a new system of power lines called CASA-1000. Implementation of this project will make it possible not only to use the environmentally friendly hydropower resources in the Central Asian region with maximum efficiency, but also to export the summer surplus electricity (capacity) to the energy deficit countries of South Asia. Moreover the CASA-1000 project is an effective measure for creation of the regional energy market and development of integration processes of the Central Asian countries in the effective use of natural water and energy resources.

With the participation of financial institutions and various levels of experts, public recognition has been achieved, including at the international level, of the safety of the impact of the Rogun HPP project on downstream countries, and its economic efficiency and financial viability have been substantiated. The installation of the first and second units of the Rogun HPP has been completed.

The development of hydropower resources involves the attraction of significant financial resources from various sources, including both private and public sources. International financial institutions such as the Asian Development Bank (ADB), the World Bank (WB), the Islamic Development Bank (IsDB) and the Eximbank of China make significant contributions to the development of national hydropower. However, a significant part of the financial resources is provided by the partners on a loan basis.

With the assistance of the Asian Development Bank (ADB), Corporate Solutions Consulting Limited (CSCL), in association with Manitoba Hydro International Ltd. (MHI) has developed an Energy Sector Master Plan for Tajikistan until 2039.[6] The Master Plan Report presents the parameters, criteria, generation options, and outlines and analyses plans to expand the unified power system for new additional generation and transmission resources, taking into account increasing demand, obsolescence of existing generation assets and the economic value of potential generation resources to meet increasing demand. The financial investment requirements for each of the activities in the plan up to 2039 are identified.

Barki Tojik's Financial Rehabilitation Programme developed and adopted.[7] Programme for Results (PB). Environmental and social systems assessment carried out during the implementation of the project on financial recovery of energy enterprises[8].

As part of the cooperation between the Government of Tajikistan and the ADB TVET project, solar installations with a total capacity of 10 kW were installed on the premises of the Kushoniyon Energy Institute in 2016. In addition, in 2016, solar installations with a total capacity of 30 kW were installed on the territory of this institute by the German company DPU Investment. As part of the cooperation between the Government of Tajikistan and ADB, a pilot project "Off-grid Solar Kits" was implemented in 2018 with ADB funds, under which 90 off-grid solar kits with a total capacity of 27 kW were installed in the territory of Murghab district. In 2017, 40 units were imported and in 2018. - 27. No commissioning works were carried out on them on the basis of RES (except HPPs).

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[6] Tajikistan. Energy Sector Development Master Plan. Final Report. Regional Power Transmission Project. Sector Operations Improvement// ADB Grant No.: 0213-TAJ/|February 2017.// https://mewr.tj/wp-content/uploads/files/Plan_razv_enrgo_tom1.pdf

[7] http://documents.worldbank.org/curated/en/619491570808619549/text/Central-Asia-Water-and-Energy-Program-Annual-Report-2018.txt

[8] https://www.mewr.tj/?p=969&lang=tj

### *1.4 Renewable energy and energy efficiency solutions*

In Tajikistan, as elsewhere in the world, the development and use of renewable energy sources (RES) is a strategic priority for energy development. They are environmentally friendly, require relatively low overall costs and time, and can be constructed in almost any location, including remote and inaccessible areas.

In the context of using RES, it should be noted that Tajikistan is one of the regional and world leaders in terms of potential reserves of renewable hydro energy resources.

*Electricity from the sun.* Tajikistan is located between 37th and 41st degrees of northern latitude, in the zone of the so-called "world sun belt". The number of sunny days per year ranges from 280 to 330 days, the annual sum of radiation when the sky is clear is 7500-7800 MJ/m2, the duration of sunshine is 2100-3166 hours per year, respectively it has significant opportunities to use solar energy as well as some opportunities to use other renewable energy sources. The economic potential of solar energy in Tajikistan is difficult to assess today. Solar energy in the country cannot economically compete with hydropower.

At the same time, its importance can be very high for the social sphere. The great advantages of solar energy for this sector are the absence of the need to develop transmission lines, the rapid uptake and the targeting of individual consumers. In Tajikistan today, the potential of solar energy is particularly in demand during the autumn-winter period. *Тепловая энергия солнца.* Для социально-бытового сектора большой интерес представляет также использование солнечной энергии для отопления и горячего водоснабжения. Экономически целесообразный потенциал солнечного тепла в Таджикистане составляет 4,1 млн. Гкал/год.

*Wind energy resources.* Economically, wind power in Tajikistan today as well as solar power cannot compete with the existing hydropower industry. Therefore, wind power today may be in demand primarily in the social sphere. Under these conditions, just as in the case of solar energy, one can talk not about economic efficiency, but only about the socio-economic feasibility of wind power.

*Thermal water resources.* Tajikistan has a large number of thermal springs. Particularly large quantities of them are located in the Pamirs. The experience of other countries shows that thermal waters are of interest for power generation only if their temperature is not lower than 150 C°, and even 300 C°. For heating, thermal water sources with a temperature of more than 60 C° are of interest. The remaining sources can only be used for thermal water supply and heating. With the use of modern technologies, for example, heat pumps in this case it is possible to use all the low-potential heat of geothermal sources with water temperature above 15 C0.

All the above-mentioned types of renewable energy sources are available in Tajikistan in sufficient quantities. Hydropower is the most studied of these and has been in use for a long time.

The most complete assessment of the potential of general hydropower in Tajikistan was made in the 60s of the last century [3], where their design study and possibility of use were noted.

*Table 1: Energy resources of small hydropower in Tajikistan*

| Districts | Potential | | Industrial | |
|---|---|---|---|---|
| | N, MW. | E, TWh. | N, MW. | E, TWh. |
| Sogdian group of districts | 1288,0 | 11,28 | 450,8 | 3,95 |
| Districts of republican subordination | 16056,0 | 140,65 | 5619,6 | 49,23 |
| Gorno-Badakhshan Autonomous Oblast | 3713,0 | 32,53 | 742,6 | 6,51 |
| TOTAL for Tajikistan | 21057,0 | 184,46 | 6813,0 | 59,69 |

The hydropower potential of small hydropower in Tajikistan is 184.46 billion kWh/year, including 11.28 billion kWh in Sughd Oblast. A large number of SHPPs can also be built in Tajikistan on existing irrigation structures - fast-flowing streams, overflows, etc. This will make

it possible, among other things, to use ready-made structures for SHPPs and make their construction cheaper.

*Biomass energy resources.* Tajikistan has sufficient quantity of cattle, horses, sheep, goats, chickens, which with some growth in perspective can provide total energy resources from livestock and poultry production equal to 204,34 MW with annual generation of electricity: 1790 mln. kWh per year.

*Table 2. RES and EE resources of Tajikistan, Mtoe per year*

| Resources | Gross capacity | Technical capacity | Economic potential |
|---|---|---|---|
| **Economic potential** | 63.0 | 20.6 | 20.6 |
| Solar power | 4790.6 | 3.92 | 1.43 |
| Biomass energy | 4.25 | 4.25 | 1.12 |
| Wind power | 163 | 10.12 | 5.06 |
| Geothermal energy | 0.045 | 0.045 | 0.045 |
| Total | 5020.6 | 38.6 | 28.0 |

It can be seen that small hydropower occupies a central place in the RES structure. Therefore, it is the main focus of development.

Priority sites for renewable energy sources are, in particular,

- zones of decentralized energy supply, where due to low population density traditional power plants and high voltage power lines construction is economically unprofitable or practically unfeasible;
- centralised power supply areas, where, due to the poor state of the power grid or lack of capacity or energy, frequent customer outages occur, resulting in significant economic damage and negative social consequences;
- populated areas and places of public recreation, where harmful emissions from industrial and municipal fossil fuel-fired boilers create a difficult environmental situation;
- settlements, summer houses and places of temporary stay of people where there are problems of heating, electricity and hot water supply.

### *1.5 Community-based tourism energy consumption issues*

Tajikistan with its distinctive culture, advantageous geopolitical location, diverse natural landscapes, flora and fauna, stability in the economy, prosperity and tranquility in the society is a unique tourist attraction, which in recent years has become particularly popular among foreign tourists who prefer adventure, extreme, mountain and ecological tourism. The Government, in view of the existing potential, considers tourism as one of the prospective areas for development of the national economy, the priorities of which are outlined in NDS 2030, PDS 2021-2025 and the Tourism Development Strategy for the period to 2030.

As a result of the implementation of a systematic policy in this area, Tajikistan has been recognised by the world tourism community as one of the best tourist destinations and a country possessing four Silk Road trails. In order to attract more tourists to Tajikistan, the government has introduced a simplified electronic visa system for the citizens of more than 80 countries, which has increased the number of tourists to the country to 2.1 million in the last five years. The decrease was only due to the restrictions imposed by the COVID 2019 pandemic in the countries of the world, which in turn decreased the business activity in all sectors of the countries' economies.

It should be noted that the current strategic policy documents on tourism development identify the main directions of institutional development of the industry, improving the efficiency of tourist resources, infrastructure development, competitiveness and development of tourist services. However, in these strategic documents, the issues of development of CBT entities as a priority are not sufficiently highlighted, measures to improve the quality of their services and the application of RES and EE technologies are not specified. The issues of establishing local networks and systems of heat, water, energy supply, production and consumption are considered in general terms, relegating their production to the subject of sectoral programmes in the field of energy development, which reduces the synergetic effect. The policy documents do not link the planning of renewable energy and EE use and generation with the budgeting process.

One of the preferred products among foreign tourists is eco and mountain tourism. The Pamir (GBAO) and Fann (Zarafshan valley) destinations are particularly popular among them. These destinations are mostly located in remote and inaccessible mountainous areas and the key providers of tourism services are community-based tourism entities.

According to GBAO, Rasht and Zeravshan valleys are included in the zones of **decentralized energy supply**, which cannot be supplied with energy from centralized energy generation sources due to low population density and scattering of settlements on the territory. The minimum population density in such areas is 23 people per square kilometre in some places. **Therefore, development of non-conventional renewable energy in the areas of decentralised energy supply is today a real necessity[9].** Along with growing number of foreign tourists in mountainous regions of the country, there is growing number of entrepreneurial initiatives on establishment of community-based tourism services, including: creation of food and trade points, handicraft production, transportation and other services, establishment of hotels and hostels in the households and summer houses (in particular, in Khorog, Rushan, Murgab, Ishkashim, Darvaz districts, Varzob and Ramiz ohelks, Karatag and Fansky mountains, etc.) and accordingly the need of MSMEs for alternative energy sources from RES and EE is increasing. However, the development of entrepreneurial initiatives in this direction is constrained for a number of reasons, mainly the limited access of CBT and MSME entities to resources such as land, information, finance, labour, technology, which are discussed in the following sections.

The most difficult areas for electrification are the settlements in Khatlon oblast bordering Afghanistan and in GBAO, given the topography and geographical remoteness from the grid. Therefore, the most promising here is the use of non-conventional renewable energy sources: small river energy, solar energy, geothermal water, wind energy and bioenergy. Especially important is the fact that small watercourses are almost evenly distributed over the vast territory of Tajikistan, and their resources are enormous. In this regard, the construction of small and mini hydropower plants located in close proximity to CBT facilities and potential consumers is a priority project, which will allow the rational use of RES resources and avoid large investments in the construction of costly transmission lines.

**Structure of energy consumption and real needs of the CBT sector.** The structure of energy consumption in the country has changed significantly over the last 25 years. The geography of consumption has changed, until 2018 the country had such problems as instability of energy supply to rural settlements (4-5 hours per day), deterioration and low energy efficiency of energy generating enterprises, increased energy losses amounted to more than 15%, and other infrastructural problems. Until 2015, the share of industry in energy consumption exceeded other categories (households, agriculture and others), which gradually began to decline due to falling production volumes, the deterioration of the financial condition of enterprises and other internal and external negative factors. However, in recent years, the energy consumption structure has been growing in favour of the population due to the introduction of new power and heat generation

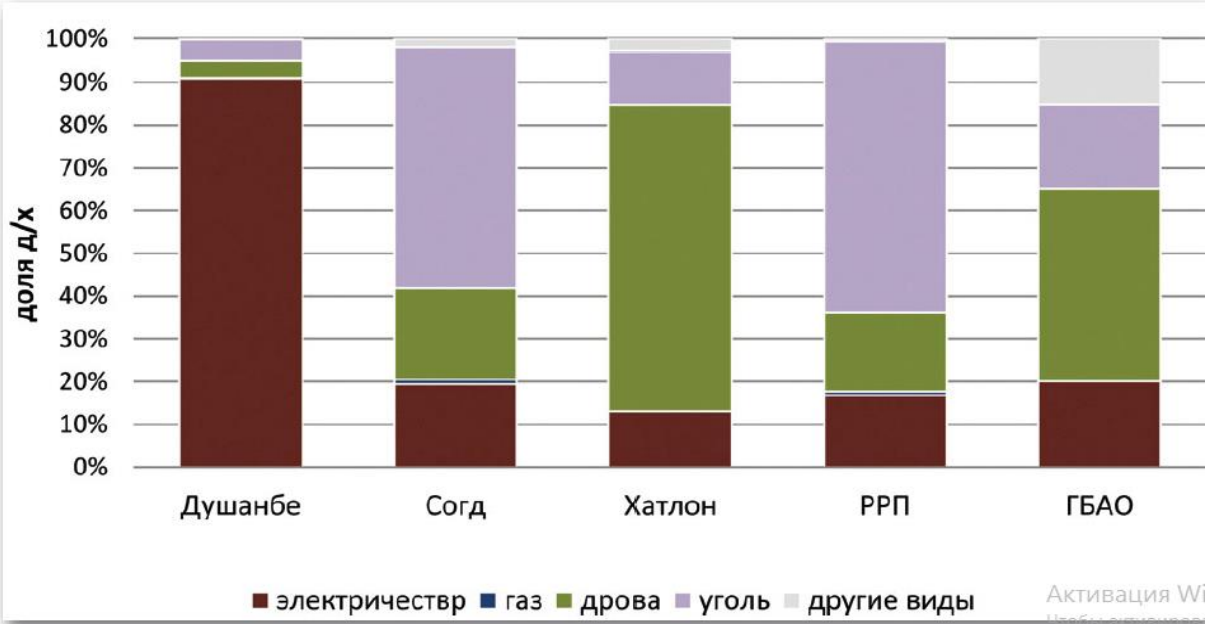
[9] Peculiarities of energy security of the Republic of Tajikistan: https://cyberleninka.ru/article/n/osobennosti-energeticheskoy-bezopasnosti-respubliki-tadzhikistan

capacities in the country, as well as an increase in the daily power supply to the population (24 hours a day). At the same time, there has been an increase in consumers (MMSB subjects) in areas where no capacity to meet business (production) needs was foreseen.

A review of consumption by energy source indicates the following use of fuels and energy resources for energy, heat and needs and use for the production of services, goods.

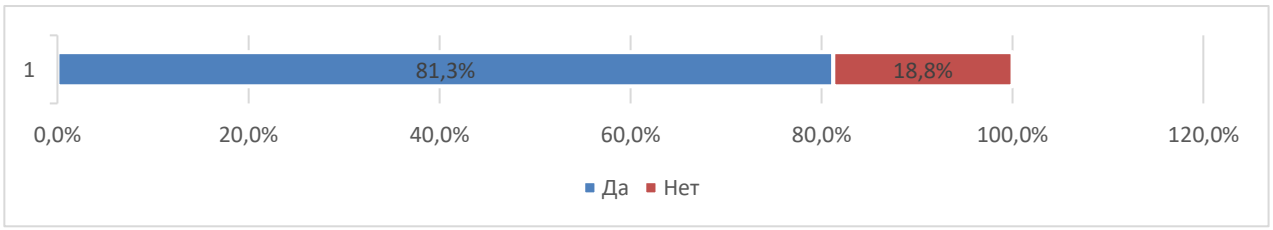
Data from the Central Asia Multi-Year Inclusive Social Survey (CALISS), 2013[10] shows that there is a significant difference in energy consumption between urban and rural populations and territories. They show that the population of densely populated and large cities of the country mainly use electricity, while in rural areas, particularly in Khatlon and GBAO, wood is the main source of energy for heating, and in Sogd and DRD most families heat their homes using coal. Characteristically, the use of hydrocarbons and other fuels for heating prevails over electricity consumption. Coal and agrofuels account for the bulk of the population's energy expenditure.

In order to confirm the similar energy use behaviour of the population in the current year 2021, a questionnaire survey and a focus group discussion were organised and conducted, which yielded the following results:



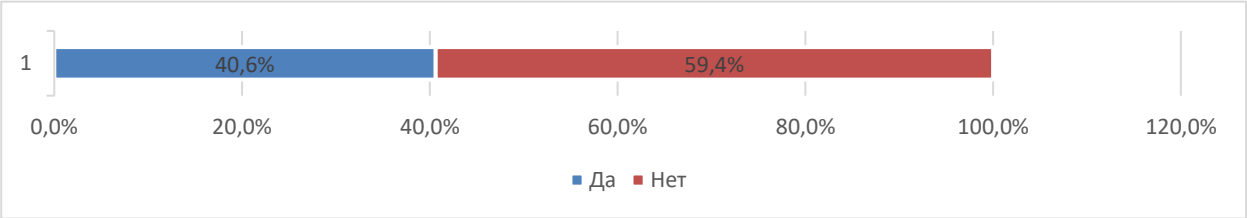

*Source: Central Asia Multi-Year Inclusive Social Survey (CALISS) 2013*[11].

The data of the questionnaire survey conducted among CBT representatives also confirm the data of the survey (CALISS), 2013 on the predominant use of hydrocarbons for heating, cooking, hot water supply, which was confirmed by 81.3% of respondents.

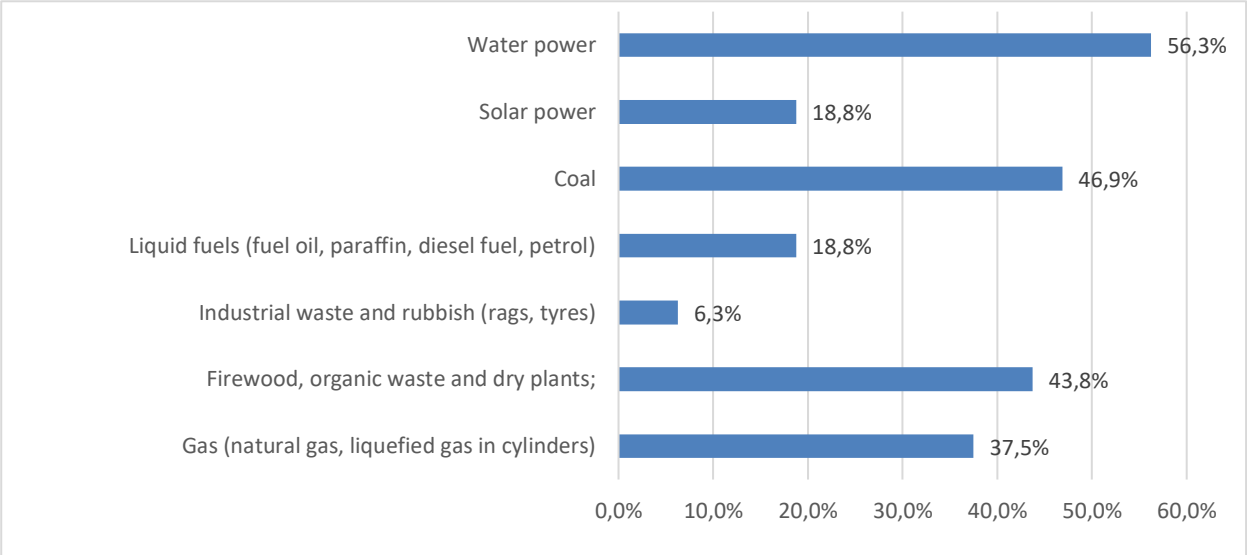



[10] Final report on the assessment of the energy shortage situation of the population in Tajikistan, WB June 2014
[11] See: WB, June 2014

In addition, 40.6% of the CBT respondents confirmed that they use diesel/gasoline generators for electricity generation as an alternative.

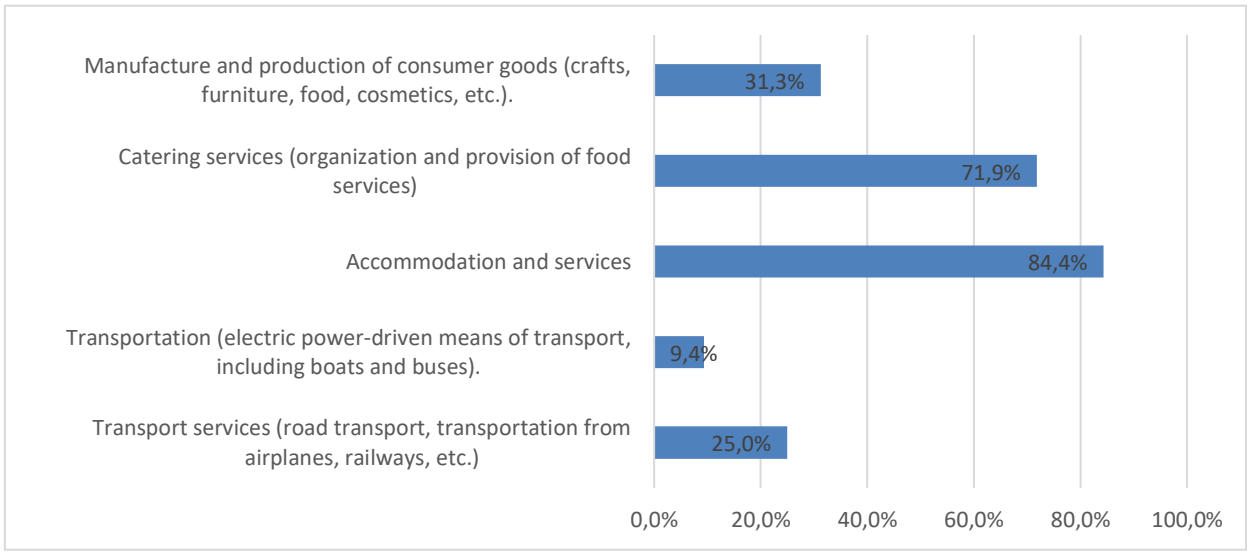



The survey of the tourism sector actors also showed what percentage of energy use there is in terms of renewable energy and in particular.



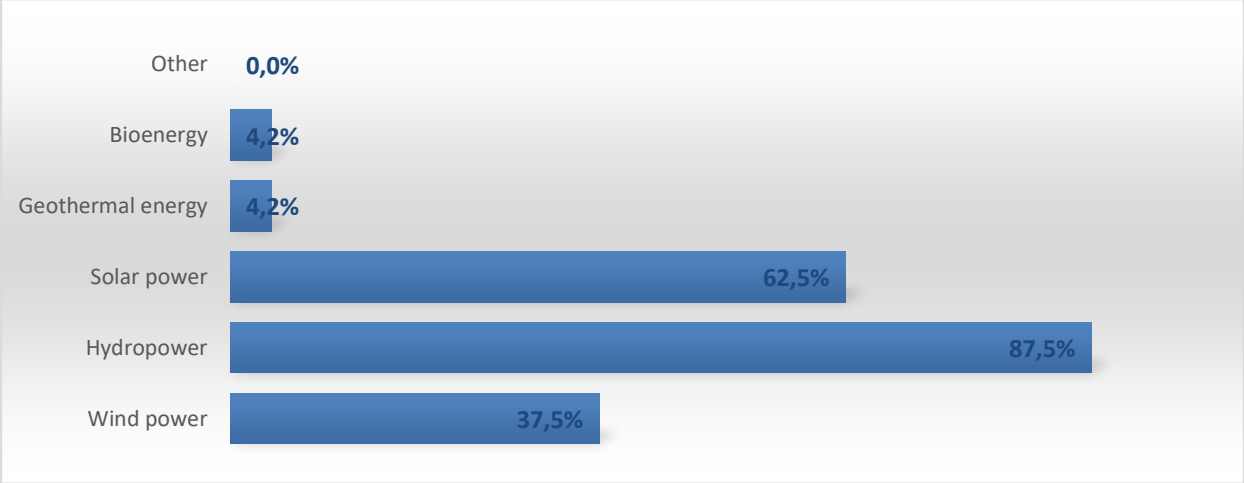

The tourism resources of a country are divided into two main components. The first are tourism service entities that provide directly accommodation and catering services and the second are those involved in the formation of tourism products. The performance of their economic activities contributes to the development of tourist destinations (entertainment, historical and cultural sites, national gardens, etc.).

With the development of tourism and the increasing arrival of foreign and local tourists to the country's popular mountainous tourist destinations, the level of entrepreneurial initiatives for creating tourist products, as well as the level of demand by MSPPs for preferential financial products, legal services, and in particular for energy and RES and EE equipment, is expected to increase in the future.



According to the results of the questionnaire and the FGD, the energy demand of the MSMEs in the CBT area is mainly generated for the provision of tourist accommodation services, catering (cooking, food storage - coal, firewood, electricity from networks, gas, liquid fuels), manufacturing and production of goods and handicraft products.

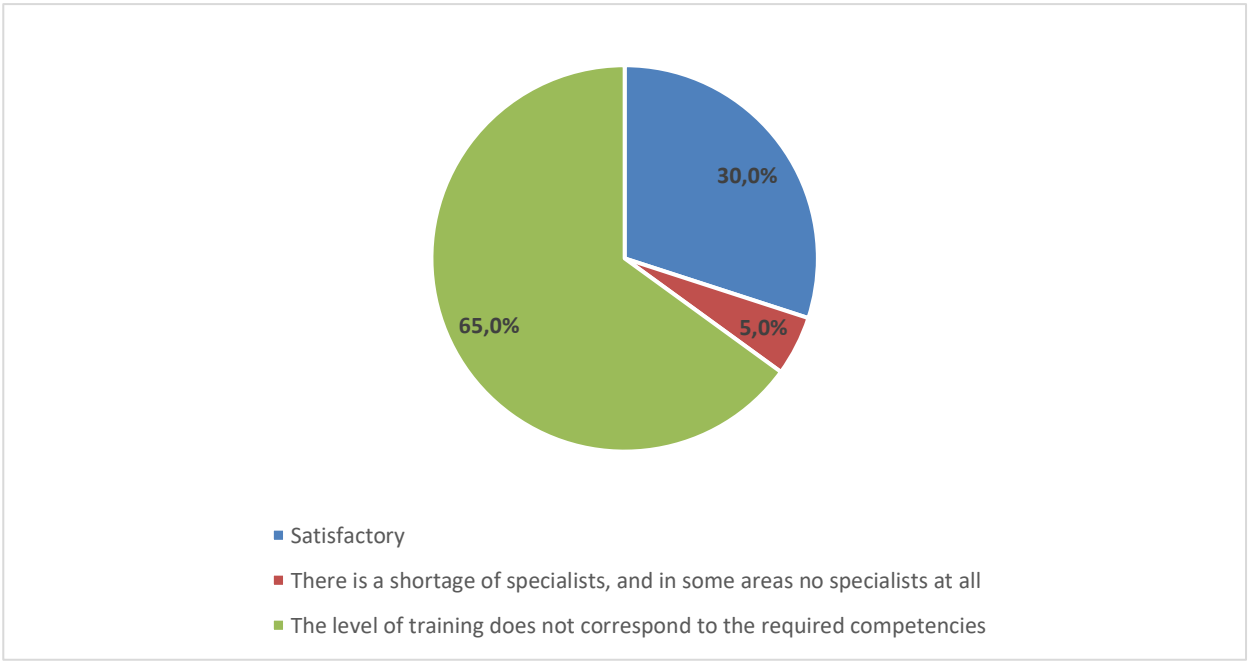
Analysis of the data survey also showed that the majority of respondents from CBT subjects know the main RES and EE types and indicated which RES and EE types can be developed in their territories.




However, to date, the level of business literacy of the population of remote and inaccessible mountainous areas with respect to the organization of entrepreneurial activities in the field of RES use, the benefits of EE growth at the TPS level is underdeveloped.

There is a low level of legal awareness, technical and financial literacy. The majority of respondents and FGD participants consider that the main barriers to the growth of renewable energy use by MSMEs in CBT are its high cost and lack of own funds to design, install, purchase equipment, RES, materials, EE technologies, RE equipment are technically complex devices and they lack skills to maintain and operate them. In addition, they confirm their low awareness of the benefits of using RES/EE about the complexity of obtaining permits and locating generating facilities on lands and plots, facilities.

***Assessment of the quality of the workforce.*** A shortage of specialists and their competence is a constraint to ensuring the design and operation of RES facilities, and the state support measures implemented in this area are insufficient.



According to the questionnaire and FGD results, 65% of the respondents confirm that the level of RES and EE specialists training does not meet the required competences, while 30% of them think that the RES and EE growth sector provision is satisfactory and 5% think that there are not enough specialists, and in some areas there are no specialists at all.

Regarding the question on how you evaluate the level of competence of specialists and officials of the state authorized bodies in the issues of RES and EE, 39% of respondents pointed out insufficient competence of some specialists and authorized civil servants, 34% of respondents evaluated the level of competence of specialists and civil servants of authorized state bodies in the issues of RES and EE as satisfactory, 16,3% believe that the competence of specialists in all authorized state bodies is insufficient and 9,3% assessed the level of competence of the authorized civil servants.

### 1.6 Availability of financial resources for producers/providers of RES

Regarding financing opportunities for construction of RES facilities and implementation of EE measures, 50% of respondents of the survey (of which half are entities importing/exporting finished goods, equipment, appliances, devices and organizations generating electric power) indicated that they mostly use grant funds from organizations and funds; 40% indicated use of state grants and soft loans; 40% indicated use of own funds and 15% use borrowed funds

39,5% said they are ready to invest if there are free funds and resources are available; 18,6% said they were not ready because consumption is limited and market institutions are not developed in this sector; 16,3% expressed their willingness to invest if "cheap and long loans" are available at acceptable cost; 11,6% expressed their willingness in case legal and economic conditions allowing to generate additional profit are created.

### *1.7 The role of information in the development of renewable energy production and consumption by CBT subjects*

The FGD identified that the inhibition of RES use is largely due to a lack of awareness among both producers/suppliers and consumers of RES-based energy.

The Ministry of Energy and Water Resources of Tajikistan together with Barki Tojik has been carrying out awareness-raising activities through the media to reduce the use of energy inefficient household current receivers, for example, in the first half of 2019 alone awareness-raising activities were carried out with 3952 business entities, 3000 copies of the booklet "Practical advice on energy saving" were distributed for free among the population, enterprises and institutions.

Information is the most important special resource for right decision making and improving its quality and adequacy. Insufficient information, whether technical, legal, political, financial, environmental or not, equates to market failure. The multiplier effect of implementing green tourism policies by supporting increased clean energy production, renewable energy development, EE/EE will benefit other sectors of the economy as well. The development will benefit the manufacturing, trade, hi-tech services, service, construction, small-scale energy and tourism end-user sectors. Therefore, the information factor in this case gets wider and more important.

The survey indicated that access to information on the use of RES and EE in the country is limited and insufficient, even for the selected category of high potential respondents.

This refers to the lack of awareness of the legal acts, especially those that are not publicly available (the survey showed that 90% of the respondents answered that they are not aware of the by-laws that are not available). It is also the lack of adequate and complete information on existing technologies and generating equipment, energy efficiency devices (even those that are already produced in the country), possible access to necessary data, for feasibility study preparation, pricing policy and preferences (91% of respondents confirmed ignorance of tax and other benefits provided by the Law of RT "On Renewable Energy").

About 53.5% of the respondents indicated that the quality of statistics and data does not meet the needs of users in developing investment plans and significantly reduces the quality of the

developed RES and EE policies. Therefore, the focus group clarified which information, data and statistics need to be better accessed and focused on to improve their quality.

95% of all respondents gave an affirmative answer to the question "Is it necessary to conduct propaganda campaigns and place special training materials, online calculators of benefits, costs, expenses, safe operation of energy installations on their own?

At the same time, the majority of respondents - subjects of CBT confirm their low awareness of benefits from RES/EE use, complexity of obtaining permits and placement of generating facilities on lands and plots, facilities.

The economic dimension of renewable energy is key to understanding its potential role in the energy sector and the pace and cost of moving energy to a truly sustainable pathway. However, most governments have not systematically collected the data needed to track trends in the evolution - or, as many rightly call it, revolution - of the costs of deploying renewable energy technologies. As a result, policy effectiveness has too often been undermined by a lack of awareness, and a resulting misunderstanding of cost structures, or by the use of outdated data.

To fill this gap and ensure sound policies based on accurate and timely data from a reliable source, the International Renewable Energy Agency has developed a world-class database of about 15,000 renewable energy projects for municipal energy supply and nearly three-quarters of a million small-scale photovoltaic systems. The trends identified from this database show not only the success of policies to reduce costs, but also the basis for transforming the energy sector in the future.

Awareness-raising measures for the stakeholders of the process, accessible and up-to-date information on the various issues of renewable energy use are very important. In particular, specific households, local communities, private entrepreneurs who are actors in the use of RES. There is also a need to strengthen the capacity of the specialists of the authorised state bodies on whom the relevant decisions, permits and fiscal functions depend.

Entrepreneurs themselves are often not able to present adequate engineering designs, to choose the right location for the plants, they lack professionalism and competence in drafting a feasibility study, and they do not have the possibility to obtain relevant data. It is important to keep the private sector informed, to obtain adequate visual and accessible information on the use of RES, their benefits and contribution to environmental protection, preservation of the ecosystem, health.

Specially prepared films, clips represent a powerful and yet unrealized resource. After all, television covers more than 95% of the country and almost every home has a DVD resource.

# 2. ASSESSMENT OF THE LEGAL FRAMEWORK AND IMPLEMENTED POLICIES OF THE REPUBLIC OF TAJIKISTAN IN THE CONTEXT OF PROMOTING RENEWABLE ENERGY PRODUCTION AND ENERGY EFFICIENCY IN THE TOURISM SECTOR AT COMMUNITY LEVEL.

## *2.1 Overview of Existing NLAs, National Strategies and Programmes in Place for Renewable Energy Generation and Consumption, EE Improvement, Tourism Development.*

All current regulatory framework of Tajikistan in the field of energy, including the use of RES and EE improvement, is developed in accordance with the fundamental provisions of the Constitution of Tajikistan on the exclusive ownership of the state on land and natural resources, the social nature of the state, the diversity of ownership forms.

The NLAs of Tajikistan regulating relations between state bodies, physical and legal entities in the areas of energy, RES use and energy efficiency in relation to tourism development, including CBT, include the following legislative acts and by-laws respectively in the sectors of regulation:

- ***in the field of energy, renewable energy use, energy saving and EE***

1. Law on Energy of 29 November 2000, No. 33 (as of 28.12.2013)
2. Law of Tajikistan "On the Use of Renewable Energy Sources" of 12 January 2010, No. 587 (as of 23 November 2015).
3. Law of Tajikistan "On Energy Saving and Energy Efficiency" of 19 September 2013, No. 1018.
4. Law of Tajikistan "On Safety of Hydraulic Structures" of 29 December 2010, No. 666 (as of 17 May 2018).
5. Decree of the President of the Republic of Tajikistan of 24 April 2009, No. 653 "On Additional Measures for Economical Use of Energy and Energy Saving".
6. Rules for Use of Electricity. (approved by Decree #84 of the Government of the Republic of Tajikistan on March 6, 1998).
7. Decree of the Government of the Republic of Tajikistan on March 3, 2011, #116 "On approval of the Rules of maintaining the State cadastre of renewable energy sources".
8. Government Decree of the Republic of Tajikistan dated December 31, 1997 # 572 "On regulation of heat and electricity consumption in the national economy of the Republic of Tajikistan".
9. Decree of the Government of the Republic of Tajikistan of 25 September 2018, No. 473 "On Tariffs for Electricity and Heat Energy".
10. Procedure and conditions for exemption of dekhkan (farm) farms from payment for connection of electric power capacity, water supply (without use of structures or technical equipment) (approved by the Resolution of the Government of the Republic of Tajikistan dated December 30, 2009, No. 702).
11. Order of the Ministry of Energy and Industry of the Republic of Tajikistan of December 03, 2010, No.111). "Rules for maintaining a catalogue of renewable energy installations of the Republic of Tajikistan".
12. Order of the Ministry of Energy and Industry of the Republic of Tajikistan № 112 of December 10, 2010. "On approval of regulation on procedure of connection (connection) of renewable energy installations to common power networks".
13. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan No.112 of December 10, 2010. "On approval of Safety Regulations for operation of renewable energy installations in the Republic of Tajikistan".
14. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan No.112 of December 10, 2010. "On approval of the Provisions on relationships between grid operator (dispatcher of power supply organization) and operating personnel or person responsible for

operation of technological and electrical equipment of energy producer using renewable energy sources (RES)".

15. Order of the Ministry of Energy and Industry of the Republic of Tajikistan of December 28, 2010, #1316 "Methodological instructions for calculation of regulated tariffs for electric (thermal) energy generated by RES facilities in the Republic of Tajikistan". Application for Preliminary Approval of the Project for Construction of a Power Plant Using Renewable Energy Sources. Application for approval of the construction of RES power plants. 16.
16. Order of the Ministry of Energy and Industry of Republic of Tajikistan #111 from December 3, 2010: "Guidelines on procedures to obtain permission to install and site power plants using renewable energy sources in the territory of Tajikistan".
17. Regulation on the Register of Natural Monopoly Entities (Approved by the Order of the Director of State Agency for Antimonopoly Policy and Support of Entrepreneurship under the Government of the Republic of Tajikistan of December 13th 2002, №55).
18. Procedure for determining the prices (tariffs) or their marginal level of economic entities occupying a dominant position in the commodity market of the Republic of Tajikistan (approved by the Order of the Ministry of Economic Development and Trade of the Republic of Tajikistan dated 5 March 2007, No.3).

- ***in the field of tourism***

19. Law of Tajikistan "On Tourism" of 7 August 2020, No. 1718.
20. Law of Tajikistan "On Domestic Tourism" of 7 August 2020, no. 1718.
21. Decree of the President of the Republic of Tajikistan dated January 2, 2019, No. 1170 "On declaring 2019-2021 as the years of development of villages, tourism and folk crafts".
22. Decree of the Government of the Republic of Tajikistan dated September 5, 2015, No. 564 "On establishment of the Interagency Council for coordination of activities in the field of tourism under the Government of the Republic of Tajikistan".
23. Decree of the Government of the Republic of Tajikistan of 12 April 2018, No.189 "On the list of tourist facilities for the establishment of which the importation of equipment, machinery and construction materials is exempted from value added tax and customs duties".

- ***in the use of natural resources***

24. Water Code of the RT, dated April 02, 2020, No. 1688 Section I. General provisions. Chapter I. Basic provisions. Art. 7: Competence of local executive bodies of state power in the area of water relations regulation. Section II. Water use. Chapter 6. Procedures and conditions for provision of water bodies for use. Economic conditions for the provision of water bodies for use. Chapter 12. "Use of water objects for industrial purposes and for hydropower needs". Article 83. Use of water bodies for the needs of hydropower industry. Article 84. Rights and responsibilities of hydropower enterprises for water use.
25. Land Code of the Republic of Tajikistan of 13 December 1996, No. 326 (as of 14 November 2016).
26. Law of the Republic of Tajikistan "On Mountain Regions of the Republic of Tajikistan" dated July 22, 2013, No. 1003.
27. Rules on allocation of land plots for natural and legal persons (approved by the Resolution of the Government of the Republic of Tajikistan dated September 1, 2005, No. 342).
28. Decree of the Government of the Republic of Tajikistan dated March 4, 2003, No. 95 "On approval of the Rules for Use of Water Bodies for Hydropower Needs".

- ***in the field of environmental protection***

29. Law of the RT "On Environmental Protection" of 02 August 2011, No. 760 (as of 18 July 2017).
30. Law of the RT "On Environmental Impact Assessment" of 18 July 2017, No. 1448.

- ***in the field of business and investment***

31. Civil Code (Part Two) of 11 December 1999, No. 884 (as of 02 January 2019). Section IV. Certain types of obligations. Chapter 29. Purchase and sale.
32. Code of Administrative Offences of December 31, 2008, No. 455 (as of December 17, 2020). Chapter 23. Administrative offences in the area of energy and use of energy resources
33. Tax Code of Tajikistan of September 17, 2012, #901 (as of December 17, 2020). Section XII. Taxes for natural resources. Chapter 36. Royalties for water. Section XVII. Preferential tax regimes. Chapter 46. Taxation of construction of hydropower stations. Article 312. Privileges for construction of hydropower plants.
34. Law of Tajikistan, On Licensing of Certain Types of Activities, 17 May 2004, No. 37 (as of 04 July 2020).
35. Law of RT "On Natural Monopolies" of 5 March 2007, No. 235 (as of 18 July 2017).
36. Law of RT "On Production Sharing Agreements", 05 March 2007, No. 238 (as of 01 August 2012.
37. Law of RT "On Investments" dated March 15, 2016, No. 1299 (as of August 03, 2018)
38. Law of the Republic of Tajikistan "On Investment Agreement" of 19 March 2013, No. 944 (as of 30 May 2017).
39. Law of RT "On State Registration of Legal Entities and Individual Entrepreneurs", 19 May 2009, No. 508 (as of 02 January 2020).
40. Law on State Registration of Immovable Property and Rights thereto of 20 March 2008, No. 375 (as of 04 July 2020).
41. Law on Technical Norming of 19 May 2009, No. 522 (as of 28 June 2011).
42. Law No. 759 of August 02, 2011 on Conformity Assessment (as of August 01, 2012).
43. Law on Certification of Products and Services of 13 December 1996, No. 314 (as of 3 July 2007).
44. Law of RT On Standardization dated December 29, 2010, #668 (as of April 6, 2012).
45. Resolution of the Government of the Republic of Tajikistan of 3 April 2007, No. 72 "On Approval of the Regulation "On Licensing of Certain Types of Activities" (as of 25 February 2017).
46. Resolution of the Government of the Republic of Tajikistan of March 2, 2013, No. 93 "On the List of agricultural machinery, production and technological equipment and its components forming a single technological set imported into the Republic of Tajikistan, which are exempted from value added tax and customs duty" (as of July 28, 2017).
47. Decree of the Government of the Republic of Tajikistan of June 18, 2012, № 310 "On the List of goods (works, services) subject to mandatory certification" (as of 29 September 2017).
48. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan No. 112 of December 10, 2010. "On Approval of the Model Contract for Sale and Purchase of Electricity Generated from Renewable Energy Sources RES".

In addition, ***international legal instruments recognised by Tajikistan*** should be added to this list, such as:

- Energy Charter Treaty (ratified by a Decree of the Majlisi Oli of 3 January 1997, No.10).
- Agreement on cooperation of the member states of the Commonwealth of Independent States in the field of energy efficiency and energy saving of October 7, 2002. (approved by Resolution of the Government of Tajikistan, 06 June 2003, No. 257).
- CIS Free Trade Zone Treaty of October 18, 2011 (ratified by the Decree of the Majlisi Namoyandagon Majlisi Oli of the RT, December 24, 2015, No. 285).
- World Trade Organization Agreement on Trade Facilitation (ratified by the Majlisi Namoyandagon Majlisi Oli of Tajikistan on May 06, 2015).

- Agreement between the Government of the Republic of Tajikistan and the Government of the Russian Federation on Avoidance of Double Taxation and Prevention of Fiscal Evasion on Income and Capital (ratified by Decree of the Majlisi Oli of the RT, November 13, 1998, № 701).
- Agreement between the Republic of Tajikistan and the Kyrgyz Republic on the Avoidance of Double Taxation and the Prevention of Fiscal Evasion on Income and Capital (ratified by Decree of the Majlisi Oli of the RT, November 13, 1998, No.701).
- Decision of the CIS Economic Council of March 11, 2005 on Main areas and principles of cooperation of the Commonwealth of Independent States member states in the area of energy efficiency and energy saving.
- United Nations Framework Convention "On Climate Change" (joined by the Decree of Majlisi Oli of RT, #533 on December 13th , 1997).

It is also noteworthy that Tajikistan has adopted a number of ***standards for certification of electrical equipment and electricity, including renewable energy sources***:

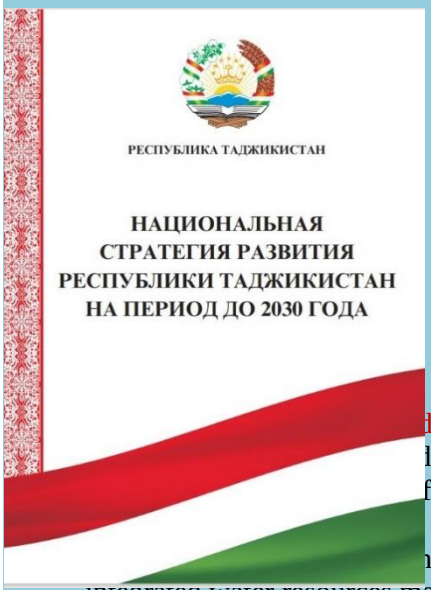
- Standard of the Republic of Tajikistan No. HT HT 5.10-2010. National Certification System of the Republic of Tajikistan. Rules for Certification of Electrical Equipment and Electricity. (Approved and put into effect by Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of September 1, 2010, #07).
- Standard of the Republic of Tajikistan GOST R 51237-2010. Non-conventional energy. Wind energy. Terms and definitions. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, #07-st).
- Standard of the Republic of Tajikistan GOST R 51238-2010. Non-conventional energy. Small hydropower engineering. Terms and definitions. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, #07-st).
- Standard of the Republic of Tajikistan GOST R 51594-2010. Non-conventional energy. Solar energy. Terms and definitions. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, #07-st).
- Standard of the Republic of Tajikistan № XT GOST R 51595-2010. Non-traditional energy Solar energy. Solar collectors. General technical conditions. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, №07-st).
- Standard of the Republic of Tajikistan № XT GOST R 51596-2010. Non-traditional energy Solar energy. Solar collectors. Test methods. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, №07-st).
- Standard of the Republic of Tajikistan No.XT GOST R 51597-2010. Non-conventional energy. Solar photovoltaic modules. Types and main parameters. (Approved and put into effect by the Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, #07-st).
- Standard of the Republic of Tajikistan № XT GOST R 51388-2010. Energy Saving. Information of consumers on energy efficiency of household and municipal products.
- Standard of the Republic of Tajikistan GOST R 51387. Energy saving. Normative-methodical support. Main provisions.
- Standard of the Republic of Tajikistan GOST R 51380 Energy saving. Methods of conformity of indicators of energy efficiency of energy-using products to their normative values. General requirements.

- Standard of the Republic of Tajikistan GOST R 51541 Energy saving. Energy efficiency. Composition of indicators. General provisions.
- Standard of the Republic of Tajikistan GOST R 51379 Energy saving. Energy passport of industrial consumers of fuel and energy resources. Main provisions. Standard forms.
- Standard of the Republic of Tajikistan GOST 25380-2014 Energy Saving. Buildings and constructions. methods for measuring the surface heat flux density and determining the heat exchange coefficients between the enclosing structures and the environment.
- Standard of the Republic of Tajikistan GOST 31427-2010. Buildings of residential and public buildings. Composition of energy efficiency indicators.

NDS-2030 defines the main actions to achieve the set strategic goal of ensuring energy security and efficient use of electricity, which include the creation of technical opportunities for the use of RES (solar, wind, biological, geothermal); large-scale energy saving and improvement of energy efficiency of the national economy.

Noting the insufficiently effective legal and regulatory framework in the country's fuel and energy sector and the inadequate tariff policy in the electricity sector, NDS-2030 provides for a set of measures to ensure an attractive tax, regulatory and legal environment for investment projects in the real economy, development of legislation and regulation aimed at energy saving and EE improvement.

NDS-2030 envisages ensuring the development of the country's electricity sector on the basis of the ***10/10/10/10 concept,*** including: increasing the design capacity of the electricity




The main actions to achieve the set strategic objectives are:

***In the sphere of energy security and efficient use of electricity:***

- Diversification of energy generating sources, envisaging the development of hydropower resources of large and small rivers, development of existing capacities in oil, gas and coal sectors, development of new fossil fuel deposits, creation of technical opportunities for the use of non-conventional (renewable) energy sources (solar, wind, biological, geothermal), modernisation of existing and construction of new HPPs and TPPs
- efficient use of the available energy capacities and realisation of the export potential of the power sector;
- modernisation and technical re-equipment of the oil and gas sector, and development of new oil and gas fields
- improved energy efficiency of the national economy;
- external energy infrastructure (power grids and substations); -
- for risk management and monitoring of energy security, including
- energy resources for all consumers
- sustainable operation of the energy sector;
- integrated water resources management.

system to 10 GW, increasing annual electricity exports to 10 billion kWh, reducing technical and commercial grid losses to 10%, diversifying generation sources by at least 10% and ***additional generation of over 500 million kWh per year through the use of RES and energy-efficient technologies.***

It is noteworthy that one of the priority areas of action in NDS-2030 has identified the creation of conditions and transport and logistics infrastructure for the formation and development of tourism business in rural areas, in areas of decentralised energy supply and areas of the country with unique natural conditions, which directly echo the objectives of the Project. It is noted that this will ensure new jobs, availability, accessibility and adequacy of food, reduction in the number of migrant workers, formation and development of the middle class in rural areas.

In the draft Medium Term Development Programme of Tajikistan for the next five-year period 2021-2025 ( PSR-2025) special attention is given to the development of the middle class in rural areas. Special attention is given to macroeconomic stabilization, reduction of economic dependence on external negative factors, improvement of competitiveness of the national economy, diversification of production as well as search for sources and such new factors of economic development as development of "green" and digital economy; effective use of mountainous economy potential; use of transit and tourist potential of the country. A separate paragraph in SDP-2025 is devoted to the development of a "green economy", which, among other things, provides for "launching industrial production of solar panels and equipment in manufacturing plants using domestic raw materials (silicon raw materials) and thereby reducing the cost of electricity production from this source".

Since 2000 to date, Tajikistan has implemented a number of policy documents in the energy sector that include RES research and development, including:

- Concept for Development of Fuel and Energy Sector of the Republic of Tajikistan for 2003-2015 (approved by Government Decree of August 3, 2002 № 318;
- Long-term Program for Construction of Small HPPs for 2009-2020 (approved by the Resolution #73 of the Government of the Republic of Tajikistan on 2 February 2009);
- Program on Efficient Use of Hydro Power Resources and Energy Conservation for 2012-2016 (approved by the Resolution of the Government of Tajikistan, №551 dated November 2, 2011);
- Programme for Development of Renewable Energy Sources and Construction of Small Hydro Power Plants for 2016-2020 (approved by Decree of the Government of the Republic of Tajikistan, 30 December 2015, No. 796).

In particular, the last program envisaged construction of 64 small HPPs with total installed capacity from 5 to 10,000 kW by 2020. Reporting on the results of this Programme at the meeting of the Government of Tajikistan on 31 March of this year, the Minister of Energy and Water Resources said that 9 small HPPs with a total capacity of 2,260 kWt were built and put into operation only at the expense of the main programme measures and 9 small HPPs with a total capacity of 1,685 kWt, i.e. a total of 18 HPPs were constructed and put into operation outside the programme. The consumers of energy of these HPPs were 2231 households, 21 schools, 15 medical centers and 93 various objects of national economy. The minister further informed that a feasibility study for 45 small hydropower plants has been developed.

Thus, the programme is only 28% implemented. Participants in the Focus Group Discussion (FGD) held on 2 April 2021 pointed to a number of reasons for the failure of the Programme, ranging from lack of funds to lack of expertise. However, in many cases, it was the lack of a well-developed, incomplete NLAS, as well as the Programme itself.

For reference: Based on consultations and information from the MEWR staff, a new sectoral programme document is currently being drafted and is expected to be discussed in the near future. As the previous programmes have a clear focus on the big energy sector, the Project team and stakeholders should develop and make proposals for a new draft policy document.

This should take into account the changes and advances in technology, the fact that the cost of micro-generation technologies is decreasing and that the CBT sector has an increasing need for alternative and additional energy supply when shaping the programme document. For example, in recent years the experts have focused on solar energy, whereas in 2009, when developing the Long-term Programme, they considered it appropriate to use it only for low-potential thermal energy and for domestic applications.

The Laws of the Republic of Tajikistan "On Tourism" dated August 7, 2020, №1718, "On Domestic Tourism" dated August 7, 2020, №1718, Strategy for Tourism Development in the Republic of Tajikistan for the period until 2030 (approved by the Resolution of the Government of the RT dated August 1, 2018, №372) provide for purely specific aspects of tourism activities, do not contain any provisions on the use of RES, although they provide environmental aspects. It seems possible to consider reflecting these aspects in the legislation and the Strategy through appropriate amendments.

Tajikistan has developed legislation covering the field of energy relations, including the regulation of renewable energy use. A legal and regulatory framework for the tourism sector has also been formed (see Annex for a general list of NLAs, strategic and policy documents of the Republic of Tajikistan that have an impact on the growth and development of the RES sector, EE, tourism development, at CBT level, micro generation and development of local energy supply of tourism facilities).

However, energy law in Tajikistan, despite its importance in the social dimension for business development and investment attraction, including for CBT development, is still far from being perfect. As the volume of work undertaken in this area increases and investors become more interested in energy and tourism facilities in Tajikistan, the importance of improving the legal and regulatory framework of the energy and tourism sectors and making the necessary amendments to the legislation in a timely manner, taking into account the interests of all stakeholders, is increasing.

### *2.2. Assessment of the impact of current legislation on increasing the use of RES and increasing EE for CBT purposes*

#### *2.2.1 Fundamental laws in the field of energy, renewable energy use, EE, tourism*

**1) The Law on Energy** of 29 November 2000, No. 33 (as amended on 28 December 2013) defines the main organisational and legal principles and methods for regulation of economic activities in the energy sector of Tajikistan. This law establishes norms defining the main objectives of the state policy in the energy sector, including with regard to the use of RES, methods and powers of subjects of state regulation in the energy sector, as well as specifics of regulation of energy enterprises (protection of rights, investment, financing, concession). Thus, the said Law has the character of a general framework legislative act, in which the legal regulation of the fuel and energy complex (FEC) is conditioned not by the detailed regulation methods of relations, but only by the general sphere of regulation - relations related to the organization and functioning of the FEC of Tajikistan. The law stipulates the expediency of using RES in order to increase the efficiency of the FEC, but does not define the legal status of RES entities, their rights and obligations, and does not elaborate a mechanism for regulating the price and tariff policy of the state in the energy sector in general, and in the area of RES use in particular

**2) Law of RT "On the Use of Renewable Energy Sources"** of 12 January 2010, No.587, (as amended on 23.11.2015. ) regulates activities in the field of RES in Tajikistan, including establishing the principles and objectives of state policy in the field of RES development; defines ways of integrating RES into the national energy system; carries out organisational, research and development project, expert, design, regulatory activities aimed at increasing the use of RES; provides for correlation (interconnection) of activities in the field of production, metering, transportation, distribution and use of energy from RES; defines economic and organisational measures aimed at stimulating the production and use of RES.

This Law establishes ***the notion of "small energy",*** which includes "micro, mini and small power plants of up to 100 kW, 101 to 1000 kW and 1001 to 30,000 kW respectively", i.e. all norms of this Law refer to power plants not exceeding 30 mW.

According to Article 4 of this Law, ***RES include***:

"- solar energy;

- wind energy;

- energy of natural and artificial watercourses and reservoirs;

- geothermal energy;
- wood waste, biomass in the form of waste from industry, agriculture, forestry, housing and communal services and domestic waste".

Article 6 of the Law defines priority sites for the use of RES, these are:

- Areas of decentralised energy supply, where, due to low population density, the construction of conventional power plants and high-voltage power lines is economically unfeasible or impractical;
- Centralised power supply areas, where, due to the poor state of the power grid or lack of capacity or energy, frequent customer outages occur, resulting in significant economic damage and negative social consequences;
- Localities and public recreation areas, where harmful emissions from industrial and municipal fossil fuel-fired boilers create a complicated environmental situation;
- settlements, summer houses and places of temporary stay of people where heating, electricity and hot water supply are problematic.

Part 2 of this article stipulates that "For energy supply of production and household needs in nature reserves and specially protected areas, renewable energy sources in accordance with the legislation of the Republic of Tajikistan may have priority", it is important for organization of CBT, with regard to ecological tourism.

In accordance with Article 14 of this law, state support for the use of RES is provided, which includes:

- formation of an effective pricing policy for energy produced from renewable energy sources, stimulating their production and purchase;
- protection of energy producers from renewable energy sources from unfair competition by entities with dominant position in energy production and use
- Recognition of renewable energy use as environmental and (or) energy saving activity with establishment of relevant privileges for legal entities and individuals carrying out activities in the area of renewable energy sources use;
- According to the amount of financing and production capacity, legal entities and individual entrepreneurs engaged in production of energy from renewable energy sources, in accordance with the Tax Code of the Republic of Tajikistan, shall be granted privileges;
- Regulation of energy tariffs for energy supply to consumers derived from renewable energy installations, including through subsidies from sources established by law for production of such energy;
- Establishment of accelerated depreciation of renewable energy installations;
- Provide unhindered access of physical and legal entities using renewable energy sources for their own energy supply, by simplifying the procedure for transfer of rights to use natural and other resources necessary for this purpose;
- Guaranteed connection of renewable energy generators to the energy networks;
- Encouragement of investment activity and introduction of state-of-the-art technologies in the use of renewable energy sources, including the creation of favourable conditions for national and foreign investors;
- Support for scientific and technical support for the establishment and implementation of renewable energy installations.

Article 11 of this law ***obliges energy network operators and wholesale consumers to purchase energy produced from RES on a contractual basis while maintaining the established balance of production and quality of energy produced from RES***, but the Law does not define a mechanism for the authorized body in the energy sector to purchase electricity from the owner of the power plant in the zone of decentralized energy supply, where there are no electricity distribution networks, electricity metering system and operating personnel of the authorized body (energy supplying organization). In order to ensure appropriate conditions for the RES entities to carry out legal activities to provide all types of energy services in the areas of decentralised energy supply, where the authorised body (energy supplying organisation) does not have electricity

distribution networks, electricity metering system and operating personnel, it is appropriate to grant the status of "energy supplying organisation" to the RES entities.

According to the legislation of Tajikistan, any natural or legal persons, irrespective of the legal form in which they are established/operating and the form of ownership they are in, may act as entities using renewable energy resources in their activities and have an appropriate license to engage in transportation, transmission, distribution, storage, processing, energy conversion, transformation, trade or sale of energy resources and products. At the same time, the legislation of Tajikistan makes an exception: RES entities are not required to obtain a license for energy production, transmission and distribution for their own needs of a legal entity or an individual entrepreneur.

Thus, both individuals (registered as an individual entrepreneur) and legal entities are required to legally engage in all types of energy services and to acquire the status of an "energy supplying organization" to be licensed.

A license for the production, transmission and distribution of electricity (with the exception of cases where these activities are carried out to meet the own needs of a legal entity or individual entrepreneur) is issued by the Ministry of Energy and Water Resources of Tajikistan based on the Law of Tajikistan "On Licensing of Certain Types of Activities", dated May 17, 2004, No. 37 (Article 17. List of types of activity for which a licence is required).

Article 12 further defines that the sale of RES-produced energy is subject to the following requirements and conditions:

- availability of a certificate of conformity for the energy to be sold;
- sale of energy on a contractual or competitive basis at regulated tariffs;
- to the authorized body in the field of energy.

This list does not require RES entities to obtain a license for energy production, unlike other energy market entities that use primary and secondary energy resources in their activities. The remaining technical and other requirements for the provision of energy services using RES are unified, i.e., they apply to RES entities as well.

It should be noted that at the time of adoption of this law, in accordance with the Decree of the Government of Tajikistan of June 18, 2012, No. 310 "List of goods and services subject to mandatory certification" was mandatory certification for sold energy. However, following the revision and approval by the Government of this List in a new version, certification for sold energy has been excluded from it and is now voluntary. In the case of an application, electricity certification is conducted in accordance with Standard ST RT 5.10-2010 "On Recommendations for Certification of Electrical Equipment and Electricity", approved by Decree of the Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of Tajikistan, No. 07-st, dated September 1, 2010.

The Law of RT, dated November 23, 2015, No. 1254 was amended in Article 17 of the Law in question, according to which prices and tariffs for energy produced from RES are approved by the Government of RT upon submission of the authorized body on regulation of natural monopolies, which significantly complicated the procedure of price and tariff setting, including for power grids up to 100 kW. Previously, prices and tariffs were set by order of the head of the authorised antimonopoly body.

In order to implement individual norms and articles of the Law under consideration, regulatory governmental and departmental NLAs have been developed and adopted, including:

- Rules for Maintaining the State Cadastre of Renewable Energy Sources (approved by the Decree of the Government of Tajikistan on March 3, 2011, №116);
- Rules for maintaining a directory of renewable energy installations in Tajikistan (approved by the Order of the Minister of Energy and Industry of December 3, 2010, № 111);
- Methodological guidelines for obtaining permits for installation and siting of energy facilities operating on the basis of renewable energy sources on the territory of the Republic of Tajikistan (approved by Order of the Minister of Energy and Industry of the RT, December 3, 2010, №111);

- Regulations on relations between the grid operator (dispatcher of the power supply organization) and operating personnel or person responsible for operation of technological and electrical equipment of the energy producer using renewable energy sources (approved by the Order of the Minister of Energy and Industry of Tajikistan on December 10, 2010, №112);

- Contract for sale and purchase of electric energy generated using renewable energy sources (approved by the Order of the Minister of Energy and Industry of December 10, 2010, #112);

- Provision on the order of connection (connection) of plants using renewable energy sources to common power networks (approved by the Order of the Minister of Energy and Industry of December 10, 2010, #112)

- Provision on safety rules for operation of renewable energy installations (approved by the Order of the Minister of Energy and Industry of Tajikistan on December 10, 2010, #112 and agreed with the Chairman of the Republican Committee of the Trade Union of Power Industry Workers of Tajikistan).

The study showed that these NLAs are almost never applied in practice. The State Cadastre and Catalogue of RES has not been created. More than 90% of the surveyed respondents indicated that they are not aware of the named bylaws and they are not available. In addition, the completed reconstruction of Barki Tojik will require significant changes in both the Law and its by-laws.

**3) Law on Energy Saving and Energy Efficiency** of 19 September 2013, No. 1018 regulates public relations in the area of energy saving and EE, defining the principles of legal regulation, competence of the Government of the RT and powers of public authorities, procedure for state regulation and information support for energy saving and energy efficiency measures state support and procedure for state oversight in the area of energy saving and EE.

In accordance with Article 27 of this law, in order to support the state policy in the field of EE and energy saving, the Government of Tajikistan creates the Renewable Energy, Energy Saving and Energy Efficiency Development Fund (RESESEED Fund), which is an independent structure, organized and operating on the basis of Regulations approved by the Government of Tajikistan. It should be noted that in 2013 the draft Regulation on the Fund was developed with the support of the OSCE Office in Tajikistan and submitted to the MEWR, but so far the Fund has not been established and its Regulation has not been approved. The FGD assessed the current situation with regard to the establishment of the RES and ES/EED Fund as a serious failure of the implemented policy in the field of RES and EE that needs to be corrected as soon as possible. It was emphasised,

Thus, a significant gap in the legal regulation of energy, EE and CBT areas of Tajikistan is the failure of authorized state bodies to implement the requirements of previously adopted bylaws, update them in accordance with the new realities in the sectors - reform of management institutions, establishment of new priorities, impact of external factors, etc.

### 2.2.2 *Regulation of construction/ siting of small and micro energy facilities based on RES. Impact of land and environmental legislation and availability of limited resources in renewable energy production and supply.*

Order of the Minister of Energy and Industry of December 3, 2010, No.111 approved "Methodological instructions to the procedure for obtaining permits for installation and siting of energy facilities operating on the basis of renewable energy sources on the territory of the Republic of Tajikistan". This act defines the step-by-step procedure for obtaining permits for the use of RES, including:

1. Procedure for preliminary approval of the use of RES;
2. Procedure for preliminary approval of allocation of a land plot for construction of RES;
3. Procedure for obtaining a license;
4. Procedure for obtaining a permit for the use of RES resources;
5. Preparation of design and estimate documentation;
6. Procedure for allocation of a land plot for construction of RES facilities;
7. The procedure of obtaining a permit for the construction of the plant;

8. Compliance with ecological norms and requirements.

According to the results of the Questionnaire, the highest value was given to regulatory problems relating to difficulties with regulation of land use and obtaining of permissive documents - 45.7% of the total number of answers, 40% mentioned insufficient incentives to reduce the tax burden and payments before starting operations and getting income and 37.7% mentioned problems with preparation of feasibility studies and planning of production, equipment/energy generation due to inability to obtain long-term hydrological data.

Relations associated with the use and protection of land, as well as property relations in the area of land use arising in connection with the obtaining (acquisition) of the right to alienate the right to use a land plot are regulated by the land legislation, the basis of which is the Land Code of the RT dated December 13, 1996, № 326 (as amended on November 14, 2016).

It should be noted that the Land Code of the RT does not directly specify the category of land provided for the construction of energy facilities. From the comparison of Articles 3, 7710 and 86, one can conclude that the land plots provided for use for the construction of RES facilities belong to "lands of industry, transport, communication, main pipelines and other purposes in cities" and "lands of communication lines, radio and electricity transmission" and be guided by the rules corresponding to this status of land. Article 86 provides that land plots for overhead power line towers, buildings, structures and other devices shall be provided to enterprises, institutions and organizations engaged in the operation of power lines in accordance with technical designs and norms.

According to Article 9 of the Land Code of the RT, classification of lands into categories and their transfer from one category to another is carried out in accordance with the procedure established by the Government of the Republic of Tajikistan. Further Article 91 stipulates that "transfer of arable lands, perennial plantations, hayfields and pastures to non-agricultural land of agricultural designation shall be made by the decision of the Government of the RT".

Article 18 of the Land Code of the RT prohibits the use of a land plot prior to registration of the right to land use - until the borders of the land plot are established on the ground and documents certifying the right to use the land are issued by the relevant land surveyors.

In accordance with Article 12 of the Land Code of the RT that land plots in the RT are provided to individuals and legal entities by local executive bodies of state power in an order established by the Government of the RT.

Article 26 of the Land Code of the RT defines the size and category of land plots (from 5 to 10 hectares) provided by the MIOGV of districts, cities and regions in coordination with the local body on land management, but further Article 261 establishes that the Government of the RT in coordination with the MIOGV of districts, cities, regions and the authorized body regulating land relations provides land plots for permanent and fixed-term use, for lease from all categories and types of land, regardless of size, while Article 29 establishes:

"If necessary to provide

a) from the category of lands of agricultural designation and state reserve lands (arable lands, perennial plantations, nursery gardens, hayfields and pastures)
b) from the category of lands of residential settlements (national parks, parks of culture and recreation, botanical gardens and other types of gardens, forests of the first category, natural monuments, recreational facilities, lands of historical and cultural purpose, scientific and research sites, scientific and research institutions, except for light buildings, without changing the designation, for servicing these lands and citizens)
c) from the category of lands of the state forest fund and the state water fund (arable lands, lands of perennial plantations, plantations, nurseries, hayfields, pastures and forests of the first category).

The order of presentation and consideration of petitions of physical and legal persons about granting and withdrawal of land plots from lands, irrespective of whose use they are, except for cases provided by the legislation of the RT, is provided in "Rules on land allocation for physical

and legal persons", approved by the resolution of the Government of the RT from September 1, 2005, №342.

For allocation of land plots a land management file is prepared by specialists of the state body on land management of the RT, its local bodies, specialized design institutes and its enterprises.

Individuals and legal entities interested in allocation of land plots shall submit an application to the regional, district and city chairmen indicating the purpose for which the land plot is required, the size and location of the facility, as well as the decision of the superior body or the Government of the RT on construction of the facility

The basis for submission of the application on withdrawal of the land plot shall be the project of perspective development or the decision of the superior body.

Placement of construction objects shall be carried out on the basis of district planning projects, draft master plans of settlements as well as other prospective projects upon submission of local bodies of architecture and town planning.

Within 15 days, the MIOGV of the district (city) considers the application and for the selection of the land plot submit to the permanent commission of the district (city).

The allocation of a land plot for the construction of RES facility is confirmed by a resolution (decision) of the respective MIOGV.

Chairmen of cities, districts, regions and the Government of Tajikistan in cases when physical and legal entities provide, in accordance with the requirements of the legislation of Tajikistan, developed, approved and examined construction projects, may allocate a land plot within their authority for construction in one stage without prior approval of the location of the construction facility.

This procedure for allocation of land for RES is reflected in the above-mentioned Methodological Guidelines on the procedure for obtaining permits for the installation and siting of RES-based energy facilities in the territory of the Republic of Tajikistan".

However, the mentioned Order of the Minister of Energy and Industry of RT has not passed state registration in the Ministry of Justice of RT. The legal acts that have not passed state registration do not have legal consequences and, as they have not entered into force, cannot serve as a basis for the regulation of relevant legal relations and application of sanctions for non-compliance with the prescriptions contained in them. The specified NLAs cannot be referred to when resolving disputes.

Thus, the procedure for granting land for RES requires clarification and substantial revision. The legislative norms should clearly and concretely describe all aspects of land allocation for RES use; in this context, it would be appropriate to introduce relevant changes and amendments both in the Land Code of the RT and in the Rules on allocation of land plots for individuals and legal entities, and, respectively, in the Methodological instructions to the procedure for obtaining permits for installation and location of energy facilities functioning on the basis of RES. At the same time it is important to complete the procedure of state registration of the mentioned methodical instructions in the Ministry of Justice of the RT.

The land legislation envisages a complex and multi-stage procedure for obtaining a certificate for a land plot intended for construction of RES and EE facilities. In addition, it is necessary to obtain a package of permits and approvals in accordance with the requirements of urban development, RDP general plans, SNiP do not take into account the specifics of construction of RES and EE facilities, especially for RES installations up to 100 kW capacity. In particular, respondents to the Survey questioned the necessity of passing the State Environmental Expertise and Environmental Impact Assessment when installing solar equipment up to 100 kW.

Chapter 8 of the Land Code of the RT provides for a set of measures implemented by land users regarding land protection. In particular, Article 53 stipulates that "Placement, design, construction and commissioning of new and reconstructed facilities, structures and facilities, as well as introduction of new technologies that negatively affect the condition of lands must provide for measures on land protection, ensuring compliance with environmental, sanitary, hygienic and

other special requirements established by legislation, in an order determined by the Government of the RT".

Regarding the impact of environmental legislation requirements on RES and EE use on business development, 55.8% of respondents of the conducted Survey consider that environmental requirements of the legislation on RES and EE use provide benefits and additional benefits for their businesses, and 70% of them represented importers/exporters (supply and sale) of finished goods, equipment. 34.9% of the respondents believe that environmental requirements limit business development opportunities and reduce benefits, while 9.3% of the respondents believe that they oblige entities to bear the costs of compliance with environmental requirements. At the same time, there was a need to revise a number of environmental requirements to take into account the specifics of RES, which would reduce compliance costs and ensure business accessibility.

### *2.2.3 Impact of taxation and customs regime on producers/suppliers of energy from RES.*

Regarding the tax regime for producers/suppliers of RES energy, it should be noted that according to the requirements of the Tax Code of the RT (hereinafter, the TC of the RT), taxation of entities generating electricity and heat is carried out under the same conditions, regardless of the type.

Individuals operating RES installations for the energy supply of their activities not aimed at generating profit, according to the Law on State Registration of Legal Entities and Individual Entrepreneurs, are not subject to state registration and do not pay the taxes established for entrepreneurial activities.

For energy production activities, as for commodity production in general, according to Article 109 of the TC of Tajikistan, the profit tax rate is set at 13%, which is 10% lower than for other activities.

Under Article 110 of the TC of the RT, new enterprises for the production of goods, including energy production, are exempt from profit tax for a period of two to five years, depending on the volume of investment, starting from the date of initial state registration, if their founders contribute to the statutory fund of such enterprises within 12 calendar months after the date of state registration of the specified volume of investment. Entities operating in the field of RES will be able to use this incentive if they invest at least 2 million Somoni.

Chapter 46 of the TC of the RT establishes a preferential tax regime for construction of a hydropower plant. During the construction of the HPP, the customer and the general contractor of the construction can be fully or partially exempted from paying a number of taxes, the list, amounts and terms of payment of which are established by the Government of Tajikistan. However, firstly, this exemption applies only to HPP construction, i.e. does not apply to other types of RES; secondly, the decision-making procedure of the Government for small HPPs is complicated.

According to chapter 36 of the TC of Tajikistan, persons using water for electricity generation pay a water royalty of 0.06 per 1,000 kWh of electricity produced at the end of each month. Under Article 242 of the TC, micro and mini power plants up to 1,000 kW are exempt from paying a water royalty.

All these tax exemptions apply to both conventional energy and energy produced from RES. However, there are no specific rules for RES entities, and even more so separately for solar energy, tax reduction or other tax preferences in the tax legislation.

According to Article169 of the TC of the RT and Article 345 of the Customs Code of the RT (hereinafter referred to as the CC of the RT) all types of equipment for the production of goods, including for RES energy production, are exempt from customs duties and VAT provided that they are imported for replenishment of the authorized fund. However, this exemption does not apply to individual entrepreneurs and natural persons.

There are exemptions for the import of goods for the construction of hydropower plants, which are of special importance for Tajikistan, but the importance of the object is established by the Government of Tajikistan, and so far RES are not included in this category.

The Law of Tajikistan "On Investment Agreement" of 19 March 2013, No. 944 (as of 30 May 2017) may be used to soften the tax treatment of producers/providers of RES. This Law provides a special mechanism for regulating the relations arising between the state and the investor on the basis of investment agreements. This type of agreement is individual in nature and seeks to establish for individual investors a special legal regime (as extensive tax incentives), distinct from the general legal regime granted to other investors. However, the Law applies to investment projects that involve a substantial amount of investment, a high degree of financial, technological, environmental and other risks, and are of strategic importance for the economy of the Republic of Tajikistan. The criterion of "substantial volume of investment" effectively excludes the possibility of concluding an investment agreement with an energy producer from RES and providing them with special legal treatment, including tax incentives. In addition, the law provides for a ratification procedure for the signed investment agreement by the Majlisi Namoyandagon Majlisi Oli of Tajikistan, which seems difficult for small energy entities.

The new investment legislation in Tajikistan guarantees that after investment funds are invested, the previous investment conditions will be maintained for 5 years, but the absence of relevant provisions in the TC of the RT raises reasonable doubts as to their applicability.

Provision of tax incentives is also stipulated in the Law of RT "On Concessions", dated December 26, 2011, No. 783. According to this Law, local and foreign individuals and legal entities, except for state entities and institutions, may act as concessionaire. Granting of objects for concession is carried out on the basis of competition or on the basis of direct negotiations between the Government of the RT and the potential investor. Pursuant to Article 11 of the above Law and Article 2 of the TC of the RT, the concession agreement may contain provisions on granting tax concessions. The concession agreement is approved by the Majlisi Namoyandagon Majlisi Oli of the RT.

Customs duty rates for imported goods into Tajikistan are determined by the Decree of the Government of the Republic of Tajikistan dated 08 August 2018, No. 399 "On the Rates of Import Customs Duties of the Republic of Tajikistan". This decree establishes a free trade regime and application of zero rate of import customs duty on import of goods originating from the member states of the Free Trade Zone Treaty of October 18, 2011 and from the countries with which bilateral agreements on free trade are signed, except for the goods withdrawn from the free trade regime.

Regardless of the person, when importing equipment or goods intended for RES use from countries such as the Russian Federation, Republic of Kazakhstan, Uzbekistan, Kyrgyzstan, Belarus, Ukraine, customs duty is not charged and imports from other countries not included in the free trade zone, customs duty rates for RES equipment and goods are from 5 to 10 percent of their value.

In accordance with part 1 of Article 172 of the TC of the RT, export of goods, except precious metals and precious stones, jewellery made of precious metals and precious stones, primary aluminium, metal concentrates, ferrous and non-ferrous metal scrap, other metals produced in the Republic of Tajikistan, cocoon, goods produced in free economic zones, cotton fibre, cotton yarn and raw cotton is subject to value added tax (VAT) at zero rate. The zero rate of VAT is an export rate, which means that VAT paid in advance when purchasing goods from a supplier can be refunded from the budget. When exporting electricity from the Republic of Tajikistan, including that produced from RES, a zero rate of VAT is applied, which is in line with international standards for the application of VAT on export of goods.

### *2.2.4 Analysis of current standards on renewable energy, energy saving and energy efficiency*

On the basis of directives and norms of European Union and Customs Union standards and implementation of Article 18 of the Law of RT "On the use of renewable energy sources" the

following national standards of RT on RES were approved by Order of the Agency for Standardization, Metrology, Certification and Trade Inspection under the Government of RT №07-st of September 1, 2010:

- ST RT 51237-2010 "Unconventional Energy. Wind energy. Terms and definitions";
- ST RT 51238-2010 "Unconventional energy. Small hydropower. Terms and definitions";
- ST RT 51594-2010 "Non-traditional Energy. Solar energy. Terminology and definitions";
- ST RT 51596-2010 "Non-traditional Energy. Solar power. Solar collectors. Test methods";
- ST RT 51595-2010 "Untraditional Energy. Solar energy. Solar collectors. General technical conditions";
- ST RT 51597-2010 "Untraditional Energy. Solar photovoltaic modules. Types and basic parameters";
- ST RT 51388-2009 "Energy Saving. Informing of consumers about energy efficiency of household and municipal products";
- ST RT 5.10-2010 "On Recommendations on Certification of Electrical Equipment and Electrical Energy".

As can be seen from the above list, 4 of these eight standards are directly related to the use of solar energy.

The Action Plan for implementation of the State Programme "Quality" for 2013-2015, which pays attention to the use of RES, energy saving and EE, was approved by Decree No. 512 of the Government of Tajikistan on October 2, 2012.

In order to implement the requirements of the Law of RT "On Energy Saving and Energy Efficiency", Tajikstandart has approved the following national standards:

- **in the area of energy saving:**
  - ST RT GOST R 51387 Energy Saving. Normative and methodical support. General provisions.
  - ST RT GOST R 51380 Energy Saving. Methods of conformity assurance of energy efficiency indicators for energy consuming products to their normative values. General requirements.
  - ST RT GOST R 51541 Energy saving. Energy efficiency. Composition of indicators. General provisions.
  - ST RT GOST R 51379 Energy Saving. Energy passport of industrial consumer of fuel and energy resources. General provisions. Standard forms.
- **in the field of energy saving and EE in buildings and constructions as an interstate standard:**
  - GOST 25380-2014 Energy saving. Buildings and structures. methods for measuring surface heat flux density and determining heat exchange coefficients between enclosing structures and the environment;
  - GOST 31427-2010 Buildings residential and public. Composition of energy efficiency indicators.

Analysis of legislation and adopted standards showed that the development of the whole necessary package of normative and technical standardization documents has not been completed, which prevents proper and quality development of RES use, energy saving and EE.

### *2.2.5 Tariff policy for the sale/supply of electricity and heat generated by RES*

The tariff policy of Tajikistan for sale/supply of RES-produced energy has been developed based on the Civil Code of Tajikistan (Part Two) of 11 December 1999, No. 884, the laws of Tajikistan "On Energy", "On Use of Renewable Energy Sources", "On Natural Monopolies" of 5 March 2007, No. 235.

Chapter 29 "Purchase and Sale" of the Civil Code of the RT, Section 5 "Energy Supply" regulates the purchase and sale of electricity, establishes the procedure for concluding an energy supply contract, the quantity and quality of energy supplied, the responsibilities of the subscriber for the maintenance and operation of networks, devices and equipment, payment for energy, etc.

Decree No. 112 of the Ministry of Energy and Industry of Tajikistan dated December 10, 2010 approved the "Contract on sale and purchase of electricity generated from renewable energy sources".

According to Article 17 of the Law "On Use of Renewable Energy Sources" "prices and tariffs for energy produced from renewable energy sources, taking into account the costs of produced energy and support for development of renewable energy use for sale to subjects of natural monopolies, upon submission by the authorized body on regulation of natural monopolies, shall be approved by the Government of the Republic of Tajikistan".

The Decree of the Ministry of Energy and Industry of December 28, 2010, #131 approved "Guidelines for calculation of regulated tariffs for electricity generated by renewable energy installations", which are intended to be used by producers of energy using RES, wholesale buyers of electricity. However, the practice of their application revealed shortcomings in the proposed formula, which does not take into account a number of factors, including the failure to separate the possible calculation of the tariff for electricity generated using solar energy.

Decree No. 329 of the Government of Tajikistan, dated June 22, 2019, approved tariffs for electricity and heat, but not for RES, since, according to the above-mentioned rule of law, a different price and tariff must be calculated for each type of RES.

It should also be kept in mind that the Decree of the Government of Tajikistan of 27 May 2017 No. 259 approved the Concept of Tariff Regulation in the Electricity Sector of the Republic of Tajikistan and the Action Plan for Implementation of its first phase.

**The Concept of Tariff Regulation in the Electricity Sector of the Republic of Tajikistan, approved by Resolution No. 259 of the Government of the Republic of Tajikistan, dated May 27, 2017,** defines the strategic objectives and priorities of tariff regulation in the electricity sector, methods, ways to achieve these objectives and the main directions of transformation of electricity tariffs in Tajikistan. The goals and objectives of this Concept are:

- Ensuring a balance of interests between consumers and power-supplying enterprises by setting tariffs that reflect the actual costs of enterprises, taking into account social protection issues;
- gradual elimination of existing cross-subsidies among the energy consumers;
- ensuring the financial sustainability of the electricity utilities and attracting investments;
- promoting transparency, consistency and predictability in tariff regulation and minimising regulatory risks;
- facilitating discussions with consumers and providing information on tariff decisions;
- stimulating competition and efficiency in the industry,
- Improving the quality and reliability of the electricity supply, thereby mitigating the impact of tariff increases on consumers, particularly on vulnerable groups in the population.

The concept is to be implemented in three phases:

1) 2017-2020: tariffs should cover the costs of electricity supply services of regulated enterprises;

2) 2021-2024: measures to achieve financial self-sufficiency of regulated enterprises, with relatively unchanged tariffs;

3) 2024-2028: further development of the industry and consideration of tariff reduction in the domestic market.

In the first phase of the Tariff Policy Concept, revenue requirement projections will be prepared annually for each newly formed enterprise for a period of five years, after which electricity tariffs will be revised accordingly and will be in force for a "control period" of one year. However, in order to minimise the cost of tariff revisions, the regulator may decide to implement a multi-year tariff regime.

Deviations from the projected key assumptions on inflation rate, fuel cost and other factors can be accounted for by using an appropriate adjustment formula applied at the end of each year during the reference period.

The regulator will elaborate on the multi-year tariff regime and the adjustment formula, if it is decided to introduce a multi-year tariff. At the end of the reference period a tariff review will be carried out, during which the required revenues for the next reference period will be determined in accordance with the guidance on the required revenues set out above.

In order to mitigate the impact on electricity tariff increases for consumers, in line with the energy efficiency subsidy mechanisms established in the Law on Energy Saving and Energy Efficiency, the Government of Tajikistan will consider developing a mechanism to provide legal entities (in particular in the agricultural sector) and individuals (in particular low income and vulnerable consumers) with subsidies, credits and other benefits. The Government of Tajikistan may set preferential (social) tariffs for low-income and vulnerable consumers.

In accordance with Article 17 of the Law on the Use of Renewable Energy Sources, prices and tariffs for energy produced from RES, taking into account the costs of energy produced and support for the development of renewable energy sources for sale to subjects of natural monopolies, are approved by the Government of the RT upon presentation by the authorized body on regulation of natural monopolies. The energy from RES is sold by the subject of natural monopolies at prices established for the products of natural monopolies, and the difference between the prices established for RES energy is covered by the tariffs established for the products of the subject of natural monopolies, taking into account the foreseen losses.

It should be noted that, originally, the Law referred the setting of energy prices and tariffs to the competence of the authorized anti-monopoly authority. Unfortunately, in 2015 the Law was amended, including the inclusion of this issue in the competence of the Governments of Tajikistan, which significantly hinders the possibility to approve tariffs and, accordingly, the sale of RES-produced energy to small-scale energy entities. This issue needs to be legally reconsidered, and with the restructuring of Barki Tojik, the creation of a regulatory body is being considered, and there is a need to explore the issue of selling electricity directly to consumers.

### *2.3 Assessing the impact of implemented national strategies and programmes on increasing the use of RES and increasing EE for CBT purposes.*

#### *2.3.1 Review of the Master Plan for the Development of the Energy Sector of the Republic of Tajikistan.*

As noted above in Section 1 of this Analysis, the previously adopted Power Sector Development Programmes of Tajikistan expired last year, and a new policy document is just being drafted.

The MEWR website in the section "Electricity Programmes" contains the General Plan for Development of the Energy Sector of the Republic of Tajikistan (hereinafter referred to as the General Plan)[12] in two volumes, which is the Final Report of the study carried out as part of the Regional Electricity Transmission Project "Improving Sector Operations", dated February 2017. Apparently, in the absence of a formally approved sector development programme or strategy, this voluminous document can be seen as a coherent vision for sector development, or a basis for developing a sector programme.

The master plan was developed by Corporate Solutions Consulting Limited (CSCL) and Manitoba Hydro International Ltd. (MHI), commissioned by the Asian Development Bank (ADB). This paper presents parameters, criteria, generation options, and outlines and analyses plans to expand the unified power system for new additional generation and transmission resources, taking into account increasing demand, aging of existing generation assets and the economic value of potential generation resources to meet growing demand.

[12] Programmes in the field of electricity. Ministry of Energy and Water Resources of the Republic of Tajikistan: https://www.mewr.tj/?page_id=585

The energy efficiency programme, generation expansion plans have been formulated and investigated for the following three options: 1) without Rogun HPP; 2) with Rogun HPP; and 3) with early commissioning of Rogun HPP. The generation resources and technologies used in the General Plan include water, coal, natural gas, fuel oil and non-water RES such as wind, solar, geothermal and biomass. It has been determined that each generation expansion plan under study will include a total of 20 MW of wind power (2 plants of 10 MW each) and 50 MW of photovoltaic solar power, to be spread evenly over 5 years, from 2021 to 2025.

Obviously, the main focus of the General Plan is on the development of large projects and entities, and it does not reflect the interests of small and medium-sized businesses to increase profits, production and sales volumes, nor even the preconditions for the development of RES entrepreneurship.

### *2.3.2. Review of the Strategy for Tourism Development in the Republic of Tajikistan for the period up to 2030 and the Plan of Measures for Implementation of the Strategy for Tourism Development in the Republic of Tajikistan for the period up to 2030 for 2019-2022*

The Tourism Development Strategy of the Republic of Tajikistan for the period until 2030, approved by the Resolution of the Government of the Republic of Tajikistan dated 1 August 2018, No. 372 (hereinafter - the Strategy) defines the goals, objectives and priority directions of development of the tourism industry of the country until 2030 and is a factor of formation of plans and guidelines for entrepreneurial initiatives of citizens in the tourism industry of the country.

It is noted that the tourism resources of the republic are not used properly and in accordance with modern international tourism standards, and the conditions for tourists have not been created favourably. Therefore, the aim is to continue the reform in this area and significantly increase the contribution of the tourism industry to the country's socio-economic development.

The main objective of the Strategy is to ensure sustainable development of tourism in the country. The strategic objectives include the formation of an institutional framework for the development of the tourism industry; the formation of modern tourism infrastructure; compliance with international standards and ensuring the safety of tourists.

The Strategy defines a set of basic measures to achieve the objectives, in particular the development of road transport infrastructure, including modern roadside facilities for sanitation and technical services; development of mountain and ecological tourism infrastructure; and improvement of the investment climate in the tourism industry;

The Strategy identifies eco-tourism, therapeutic and health tourism, recreational tourism, historical and cultural tourism, mountaineering and hunting as priority tourism sectors for Tajikistan.

The Strategy notes that, at this stage, there is less awareness of the importance and profitability of developing the tourism industry within the private sector. The public and private sectors must raise awareness of the importance of tourism development, its impact on the development of the country and the role of each individual in the development of the industry. To this end, a nationwide campaign under the slogan "Tourism - Business Opportunity for All" and an intensified advertising campaign through the media and the Internet are planned.

In implementing the measures envisaged to develop the tourism industry, the Government of Tajikistan has granted important tax and customs concessions to tourism companies, they are exempted from income tax for the first five years of operation, and imports of equipment, machinery and construction materials for the construction of tourism facilities are exempted from value added tax and customs duties. Duty on imports of new cars has also been reduced by 50 per cent.

Decree No. 189 of the Government of the Republic of Tajikistan dated April 12, 2018, approved the List of tourist facilities for the construction of which the import of equipment, machinery and construction materials are exempted from value added tax and customs duties, but RES subjects are not included in this list.

The list and quantities of equipment, machinery and imported construction materials shall be submitted in accordance with the established procedure in coordination with the authorized state body in the field of tourism and shall be approved by the Government of Tajikistan. Following the adoption of this decree, a complete and specific mechanism for the implementation of tax and customs exemptions for the creation of tourism infrastructure has been defined.

### *2.3.3 Objectives of the Green Economy Concept in Tajikistan and Sustainable Tourism*

The concept of "green economy" is outlined in NDS-2030, which notes that the effective use of human capital, opportunities of new transit infrastructure and economic corridors, export-oriented and import-substituting development, increasing exports of services and products with high added value, development of organic agriculture, ***renewable and clean energy sources as a basis for "green economy",*** expanding the mechanism of integrated management can become sources of economic growth

The draft Medium-Term Development Program of RT for 2021-2025 envisages the development of a "green economy". "Ensuring environmental sustainability and adaptation of the country's economy to climate change based on the principle of "green economy" is included in the intersectoral priorities, and with this in mind the directions of actions in the Program blocks are defined, implementation of projects in the field of green economy, green infrastructure and green trade, creation of economic corridors, formalization of economy and acceleration of economic development of trading partners are outlined. Among the medium-term goals that will ensure the country's transition to a qualitatively new model of development, it is planned to increase the efficiency of the use of national resources, geographic and infrastructural potential of the country through the implementation of the principles of the green economy.

Areas of action to implement this task include the construction of hydropower plants of various capacities; production of electricity from other RES (solar and wind) in mountainous and favorable areas; launch of industrial production of solar panels and equipment in manufacturing plants using domestic raw materials (silicon raw materials) in order to reduce the cost of electricity production from this source.

In the tourism sector, the green trend has made itself known since the 2000s. Initially these were the so-called green programs, offering tourists a "clean" vacation. The programs were followed by eco-friendly hotels and other eco-friendly accommodations. Rural tourism, vegan tours and "slow travel" fall into this category. For example, the program of Hotel Energy Solutions in France, Germany, Spain prompts the hotel owners to reduce energy consumption and gradually switch to alternative sources. World rankings to determine the best eco-hotels show that this direction is most actively developing in Africa, Asia and South America, which indicates a significant development in these regions and eco-tourism.

In the future, the greening of tourism will be accompanied by further displacement from the tourist market traditional tourist products, the development of design tours according to the parameters of environmental preferences of specific customers, and therefore, the competitive advantage will be those businesses in the tourism industry, which can best introduce green technologies in the production of tourist services. The World Tourism Organization states that green tourism is designed to conserve natural resources, preserve cultural heritage and bring benefits to all parties involved.

Thus, the greening of tourism has various forms of manifestation, which include the greening of tourism programs, the development of green environmental routes, and the use of green technology in the hotel sector. Tajikistan has significant potential in this regard.

However, the introduction of a "green economy" also brings problems, such as:

- risks of reducing the competitiveness of the national economy;
- increase in production costs;
- increasing the role of the state in economic processes;
- the risks of bureaucratization and increased taxes;

- possible price increases and loss of jobs at factories that do not meet environmental standards;
- difficult conditions for doing business within the same country.

The goal of a "green economy" is to increase the well-being of society by reducing the burden on the ecosystem, so it is important to find a balance between social policy, the economy and the environment.

# 3. CONCLUSIONS, GAPS IN LEGISLATION, POLICY DOCUMENTS AND A LIST OF PROBLEMS IDENTIFIED

The conducted legal analysis, summary of the Survey and FGD results allow highlighting the following gaps and shortcomings in the legal framework and implemented policies of Tajikistan in the field of RES-based energy generation and consumption, increase of EE in the CBT sector:

- The Law of RT "On Energy" does not define the legal status of RES subjects, their rights and obligations, no mechanism for regulation of price and tariff policy of the state in the energy sector as a whole, and in the area of RES use in particular;
- The Law of RT "On the Use of Renewable Energy Sources" does not define a mechanism for the authorised body in the energy sector to purchase electricity from the owner of the power plant in the area of decentralised energy supply, where there are no electricity distribution networks, electricity metering system and operating staff of the authorised body (energy supplying organisation). In order to ensure appropriate conditions for RES entities to carry out lawful activities to provide all types of energy services in zones of decentralised energy supply, where the authorised body (energy supplying organisation) does not have electricity distribution networks, electricity metering system and operating personnel, it is appropriate to assign to RES entities the status of "energy supplying organisation";
- Article 17 of this Law was amended, according to which prices and tariffs for energy produced from RES shall be approved by the Government of Tajikistan upon submission of the authorized body on regulation of natural monopolies, which significantly complicated the price and tariff setting procedure, including for energy systems up to 100 kW, whereas previously prices and tariffs were set by order of the head of the authorized antimonopoly body;
- The completed reconstruction of Barki Tojik requires amendments to the laws of Tajikistan in the area of energy, renewable energy and EE;
- Significant gap in legal regulation of energy, EE and TPS sectors in Tajikistan is the failure to comply with the requirements of previously adopted bylaws and their updating in accordance with the new realities in the sectors - reform of management institutions, establishment of new priorities, impact of external factors, etc.
- State cadastre of RES and Catalogue of RES installations have not been created;
- The Renewable Energy, Energy Saving and Energy Efficiency Development Fund, envisaged by Article 27 of the Law of RT "On Energy Saving and Energy Efficiency", has not been established yet, and the Statute of the Fund has not been approved;
- There is no direct indication in the Land Code of RT on the category of land provided for construction of energy facilities;
- the procedure for allocation of a land plot for RES construction/construction requires clarification and substantial revision;
- Order of the Minister of Energy and Industry of December 3, 2010, No. 111 "On approval of Methodological guidelines on the procedure for obtaining permission to install and locate energy facilities functioning on the basis of renewable energy sources on the territory of Tajikistan" has not passed state registration in the Ministry of Justice of Tajikistan;
- there are no specific norms for RES subjects in the tax legislation;
- privileges for import of goods for construction of HPPs, which are of high importance for Tajikistan, are not provided to RES;

- development of all necessary regulatory and technical standardization documents has not been completed, which hampers proper and quality development of renewable energy use, energy-saving and EE sectors;
- Methodic guidelines for calculation of regulated tariffs for electricity generated by renewable energy installations", approved by Decree of the Ministry of Energy and Industry of Tajikistan on December 28, 2010 No. 131 has shortcomings in the proposed formula, which does not take into account a number of factors, including the failure to separately identify possible tariff calculation for electricity generated from solar energy use;
- The Resolution of the Government of Tajikistan of June 22, 2019, No. 329 "On Tariffs for Electricity and Heat" does not include tariffs for RES-generated energy;
- There is no energy sector development programme document for the next period,
- The General Plan of Development of the Energy Sector of Tajikistan focuses on the development of large projects and entities, does not reflect the interests of small and medium businesses to increase profits, production and sales volumes, there are not even prerequisites for the development of entrepreneurship in the field of RES.
- Decree No. 189 of the Government of Tajikistan dated April 12, 2018, approved the List of tourist facilities for the construction of which the importation of equipment, machinery and construction materials is exempted from value added tax and customs duties, but RES subjects are not included in this list.
- The list of tourism facilities for the construction of which the import of equipment, machinery and construction materials is exempted from value added tax and customs duties, approved by Resolution No. 189 of the Government of Tajikistan, dated 12 April 2018, does not include RES subjects;
- no separate document on green economy development has been elaborated;
- Low availability of financial resources for producers/suppliers of RES energy, CBT subjects;
- Lack of specialists and their competence is a limiting factor for providing design and functioning of RES facilities; the implemented state support measures in this area are insufficient;
- Insufficient awareness of business representatives, population on the benefits of RES use.

# GLOSSARY

**CBT subjects** - individuals, legal entities, citizens engaged in economic activities, to provide tourism services in local areas, using their property in order to generate entrepreneurial income.

**Community-based tourism** - is an activity that promotes two-way communication between visitors and local communities for the exchange of knowledge about cultures and traditions.

**Consumers** - private entrepreneurs in community-based tourism sector with intention to use technologies, equipment, resources to produce clean energy on the basis of RES and apply technologies and materials for energy-efficient consumption of resources.

**Decentralisation of the energy sector** - a type of sectoral policy aimed at the development of small-scale energy.

**Distributed energy** - a model of functioning of a unified energy system, which allows small-scale energy entities to supply produced energy to distribution companies.

**Energy audit** - a type of specialised activity to provide expert consulting services, external evaluation of energy efficiency.

**Energy efficiency** - rational use (consumption) of energy resources with unchanged quality of tourism services and maintaining (improving) the level of comfort in compliance with the necessary standards, regulations.

**Energy intensity** - an actual value of consumption (use) of energy and energy resources (fuel) for the maintenance and operation of tourism facilities, infrastructure in the provision of tourism services.

**Energy intensity of the economy** - a value to assess the energy efficiency of the industry (ecosystem), the national economy.

**Engineering services** - specialised services for technical support of individual activities from the design stage, the creation of a facility to the operation of the facility.

**Household** - a form of economic activity for the use of property complex, uniting people by labour relations, the smallest and most massive unit of the national economy, quite an independent subject of market relations.

**Local energy systems based on RES** - autonomous complexes of generation, transmission, storage and consumption of energy.

**Microgeneration** - production (generation) of electricity, heat by facilities of very small capacity. (According to the WADE classification, small or microgeneration is the production of electricity at or near the place of consumption, regardless of size, technology or fuel - either off-grid or in parallel with the grid).

**Small-scale energy** - a segment of the energy (market) sector comprising small-scale generation plants and small-scale generation complexes, including those not connected to centralised power grids, functioning on the basis of traditional fuels and renewable energy sources (RES).

**State intervention** - the state's managerial and regulatory actions which alter the legal relations of the parties in order to achieve certain goals.

**State regulation** - the reasonable establishment of rights and obligations, requirements and conditions for the conduct of certain types of business activities.

**Suppliers** - firms, companies, organizations, individual entrepreneurs producers of goods, works and services.

**Tourism facilities** - buildings, structures, engineering infrastructure.

**Tourism infrastructure facilities** - engineering support systems that consume energy resources and generate, transmit and store energy.

**Tourism services** - an entrepreneurial activity aimed at generating income and profits by meeting the needs of the tourist (citizen).

# APPENDIX: List of normative legal acts, strategic and policy documents of the Republic of Tajikistan having an impact on the growth and development of the RES, EE sector, tourism development, at CBT level, micro generation and local energy supply development of tourism facilities

1. LAWS AND CODES OF THE REPUBLIC OF TAJIKISTAN

1. Constitution of the Republic of Tajikistan of 6 November 1994. (amended in 1999, 2003, 2016).
2. Law of RT "On energy" dated November 29, 2000, № 33 (amended on 28.12.2013).
3. Law of RT "On the Use of Renewable Energy Sources" of 12 January 2010, No. 587 (as of 23 November 2015).
4. Law of Tajikistan "On Energy Saving and Energy Efficiency" of 19 September 2013, No. 1018.
5. Law of RT "On Tourism" of 7 August 2020, No. 1718.
6. Law of Tajikistan "On Domestic Tourism" of 7 August 2020, No. 1718.
7. Law of RT "On Mountain Regions of the Republic of Tajikistan", 22 July 2013, No. 1003.
8. Law of Tajikistan "On Licensing of Certain Types of Activities", May 17, 2004, No. 37 (as of July 04, 2020).
9. Law of RT "On Natural Monopolies" of 5 March 2007, No. 235 (as of 18 July 2017).
10. Law of RT "On Production Sharing Agreements", 05 March 2007, No. 238 (as of 01 August 2012.
11. Law of RT "On Investments", March 15, 2016, No. 1299 (as of August 03, 2018)
12. Law of the Republic of Tajikistan "On Investment Agreement" of March 19, 2013, No. 944 (as of May 30, 2017).
13. Law of the Republic of Tajikistan "On Safety of Hydraulic Structures", 29 December 2010, No. 666 (as of 17 May 2018).
14. Law of the RT "On Environmental Protection" of 02 August 2011, No. 760 (as of 18 July 2017).
15. Law of the RT "On Environmental Impact Assessment", 18 July 2017, No. 1448.
16. Law of RT "On State Registration of Legal Entities and Individual Entrepreneurs", 19 May 2009, No. 508 (as of 02 January 2020).
17. Law of RT "On state registration of immovable property and rights thereto" of 20 March 2008, No. 375 (as of 04 July 2020).
18. Law No. 522 of May 19, 2009 on Technical Regulation (as of June 28, 2011).
19. Law No. 759 of RT on Conformity Assessment, 02 August 2011 (as of 01 August 2012). 20.
20. Law No.314 of Tajikistan On Certification of Products and Services of December 13, 1996 (as of July 3, 2007).
21. Law #668 of RT On Standardization, December 29, 2010 (as of April 6, 2012).
22. Water Code of the RT, dated April 02, 2020, No. 1688.
    Section I. General provisions. Chapter I. Basic provisions. Art. 7: Competence of local executive bodies of state power in the area of water regulation.
    Section II. Water use. Chapter 6. Procedures and conditions for provision of water bodies for use. Economic conditions for the provision of water bodies for use.
    Chapter 12. "Use of water objects for industrial purposes and for hydropower needs". Article 83. Use of water bodies for the needs of hydropower industry. Article 84. Rights and duties of hydropower enterprises for water use. 23.
23. Civil Code (Part Two), 11 December 1999, No. 884 (as of 02 January 2019).
    Section IV. Separate types of obligations. Chapter 29. Purchase and sale.
24. Land Code of the Republic of Tajikistan of 13 December 1996, No. 326 (as of 14 November 2016).
25. Code of the Republic of Tajikistan on Administrative Offences of 31 December 2008, No.

455 (as of 17 December 2020).
Chapter 23. Administrative offences in the field of energy and use of energy resources

**26.** Tax Code of the Republic of Tajikistan, September 17, 2012, #901 (as of December 17, 2020).
Section XII. Taxes for natural resources. Chapter 36. Royalties for water.
Section XVII. Preferential tax regimes. Chapter 46. Taxation of construction of hydropower stations. Article 312. Relief for construction of hydropower plants.

## 2. DECREES OF THE PRESIDENT OF THE REPUBLIC OF TAJIKISTAN

**1.** Decree of the President of the Republic of Tajikistan of 24 April 2009 No 653 "On Additional Measures for Economical Use of Energy and Energy Saving".
**2.** Decree of the President of the Republic of Tajikistan dated January 2, 2019, No. 1170 "On declaring 2019-2021 as the years of rural development, tourism and folk crafts".

## 3. RESOLUTIONS OF THE GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN

### 3.1. NATIONAL STRATEGIES, CONCEPTS AND PROGRAMMES

**3.** National Development Strategy of the Republic of Tajikistan until 2030 (approved by Decree of Majlisi Namoyandagon Majlisi Oli of the Republic of Tajikistan, No. 636 of 1 December 2016).
**4.** Tourism Development Strategy of the Republic of Tajikistan for the period until 2030 (approved by the Resolution of the Government of the Republic of Tajikistan dated 1 August 2018, No. 372).
**5.** The concept of tariff regulation in the electric power sector of the Republic of Tajikistan (approved by the Resolution of the Government of the Republic of Tajikistan dated May 27, 2017, No. 259).
**6.** Long-term programme for construction of small power plants for the period 2009-2020 (approved by the Resolution of the Government of the Republic of Tajikistan dated February 2, 2009, No. 73).
**7.** Renewable Energy Development and Small Hydropower Construction Programme for 2016-2020 (approved by the Resolution of the Government of the Republic of Tajikistan dated 30 December 2015, No. 796)
**8.** National Climate Change Adaptation Strategy of the Republic of Tajikistan until 2030.

### 3.2. REGULATORY

**9.** Decree of the Government of the Republic of Tajikistan of 5 September 2015, No. 564 "On Establishment of the Inter-Ministerial Council for Coordination of Activities in the Field of Tourism under the Government of the Republic of Tajikistan".
**10.** Decree of the Government of the Republic of Tajikistan of March 3, 2011, No.116 "On approval of the Rules of Maintenance of the State Renewable Energy Cadastre".
**11.** Rules on allocation of land plots for physical and legal entities (approved by Government Decree of the Republic of Tajikistan, #342 dated September 1, 2005).
**12.** Rules for use of electric energy. (approved by the Resolution #84 of the Government of the Republic of Tajikistan on March 6, 1998).
**13.** Decree of the Government of the Republic of Tajikistan of March 4, 2003, #95 "On approval of the Rules on using water bodies for hydropower needs". 14.
**14.** Procedure and conditions for exemption of dekhkan (private) farms from payment for connection of electric power, water supply (without use of structures or technical equipment) (approved by the Resolution of the Government of the Republic of Tajikistan, #702 of December 30, 2009).
**15.** Resolution of the Government of the Republic of Tajikistan dated December 31, 1997, #572 "On regulation of heat and electric energy consumption in the national economy of the Republic of Tajikistan".

16. Decree of the Government of Tajikistan dated June 22, 2019, No.329 "On Tariffs for Electricity and Heat".
17. Decree of the Government of the Republic of Tajikistan of 3 April 2007, No. 72 "On approval of the Regulation "On peculiarities of licensing certain types of activities" (as of 25 February 2017).
18. Resolution of the Government of the Republic of Tajikistan of March 2, 2013, No. 93 "On the List of agricultural machinery, production and technological equipment and its components forming a single technological set imported into the Republic of Tajikistan, which are exempted from value added tax and customs duty" (as of July 28, 2017).
19. Resolution of the Government of the Republic of Tajikistan of June 18, 2012, № 310 "On the List of goods (works, services) subject to mandatory certification" (as of 29 September 2017).
20. Decree of the Government of the Republic of Tajikistan of 12 April 2018, No.189 "On the list of tourist facilities for the establishment of which the importation of equipment, machinery and construction materials is exempt from value added tax and customs duties".

4. DEPARTMENTAL BY-LAWS

1. Order of the Ministry of Energy and Industry of the Republic of Tajikistan of December 03, 2010, №111). "Rules for maintaining a catalogue of renewable energy installations of the Republic of Tajikistan".
2. Order of the Ministry of Energy and Industry of the Republic of Tajikistan № 112 of December 10, 2010. "On approval of the standard agreement for purchase and sale of electricity generated from renewable energy sources".
3. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan No.112 of December 10, 2010. "On approval of the Regulations on the order of connection (connection) of renewable energy installations to the common power grid".
4. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan No.112 of December 10, 2010. "On approval of Safety Regulations for operation of renewable energy installations in the Republic of Tajikistan".
5. Decree of the Ministry of Energy and Industry of the Republic of Tajikistan №112 of December 10, 2010. "On approval of the Regulation on the relationship between the grid operator (dispatcher of the energy supplying organization) and the operating personnel or person responsible for operation of the technological and electrical equipment of the energy producer using renewable energy sources (RES)".
6. Order of the Ministry of Energy and Industry of the Republic of Tajikistan of December 28, 2010, #1316 "Methodological instructions for calculation of regulated tariffs for electric (thermal) energy generated by RES facilities in the Republic of Tajikistan". Application for Preliminary Approval of the Project for Construction of a Power Plant Using Renewable Energy Sources. Application for approval of construction of RES power plants. 7.
7. Order of the Ministry of Energy and Industry of Republic of Tajikistan #111 from December 3, 2010: "Guidelines on obtaining permission to install and operate power plants using renewable energy sources in the territory of Tajikistan".
8. Regulations on the Register of Natural Monopoly Entities (Approved by the Order of the Director of the State Agency for Antimonopoly Policy and Support of Entrepreneurship under the Government of the Republic of Tajikistan on December 13th, 2002, №55).
9. Procedure for determining the prices (tariffs) or their marginal level of the economic entities occupying the dominant position in the commodity market of the Republic of Tajikistan (approved by the Order of the Ministry of Economic Development and Trade of the Republic of Tajikistan dated 5 March 2007, No.3).

5. INTERNATIONAL LEGAL ACTS RECOGNIZED BY TAJIKISTAN

10. Energy Charter Treaty (ratified by Decree of Majlisi Oli of the RT, dated January 3, 1997, #10).

**11.** Agreement on cooperation of Commonwealth of Independent States member states in the area of energy efficiency and energy saving of October 7 2002. (approved by the Resolution #257 of the Government of RT on June 06, 2003).
**12.** CIS Free Trade Zone Treaty of October 18, 2011 (ratified by Decree of the Majlisi Namoyandagon Majlisi Oli of the RT, December 24, 2015, No. 285).
**13.** World Trade Organisation Agreement on Trade Facilitation (ratified by the Majlisi Namoyandagon Majlisi Oli of the RT, May 06, 2015).
**14.** Agreement between the Government of the Republic of Tajikistan and the Government of the Russian Federation on Avoidance of Double Taxation and Prevention of Fiscal Evasion on Income and Capital (ratified by Decree of the Majlisi Oli of the RT dated November 13, 1998, No.701).
**15.** Agreement between the Republic of Tajikistan and the Kyrgyz Republic on Avoidance of Double Taxation and Prevention of Fiscal Evasion on Income and Capital (ratified by the Resolution of Majlisi Oli of the RT, No.701, November 13, 1998).
**16.** Decision of the CIS Economic Council on Main areas and principles of cooperation of the Commonwealth of Independent States member states in the area of energy efficiency and energy saving of March 11, 2005.
**17.** United Nations Framework Convention "On Climate Change" (joined by the Decree of Majlisi Oli of the RT on December 13th , 1997, #533).

## 6. NATIONAL STANDARDS

**1.** Standard of the Republic of Tajikistan No. ST HT 5.10-2010. National certification system of the Republic of Tajikistan. Rules for certification of electrical equipment and electrical energy. (Approved and put into effect by Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of September 1, 2010, #07).
**2.** Standard of the Republic of Tajikistan No. ST HT GOST R 51237-2010. Non-conventional energy. Wind energy. Terms and definitions. (Approved and put into effect by Order of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010, #07-st).
**3.** Standard of the Republic of Tajikistan No. ST HT GOST R 51238-2010. Non-conventional energy. Small hydropower engineering. Terms and definitions. (Approved and put into effect by Order of Agency for Standardization, Metrology, Certification and Trade Inspection of September 1, 2010, #07-st).
**4.** Standard of the Republic of Tajikistan No. ST HT GOST R 51594-2010. Non-conventional energy. Solar energy. Terms and definitions. (Approved and put into effect by the Agency for Standardization, Metrology, Certification and Trade Inspection Order of September 1, 2010, #07-st).
**5.** Standard of the Republic of Tajikistan No. ST HT GOST R 51595-2010. Non-traditional energy Solar energy. Solar collectors. General technical conditions. (Approved and put into effect by Order №07-st of the Agency for Standardization, Metrology, Certification and Trade Inspection of September 1, 2010).
**6.** Standard of the Republic of Tajikistan No. ST HT GOST R 51596-2010. Non-traditional energy Solar energy. Solar collectors. Test methods. (Approved and put into effect by Order №07-st of the Agency for Standardization, Metrology, Certification and Trade Inspection of September 1, 2010).
**7.** Standard of the Republic of Tajikistan No. ST HT GOST R 51597-2010. Non-conventional energy. Solar photovoltaic modules. Types and main parameters. (Approved and put into effect by Order №07-st of the Agency for Standardization, Metrology, Certification and Trade Inspection of 1 September 2010).
**8.** Standard of the Republic of Tajikistan No. ST HT GOST R 51388-2010. Energy Saving. Informing consumers about energy efficiency of household and municipal products.
**9.** Standard of the Republic of Tajikistan GOST R 51387. Energy Saving. Normative-

methodical support. Main provisions.
**10.** Standard of the Republic of Tajikistan GOST R 51380 Energy saving. Methods of conformity confirmation of indicators of energy efficiency of energy consuming products to their normative values. General requirements.
**11.** Standard of the Republic of Tajikistan GOST R 51541 Energy-saving. Energy efficiency. Composition of indicators. General provisions.
**12.** Standard of the Republic of Tajikistan GOST R 51379 Energy saving. Energy passport of industrial consumer of fuel and energy resources. Main provisions. Standard forms.
**13.** Standard of the Republic of Tajikistan GOST 25380-2014 Energy Saving. Buildings and constructions. Methods to measure surface heat flux density and to determine coefficients of heat exchange between enclosing structures and the environment.
**14.** Standard of the Republic of Tajikistan GOST 31427-2010. Buildings of residential and public buildings. Composition of energy performance indicators.

## 7. NATIONAL SURVEYS, REPORTS, STATISTICAL COMPILATIONS

**15.** National progress report on implementation of strategic documents of the country in the context of the Sustainable Development Goals. 2018 г.
**16.** Tajikistan. Energy Sector Master Plan - Final Report. Regional Power Transmission Project | Improving Sector Operations. 2017 г.
**17.** Socio-Economic Situation of the Republic of Tajikistan, January-December 2020. Agency on Statistics under the President of the Republic of Tajikistan, 2021.