

Main Barriers to the Development of Small-Scale Renewable Energy Projects in Kazakhstan

According to the numerous studies, Kazakhstan has an inexhaustible potential of solar, wind, geothermal energy and bioenergy. In this regard, the prospects for the development of the renewable energy industry in Kazakhstan are enormous, and it is proved by the launch of the first projects, coupled with the successful completion of the first auction for the selection of renewable energy projects (RE) sessions. However, such first pilot projects and auction projects of large generation are attractive due to payback taking into account mass production and, it is worth noting that the necessary legislative framework has been made in Kazakhstan and it is directed for the development of large-scale renewable energy projects .

Small-scale projects for the production of renewable energy sources have a completely different amount of risks relative to their counterparts, large-scale renewable energy projects. Small generation means the production of electricity by households or small businesses (SMEs) with the ability to sell surplus to the network, which also performs the functions of a battery, that is, storage and transmission of electricity produced .

Unfortunately, at the moment, small-scale RE projects are implemented on the basis of the general state policy of the Republic of Kazakhstan in relation to all RE projects and do not have separate regulatory and incentive mechanisms with the exceptions as presented below.

According to the current legislation of the Republic, when installing a small-scale RES facility, an investor can count on direct subsidies and own consumption scheme.

In Kazakhstan, direct subsidies as support are provided to autonomous renewable installations with a capacity of up to 5 kW. The mechanism covers up to 50% of investment costs, assuming that the equipment was manufactured in Kazakhstan. However, today, the equipment manufacturing industry in Kazakhstan is in its infancy and the purchase of local equipment (if available) may be unprofitable due to the high cost. In addition, despite the presence of direct support, there are a number of bureaucratic obstacles due to the fact that support is paid as compensation only after the plant has been installed. Lastly, a power limit of up to 5 kW means that the mechanism is intended for investment only by households or very small enterprises.

The self-consumption scheme through a net metering in Kazakhstan is available to all consumers connected to the grid, with renewable installations up to 100 kW, and according to this scheme, the asset owner receives the retail price of electricity for excess electricity supplied to the grid paid off by the supplier. The main problem of the net metering scheme is its practical application, namely, in practice, taking into account network wear, delays on the part of the operator or connection failure are common. In this part, distribution network operators argue that local overload problems deprive interested small-scale developers of network access. In addition, due to compensation for electricity in the amount of the retail price, the payback period of the installation can be very long, that leads to a lack of investor's interest to use such a scheme.

At the same time, based on international practice, the main lever of starting incentives for small RE is direct support of direct investments (direct subsidies or subsidized loans). This type of support for RE is suitable both for facilities operating on the network and outside . Direct support can be combined with the stimulation of own consumption schemes (including storage subsidies) through the net revenue method, when the producer of renewable energy for its own consumption receives a cash loan for excess electricity supplied to the network.

In its turn, tax advantages can also be used to support small-scale RE in both the electricity and heating sectors in order to stimulate local equipment production. The advantages can apply when using local equipment and technologies that are exempt from VAT and are considered as a justified measure to encourage local manufacturing investment.

Within the framework of the renewable energy support program in the heating sector, direct support is recommended as a central support scheme, complemented by tax benefits. Thus, the scheme should stimulate the use of renewable energy in decentralized heating. The use of renewable energy in decentralized heating is simple from a regulatory point of view: in this case, self-consumption is a well-established practice. Thus, the use of solar thermal installations or heat pumps can be easily integrated into the existing billing schemes.

Based on the above, in general, Kazakhstan is on the right track, offering options to stimulate the development of small-scale renewable energy projects for electricity through direct support and self-consumption schemes. At the same time, in order to eliminate the barriers for the effective use of such tools, it is recommended to refine such schemes in terms of acceptability, levels of support, and so on. For example, according to the experience of other countries, the direct support scheme's acceptability for all renewable energy technologies (within reasonable price limits), network and off-network, with support for storage systems may be provided. In terms of support, one can increase from 5 kW and make gradation of support depending on technologies, their sizes and owners (household, apartment building, SME) with the abolition of local content.

According to the scheme of own consumption in terms of acceptability, it is possible to consider the inclusion of all renewable energy technologies with possible direct support and an increase the threshold values from 100 kW. In terms of payment (reward) for excess electricity, it is recommended to switch from a net metering to a net revenue. Such a mechanism can also be beneficial for the network, since under the current scheme with a net metering when paying for excess electricity supplied to the network at retail prices, the costs of transmission and distribution are not properly covered. The limiting of the network connection capacity (when entering) and stimulating the self-consumption of its own electricity by the manufacturer will be encouraged when using such a mechanism.

In addition to such tools, a common option for support small business in the renewable energy sector in other countries is the system of preferential tariffs. In practice, the incentive tariff is used as support for SMEs.

To monitor the process at the state policy level, establishment of mandatory targets and quotas for residential or commercial buildings is recommended in order to have a certain share of energy from RE in their total energy consumption. This may require the adoption of a national strategy and regional goals to support small renewable energy sources, for example, for countryside and towns.