‘Green Energy’ Goals for a Government That Does Not Have an Energy Transition Strategy

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According to Azerbaijani local media , the Central Bank of Azerbaijan (CBA) advises the country’s banks to provide favorable loan terms to individual borrowers buying electric or hybrid cars. By doing this the CMB probably believes that it is contributing to the country’s energy transition. Yet it is Azerbaijan’s grim reality that local banks’ rates of commercial loans are so high (interest rates of loans in the national currency are almost 15% and for consumer credits more than 20%) and their terms are so short (maximum 3 years) that a 2-3 percent cut in rates will hardly encourage people to buy electric cars.

Most importantly, a lack of electric cars is not the major problem for the country’s energy transition. The most important problem is that the government does not have a comprehensive approach to energy transition. There is no unified energy transition strategy that aims to shift the country to alternative energy sources and make possible a rapid transition to electric cars. Almost 11 years ago the president signed an order proposing the preparation of a long-term (2012-2020) strategy for the development of the alternative energy sector. But nothing came of this order.

2030 ‘green energy’ goal

A transition to ‘green energy’ is among the five major goals in the development strategy plan entitled “Azerbaijan 2030: National Priorities for Socio-Economic Development,” which was adopted by the President in February of last year. According to this document, in order to mitigate the negative impact of climate change, the share in initial consumption of

alternative and renewable energy sources must be increased in all the spheres of economy. At the same time to achieve this goal, the plan calls for encouraging the use of ecologically clean transportation. Eight months after approving this plan in December 2021 the Presidential signed an order. This Presidential order named “Acceleration of economic development in the territories liberated from occupation” suggests that investors will be supported when they promote ecologically clean energy, that the country will create “green growth” and it will use renewable energy sources in the liberated territories.Apart from this, yet another order signed in May 2021 proposed to prepare a general plan for the creation of a ‘green energy’ zone in the liberated territories. Initial government estimates calculated 7200 MW of solar and 2000 MW of wind energy potential for the region. At the same time, the order identifies favorable water sources to produce electric energy. For instance, it notes 45 hydroelectric power plants (HPP) with a total production power of 241,3 MW; however, 34 of those plants need restoration.

The Azerbaijani Ministry of Energy states that the immediate goal of the transition to ‘green energy’ is to increase the share of alternative energy (of energy consumed in the country) from the current 17% to 30% before the year 2030. The government plans to achieve this via the restoration of the aforementioned HPPs, adding their production-to-production capacity. The only real initiative to enlist wind and solar power, is the construction of wind power plants with a total capacity of 240 MW, in cooperation with the Saudi company ACWA Power and UAE’s Masdar. The foundation-laying ceremonies of these plants took place on 15 March 2022.

These two projects prove that Azerbaijani authorities intend to maintain centralized political and economic governance practices in the alternative energy policies just as they do in the energy sphere now. The government has shown no interest in supporting households in the production of small-scale solar energy and municipalities and small size businesses in

the production of bioenergy.

How can households and small business be supported as energy producers?

One of the most important potential benefits of the transition to 'green energy' is that it provides a viable chance to put an end to the hegemony of large national and transnational corporations in the energy sector. A limited set of investments can transform even individual households and small businesses into energy producers. 'Green energy' also provides unique chances to put an end to harsh government monopolies imposed in the name of their states. Therefore, it is important that governments open prospects for small-scale energy production and speed up their growth with regulatory tools and the distribution of resources. What steps should be taken in that direction?

First of all, the state should create a program supporting self–installations of solar panels in individual houses in villages and rural towns and in apartment blocks in cities. One step in this direction has already been taken. According to the current regulation "Rules for consumers to join the network of electricity supply and to provide them [consumers] with the technical prerequisites to buy electric energy (power),"[1] citizens and investors do not require state to install renewable energy generators with capacities less than 150 KW and these stations can be installed without informing any state agency.

Let us calculate how many household needs can be met by the capacity of 150 KW? If the installed average capacity is 25% it will be 350 thousand kWh energy production in a year and 30 thousand kWh in a month. 30 thousand kWh per month is an energy production capacity sufficient for the needs (including heating) of one multistory building with 60-70 apartments. In rural areas solar panels with 6-8 KW power capacity will be enough to meet the needs of an individual household.

Information gathered from multiple firms specializing in the sale and installation of solar panels show that currently the cost of installation of 1 KW solar panel varies between 1200 and 1500 AZN. That means that an individual household needs 7500-10000 AZN to realize this project.

The government can develop mechanisms encouraging small producers to produce renewable energy for self-consumption without needing to apply for a production license. These mechanisms can be based on the principle that one third of the needed investments will be provided by government grants (currently, the government provides 40% of the amount needed for leasing agricultural machinery), one third can be given as bank credits on favorable low-rate loans and the rest will be paid by the individual households themselves.

Secondly, it is important to support bioenergy production by small and mid-size businesses based on a state-private cooperation model. This primarily concerns the extraction of electric energy from municipal solid waste left in the open air in areas outside Baku due to the absence of specialized disposal polygons as well as the production of biogas from processing of animal waste.

The town of Balakhani, which is in the metropolitan area of the capital Baku, produces electric energy already by burning[2] solid municipal waste.[3] According to the official statistics an average 201 million kWh energy per year is produced via this processing of waste.[4] Yet, the production of energy for the economy is not the only benefit of this project. The waste is separated and the part which is not allocated for burning is re-processed (approximately 200 thousand ton). As a result, the economy earns additional goods and a certain number of jobs.[5] Most importantly, the end of the practice of disposing garbage in the open air (dumping sites) is contributing to ecological improvement. Currently in Azerbaijan apart from Baku, both solid municipal waste and industrial waste are disposed of in dumping sites. For

instance, according to official statistics,[6] in 2020 3.5 mln. tons of industrial and municipal waste was disposed in the country, and 23,5% or 802 thousand tons of this waste was used or neutralized. It is obvious that official statistics do not reveal the real situation because official statistics only register the waste collected by official communal services, which exist only in big cities and districts' centres. In villages, where 50% of the population resides, waste is disposed of in dumping areas and no calculation of its size is conducted. For instance, if we take into account the real size of the population, in Absheron peninsula, where Baku is located, the size of solid municipal waste per person per year is approximately 450 kg. Yet its size per capita per year outside the capital is much smaller.

There are many successful practices for transforming animal waste into energy in the world. For instance, in Germany, which is the European leader in this field, there are 8000 enterprises capable of producing 4000 MW from animal waste. This amounts to 60% of the total power of the Azerbaijani energy system. It is estimated that if all the world's potential biogas is harnessed, it can provide for, on average, 20% of the world's electric consumption and if used as biomethane, it is capable of providing for one third of natural gas consumption.[7]

The most successful country in the transformation of waste into an energy in the world is Sweden. It is reported that such energy waste supplies heating for 1.250 million apartments and electricity for 600 thousand houses. If this potential is developed in Azerbaijan, it will mean that 50% percent of heating of all apartments in Azerbaijan and the electricity supply for 25% of them can be achieved through waste. According to information shared by the Swedish firm *Tekniska Verken*,[8] four tons of solid waste produces electricity equal to that produced by one ton of oil, 1.6 ton of coal or 5 tons of wood. In order to produce energy Sweden even imports waste from many countries. By processing waste

Sweden has managed to reduce 2.2 million tons of greenhouse gas emission to nature.

In November 2018, the Azerbaijani President signed the *National Strategy on the improvement of management of solid waste in the Republic of Azerbaijan*[9]. According to this document, the government plans to expand solid waste collecting services to all residential areas and business entities. The document also says that one of the main aims of the government is to convert solid waste into energy and to employ advanced technology for these purposes. For now, the most feasible option for the Azerbaijani government would be to aim at an "economy without waste" goal by 2030 by adopting appropriate state programs.

Notes and references:

[1] http://www.e-qanun.az/framework/26528

[2] Methane burning is carbon neutral because it only releases organic carbon, and animal waste needs to be burned to prevent methane from being released from waste into the atmosphere which will happen if it is not burned. The overall goal taken at COP26 now appears to reduce overall methane emission by 30%. One of the methods to achieve that is by burning it as biogas, but the other methods are to eliminate methane production at its source by changing animal diets, which means that biogas is not necessarily the way to go.

[3] https://tamizshahar.az/az/layiheler/2

[4] https://www.stat.gov.az/source/balance_fuel/az/005_3.xls

[5] https://tamizshahar.az/az/layiheler/1

[6] https://www.stat.gov.az/source/environment/

[7]

https://www.dika.org.tr/assets/upload/dosyalar/batman-ili-atik-geri-donusum-biyogaz-uretim-tesisi-on-fizibilite-raporu-2021.pdf

[8] https://teknoloji.org/copten-enerji-uretmek-isvec-bunu-nasil-yapiyor/

[9] http://www.e-qanun.az/framework/40445