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Energy Reforms in Armenia: On the Way to Energy Security

Vigen Sargsyan, Communications Officer in the Armenia Country Office, offers this story.

Entrepreneurs like Marcos Gharibyan are fueling the growth in renewable energy in Armenia by investing in small hydro-power plants. Gharibyan took a risk and got a loan to invest in two small hydro power stations. "We have a small gardening firm. We thought that since we were bringing in irrigation water, we could just as well build a hydropower station on that water flow," Gharibyan explains.

After he built the station, Gharibyan took another leap of faith and built a 10 kilometer long high voltage power line to connect his stations so they can feed into the national power grid and he can recoup some of his investment. Built on a stream of the Azat River, the stations operate for only 4 months a year. However, regulations and incentives help to insure a profit.

The market for small hydropower stations is well developed in Armenia and the government has created incentives for investment. Energy law mandates that the power distribution grid buy electricity generated by small hydro power stations for 15 years after they become operational. The Public Services Regulatory Commission has established feed-in tariffs for the electricity they produce.

"The feed-in tariffs enable developers to assess, based on technical parameters, whether it makes business sense to invest without having to rely on any state official, and the guarantee of 15 years of purchase meant that the developers could confidently invest in this area," says Robert Nazaryan, Chairman of the Public Services Regulatory Commission.

The end of the energy crisis in the 90's was the beginning of a new era for Armenia. One of the lessons learned was to use local resources efficiently to ensure the country's energy independence and security. And as its energy resources are limited, renewable energy is of great importance.

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"The development of renewable energy in Armenia is of triple importance. First, it uses local energy sources, second it uses renewable energy sources and third, it uses clean sources of energy," says Arayik Marjanyan, Renewable Energy Program Coordinator, Renewable Resources and Energy Efficiency Fund.

The World Bank provided a \$5 million dollar credit to ensure investments in the sector. Co-financer, the European Bank for Reconstruction and Development, invested \$7 million dollars; the Cascade Universal Credit Organization owned by the Cafesjian family foundation invested \$3 million dollars. Many commercial banks are now providing loans for the construction of small hydropower stations. Thus, a favorable legal framework is coupled with the opportunity to get financing.

Ninety four small hydropower stations are operational in Armenia, providing about 3 percent of Armenia's domestic demand for electricity. Of those, 27 were built under the World Bank's Renewable Energy Project. An additional 65 hydropower stations are under construction. Once they start operating, small hydro power stations will meet 6 percent of the internal demand for electricity.

Besides providing electricity, small hydropower stations provide jobs.

"There is a lot of construction of small hydropower stations going on in Vayots Dzor now and it is very efficient; first of all, even the smallest hydropower station creates 7 new jobs," says Gagik Avetisyan, operator of the Yeghegnadzor hydrostation.

The "Artavan-1" small hydropower station is under construction now. Armen Mikayelyan from Artavan village has been working on it for a year.

"We are employed now, which is good. If I did not have this job, I would have to go and cultivate my land and breed the cattle, barely managing. It isn't good going abroad for seasonal work, either: you leave your family behind and your children unattended. It's better to work here than abroad," Mikayelyan says.

The World Bank's Renewable Resources and Energy Efficiency Fund works towards securing investments in clean energy. Armenia got a \$3 million dollar grant from the Global Environment Facility (GEF) to identify its renewable energy potential and attract private investments. The project designed the scheme for small hydropower stations, and developed model business plans and guidelines for the renewable energy sector. This information is available at www.r2e2.am.

Despite remarkable achievements, Armenia's energy sector faces new challenges. A main electricity generator- the Metzamor nuclear power plant - is set to close, as are several thermal power stations. Depending on demand, Armenia will need an additional 850 to 1350 megawatts of electricity generation capacity.

Its state-owned high-voltage transmission network desperately needs investments, which are being supported by the the World Bank through a transmission line rehabilitation project.

Also, the energy sector is vulnerable to interruptions in imported fuel supply. And the price of imported natural gas is constantly rising, leading to higher heating and electricity supply tariffs. Affording energy is a growing concern, especially for the poor.

In order to ensure a reliable and affordable energy supply system, energy efficiency is key for Armenia.

"We should not produce as much as we want, but rather as much as we need, and this difference between how much we want and how much we need is the energy efficiency that we must achieve" explains Armen Movsisyan, Minister of Energy and Natural Resources. "Otherwise, this will lead to increase in tariffs, and decrease in reliability and in the level of energy security. This approach must be applied country-wide, so that we can have a more reliable and secure system."

The International Energy Agency says it is 3 times more expensive to produce one kilowatt/hour of electricity than to conserve it. Thus energy conservation, too, is a source of energy. A 2008 World Bank study concluded that energy efficiency improvements could save the country more than \$360 million dollars annually, equivalent to almost 4.5 percent of its 2009 GDP.

"Armenia has a well established energy sector, the institutional reforms that were implemented have created solid basis for future development and yielded tangible results," says Gevorg Sargsyan, World Bank project leader for the Renewable Energy Project. "However, the sector faces serious challenges,

which may jeopardize its sustainability. If no measures are taken today, Armenia will face electricity deficit again. The energy sector needs serious investments to reinforce the implemented reforms and secure the country's bright and warm future."