For energy sources, it pays to diversify

Guest Column:
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Many people might have difficulty locating the small nation of Tajikistan in Central Asia on a map. A former Soviet republic located in a mountainous region near Afghanistan, Tajikistan is indeed very far away and vastly different from the small state of Rhode Island. However, Tajikistan’s story can offer a number of valuable lessons about the future for renewable energy in Rhode Island. Its story can help show the danger of focusing predominantly on a few types of energy sources – even renewable ones.

Tajikistan possesses large reserves of fresh water that come from melting glaciers. Its water reserves are estimated as comprising 50 percent of all fresh water in Central Asia. Since the 1970s, Tajikistan has focused its energy mix strictly on the use of its vast hydropower resources. Ninety percent of total electricity production comes from one hydropower plant located at the Nurek dam, the highest dam in the world, about 50 miles east of the capital, Dushanbe.

Tajikistan is currently working on constructing another large-scale dam, which – provided it is finished – will likely be detrimental for the local watershed ecosystem by decreasing the flow of water into the major river in Tajikistan, the Amu Darya. This in turn may potentially wipe the Aral Sea from the map.

The Aral Sea, formerly a large body of water between Uzbekistan and Kazakhstan which is fed by the Amu Darya, has been shrinking in recent years because of excessive demand for water to support agriculture in Central Asian countries.

In 2008, an unusually cold winter struck Central Asia. Due to lower levels of snowmelt, the level of water in the Nurek dam decreased to critical levels that halted electricity production in Tajikistan’s main power plant. This in turn brought the Tajik economy to a complete standstill and, without heat, exposed the local population to frigid temperatures, with lows reaching negative 13 degrees Fahrenheit, temperatures which are very unusual for the region.

This economic crisis also led to an environmental one. Trying to save their families from cold, the Tajik population increased the ruinous practices of unsanctioned forest-cutting for wood as the sole available fuel. By estimates of international organizations, today over three-fourths of forest cover in Tajikistan has been destroyed. As a result of the deforestation, the frequency of natural disasters like land or mudslides increased. In the spring last year, the capital Dushanbe experienced a large landslide: the whole city was covered with a three-inch-thick layer of mud.

These environmental disasters were a result of the failing of a single, renewable energy source – large-scale hydropower projects. To prevent further environmental degradation and to improve the well-being of the Tajik population, a number of international organizations and companies have been advocating for the development of alternative sources of energy such as small-scale, off-grid renewable systems, like photovoltaic power and bioenergy. Until now, crippled by institutional inertia and corruption endemic in the developing world, they have had little success.

Rhode Island is well on the way to adopting regulations that support clean energy. In 2006, Gov. Donald L. Carcieri announced Rhode Island’s commitment to derive 20 percent of its energy from renewable sources by 2014. The offshore, wind-energy project proposed by Deepwater Wind is viewed by many as a future major contributor to achieving this goal. This past June, the state legislature signed a bill that requires Rhode Island’s utilities to purchase power from local large-scale, renewable energy producers. The state also provides some support to small-scale installations.

It offers homeowners a 25 percent income tax credit for installation of residential renewable systems that include photovoltaics, solar and geothermal heating and water heating. Together with a federal tax credit that provides a 30 percent tax deduction for the use of solar technology in private homes, there is considerable incentive for the development of small-scale renewables. According to reports by the U.S. Energy Information Administration, however, the share of small-scale renewables in Rhode Island is very
small, less than 1 percent of the total electricity generated.

Rhode Island ranks 49th in net renewable energy generation in the U.S., with its renewable share constituting 2.3 percent of total energy production. The lessons from a land far away cautions us to diversify and avoid the risks associated with relying solely on large-scale or single-source renewable projects. •

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