Tallinn community microgrids

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In Tartu, Tallinn University of Technology (TalTech) researchers are partnering with the local government and the private sector to develop a pilot community energy cooperative that will serve as a model for the rest of Estonia. The researchers believe that energy cooperatives could acquire greater traction through existing housing associations, where profits would be used to cover communal expenses. Also, energy collaboration is likely to become more widespread in the near future in order to manage electric vehicle charging stations cooperatively.

At the University of Technology (TalTech), research has been conducted on the concept of energy cooperatives, their potential business models and their viability. The study suggests that energy cooperatives may be advantageous in a number of important ways.

On the one hand, it would make it possible, at a relatively low cost, to significantly increase the share of renewable energy in the municipality"s energy consumption and reduce its reliance on electricity provided by large power plants. On the other hand, it would also raise awareness of energy issues among citizens and officials alike and offer an alternative to individual small and large-scale producers.

Moreover, locally produced and consumed electricity boosts the community"s energy independence in terms of supply security and cost. Energy cooperatives can contribute to renewable energy production and make their own investment decisions. The cooperation practices engages the community in a discussion about energy challenges in their neighborhood, so helping to anticipate and prevent increased costs.

TalTech researchers believe that local authorities should play a crucial role in establishing and running such cooperatives. Taking a broader view, cooperatives could be based on collaboration between local governments, enterprises and the community.

For the time being, however, this is all theoretical. The number of energy cooperatives launched in Estonia could be counted on one hand, and while researchers believe that energy cooperatives should be non-profit organizations, the cooperatives that have been established so far are mostly for profit.

Tarmo Kor?tko, a researcher at the Tallinn University of Technology"s department of electrical power engineering and mechatronics, said that the general public does not have a clear understanding of the aims of the energy cooperative.

Energy cooperatives are often associated with classical entrepreneurship. So the cooperatives that set up so far also operate in the conventional business structure; namely, they try to generate income from their activities. However, Kor?tko said, this is not really the purpose of an energy cooperative.

"In fact, the purpose of an energy cooperative is different; it is not intended to provide financial benefits to its members. However, economic efficiency is also important for energy communities," Kor?tko explains.

The initial investment should be repaid, but not by withdrawing funds from the cooperative. Instead, the generated cash is reinvested in the introduction of new renewable energy solutions or other initiatives to enhance the quality of life in the community.

The energy cooperative has a specific legislative framework under the Electricity Market Act, and the current study is not intended to change it in any way. However, the many implementation options for energy cooperatives can be explored further. Studies can also help to determine the micro and macro-level effects of one strategy versus another.

In Tartu, a pilot project on microgrids involving municipal government, the private sector and the emerging energy community is currently underway. The municipality is comparable to a public service contractor, the service is provided by the same company that needs the energy, and the energy is produced by a cooperative on the municipality"s land.