

The Municipality of Mariestad is one of the founders of Biosphere Reserve Lake Vänern Archipelago. Inspired by the UNESCO designation and the mission to be a model region of sustainable development, Mariestad Municipality has started to explore how they can convert their fleet of vehicles to fossil fuel free, locally produced energy. ElectriVillage is a venture that involves testing and demonstration of sustainable transport and energy systems in the biosphere reserve. ElectriVillage is the way forward for Mariestad to meet ambitious climate goals like the Agenda 2030 for a fossil-free society and the Paris Agreement. At the same time, there is a clear aim to create new business opportunities, new jobs, add new skills and increase attractiveness. ElectriVillage is unique. There is currently no other model region in the world that exhibit a combination of sustainable transport and energy systems like the one of ElectriVillage.

Mariestad has a systemic way of thinking and the local government shows courage and decisiveness. These are important keys to success in their work. Being a model region of sustainable development, the UNESCO designation is a quality proof of their innovative ways of thinking and develop towards sustainability, which enhance visibility and attractiveness to the outside world.

Through investments in ElectriVillage, Mariestad aim to create new business opportunities for local companies, and also for companies from other geographic locations to establish their business in the city. The municipal university platform DaCapo is working to develop cutting-edge programs in sustainable transports and environmental technology to meet critical skills needed in the future and to ensure local high quality competence.

ElectriVillage involves three testing areas:

- Renewable energy systems
- Sustainable transport systems
- Logistics and purchasing

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Renewable energy system

In January 2017, Sweden's fifth hydrogen station was established in Mariestad. The station is designed to refuel fuel cell cars and is an important part of the Swedish infrastructure for hydrogen refueling which is under development. It is also an important part of a system with solar energy and hydrogen, called "H2E", which is being built in the city. The energy system H2E is unique in its kind. It is so far the only existing hydrogen refueling station globally, powered by solar energy from a solar park. The solar energy is used to produce hydrogen. Additionally, excess energy will be stored by means of hydrogen gas, and may be used as back-up on the grid when the sun does not shine. In parallel, Mariestad is also building two kindergartens to be operated with this type of energy system. The energy system H2E with solar and hydrogen is the result of a collaboration between the municipality of Mariestad and Nilsson Energy AB. The entire energy system is being operated by the municipal energy company, VänerEnergi AB.

Sustainable transport systems

A range of full electric vehicles and modern charging technology will be tested in Mariestad. The vehicles are mainly distribution-, transportation- and working automobile vehicles. These vehicles will be tested in daily operations in the municipality. Some of them will be equipped for charging on electric roads. Mariestad is testing the Elonroad concept which is one of three road bound, electric road techniques available in Sweden today. This concept has not previously been tested in an urban environment.

Why electric roads? If electric roads would cover the greater part of Europe's road network, car batteries could be much smaller than today. This would be more convenient and environmentally friendly than using large, heavy batteries taking a lot of cargo space in the car. Manufacturing methods used in battery production are not always 100 percent environmentally friendly either. Moreover, it is convenient for drivers to charge their car while driving. When the demand for electric cars starts increasing progressively, electric roads would reduce the need for setting up numerous large, fast charging points along the roads. The electric road concept of Elonroad has been verified in a research project funded by the Swedish Energy Agency, run by the University of Lund. In another research project on cargo distribution, coordinated by Sustainable Innovation and funded by Sweden's innovation agency Vinnova, the cargo company DHL will test out a full electric delivery van in Mariestad.

Logistic and purchasing

Mariestad is working to reduce the amount of transportation of goods to schools and nursing homes in the city. It is important both for the reduction of carbon dioxide emissions, congestion and noise, and to increase safety during loading and unloading of goods. In addition, the municipality wants to develop and streamline its purchasing procedures. Therefore, a logistics hub will be created where all the goods to be distributed to different municipal services to be delivered. The hub will be operated by staff and participants at the labor unit, and as such an opportunity for job training and work trials for people who stand far from the labor market. At first, a pilot project with limited parts of all goods delivered to municipal work places will be distributed through the hub. But ultimately the idea is that all goods including food should be distributed from there. Deliveries will be carried out by smaller electric delivery vans.

Learn more on Youtube: <https://www.youtube.com/watch?v=9qVmUIATZEY>