

Törneby Solpark & Nöbble Solpark – solar PV from a local source in Kalmar, Sweden



Picture of the solar PV installation at Nöbble Solpark in Kalmar. Photo credits ©: Kalmarsund Vind

Highlights

- Sweden's biggest collectively-owned solar PV park
- 15.000 m² (ca 2.300.000 kWh_{el}/a) of solar panels on Kalmar Airport and 3.900 m² (ca 600.000 kWh_{el}/a) on a local barn
- Electricity is fed into the national grid, electricity bills of owners are reduced by the amount of energy produced by their shares
- Members can own panels that cover a maximum of 80% of their own consumption
- The project is open to private individual customers of Kalmar Energi across Sweden and companies based in the municipality
- Created a strong green local brand
- Made it easy for citizens to become prosumers

Background information

The coastal town of Kalmar is located in the Southeast of Sweden and has roughly 40,000 inhabitants. It is the economic and administrative centre of the region. Kalmar is a city with a long and rich history as the local castle served as a royal castle in times of unrest such as when plague epidemics hit Stockholm in medieval times. The regional Linnæus University has a campus in Kalmar. From the harbour, one has a full view of the island of Öland, which is located 5 km East of Kalmar in the Baltic Sea. The region is well known for its potential for renewable energy production. Swedes refer to Öland as "the island of wind and sun". Kalmar is home to the local energy provider, Kalmar Energi, which plays a major role in the local energy transition. Kalmar municipality owns 50% of Kalmar Energi and has a majority of votes in the company's board.

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Brief description of what was done

Kalmar can look back at its long-standing history of community energy projects. In 2006, Kalmar Energi initiated and implemented its first collectively-owned wind energy project. Back then, Kalmar Energi invited its customers to buy shares in the wind project and form a cooperative called Kalmarsund Vind. One decade after this first cooperative project, Kalmar Energi used this setup once again when facilitating the Nöbble Solpark and Törneby Solpark projects.

In August 2016, the Nöbble Solpark started operation with solar panels on the roof of a recently built barn. The roof of the constructed barn offered a prime location for solar panels as it covers an area of 3.900 m². It produces roughly 600.000 kWh/a. After the project in Nöbble, Kalmar Energi implemented a bigger follow-up project. The Törneby Solpark is located on land on the local airport. It covers a surface of 15.000 m² and produces an estimated 2.300.000 kWh/a.

Project champions and motivations

A group of staff members from Kalmar Energi developed the idea for the two solar parks with two main motives in mind. One aspect was to create a strong local green brand that would serve to strengthen ties to the company's customers. A second aspect was to expand the local energy production base. Kalmar Energi follows a strategy that aims at localising energy production. This ambition is captured in the company's slogan "Energi härifrån, inte darifrån" ("energy from here, not from there"). The projects are not a clear business case for the company as it does not produce any financial gains. Nonetheless, it made it very easy from the company's customers to become prosumers.

Decision making process

From the moment Kalmar Energi handed over the park the diverse group of owners made all decisions connected to the solar park. Kalmar Energi serves as facilitator and technical partner who manages the daily operations and maintenance. First, there is the group of individual customers of Kalmar Energi who are represented by their association Kalmarsund Sol. Second, there are a number of local companies such as the local supermarket, which bought bigger shares in the parks. Third, there are public bodies such as the county administration which bought shares in the parks. Each party has one vote, irrespective of the number of shares held.

Ownership model adopted

The ownership structure follows a special prosumer model which implies that shareholders have to be customers of Kalmar Energi. Each owner can only hold a certain number of shares with the numbers corresponding to 80% of the average annual consumption of electricity. At the end of the year, the energy that the owner's panels produced is deducted from the electricity bill. This ownership model is open to individual households which are customer of Kalmar Energi, local companies, and public bodies based in Kalmar. Furthermore, individual customers can live outside of Kalmar and still become a customer and owner of shares in the two parks. The idea behind this model is that people can become prosumers in a very easy way. At the same time, the cap of 80% makes sure that the project is not taken over by external investors with mainly financial interests.

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Financing and economic viability

The costs for the Nöbble solar park and for the Törneby solar park were 7 Mio SEK and 33 Mio SEK respectively. The project posed a very easy possibility for individuals to become prosumers. However, investing in the solar project was not the best investment for them economically as they may not see a high return on investment. Nevertheless, it was not hard to find people who wanted to partake in the project and invest with one share costing 1.100 SEK. One of the staff members of Kalmar Energi explained: “People are willing to do the sustainable thing if it is easy for them”. The project received 1,2 Mio SEK in subsidies (Solcellbidrag) which covered the staff costs occurred for setting up the project at Kalmar Energi. Therefore, no loans were taken up for the project, as all costs were covered upfront by the sale of shares.

Project implementation

The project implementation took place in two steps. First, Kalmar Energi implemented the smaller project in Nöbble. The experience and solutions were then fed into the second (bigger) project on the airport. The two-step process was important for two different reasons. First, it helped Kalmar Energi to test the institutional setup before implementing it on a larger scale. Second, the Nöbble project served as an important showcase. Kalmar Energi celebrated the opening of the park with a public party where guests could learn about the project. This helped to convince a number of people to become investors of the Törneby solar park. In addition, Kalmar Energi ran an ambitious marketing campaign to attract investors by placing ads in social and printed media. In the context of this marketing campaign, Kalmar Energi coined the term of “Energi Republikken” (“energy republic”), which focusses on the local origin of energy produced in Kalmar.

Project benefits

The most obvious benefit of the project is the production of renewable energy. As mentioned above, the project did not bring big economic gains to Kalmar Energi. However, the project helped to establish a strong green local brand. This helped to strengthen the relationship between the company and its customers. For the customers of Kalmar Energi, the project opened up the possibility to become a prosumer in a very easy way, even if the project did not present a great investment in purely economic terms.

Barriers

According to our informants, the biggest barrier was convincing the board of Kalmar Energi to endorse the project and provide the staff resources to initiate and implement the project. However, the hard questioning by the board strengthened the project and made the team work harder to make the project a success. A challenge came in the shape of complex property arrangements. Both property sites are not owned by Kalmar Energi, but by a third party; namely a local farmer and Kalmar Öland Airport. However, the staff at Kalmar Energi were able to find solutions in both cases. A final (minor) barrier is the location of the second solar park. Staff at Kalmar Energi had doubts whether it would be acceptable to set up a solar park at an airport since it is a place that supports the unsustainable practice of flying. In the end, the group went ahead with the site despite the concerns. One of the arguments was that the solar park is visible from landing planes, which sends a message to all travellers who arrive to Kalmar by plane.

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Main lessons learned

- A step-wise development of community energy projects can help build trust in a technology and convince investors
- Economic considerations are not the only aspect in investor's decision making criteria
- People will invest in renewable energy technology as long as it is easy for them

Project champions' recommendations to policy makers

- Make it easy for people to become prosumers by lowering transaction and information costs

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Sources

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