Växjö, Sweden

Becoming Fossil Fuel Free with citizen and stakeholder involvement

ICLEI Local Governments for Sustainability

Växjö's progress toward becoming a sustainable community has been dependent upon the commitment shown not only by decision-makers but also by the city's residents. Two ongoing projects highlight this important component to the successful promotion of sustainable living-- a rooftop photovoltaic panel on the Teleborg school and the Climate Idols, a programme designed to popularize sustainable lifestyle choices.

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Abstract

Växjö has designed numerous projects to popularise sustainability and educate citizens about ways in which they can personally reduce carbon dioxide (CO_2) emissions. Växjö's many successful programmes help to raise awareness and encourage citizen engagement. Two such programmes are the Teleborg school photovoltaic (PV) system and Climate Idols, which show how citizen involvement is key to implementing successful measures to reduce CO_2 emissions and moving toward a more sustainable community.

The importance of citizen involvement

Växjö has been hailed as a world leader in renewable energy and sustainable living, with programmes and efforts to become a fossil fuel free city having been launched as early as 1996. Since then, committed stakeholder involvement has been the backbone in realising this goal, with a diverse range of activities implemented across all sectors. With the city's residents involved in many ways, the city's goal of becoming 100% fossil fuel free is well within reach – yet impossible to attain without their commitment.

The Växjö context

The Fossil Fuel Free Växjö strategy was developed in the mid 1990s through a three-year collaboration between the City of Växjö and the Swedish Society for Nature Conservation (SSNC), Sweden's largest environmental non-governmental organisation (NGO). During this process it was necessary to involve not only municipal departments and municipal companies, but also other key stakeholders such as local private companies and NGOs. Växjö has already made substantial progress, reducing its CO_2 emissions per capita by 35% and achieving an overall CO_2 reduction of 26% compared to its baseline year of 1993. In 2008, 56% of the overall energy demand of the city was met using local renewable energy (RE). Breaking down this percentage, the heating sector is a clear winner, with 87% coming from RE – mostly local wood and other forms of biomass, 66% for electricity created from RE and 5% energy for the transport sector of the city. Becoming even more ambitious in response to the progress made, the city decided in 2010 to move the date up for reaching the target of 100% fossil fuel free from 2050 to 2030.

Population / Land area

82,023 (2009) / 1,925 km²

Municipal budget

Approx. $442 million (2010) (350 million €)

Local economy

Services, industry, information technology

Role of city in region

Administrative and commercial centre of the region

ICLEI supports and strengthens local governments which promote the generation and supply of renewable energy and energy efficiency in the urban environment.

Using PV systems for education

Eight education modules were developed around the use of the PV panels, including a wide range of disciplines:

- Mathematics for energy calculation
- Physics to learn about renewable energy sources (RES)
- English language, to support exchanges during international study visits by journalists and representatives from other cities who wish to learn about the installation and the school's educational programs.

Funding for PV project at Teleborg school

The investment for this project was approximately 580,000 €. 120,750 € of financial support came through the European Commission's 6th Framework Programme CONCERTO initiative and the remaining costs were covered by Växjöhem.

Becoming Fossil Fuel Free with citizen and stakeholder involvement

The City of Växjö's role is to make it easier for the citizens and companies to live sustainably and to contribute to a low carbon community. In 2007 a local climate commission with representatives from the city, the university and local businesses was established in order to analyse necessary steps to be taken to reach the climate target. Växjö is a committed member of initiatives such as ICLEI's Cities for Climate Protection (CCP) campaign and the Local Renewables Initiative. The city department of strategic planning of the municipality has the main responsibility to develop and coordinate the climate and environmental programmes, which in turn are carried out by various city departments. Projects can be initiated by any department or municipal company, feeding into the overall strategy implementation. Two of the city's many projects are highlighted below:

Engaging the youth – a PV project at Teleborg School

Photovoltaic (PV) panels were installed on a flat roof of a school building in Växjö by the municipally owned housing company Växjöhem in 2008, with a two-fold aim:

- First, it provides around one eighth of the school's annual electricity demand. The installation covers 528 m^2, consists of 532 PV cells and generates around 59,000 kilowatt hours (kWh) per year.
- Second, the installation has been incorporated into the learning curriculum with the aim to inform, educate and motivate the students to use renewable energy (RE).

All 700 students at the school are involved with the project. It is included in their curriculum from various thematic perspectives. The school has gained a reputation for its use of renewable energy, helping to raise awareness among those living nearby and those affiliated with the school (e.g. parents) on the use and need for sustainable energy.

Monitoring of the installation's energy impact is publicly displayed at the school. These show the total energy production since installation and the CO_2 emissions saved by replacing fossil fuels with solar energy. These displays not only serve as tools for awareness-raising in the community, but also help to motivate citizens and keep them involved in the project. The ability to see and quantify the progress being made positively reinforces ownership of the project. Since the project kick-off at the end of 2008 until early 2010, a reduction of emissions equalling 135 t CO_2 has been achieved.

Photo: Ann Yngvesson

PV panels capturing energy to power Teleborg school

The project has been covered by local medis and the National Broadcasting Company (NBC) from the USA. Media coverage of the project has drawn people to visit from as far away as Japan.

Climate idols, popularising sustainable living

The Climate Idols programme is a project where nine local "celebrities" in Växjö strive to meet sustainability-related challenges and act as role models for other citizens. In each of the first five months of 2010, the idols were presented with a different challenge they had to address. At the monthly meetings the idols were given information and tools to aid them in their task, such as advice from experts and specialist companies.

Credit: Mats Samuelsson

Climate Idols discussing ecodriving results with a driving instructor

The project, developed by the executive department of the city, was based on the Climate Pilots in Kalmar, Sweden. Discussions began in May 2009, the idols first met in November 2009 and the first challenge began in January 2010. The idols were chosen because they each have a large network in the city, and care was taken to ensure a mix of ages, occupations and a balance between male/female participants. The reduction of energy use and CO_2 emissions of the Climate Idols will be monitored during the spring and summer of 2010 to compare the change in behaviour. All data will be compiled and presented at the end of the summer in 2010. A few of the idols have dropped out of the project due to conflicts with their jobs, but most have remained committed to the challenges.

This project has been covered in national, provincial and local media. The Idols website allows the public to learn about each area as the ídols progress. Useful information is provided on how to reduce household energy use as well as links to local companies and experts who presented information to the idols. Some of the idols have even started their own challenges among their work colleagues. Växjö's sister city Duluth (USA) aims to start its own Climate Idol project with coaching from Sweden.

Local Renewables global project materials

Case Study #104: Freiburg, Germany: Long-term strategies for climate protection in Green City Freiburg
Case Study # 116: Växjö, Sweden: Becoming Fossil Fuel Free with citizen and stakeholder involvement
Case Study # 117: Milan, Italy: Improving the district heating system with RE and EE
Further case studies about energy efficiency and renewable energy, as well as city completion reports for the Local Renewables project are available on the project website. **www.iclei.org/local-renewables**

The Five Challenges

The five challenges the idols face:

- January: Reduce household energy use by 15% over the course of the project.
- February: Achieve a decrease in fuel consumption by 12% through use of sustainable transport.
- March: Consume sustainably. For the first 2 weeks they documented their buying habits, followed by two weeks where they were not allowed to buy anything.
- April: Decrease the environmental impact of driving by choosing other modes of transportation.
- May: Reduce CO_2 emissions related to food consumption by 15% by buying ecological food and eating less meat.

Funding for Climate Idols program

The Climate Idols programme is part of a larger climate project, the ANSWER project. The cost for the project is estimated to be 15,000 €. This project is 50% co-funded through the Interreg IVB North Sea Region Programme. The other 50% of funding was provided by the county.

Replication

Replicating the Teleborg PV panel project would involve designing educational modules to use the panels for the school curriculum. The Climate Idols concept could work well in any other municipality, and can be adapted to other local conditions. It is important to choose participants with a large network in order to reach the most people, and contact them early in the process of forming the programme. The programme needs to be long enough to formulate real habits among the idols—there is always a risk that they revert back to their old habits but hopefully they will continue as long as they believe the changes represent an improved quality of life.

The Local Renewables project

The Local Renewables Model Communities Network (or Local Renewables project) aims to support and strengthen local governments in promoting sustainable energy and to become model cities in their national and regional contexts. This international project (2005-2010) connects leading cities to cooperate in sharing their expertise and experience in the fields of renewable energy (RE) and energy efficiency (EE). Thus, the project is a key component of ICLEI's Local Renewables Initiative.

Special support for participating model communities in India (Bhubaneswar, Nagpur and Coimbatore) and Brazil (Betim and Porto Alegre) was possible due to generous funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) through the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.

The European Resource Cities of Bonn, Freiburg, Milan, Växjö and Malmö have highly developed renewable energy and energy efficiency strategies which they were happy to share.

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Sources

- The Climate Idols of Växjö, Emilia Nordgren, Baltic Cities Environmental Bulletin 1/10
- Wind power on a new low-energy building in Växjö, Carina Herbertsson, Baltic Cities Environmental Bulletin 1/10
- Climate Idol website **www.vaxjo.se/klimatidolerna**

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