



View of Jardin des Passions from E-48: Solar panels in the distance supply hot water for swimming pool.

E-48 in Chevetogne/Belgium

Leisure park moves towards stand-alone energy system

In June, Jardin des passions, a nature and leisure park in Chevetogne, Belgium, will place their E-48/800 kW into operation. An annual yield of 1.3 million kWh has been forecast for this turbine; the power will be fed directly into the park's internal power grid. The wind turbine and its "green" power will serve to advertise the park's commitment to environmental protection. Moreover, the operator "Energie 2030" will move into a passive house in the Jardin des passions where visitors can learn all about the leisure park's power supply management.

On sunny weekends during the summer months, the Domaine provincial de Cheve-

togne attracts ca. 15,000 visitors who enjoy the park's generous layout. 1,400 acres ac-

commodate a swimming pool, a large aquarium, lakes with boat rentals, soccer fields, barbecue sites and playgrounds based around imaginative themes: a Russian castle, a wooden Cheval Bayard – a magical horse in regional folklore – as jungle gym, and a playground called "Zugspitze". English gardens, renaissance and herb gardens, and French gardens in 19th-century style provide restful relaxation. There are many different restaurants, an interpretive trail on birdlife, and an exercise trail.

Among the park's amenities are a modern infrastructure, toilets, showers, bars and cafés, and campgrounds with caravan hook-up sites. All these facilities and the many leisure offerings need power and heating. The park consumes 2.6 million kilowatt-hours of electricity every year. Heating, such as for the swimming pool, is already provided by Belgium's oldest solar power system. "Our goal is to have the park generate as much of its own power as is realistically possible", says Patrick Kelleter of Energie 2030, a group of companies who plan, finance and operate regenerative energy systems in Germany and Belgium. Their offices are located in Aachen and Herzogenrath (Germany) and Raeren, Chevetogne and Eupen (Belgium). Prior to the E-48 project in Chevetogne, the group amongst others installed the first wind energy converter in Wallonia, near the town of St. Vith.

The leisure park is operated by the Province of Namur, who provided the site for the E-48 turbine. In return, Energie 2030 has committed to selling power to the park management at a fixed rate. "The energy system within the park is designed in such a way that the power generated by the E-48 is consumed first. Any excess power is passed on to the public grid. If the park consumes more energy than the turbine generates, it draws power from the public grid. The region's utility company is currently examining the options for feeding power into the public grid.

The financing of the wind energy converter is secured by revenue from the sale of green certificates. These are issued to operators of renewable energy systems in Belgium. Wallonia requires all utility companies in the region to draw at

least 7 % of their energy from renewable sources this year. Next year, the requirement will be stepped up to 8 %. For each megawatt-hour of regenerative power, operators are issued certificates which are then sold at an exchange, for example to those utility companies who are falling short of the renewable energy quota. The Commission Wallonne pour l'Energie (CWaPE) oversees the issuing and trading of certificates.

"We are currently generating half the park's energy ourselves. The second step will be the installation of a combined heat and power plant running on rapeseed oil", explains Kelleter. Additionally, a flywheel storage system will keep a portion of the power generated by the E-48 available for those seconds it takes to switch between power plants. "We will not achieve a fully self-sufficient stand-alone system. But we want to maximise our self-generated share as much as we can, to prove the concept", says Kelleter.

The E-48 has been installed at the park's highest elevation. It is visible from all directions; an information board explains how the wind turbine works. Renewable wind power fits perfectly into the environmental philosophy of this leisure park. Many schools in the region and beyond include field trips to the park in their curriculum. Kelleter and his associates from Energie


2030 have devised a strategy to include information on the park's power supply into this programme. They have formed a non-profit association to build a passive house near the wind turbine; the project receives partial funding from the EU Objective 3 pro-



Patrick Kelleter at top of ENERCON WEC.

gramme. The entrance hall will boast a real-time display of the current composition of the park's energy supply.

The Energie 2030 co-op was founded in 1995 by a group of engineers with an interest in energy politics. "We wanted to create an opposition to the large energy monopolies, whose approach was to use up all fossil fuels first and then to embrace nuclear fusion as the energy of the future", says Kelleter. Energie 2030 immediately started working on alternative solutions: They have taken the 1992 CO₂ output as a starting point and have since been looking for ways to halve fossil fuel consumption by 2030, based on the Kyoto process. "We plan to achieve half the reduction by 2030 through energy saving measures, and half of the other half through the use of regenerative energies. Finding a solution for the remaining reduction will be up to the next generation of engineers", Kelleter continues.

Energie 2030 now has 780 co-op members who have purchased shares worth between 250 and 50,000 euros. They have invested a total of 24 million euros into renewable energies and energy saving measures. Forty percent of members are from Belgium, forty percent from Germany. Keller is optimistic: "We will not be able to reach this goal by ourselves, by 2030. But the idea has spread and has already produced many great results." 



E-48 in Chevetogne, to be inaugurated 22 June by André Antoine, Walloon Minister of the Economy.