

## FENICE DIDACTIC PARK FOR RENEWABLE ENERGY SOURCES

### *Fondazione Fenice Onlus, Italy*

### Summary

The “Fenice Park” was first created in 2001. At the beginning, aimed at reclaiming an abandoned and heavily polluted green area (6 ha) involving public bodies (Industrial Area of Padua Consortium – Consorzio ZIP) and civil society organisations (CNGEI Scout Association). Eventually (2004), they strongly committed to the creation of the first didactic park (Fenice) for renewable energy sources to empower sustainable and responsible behaviours among entrepreneurs of the near by industrial estate, local public administrators, educational institutions, associations, and private citizens. It is a completely innovative body located in a unique naturalistic context (a small island within the city) aside the productive area of Padua, Italy, where it has been realised a



**Picture 1 - Park area view**

1.8 Km path along which every year an average of 6 000 students (6-25 years old) may learn while experiencing how renewable energy sources actually work. Lately, an Energy House has been added to host public meetings and conferences as well as seminars or training courses for employees, unemployed and entrepreneurs.

#### End-user area


- Sustainable communities
- User behavior
- Education
- Industry



#### Target Audience

-  Citizens
-  Households
- Financial institutions
-  Schools and universities
-  Decision makers
-  Local and regional authorities

#### Technical

-  Energy efficiency
- Solar energy
- Biomass
- Wind
- Geothermal

## Context

The efforts the ZIP Consortium put towards an Eco-industrial development (EID), elaborated in the SIAM project (LIFE ENV/IT/000524, 2004) as well as in CSR related themes, met the traditional attention that scout movement pays to environmental and educational issues. Such actors and interests were the basis upon which the “Fenice” project has been developed. The abandoned and heavily polluted site (6 Ha), adjacent to the 1050 ha productive area of Padua, a unique strategic ground for an integrated action:



**Picture 2 - Between the city and the industrial estate**

Create an active body to reduce the environmental impact of the industrial estate of Padua (with 1600 operating enterprises) encouraging the development and diffusion of renewable technologies, preserve one of the largest green areas from degradation by giving an innovative public fruition (a newly conceived naturalistic park); yield the city cultural and civic life, traditionally located within the historic centre, a vital connection with its industrial therefore extremely anonymous quarter by enhancing the Isola di Terranegra context as its natural juncture.

## Objectives

The aim was to meet different needs in the most efficient way: New skills for a competitive and sustainable industrial area (training) and an effectual cultural impact (education). Also to combine new productive attitudes with responsible consumer’s behaviour. The focus was not a specific target group or economic sector, but to find an innovative way to reach the largest part of the population as possible: an open place to yield in an interactive and social framework for the skills and knowledge where each one would eventually apply and transfer in his own working or living context. A new method was to educate young citizens (6-25), provide expert counselling to entrepreneurs, and train workers. Strategically, it was necessary to create a highly collaborative and motivated background among different actors operating within the same geographical area, such as industry, public administration and no profit sectors. The objectives these actors took under the Fenice project was the realisation of the first didactic park for renewable energy sources to provide both the 1600 enterprises constituting the Zip Consortium and civil society bodies as an actual place to refer to for energy relevant issues.

Skill improvement  
Renewable Energy sources  
Social Environment

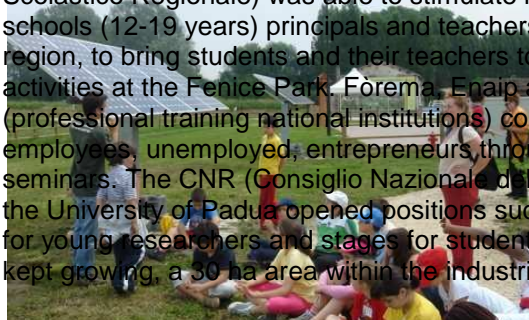
**Process****Picture 3 – Class A Training centre and didactic hostel – render and factual realization**

associations and eventually coordinated by a private non profit body: the Fenice Foundation (Consorzio Zip-CNGEI scout movement). It started with the reclamation of the 6 ha selected site, where almost 10 t of waste material had to be removed and its accommodation for a new public fruition. In this phase, Consorzio Zip, the scout movement and CSV (Centro Servizi per il Volontariato, a national NPO) were crucial for the setting up of the park. The further active involvement of the Municipality of Padua and the Fondazione Cassa di Risparmio allowed the realisation of the core educational experience at the Fenice Park: the 1.8 Km didactic path, along which different installations offer a wide representative range of renewable technologies and didactic interactive labs:

- 1) A mini aeolic park area (2.4 KW<sub>p</sub>) includes: Windrotor – Ropatec “Bora”; Airgenerator GE-W1000; Airgenerator Whisper H80.
- 2) Photovoltaic installations (3.6 KW<sub>p</sub>): two Heliots solar tracking/concentration systems; two Pirrini tracking systems; two fixed (roof) installations (SE project-mod. SEM 160 S series, Sunerg-mod. STP 160-24).
- 3) Let’s make Compost.
- 4) Biomass: 4500 Mq demonstration area for biomass production: poplars, locust-trees, willows, soya, reeds and sunflowers (squeezed with the Anton Fries Maschinenbau GmbH vegetable oil press).
- 5) Bio-monitoring of the air quality through bee analysis (and 15 Kg of honey produced per year)
- 6) Geothermic heating system (Hostel, Training Centre)
- 7) Golena open space (2ha floodplain).

An Energy house (class B wooden building, about 120 mq, 50 seats) was built to host lectures, conferences, meetings, seminars and courses to empower indoor didactic/training activities. As a result, two more class A buildings will be ready by June 2010: a training centre (4 didactic rooms) and a Hostel (50 beds) for national and international visitors.

The Municipality of Padua constantly interested the public and private elementary schools (5-12 years), while the USR (Ufficio Scolastico Regionale) was able to stimulate middle and high schools (12-19 years) principals and teachers, within the region, to bring students and their teachers to the didactic activities at the Fenice Park. Forema, Enaip and Ifoa (professional training national institutions) contribute to reach employees, unemployed, entrepreneurs through courses or seminars. The CNR (Consiglio Nazionale delle Ricerche) and the University of Padua opened positions such as fellowships for young researchers and stages for students. As the Park kept growing, a 30 ha area within the industrial estate has been

**Picture 4 - Guided visit**

progressively preserved to absorb CO<sub>2</sub> and 13 ha more have been acquired. Now, it is a plantation of 40 000 AF2 controlled hybrid poplars (short rotation forest) producing 80 t of wood chips per year.

## Financial resources and partners

The Fenice Park is an open project. Although the core partners are the Consorzio Zip and C.N.G.E.I scout movement, its partnerships and resources are strictly project-oriented, thus highly adaptable to specific necessities or situations. The Municipality of Padua provided the Zip Consortium and free use of the 6 Ha for the next 25 years. The CNGEI Scout association, thanks to a 20 000 Euros project financed by CSV and Regione Veneto, could guarantee the remediation of the area and its further restoration. The ZIP Consortium, the Chamber of Commerce of Padua, the Fondazione Cassa di Risparmio (savings bank foundation) and regional council (Regione Veneto) gathered 170 000 Euros for setting up the Park: didactic path, technical installations (some were in fact donated by industries) and lighting. 140 000 Euros was funded in the Energy House, which allowed indoor activities normally impossible to yield and the project further expansion (Hostel, Training Centre). Financial support is granted by didactic and training activities.

## Results

The main results by field of activity are:

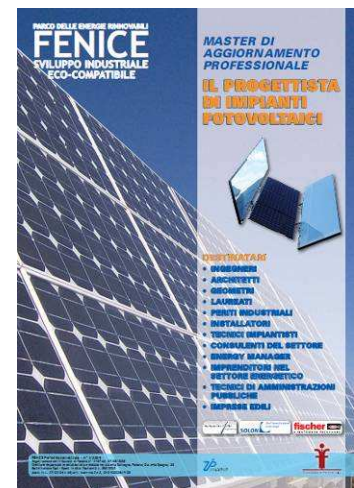
A) Energy (kW) impact: the effective actions of dissemination and awareness raising for a sustainable industrial zone had oriented Consorzio Zip and Solon Ag toward the strategic agreement (July 2009) to install 17 MW<sub>p</sub>, by positing about 70 000 modules on the roofs of the Magazzini Generali and Interporto structures (250 000 mq); a recent agreement (2010) between Consorzio Zip, Solo Ag and X-Group settles the basis for the gradual coverage of the entire roof area (1 250 000 Mq, 163 MW<sub>p</sub> potential); the Fenice GAS (solar buying group sponsored by the Fenice Park in collaboration with Elettroecology srl and Luxproject srl) is worth 50 kW.

B) Environmental positive impact: 30 Ha of greenwood plantation to absorb CO<sub>2</sub> in the industrial area (752 t in 2008, 835 t in 2009).

C) Educational impact: 250 visiting groups (elementary, middle, high school) from seven different Italian regions, which means over 6 000 students per year. Recently, in the Energy House open space, a performing lab started for young citizens (6-10) based on creativity, recycling games, basics concepts concerning energy themes, activities in collaboration with the riding school Gondrano & Berta; summer school activities reach every year an average of 475 students (10 weeks) and every year a course is held to train the ecological guides of the Fenice Park (averaging 25 people).

D) Skill improvement: training course for 250 professionals and technicians in the photovoltaic sector who will receive an ESF participation certificate (target group: employees from 235 enterprises); 4 seminars per year dedicated to the dissemination of green technologies and saving energy issues (target groups: entrepreneurs within the industrial area of Padua); stages (8 different positions open per year); 5 Fellowships in collaboration with CNR and the University of Padua.

E) Social events: the Green Love Festival every year gathers nearly 700 participants. Citizens, families or volunteer associations (Scout, social cooperatives) have here a very singular context to spend weekends, preparing BBQ (there is a grill and soon a traditional pizza oven) or creating music.



Picture 3 – Master training for photovoltaic technicians



### Lessons learned and repeatability



**Picture 4 - Dieter Salomon, Mayor of Freiburg** initiatives.

The Fenice project has no temporal limits, thus the main difficulty was to find the way to produce an effective impact in a reasonably short period of time. However, it appeared quite clearly from the beginning that the implementation of green economy technologies alone (short term impact) would not have been completely effective without a combined cultural influence and mentality change (medium-long term impact).

A decisive factor of success was the progressive character of the action as well as the project-oriented attitude. This allowed great flexibility and adaptability to encouraging partners to be engaged in specific concrete actions increasing their trust, therefore their participation and engagement in wider or longer term

The strength of this project is the simplicity of the implementation: an open place where people meet and play, at the same time making learning experience in a unique naturalistic context. This is the basis of the scout method: to apprehend while playing outdoors activities. A specific didactic path may be planned according to specific needs and partners chosen by necessity.



**Picture 7 - Doctor Clown at the "Green love festival"**

The high collaborative background was built by motivating partners usually active in very different contexts (profit, not for profit, public sectors) usually not related to each other or sharing objectives. The life at the Fenice Park revealed to be the most factual and symbolic motivation to community sense improvement along with the dissemination of knowledge-based responsible attitudes and new relational perspectives.

The choice of this particular site was meaningful: An abandoned area on a small island with very few inhabitants and surrounded by the large industrial estate of Padua, almost a natural isolated non-lieux.

The attempt to restore and devolve the citizens of Padua at one of its historical sites and one of the last green areas within the city limits has been completely successful. At the same time, its implementation contributed to humanize the anonymous industrial area, partially changing or widening its use: a sustainable kindergarten for families working in the Zip area is now under construction and an approved project for a sustainable research tower centre that will be built in the next few years.



**Picture 8 – Scout Chariot building contest**



**Contact for more information:**

Project Web Site: [www.parcofenice.it](http://www.parcofenice.it); [www.fondazionefenice.it](http://www.fondazionefenice.it)

Organisation / Agency: Fondazione Fenice Onlus

Main contact Andreas Spatharos

Address: Galleria Spagna 35

Tel: 0039 049 899 18 35

Fax: 0039 049 76 11 56

E-mail: [spatharos@fondazionefenice.it](mailto:spatharos@fondazionefenice.it)