

Green Entrepreneurship

Successful business cases of Green Entrepreneurs in the Mediterranean



Regional Activity Centre
for Cleaner Production



La Fabbrica del Sole: Renewable energies and environmental preservation in Italy

56

Name: La Fabbrica del Sole (FDS)

City, country: Arezzo, Italy

Name of entrepreneur/founder: FDS is a cooperative that was founded in 1999 by 10 members. CEO is Paolo Fulini. It created two further for-profit spin offs –Exergy and La FDS Srl– and has a participation in the Ransolar, an innovative renewable energy company operating internationally, especially in Egypt.

Description FDS's operates in the field of renewable energies and environmental preservation, and particularly in the production of photovoltaic panels and of hydrogen-generating and processing facilities. It has a strong R&D department (Hydrolab), which works closely with a scientific committee made up of experts and researchers from the Universities of Siena and Florence. It is famous worldwide for having created the first hydrogen-pipeline in an urban centre and for having started the process of registering in 2010 the Off-Grid patent, with the development of a comprehensive system to disconnect houses from the main grids and provide them with an affordable tool to meet their energy, water and sanitation needs in loco.

Investment Not available.

Stakeholders The Municipality of Arezzo; the Tuscan Regional Administration; the University of Florence; the University of Siena; other renewable energy companies in Italy and abroad; the citizens of Arezzo; the citizens of Tuscany; customers in Italy and abroad; the research community interested in experimental implementation of hydrogen systems; the environment.

Employment generation 5 cooperative members, with a further 15 employees in the cooperative and other companies part of the FDS network (Exergy and La FDS Srl).

Timeline

FDS was founded as a cooperative in 1999 by an interdisciplinary group of young researchers brought together by the Municipality of Arezzo to create the first natural composting bio-chamber (biocella) in Italy, capable of turning organic waste into natural compost. After successfully completing this first project, the FDS team turned its attention to the energy sector, entering the photovoltaic market in 2006 and installing as of today 2.5 MW worth of panels. Alongside this focus, it started conducting research into energy self-sufficiency and in particular into hydrogen sources, creating Hydrolab always in 2006. Thanks to this focus, on 30 April 2008 FDS inaugurated the world's first hydrogen-powered pipeline delivering energy to an urban centre. Working with a traditional industrial cluster in Arezzo - the goldsmith sector - FDS developed an innovative system called Solar-cooling, based on a process that produces cold air (air conditioning) from a warm renewable source (thermal solar energy). Its panels were used in the construction of the largest solar-cooling system in Europe: the City Hall and Library of Como, in Lombardy. Its energy self-sufficiency research paid off in 2010 with the initiation of the registration of the Off-Grid patent, to construct structures that are not connected to the main energy, water and sanitation grids. The buildings are fitted with an integrated renewable system that meets all its energy needs, both electric and thermal, and has a closed water cycle, that uses in loco purification to treat black-water. Off-Grid was selected for the 'Better City, Better Life Expo 2010', and for the Italian Pavilion ('AILATI: Riflessi dal futuro') at the 12th International Architecture Exhibition in Venice. In 2011, the Off-Grid system became the Off-Grid Box and FDS was one of the projects exposed at Exhibition Stazione Futuro within the Officine Grandi Riparazioni in Turin.

Feasibility study

The Off-Grid theme is the central one that FDS is developing, due to the scarcity of resources and the environmental challenge that surrounds. The cooperative has been approached by a number of large multinational companies interested on this theme. Part of the reason is the inability of the national grid to adapt to a diffused energy-generation model. Another part of the reason is the increased desire by people to become independent from the energy markets. FDS is interested not just in energy production and consumption, but also (and with the Off-Grid Box increasingly) in energy storage.

Geo-social-economic setting

Not available.

Key features

Renewable energy production, storage and consumption; photovoltaic panels' production; hydrogen systems' research and production; Off-Grid systems' research and production; solar-cooling systems' production.

Overall rational and motivation

FDS is one of those quintessentially-Italian small and medium green enterprises that, rooted in a very localised value system, continue to flourish nationally and internationally thanks to a genuine passion for what they do, to a strong sense of ethical commitment and to a deeply innovative and creative approach to entrepreneurship. FDS is not just a successful green enterprise: it represents the best that Italy has to offer in terms of entrepreneurship. It is methodologically research-based, working closely with university experts and researchers, yet it is visionary and adventurous in its innovation strategies. It works closely with government structures in a combined effort to provide value and opportunities first of all to local needs and communities (like in the case of the goldsmiths of Arezzo serviced now by a hydrogen pipeline), yet it is far from parochial and is already looking at how to carve out a greater role for its products on the global markets. In essence: it is one of those virtuous examples of (green) entrepreneurship on which Italy should bet if it wants to respond to the challenges it faces today.

Strengths

As stated above: a strong link with the local context; a research-based approach that doesn't remain too theoretical, but gets turned into market-oriented activities; a young team, willing to take risks and able to react creatively and promptly to outside opportunities; a networked-approach close to the 2.0 generation; an integrated planning strategy, where solutions are identified creating cross-sectoral synergies; a supportive public policy that encouraged the renewable energy sector, particularly the photovoltaic sector.

Challenges and constraints

The main challenge is finding new solutions that are sustainable – i.e. no longer based on public support, but exclusively on market dynamics, especially in the renewable energy sector.

Direct activities and Impacts

The main focus of activities is planning, installing and constructing systems to produce and store renewable energies. The main impact of their work is the development of partnerships across sectors, including with large companies that are looking to join forces with FDS to innovate and differentiate their works. The Off-Grid Box has a particular impact on the 'narrative' of partners and on the way they understand their role in re-shaping the response to the energy challenges that surround us.

Use of innovative Technologies

Research and innovation are at the heart of FDS. Without them, the cooperative would probably not exist. In just over 10 years of activity, it can pride itself –despite its small size– with developing the following innovative technologies:

- The first natural composting bio-chamber (biocella) in Italy.
- The first landscape-integrated photovoltaic park.
- The largest solar-cooling system in Europe.
- The first hydrogen-powered urban energy pipeline in the world.
- The Off-Grid patent.

All these achievements were obtained by working closely top researchers and scientists in the energy field, which make up the scientific committee of FDS.

<p>Evidence of a holistic approach/world view</p>	<p>FDS is working in integrated fields that have to do with their core-business (energy), ranging from mobility to food to waste management. The organisation is very flat and collaborative, based on knowledge sharing and technical expertise. It recognises that there are a lot of good ideas around, but at the end of the day these ideas have to be bought by people (and the market) to be sustainable. Public sector incentives can offer a real support to new ventures, but they are not always enough. What is needed is greater public awareness of the challenges we face as a planet and as an economic system. The vision of FDS is one in which all people have a deep understanding of how their economic choices are linked to environmental impacts, and how certain companies should be rewarded not because they are better at marketing themselves, but because they are virtuous in their actions and offerings.</p>
<p>Scale of benefits</p>	<p>Not available.</p>
<p>Policies, incentives and regulations needed</p>	<p>Not available.</p>
<p>Lessons and recommendations</p>	<p>FDS' approach is "If not now, when?". This is the main lesson they like to teach to their partners and customers.</p>
<p>References www.lafabbricadelsole.it/home.html www.offgridbox.it/ITA/HOME.html</p>	