

# **RESTART**

## **RESET e.e.i.g. - SOFTECH, Italy**

### **Summary**

RESTART (Renewable Energy Strategies and Technology Applications for Regenerating Towns) is a targeted demonstration project, promoted by the European Commission and coordinated by RESET (Renewable Energy Strategies for European Towns) in conjunction with A.M. Barcelona, Glasgow, Grand Lyon, Turin, Rotterdam, Copenhagen, Porto and South Dublin.

The demonstration project involved the different players of such complex urban projects: city officers, promoters, professionals, local associations, technology manufactures, experts, realising through this cooperation 8 large scale building programmes in the 8 participating cities. The equivalent of more than 2,500 dwellings and two important research and cultural centres were built or rehabilitated with use of various renewable energy technologies and sustainable design concepts. Summary of results:

- Area Metropolitana de Barcelona - District Heating with biomass in 695 dwellings in Molins de Rei
- Glasgow - The Lighthouse of C.R. Mackintosh was rehabilitated and accommodates a major retailer, offices and an Architecture and Design Centre.
- Greater Lyon - Solar Habitat, more than 200 renovated dwellings, which use a set of measures to reduce the energy consumption, including passive greenhouses and solar systems
- Torino - The Environment Park, a sustainable science and technology park, has become an asset for the city of Torino.
- Rotterdam - A new district of 800 low energy dwellings, with emphasis on passive and active solar energy
- Copenhagen - Visible balance of resources in the renovation of an 1870-1900 urban block, located in a working residential area.
- Porto - Rehabilitation process in the historical centre, associated with an urban rehabilitation programme of more than 300.000 m2 of degraded buildings
- South Dublin - More than 500 housing units constructed throughout Ireland, with a focus on energy efficiency.

#### **End-user area**

- New buildings
- Refurbishment of buildings
- Transport and mobility
- Financial instruments
- Industry
- Legal initiatives (municipal regulations, directives, etc)
- Planning issues
- Sustainable communities
- User behaviour
- Education
- Other

#### **Target Audience**

- Citizens
- Households
- Property owners
- Schools and universities
- Decision makers
- Local and regional authorities
- Transport companies
- Utilities
- ESCOs
- Architects and engineers
- Financial institutions
- Other

#### **Technical**

- Energy efficiency
- Heating
- Cooling
- Appliances
- Lighting
- CHP
- District Heating
- Solar energy
- Biomass
- Wind
- Geothermal
- Hydro power
- Other

## **Objectives**

RESTART aims at providing the public authorities, the institutions and the professionals of these eight industrial European Cities with some "Exemplary Urban Projects", concerning innovative energy-environmental integration on the city scale. The exemplary projects take into account the following criteria, which have provided a homogeneous background to all City-Projects:

- ❑ Each city has selected a site for the demonstration, generally located in a downtown area (areas to be re-converted to different functions, former industrial sites, etc.) where a regeneration project was starting, with new comprehensive rules;
- ❑ The area of influence of each City-Project is large enough to allow a strong impact on the decisional mechanisms of the city and a high visibility for the inhabitants;
- ❑ Mix of functions - housing, tertiary and commercial, institutional, recreational buildings, high-tech industrial settlements - are comprised in RESTART, representing the complexity of urban situations;
- ❑ Emphasis is given to cross-demonstration activities and to a new way of promoting urban demonstration projects, with a multi-actor and multi-sector approach.

## **Process**

The RESTART process was characterised by:

- ❑ vertical design and construction activities in the eight cities;
- ❑ horizontal / common tasks, involving all contractors with their key players.

The RESTART Common Tasks were tailored to provide the participation of various target roles, within the demonstration project: 1.city administrators, 2.local target groups and associations, 3.designers and professionals, 4.manufacturers, builders, promoters

## **1. Governance**

### ***Inter-Services Working Groups***

In each city, a group of individuals, mainly belonging to the local authority and other public administration, was charged of a continuous assessment of the Demonstration Project, in order to get information and methods for expanding the boundaries of the demonstration to the city limits. The Inter-Services Working Group at the City level is considered a small group of carriers in action. It is a group of individuals (10/15 persons) who are interested in facilitating the penetration of innovative urban technologies, maximising the application of renewable energies. These groups included both city officers, professional employees of the local authority and community representatives.

### ***Performance Indicators, Organisational Innovations***

After having created the Inter-Services Working Groups at the city level, a task involving each city consisted of extracting the most promising "organisational innovations", amongst those under discussion in the forum, and to translate them into possible organisational improvements. This activity required the development and testing of a coherent set of indicators according to the objectives and the different domains concerned (technologies, energy consumption and savings, comfort, environmental impact, financial viability, etc.) and a screening, made by each city, of the performance indicators of the demonstration project for all these sectors. It reflected into a planning and regulatory activity: how to learn from a demonstration project and put in practice, at the city level, those organisational ideas which are realistically convertible into actions for the administration, in the short and medium term

## **2. Involvement**

### ***Design Ateliers***

A cross-demonstration activity involving a great number of local professionals and constituting an example of "involvement" was represented by the "Design Ateliers" organised by RESTART. The Design Ateliers were organised with the participation of local young professionals (architects and engineers), with a school of architecture or with an academy. The Design Atelier is a one day workshop, held during the periodic RESTART General Meetings in the eight cities, in which 20-30 participants, organised in design tables, have the role of revising, from sketch, the demonstration project of the hosting city, with the

assistance of the local designers and of the RESTART coordinators, which join the design tables, facilitating the process.

### **3. Best Practices**

Technology experts and professionals were an essential part of RESTART demonstration project. They participated in all steps of the process, prospecting the following tasks, which are a common link for all City-Projects:

#### ***Energy Assessment at the Design Stage***

Set up of a method of comparing energy features incorporated in buildings, by normalising data for each country to allow direct comparison.

#### ***Environmental Assessment at the Building District***

Development and application of evaluation tools at the urban level for the environmental impact assessment of new or regenerated building settlements

### **4. Technologies**

The experience of RESTART members at the end of this demonstration is a quite unique experience of application of energy technologies in one macro-project.

Two common activities have been developed by RESTART in this sector:

#### ***Technology Catalogue***

The catalogue of energy technologies involved in RESTART City Projects covers the current state of art.

#### ***Monitoring and Post-Occupancy Evaluation***

Establish structure and method for energy usage collection and comparison, energy monitoring and post occupancy evaluation.

These two activities have organised the feed-back information from all City-Projects to evaluate actual performance on a common basis; to allow cross-project comparisons; to report on differences between estimated and actual performance and lessons learn; to estimate savings from full and partial take up of measures.

### **Financial resources and partners**

RESTART is a project managed and co-ordinated by RESET e.e.i.g.

Total Investment	>200.000.000 Euro
Total Eligible Cost	10.830.954 Euro
EC Contractual Support	3.682.540 Euro

Project partners

Coordinator: Roberto Pagani, SOFTECH - RESET g.e.i.e.

Contractors:

- Area Metropolitana de Barcelona, Ajuntament de Molins de Rei;
- Glasgow City Council;
- Communauté Urbaine de Lyon;
- Città di Torino, Environment Park S.p.A.;
- City of Rotterdam, Hillegersberg Schiebroek Rotterdam City District;
- City of Copenhagen, 4th Dept., Urban Renewal Company Copenhagen;
- Fundacao Desenvolvimento Zona Historica do Porto;
- South Dublin County Council, Allied Irish Banks.

Subcontractors:

RESET g.e.i.e., SOFTECH Energia Tecnologia Ambiente (I), ECD Energy & Environment Ltd (UK), AGORA' Ingenierie et Management de la Ville (F), ICAEN Institut Català d'Energia (E), Institut Cerdà (E), W-E Consultants Sustainable Building (NL)

### **Results**

The following are the building demonstration projects co-ordinated within RESTART:

***Area Metropolitana Barcelona – Biomass District Heating in Molins de Rei***

A biomass district heating supplies space heat and hot water to 695 dwellings (253 public and 442 private) in "La Granja", a new development area of Molins de Rei. The collective centralised system allows the comfort conditions and the individual energy control and billing in each flat. An energy service company, participated by the town of Molins de Rei, is managing the district heating.

❑ dwellings	695
❑ saving (Euro/y)	170.000
❑ techno-investment (Euro)	812.500
❑ extra-cost (Euro/m2)	14,6
❑ maintenance (Euro/y)	77.550
❑ pay-back period (y)	8,8

***Glasgow - The Lighthouse of C.R. Mackintosh***

The Lighthouse has become Scotland's Centre for Architecture and Design and accommodates a major retailer, offices and an Architecture and Design Centre. The Lighthouse hosts the renewable energy advice centre for the promotion of renewable energies. Natural lighting, active solar systems, photovoltaic modules and passive ventilation and cooling systems are implemented.

❑ saving (kWh/y)	3.432
❑ renewable energy	32%
❑ techno-investment (Euro)	1.028.101

***Greater Lyon - Solar Habitat***

Greater Lyon has adopted a strategic action plan for the development of Renewable Energies. RESTART has started the implementation of the action plan on the building sector, from social housing. The project concerns 200 dwellings, which use innovative technologies to reduce the energy consumption by 20%. In the future, it is expected that, each year, 20% of residential buildings in the Lyon area will be built according to these technologies.

❑ dwellings	213
❑ saving (Euro/y)	910.000
❑ techno-investment (Euro)	1.001.662
❑ extra-cost (Euro/m2)	6,54

***Torino - The Environment Park***

The Science and Technology Park for the Environment (Environment Park) has become an asset for the city of Torino. It has represented an opportunity for revitalising a district of 1.000.000 m2. The project was created under the concept of environmental sustainability, with extensive use of environmentally friendly materials, renewable energy sources, ventilated facades. The feature: low buildings blending into the greenery of the natural park.

❑ surface (m2)	32.000
❑ saving (Euro/y)	189.420
❑ techno-investment (Euro)	780.242
❑ extra-cost (Euro/m2)	24
❑ maintenance (Euro/y)	73.875
❑ pay-back period (y)	6,7

***Rotterdam - A district of 800 low energy dwellings***

The project concerns a district of 800 dwellings in the Stoopweg area, in the city of Rotterdam. The emphasis of the district is on energy efficiency and sustainable buildings. A total of 80 dwellings demonstrate an energy efficient system that is 40% below the current national standard and another 40 dwellings will make optimal use of solar energy. The emphasis in the sub-district area (400 dwellings) is on passive and active solar energy.

❑ dwellings	380 high performance
❑ saving (Euro/y)	138.273
❑ techno-investment (Euro)	1.189.426

- |   |      |
|---|------|
| <input type="checkbox"/> extra-cost (Euro/m2) | 39,6 |
| <input type="checkbox"/> pay-back period (y)  | 8,6  |

***Copenhagen - Visible Balance of Resources in Urban Blocks***

The urban renewal block is located in a working residential area, built during 1870-1900. The aim of the project was to create a balance in the consumption of resources and the production of waste. It demonstrates how residents could be positively influenced to change their behaviour in the consumption of water, electricity and heat by establishing "green" common construction and reuse of materials. At the start, the settlement consists of 450 inhabitants.

- |   |                  |
|---|------------------|
| <input type="checkbox"/> dwellings                | 303 and 37 shops |
| <input type="checkbox"/> saving (Euro/y)          | 109.905          |
| <input type="checkbox"/> techno-investment (Euro) | 1.025.068        |
| <input type="checkbox"/> extra-cost (Euro/m2)     | 34               |
| <input type="checkbox"/> maintenance (Euro/y)     | 6.700            |
| <input type="checkbox"/> pay-back period (y)      | 9,9              |

***Porto - Rehabilitation Process in the Historical Centre***

The Porto's project is associated with an urban rehabilitation programme in which 300.000 m2 of degraded buildings have to be renovated in the historic centre, which is classified as part of the World Heritage List by UNESCO. It is an urban agglomeration of great historic, artistic, cultural and architectural value, with medieval urban features. CRUARB Building is a 1080 m2 built area, hosting the technical body for the Historic Centre of the Porto Municipality. It is a refined and cultured example of use of natural lighting in cities' historic centres.

***South Dublin - RESTART Ireland***

In the RESTART-Dublin project 500 housing units have been constructed throughout Ireland, with a focus on South Dublin. The project constitutes the single most important initiative in Ireland directed at addressing the potential for the design and construction of more energy-efficient housing. It has attracted considerable attention from local authorities, semi-state bodies as well as the commercial sector.

**Lessons learned and repeatability**

RESTART catalysed the appropriate mix of:

- administrators (planning and regulation promoters);
- entrepreneurs (technology manufacturers, promoters, builders);
- experts (designers, professionals, consultants);
- citizens (community representatives, associations).

This mix of participants helped to arise the innovation where it could afford to become prevalent enough, without being overwhelmed by the inertia of the system (critical mass).

Each actor involved into the Demonstration Process was interested by a "targeted action", in such a way to involve a multi-targeted set of actions in each project.

This multi-targeted strategy of RESTART involved the fulfilment of the following goals:

- Create a Vision (Administrators, Planners - Governance);
- Plan Together (Community - Involvement and Partnership);
- Unite the Forces (Local Carriers, Professionals - Best Practice);
- Do the right things (Suppliers, Builders - Technologies).

RESTART consisted of a mix of technical and non-technical interventions and was pervasive enough to involve all aspects of the decisional process: planning schemes, design criteria, new regulations, building re-organisation, economic development of the site, social aspects and quality of life, with the aim of facilitating the penetration of innovative urban technologies and maximizing the rational use of energy.

A lot of innovation was put into this targeted project: methods, tools, process, and products.

Many partners of RESTART have learned "how-to" design and build in a more cooperative and sustainable way, with the participation of all players.

The replicability of tools and methods adopted by RESTART is very high and currently happening in all cities of the network, on an independent basis, since the replication at the European level has been recently discouraged.

**Contact for more information:**

Project Web Site: [www.resetters.org](http://www.resetters.org)  
Organisation / Agency: RESET e.e.i.g. - SOFTECH  
Main contact: Roberto Pagani  
Address: via Cernaia 1, 10121 Torino Italy  
Tel: +39.011.5622289  
Fax: +39.011.540219  
E-mail: [softech@softech-team.it](mailto:softech@softech-team.it)  
Web Site: [www.softech-team.it](http://www.softech-team.it)

Printed reports or other literature available:  
Title: RESTART – methods, processes, projects, products. Brochure