

Towards 100% RES Supply in La Maddalena Island - Sardinia

The Archipelago of La Maddalena is compounded of seven islands and various islets that constitute administratively the La Maddalena Municipality. La Maddalena isle is 19,6 square Kilometers area, 43 coast line and it is the only one with a populated town, 12.000 inhabitants. Caprera, the ancient Garibaldi residence place is a little and beautiful island linked to the La Maddalena by a bridge. The other small islands are uninhabited except for Santa Maria which is populated by tourists in the Summer time. La Maddalena archipelago is a National Park (Law 10/94, and DPR 17/5/96) with provisional land and sea Zones with different barriers. Currently the archipelago depends for energy from the mainland Sardinia and the electricity is "imported" by using sea cables (up to a total per year of 41.841 MWh). The interest but also the necessity for local realities to participate, in the short period, to the deep modifications of energy market, supported by the law innovations, and in particular the interest in realizing sustainable development, especially for the

La Maddalena archipelago project represents the typical case of many islands that have been declared protected areas because of their environmental values and that must face the challenge to combine energy self-sufficiency with the conservation of their natural and landscape values.

precious area of La Maddalena, have been for the local institutions a good suggestion to select to be supplied, even in the long period, 100% for RES. The project for energy innovative exploitation in La Maddalena is harmonized with a specific scopes:

- 1 To comply the measure as large as achievable with main constraints imposed by Natural Park Authority existing on the archipelago;
- 2 To introduce and increase the use of renewable sources in view of performing the energetic autonomy to be reached in a moderate period of time.

These two aspect are developed in parallel, because do not allow the completion of the whole program it both purposes with not be contemporary exhausted.

For a region like that of La Maddalena it is strictly necessary to conform the RES plants with the characteristics of natural park. The point consisted on the investigation of which kind of energy was prevalent and which mutual extent among different sources of renewable energies were applicable to a community living near a natural park, but not of it. If we compare the revenues coming from the tourism and from the natural park, the largest

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contribution in term of money is available from the former source. The technical solution to the problem can suggest typical arrangement valid also for other applications having similar strong limitations like those emerging from La Maddalena. In this contest the local authorities of La Maddalena have already indicated, in the programs and in the development strategic lines, a coherent way, also in the matters of energy and environment, with the European and national indications, anticipating for many aspects, the regional actual situation. Among the actions carried out from La Maddalena Community Board for energy and environmental and sustainable development there is an important town council decision which states in an official decision the fundamentals guide lines for the future. The plentiful renewable energy sources potential existing in the archipelago (1880 KWh/m2/year from the solar energy and the aeolian wind data verified from Marina Militare Italiana, confirmed from ENEA and Bologna University) lead the authorities to take in examination the opportunity of exploitation for energetic scopes. The local administration examined the compatibility of RES exploitation with



environmental restrictions. They are so many important because the surrounding areas have to be protected from possible pollution and preserved, improving if possible, the quality standards for inhabitants and visitors.

La Maddalena took part at a European project, in the framework of Altener Program (1998-2000) with the island of Samsoe (Dk), El Hierro (Sp), Aran (Ir), with the objective of pursuing the energy autonomy from RES.

At the end of the feasibility phase the local board accepted two engagements in two official acts: to reach in a medium long period 100% RES supply; to ask the Italian government to select the island for this scope.

The work carried out in that phase includes the following objectives: to set up 1 MWp from solar PV and 3-4 MWp from wind energy to locate in selected places and considering the main productive services of La Maddalena isle (e.g. water cycle, drinkable water, water treatment) together with the new planned structures of the island (e.g. New tourist port, street illumination) and finally the planned restoration buildings, monument (e.g. fortress, many structures) and, of course, the energy supply for the small isles of La

Maddalena archipelago (stand alone systems). The main task is the technological modernization of services and the supply and use of energy. For this scope the energetic question has been tightly linked with the :

- a) constitution of a Consortium for the Technological Services Management of the whole archipelago, concerning in particular the production and the distribution of the energy (electric energy), the aqueduct and the water treatment management, the wastes collection and treatment, the quality of environment monitoring services;
- b) the transport improvement, oriented to the pollution reduction and the preferen-

tial utilization of electric traction means; c) the realization of a research program on renewables oriented to improve the technological and physical parameter, with the aim to make the applications more competitive in the market.

In the actual phase the political decisions have to be better defined also because it is necessary to plan the actions and the utilization of financing, oriented to renewables implementation existing in structural funds, but also in national and regional programs. The initiative constitutes an important occasion not only for La Maddalena archipelago but also for the whole Sardinia island.



