

Sustainable Transport in Venice

— *Francesco Benedetti, Oscar Cipolato, Virginia De Biasio, Gianfranco Del Longo, Elisa Granzotto, Marta Manzato, Niccolò Onesto, Martino Piani, Eva Renier, Dariya Trubina, Marta Zanella*

The city of Venice and the ecosystem of its lagoon, as many other coastal areas in our country, are threatened by global warming due to the increasing level of greenhouse emissions into the atmosphere.

The aims of our research are:

- to know the renewable sources of energy in order to identify better solutions to reduce CO₂ emissions.
- to conduct a study of the intervention that Venetian Authorities are carrying out in order to reach the Kyoto Protocol goals.

We have chosen to focus our attention on the transport system in Venice which involves various kinds of boats: from the smaller ones used for private purposes, passing to the "vaporetti" providing an efficient public system to the huge ships that dock at the business, industrial and tourist Port of Venice. As many other tourist areas in Europe, Venice is working to develop more sustainable transport using means with a low impact on the environment.

In order to reach our goals we involved two different High Schools: the Technical High School "Primo Levi" in Mirano and the Vocational School "Luigi Luzzatti" in Mestre. With the first one we had the opportunity to experience alternative sources at first hand. Using models built by the students, we were able to understand the physical principles of the conversion of energy. With the latter school we measured pollutant emissions of petrol and diesel engines.

Then we had a meeting with the Venice Port Authority (VPA) and using the Internet we got information about the Municipality of Venice. Due to the favorable geographical location of Venice, its Port is an important hub both for cargo and passenger traffic. In recent years, the VPA has encouraged concrete measures to save energy and to use clean energy such as the use of LED technology to illuminate the Passenger Port, the installation of photovoltaic panels on rooftops and, in the future, the construction of a plant to use algal biomasses to generate power and heat. Furthermore, two important green projects are currently being carried out: Cold Ironing, a power system for



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berthed ships at shoreside enabling them to switch off their engines, and Venice Blue Flag, where shipowners use fuel with a reduced level of sulphur when calling the Port of Venice.

The City of Venice has adopted the Covenant of Mayors, which is a collaborative initiative aimed to reduce 20% of the CO₂ emissions in the European territories by 2020. One measure in the Veneto Region, the Biosire project, aims to introduce biodiesel fuel for transport. More specifically Biosire proposes two biofuels for water transport in Venice: biodiesel derived from Used Cooking Oil and Pure Vegetable Oil mainly derived from locally cultivated rapeseed. Another effort is the introduction of the prototype boat which runs using both traditional diesel oil and an electric propulsor. Evenmore, a prototype of a hydrogen boat is being tested. Ultimately in the long term, visions of a wave energy converter, currently being developed in Portugal and Scotland, to produce clean energy may contribute to the desired evolution and improvement of the environment.

It is evident that these changes are making way for reducing the greenhouse effect as well as opening new doors into the future of clean energy on our planet.