Editorial *

In recent years, a considerable share of investment has been devoted to both research development and use of renewable energy sources also in our country. This is apparently due to price volatility of fossil fuels and structural energetic dependence on politically unstable countries, which create high supplying insecurity.

Moreover, the increased use of renewable energy sources is one of the key measures needed to reduce greenhouse gas emissions under the Kyoto Protocol and UN Framework Convention on Climate Changes, and to comply with further commitments countries made in this respect on a EU and international level.

Developing and using renewable energy sources has necessarily become a strategic choice for economic and environmental motives, also when agro-energetic programmes are being drafted.

This being the context, major progresses have been achieved in the agricultural sector thanks to the opportunity to reuse residual biomasses generated from agro-food processing, to the purpose of gaining a clear "environmental benefit" and achieving costs reduction in production.

According to the recent data published in the yearly progress report on renewable energies of the European Commission (2009), the energy generated in Europe from agricultural biomasses has increased with a 10% yearly rate since 2004. The liberalization of the electricity markets and the improved legislation on a domestic and international level have proved crucial to such growth, especially thanks to small generating plants.

As for the regulatory framework, the European Parliament and Council Directives 2001/77/EC and 2003/30/EC must be mentioned, along with the more recent Directive 2009/28/EC focusing on "the promotion of electricity produced from renewable sources". It repealed previous directives with the aim of enhancing this sector in all European countries by acknowledging that economic growth can be achieved thanks to innovation, and sustainable and competitive energy production. More specifically, having as an indicative target a 20% of electricity produced from renewable energy sources in total Community electricity consumption by 2010, the recent Directive no. 28 clarified that community funding shall be fairly and effectively allocated. To do so, the different situation and possibilities of the Member States must be taken into consideration, including the current level of energy generated from renewable sources, and the energy mix.

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* *Renewable energy sources: a strategic option also in the vine growing and winemaking sector by Gian Gaspare Fardella. The author is full professor at the Department of Agro-Forest Systems Economics of University of Palermo.*

To ensure that the general national goals that the European Union has imposed on Member States are met, the latter committed to passing the needed legislation in a short time, which shall provide for suitable measures to achieve the objectives by the deadline of 2020 and shall include substantial support schemes for research and development programmes. Hence, every Member States is devising national plans that formulate long-term strategies to produce energy from renewable sources by assessing the incidence of such sources on national energy needs.

Although Italy has delayed the implementation of Directive 2009/28/EC, it adopted an action plan that is currently being evaluated by the European Commission.

Since the last decade though, our country has introduced economic support schemes for renewable energy sources. As for the agricultural biomass sector, Law Decree no. 387 of December 2003, titled Implementation of Directive 2001/77/EC, introduced concepts that were already present in the national legislation. That decree in particular made clear that renewable energy sources shall mean "renewable non-fossil energy sources", while biomass shall mean the biodegradable fraction of products, waste and residues from agriculture and forestry (including vegetal and animal substances) and related industries, along with the biodegradable fraction of industrial and municipal waste.

Thus, the general definition of biomass to be employed in energy production shall also include grapevine pruning residues (vine branches) and winemaking and distillation residues (fermented and unfermented pomace).

The 2008 Budget Law (Ministerial Decree 18 December 2008, art. 25) provided for a support scheme according to which the Italian energy managing authority (GSE) pays a flat all-inclusive fee for the electricity produced from renewable sources, in plants with a rated power not higher than 1 MW (the rated power in wind power plants must not be lower than 200 KW). The fee changes according to the technologies employed (28 cents of Euro per KW for energy produced from agro-forestry resources, 30 cents per KW for wind and 20 for geothermal power) and it shall be maintained the same for 15 years.

Some aspects however remain unclear, about the amount of incentives offered in the long term, which impact on the possibility that subjects, who are already producing or intend to start producing energy from renewable sources, can finalise their projects. This is true for power plants that started operating in 2010, and there is a lack of clear rules about the above-mentioned amount for the following time span.

Given this unsteady scenario, some Regions adopted an Energy Plan. The Sicily Region for example formulated its regional energy plan (P.E.A.R.S.) in 2009, which stresses the importance of renewable energy sources in general, and

biomasses in particular, when it reads that "the development of biomasses use for electricity production can positively contribute to the economy of the agricultural sector, especially in those areas where it is declining sharply". Such positive contribution can also result in an increased number of jobs, as estimates show that a medium-sized biomass power plant can create 5-to-10 permanent and 5 temporary jobs.

As for the vine-growing and winemaking sector, the branches left after pruning, the pomace, and the surplus wine that has not been marketed and is therefore used in bioethanol production, are the most interesting materials to the purpose of energy production.

Sicily ranks among the most important vine growing and winemaking areas on a national level, it produces about 1 million tons of grape and according to estimates it produces 200 thousand tons of biomasses from vine branches and 100 thousand tons from pomace.

This being the situation, a pioneering initiative was launched by one of the most important vine growing and wine making companies in Sicily (Cantina Settesoli, in the Province of Agrigento)[1]. They built a 1 MW cogeneration power plant that generate energy from the pruning residues of members-owned vineyards and unrefined pomace left from the winemaking process. The company currently has a productive potential of 8 thousand tons of pomace per year (about 15% of the overall amount of processed grape) that will be possibly employed for energy production, along with some 13 thousand tons of pruning residues that can partially fuel the conversion plant, which should be operating for at least 315 days per year.

The "Settesoli" cooperative has over 2000 members, it records a yearly turnover of about 36 million Euros, and it processes over 500 thousand tons of grapes farmed in about 6 thousand hectares of vineyard. The Cantina was established in 1965 with the aim of coordinating, improving and fostering the technological skills in winemaking that have been built in the area of Menfi (in the province of Agrigento). Today, it is one of the successful Sicilian companies that combine tradition and innovation.

The Cantina Settesoli now has some 5.8 million KW consumption per year. According to estimates, the cogeneration power plant implementation will deploy a productive potential of some 7 million KW/year, at a cost of 0.146 euro/KW. The implementation of biomass-to-energy conversion systems can generate a sur-

[1]The initiative of the "Cantina Settesoli" was studied in the framework of the PRIN Programme of the Ministry of University and Research (2007), titled "Economic analysis and organisation of the agro-energy chains of production" Department of Agro-Forest Systems Economy - Agriculture Department of the University of Palermo, under the co-ordination of Professor Gian Gaspare Fardella.

plus energy production in relation to the overall need, with energy purchasing cost dropping to zero (equal to some 900 thousand Euros per year), and with an expected operating margin of 50 thousand Euros per year.

It is not to be underestimated the image return the implementation of such "zero emission", environmentally sustainable process can generate for the company's marketing activities. The use of process residual biomasses can ensure significant environmental, economic and social advantages, besides stirring the consumers' interest given their increasing concern for environmental issues and appreciation of environmental-friendly production processes.

It must be underlined that the company is already present in the field of energy production from renewable energy sources, since it built a photovoltaic plant which generates 370 thousand KWh (covering 6% of its electricity demand). It allows to save 70 thousand tons of oil equivalent and around 200 tons of CO2 emissions per year.

The "Settesoli" provides a concrete example of how energy production from renewable energy sources draws the attention of those entrepreneurs who are willing to make good use of the new economic opportunities offered by energy saving policies.

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