

MORE PROJECT

The main objective of the IEE MORE Project is to generate renewable energy using solid residues of olive oil production. The project involves 5 European countries: Italy, Croatia, Greece, Slovenia and Spain, by means of a partnership made up by the project leader - ARE Liguria, Liguria's regional agency for energy, Unioncamere Liguria, the regional association of the four Ligurian Chambers of Commerce (IT), IPTPO, the Institute of Agriculture and Tourism (HR); Anatoliki SA- Regional Energy Agency of Central Macedonia (REACM)(GR); UPZRS, the Science and Research Centre in Koper (SL); AGENER, the Agency for Energy Management of the Province of Jaen (S).

Running from November 2007 to April 2010, the project MORE aims to:

- Identify different methodologies to generate renewable energy using solid olive residues;
- Assess the various practical energy solutions in terms of technology, financial sustainability and management procedures and elaborate business plans in order to satisfy the different European production needs;
- Involve public and private stakeholders to develop the local markets and create distribution channels;
- Carry out educational and promotional activities;
- Define a methodology for replication in other European regions.

For **more** information: www.moreintelligentenergy.eu



MORE ACTIVITIES

The MORE Project is now in its final phase and this issue of our newsletter is focusing on the most interesting results collected generally and in the partner regions. Being a synthesis, in this section we provide the conclusions of the discussions hold at each partner's national conferences.

1. Italy, Liguria

On March 5th 2010 Unioncamere Liguria and ARE Liguria organised a transnational conference named "Energy from olives: a comparison of Italian and foreign experiences" in the context of ENERGETHICA Fair, event dedicated to renewable energy and energy efficiency.

The main themes faced were the followings:

- the legal aspects concerning oil pomace usage for energy purposes;
- the experiences carried out in Europe and their results

Basically, the discussions highlighted the following issues:

- it's still little evident at EU level the energy potential out of olive oil biomass; when dealing with biomass it is common habit to refer to wood biomass, which is typical of Northern Europe countries and is much more well



promoted, but the Mediterranean area can actively contribute: in Italy more than 1 million tons olive pomace is produced on a yearly basis, in Spain the figure is about 4 millions, in Greece 500.000 q. ...

- Spain is the only country where a true olive pomace-to-energy chain is operating; in the other countries, Italy included, the olive pomace is only used for personal scopes and for local households. But a chain might be easily set up in Italian regions with a relevant olive oil production;
- the main problem is the fragmentation olive oil production sites which makes it difficult to build up a chain: in Italy there actually are more than 6.000 olive millers whilst in Spain – which accounts for a twofold production – there are 1.700. It is then of vital importance to find out the proper bodies who can manage the supplying process;
- the differences in typology of olive milling disposals cause the pomace to assume inhomogeneous characteristics in terms of consistence and humidity; that makes even more difficult to identify universally viable solutions and, in this framework, each Member State is choosing for a milling disposal typology according to its local experiences and analysis. In Spain the two-phase systems is commonly used whilst in Portugal there is a trend to come back to the three-phase disposals;
- generally, olive pit ranks amongst the best fuels at present available on the market in terms of heating power (even higher than the one of pellet) and of ash residues: that's why many olive millers separate it from the pulp.



2. Croatia

The Croatia partner hold its conference "The use of olive pomace for energy purposes: experiences and opportunities in Croatia" on march 25th 2010 at the Croatian Chamber of Economy. Many local stakeholders debated on:

- the importance of using biomass for energy purposes, presenting various projects which do not insist only on olive pomace as renewable energy source;
- the availability of public funding for investments in the field: to this extent, the Istrian Province mentioned the Instrument for Pre Accession as a reference programme, anticipating the publication of calls for small scale projects.



3. Greece

The Regional Energy Agency of Central Macedonia/ANATOLIKI SA organized on February 5th, 2010 a national conference, during the 23rd International Fair for Agricultural Machinery, Equipment & Supplies (AGROTICA 2010).

The aim of the Conference was to welcome views and positions on the potential of energy utilization of olive solid residues and the alternative of transforming them into pellets for direct combustion. The conference had a great participation of 140 representatives from the olive sector: olive millers, agricultural associations, agricultural scientists, engineers, entrepreneurs and policy makers. Some of the topics presented were:

- The importance of the IEE project "MORE" for the olive growing areas
- The Olive growing in the world and in Greece
- By-products and residues of olive processing
- Waste of oil mills – Waste Management Methods
- The Steam boiler operation with exhausted pomace as heating source
- Thorough analysis of exhausted pomace



- Main applications of exhausted pomace in Crete
- Scenarios about the exploitation of olive residues
- The business plan study for the prefecture of Chania, in the island of Crete

At the end of the conference there was a discussion around the success conditions of the olive residues-to-energy chain.

4. Slovenia

The Slovenian partner UP ZRS organised on March 15th 2010 its own event within the national conference of Slovenian Biomass Association dedicated to RES&RUE in Slovenia until 2030. The following issues were dealt with:

1. legal context and financial support in the field of renewable energy
2. solar, wind and geothermal energy
3. energy from biomass
4. energy from biogas and biofuels

Within the 3rd session UP ZRS made a wide presentation of the work carried out in Slovenia within M.O.R.E. project. The open discussion aimed at how to proceed with the projects of RES & RUE for Slovenia until 2030 in order to reach the KYOTO goals that Slovenia declared. In the discussion several aspects were highlighted, specially the lack of public awareness, lack of promotional campaigns and need for more financial supports on national level for RES & RUE projects. Financial support should not be given only for projects focused on only wood biomass but on different types of RES and also by cutting red tape for the practical implementation of RES & RUE projects. At the end of the conference all the participants contributed their suggestions, notes, recommendations formed in a special declaration and sent to all respective national services (ministries, agencies).

5. Spain – Andalusia, Provincia di Jaen

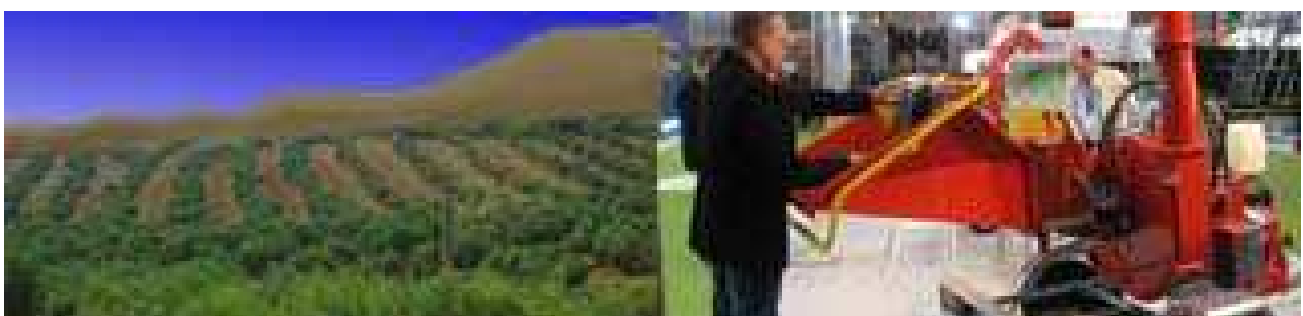
Agener presented the MORE Project in the III International Fair of Biomass and Energy Services that was hold on 22-24th April. Agener presented the business plan, one of the most important documents of our project.

It consists of a pioneer project for a renewable energy installation to cover energy demand (thermal and cooling) of a prototype building by means of thermal solar energy installation for obtaining Sanitary Heating Water (SHW) on the one hand and on the other hand, biomass installation for obtaining heating and cooling system. Other members of the RSC (UPA) presented one document about the biomass management model in the province of Jaén.

Other important representatives of the biomass sector took part to the Conference. They discussed about energy recovery, collection and use out of olive biomass. The companies that participated to the event were AGENER S.A., UPA-Jaén, SERVIGEST and AZUCARERAS REUNIDAS DE JAÉN.

The discussion focused on the objectives of the biomass development to be achieved in Andalusia region:

- to set up a regional plan about the biomass promotion;
- to promote research for the establishment of a competitive industrial system in the biomass sector in the province of Jaén;
- to disseminate the activities and the results;
- to build up a distribution trade with strategic points in each region;
- promoting companies to carry out a distribution grid in order to supply biomass in similar ways such as they do with traditional fuel supply;
- to create a laboratory for biomass characterization: Advanced Technology Centre for Renewable Energy (C.T.A.E.R.).



MORE FEEDBACK

The MORE Project has contributed to the valorisation of olive pomace potential in terms of energy exploitation.

Basically, the followings are the main outputs:

1. the preparation of five business plans (one per each partner region) according to the expressions of interest received by local public and private actors. This activity has allowed the project's team to identify the following olive pomace alimented devices:
 - a. heating system for a school, a Municipality and the local theatre (Italy, Liguria)
 - b. heating system for the Croatian partner's premises (Croazia)
 - c. heating system for greenhouses in Chania Prefecture (Greece)
 - d. heating system for a primary school, heating system for olive mill and heating system for private tourist apartments with inn (Slovenia)
 - e. cooling and heating system and hot sanitary water for the Cazorla Municipality and Police Station (Spain)
2. the methodology, published in the form of userfriendly guidelines, is a helpful toolkit for the replication of the process carried out by MORE partners in other regions, indipendently from the local production characteristics. The Guidelines can provide support to local actors when raising awareness of both public administrations and private investors on the pomace-to-energy opportunities;
3. policy recommandations – available on the project's website – are useful to argument at political level the benefits of a pomace-to-energy chain and to carry our lobbying actions to allow this project becoming a reality.

All outputs are available on the project's website web www.moreintelligentenergy.eu, under the Download section.



MORE HIGHLIGHTS



Associazione Laziali Frantoi Oleari – Sezione Olivoleica

When looking for best practices at national level in the field of olive pomace's energy exploitation, the MORE project staff found out a relevant experience in Latium.

In the framework of the Italian Conference hold in Genoa on March 5th, the Latium Olive Millers Association presented the state of the art of the plant which is under construction in the industrial area of Campodimele (LT) and which will have a production capacity of 1,5 MW in the starting phase: 1MW out of biomass and 0,5 MW out of photovoltaic.

The plant is structured into the following sections:

- pomace drying;
- fume wash;
- pirolysis and electricity production

The process phases are the followings:

1. the biomass is dried and stocked in the warehouse;

2. from the warehouse it feeds the gasification equipment, by means of a pirolysis process;
3. pirolysis produces gas which is filtered through the fume wash system, thus eliminating impurities;
4. the clean gas is brought to the turbine generator which produces energy then inserted in the net;
5. in addition to electricity, the generator produces heat which is conveyed to the drying system.

At the beginning of the process, the biomass is pre-treated, thus extracting:

- pit, useful for combustion
- biologic pâté, to be used as animal breed
- combustible oil

In the pilot plant in Campodimele the following modules are already in function:

- pre-treatment of olive pomace, with separation of pit, biologic pâté and combustible oil;
- autofeeder drying system, with a 10% humidity olive pomace production capacity, ready to feed the gasificator;
- fume wash equipment. The installation of a bio-filter is actually undergoing and it will help reducing the visual impact;
- roofing for olive pomace storage

A biomass plant of 1MW will be operating for about 7.500 h/y (about 11 months/year) and it will be able to produce 7.500.000 kW. As an average family consumption is 4.000 kW/year, a similar plant can satisfy the energy needs of 1.875 families, i.e. a municipality made up of 5.000 inhabitants.

Such a plant nearly absorbs 60.000/70.000 Q of dried pomace, which is equivalent to nearly 130.000/150.000 Q of humid pomace (according to its humidity degree).

Future steps

- completion and gradual enlargement of the pilot plant in Campodimele, up to the achievement of its full capacity, 1,5 MW;
- study of the potential effects on local development (it is envisaged to exploit fumes for an industrial laundry, with positive impacts on employment)
- replication of the project in other four Latium provinces



MORE FORTHCOMING EVENTS

EUBIONET III Workshop – Emerging resources from biomass Albert Hall - Brussels, 30th June 2010

Within the international conference AEBIOM, a partner of MORE project – José La Cal, AGENER – will take part to the workshop dedicated to biomass and emerging resources: this will be another opportunity to debate about project's results.

For more information please visit <http://www.renexpo-bioenergy.eu/index.php?id=conference>



Intelligent Energy  **Europe**

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