newsletter

MoRe MARKET OF OLIVE RESIDUES FOR ENERGY

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

So far the MORE Partners have been involved in various tasks:

- the definition of the Regional Steering Committees with the aim to overview the regional implementation of the project and to create a strict link between businesses, policy makers, trade associations, research, etc in order to achieve concrete results at local level;
- an analysis of the current state of the olive-residues market and of best practices existing in each of the regions involved in the project
- the organization of training sessions to olive millers to explain them how to get energy from production solid residues. In each region involved in the project, the partners has organized one or more training sessions to introduce the issue of generating energy from its solid residues. The participation has been significant and an intensive debate has started among millers, local public stakeholders and project partners. To know more about these events go to the website's dedicated session: www.moreintelligentenergy.eu/events.asp
- 3 International Steering Committee meetings and 1 study tour in Spain to visit two interesting best practices (see below)

MORE FEEDBACK

From the analysis that partner have carried out so far on the state of the art of olive oil residues treatment, some interesting elements come into evidence:

1. the need for an harmonization of the terminology used; technical and specific terminology has indeed different meanings in the partners' language. This is the case for heating values for pomace, pit, depleted (exhausted) pomace, virgin pomace and dried pomace. It is therefore necessary to compose a common terminology of those terms which is agreed by all partners;
2. a different classification of pomace oil among among Member States: in certain areas it is considered to be a waste, in others it is used as an olive oil product, or it is mixed with virgin olive oil;
3. lack of specific data regarding the available quantity of olive waste in various regions;
4. the difficulties in making comparisons between the partner regions, due to different quantities of residues and different legal and social issues;
5. the presence of complex regulatory and legislative frameworks in some countries; the absolute lack of relevant laws in some other countries.

MORE HIGHLIGHTS

Some best practices gathered by More partner are here below summarized to witness the growing importance of this source of energy:

Croatia

1. **PAŠUTIĆI - OLIVE MILL** - Olive miller uses olive residues mostly for production of heat for his private house heating and for sanitary water heating.

Mill type: 2-phase mill
Technology used: PIERALISI 250
Amount of olive producing capacity: Approx. 400 kg/hour, yearly production 70 tons.
Usage of olive residues: Olive miller uses olive residues mostly for production of heat for his private house heating and water heating. After olive oil production, olive residues are pressed and dry in cases on the wind and sun nearby olive mill without additional interventions. Olive residues are left to dry on the open space.

After these the olive residues throw into stove for the heating. Dried olive residues are used directly for burning/combustion in the stove.
Stove: TVT Maribor d.d., nominal power of the stove is 33KW. These installed stoves are 8 year old. The company TVT Maribor d.d. is an Slovenian firm with many years of experience in the heating on the region of ex-Yugoslavia.
Technology of the stove: Unknown, insufficient data from the owner.
Olive residues consumption and energy value: The miller heat 120 m² of the house with the temperature 21ºC and they heat also 120-l water boiler through the major part of the year.
Purchase costs: all costs are approx. 3.000 €, installation fees included.
Contact: PAŠUTIĆI olive mill - Miljenko Pordan - Pašutići bb - 52420 Buzet – Croatia - Phone/fax: ++38552665057

2. **OLEA D' ORO - OLIVE MILL** - Olive miller uses olive residues mostly for production of heat for his private house heating and for sanitary water heating.

Mill type: 3-phase mill
Technology used: Vitone V2 (max. production 2 tons/hour)
Amount of olive producing capacity: Approx. 1500 kg/hour , yearly production 400 tons.
Usage of olive residues: Olive miller uses olive residues mostly for production of heat for his private house heating and water heating. After olive oil extraction (3-phase mill), olive residues are put off 10 kilometres from the olive mill in the field and leave that dry. Olive residues are mixed up/turned up side down several times to speed up the drying process.
Stove: it is an Italian stove. Nominal power of the stove is 100.000 calorie.
Olive residues consumption and energy value: the miller heats 500 m² of the house with a temperature of 22ºC and it heats also 1000-l water boiler through the major part of the year.
Purchase costs: 10.000 € in total. The stove is new. It is in the process of import from the Italy.
Contact: OLEA D' ORO olive mill - Oleo Dorato d.o.o. (Company) - Partizanski put bb (Veli Vrh) - 52100 Pula - Phone: ++38552534646, Mobile phone: ++38598715278 - E-mail: germano@oleadoro.com

Greece
1. **ABEA** - heating system with biomass and oil extracting system from pomace. Chania / Agrokipio (Greece)
The tradition of ABEA begins in 1889, today ABEA has expanded in the development and marketing of all olive tree by-products. More specifically ABEA's activities include:

- The packaging of extra virgin olive oil, olive oil and olive pomace oil.
- The production of soaps.
- The refining of crude-olive-kernel-oil.
- The treatment of olive-pulp for production of crude-olive-kernel-oil and exhausted olive-oil-pulp which is a solid combustible (biomass) with calorific power of about 4500 kcal / kgr.
- The segregation of exhausted olive-oil-pulp for production of forage.

At first, pomace has 50 – 65 % of humidity, depending on the extraction method used, either two phase or three phase. Pomace oil is taken out and the resulting pomace is dried to obtain pits to be used in pomace oil extraction process as heating source either for the company's production process or to be sold as a fuel at home or abroad.
Contact: www.abea.gr - Georgousakis Antreas (Manager), Phone: +302821096073 & +302821090556

2. **BIOMEL** heating system with olive pits/stones. The company also exhausted pomace to the UK. The company is located at Chania / Achlades, Keramia (Greece)

BIOMEL's refinery elaborates 80.000 ton. of olive pomace yearly. The company's refinery extracts 4-5% pomace oil and 55% pits from the total olive pomace quantity which has 17% moisture. About 23-25% of olive pits are consumed for the heating needs of the refinery while the remaining quantity is sold in the market as fuel.
Contact person: Pontikakis Konstantinos (oil mill owner) ; Phone: +302821065233

Italy

1. **DISTRICT HEATING ARNASCO** is a small district heating system running with olive nut separated at source by the local cooperative olive mill. It's the only of the kind in Liguria.

The district heating is made of a olive nut fuelled high temperature 69,8 kW boiler and a 60 mts pipeline. Quantity of nut used each year is 14,3 tons to heat up 700 m3 (Church and annexed building).
There is also a gas fuelled boiler which may be used during the maintenance of the main boiler or if a problem occurs.
Nut is supplied by the local cooperative mills.
Contact: Cooperativa Olivicola Arnasco , Via IV Novembre 8 Arnasco, Savona - Phone.+39 0182761178 ; http://www.coopolivicolarnasco.it/

2. **LUCCHI & GUASTALLI MILL** disposes 2-phase mill pomace through innovative systems which adds calcium oxide in the pomace to dry it up.

The mill uses a new technique invented in 2005 by Unieco, an Italian waste treatment company. This technique only applies to 2 phase pomace with 65% humidity and consists in pouring some quantity (ab. 5%) of calcium oxide into pomace to make it basic, stable, no-odour and with a 55% humidity. Then it can be used as compost or as fuel in a biomass plant (apparently it has a calorific value of 4700 kcal/kg). This means no more waste waters.
The revenue deriving from pomace selling to the biomass plant, deducted of transport costs, is shared between Unieco and the miller.
This system requires a specific technology (silo, pourer and mixer).
More information's could be found at http://www.unieco.it/ from the company which has invented the technique of calcium adding and which collects the dried pomace to be delivered to a biomass power plant
Contact: Lucchi & Guastalli, Località Vicinella 19037 Santo Stefano Magra - Phone: +39 0187 633329 - http.//www.frantoiolg.com

Slovenia

1. **AGAPITO OLIVE MILL** - Olive miller uses olive residues mostly for production of heat for his private house heating and water heating.(ca. 140 m²) .

Mill type: 3-phase mill
Technology used: ALFA LAVAL
Ammount of olive residues produced: approx. 60 tons/year
Usage of olive residues: Olive miller uses olive residues mostly for production of heat for his private house heating and water heating.
After olive oil extraction (3-phase mill) olive residues are to wet to burn immediately and therefore disposed to the field/meadow behind the house. Olive residues are left to dry on the open space. Olive residues are mixed up/turned up side down several times to speed up the drying process. After certain time they are collected and loaded into big wooden containers and stored in the shed next to boiler room. Dried olive residues are used directly for burning/combustion in the stove.
The rest of olive residues is used for dunging/fertilisation of his olive fields / oliveyards.
Stove: D'Alessandro Termomeccanica, model CS 40, nominal power of the stove is 40KW, heating power is 47 KW. The company D'Alessandro Termomeccanica is an Italian firm with thirty years of experience in manufacturing heating generators that utilize solid combustibles.
Technology of the stove: Stove model CS 40 is a three-ways smoke steel boiler with water production for heating and sanitary use, with these features:
- Boiler shell with tube nest;
- Doors for internal inspection and boiler cleaning;
- Cast iron burner with mechanical screw firebox;
- Panel with control devices;
- Inverter for combustible flow regulation;
- Primary and secondary combustion air system;
- Smoke stopping return device in the hopper.

Combustible use: Solid combustible originated by renewable energetic sources: pellets, crushed shells and fruit stones, olive husks, etc.
Olive residues consumption and energy value: Official data about average consumption of the stove at maximum regime is 12 kg/h of olive residues.
In everyday practice actual consumption is 170 dm^3 (0,17 m^3) of olive residues in 3-4 days. Annual consumption of the olive residues is between 10 and 11 m^3. With this quantity they heat 140 m^2 of the apartment with the temperature 23ºC and they heat also 300-l water boiler through the whole year.
Purchase costs: 3.000 €+costs of instalation. Stove was bought 2 years ago.
Contact: AGAPITO olive mill - Owner: Aleš Agapito , Sp.Škofije 15 6281 Škofije Slovenia - Phone: +386 5 654-96-49 Mobile phone: +386 41 246-475 - E-mail: kmetija.agapito@email.si

2. **KROŽERA OLIVE MILL** - Olive miller uses olive residues only for energy purposes; production of heat for heating private house and olive mill (ca. 250 m^2).

Mill type: traditional
Technology used: PIERALISI traditional system
Amount of olive residues produced: approx. 60 tons/year
Usage of olive residues: In past they put olive residues back in olive fields. Today they put them directly to wooden box in order to dry them on open air (but under roof) and use them only for energy purposes; production of heat for heating private house and olive mill (ca. 250 m^2).
Stove: Kondor, Casacalendia, Italy
Italian company with long tradition in stove production and more then 20 years in production of stove use bio combustible.
Technology of the stove: The system of the stove has been working for 20 years using dry olive skins from Italy. In the last 5 years the boiler has been using other ecological materials as pellets, almonds, nuts and seed, shells mixed with at least 50% corn.
The alimentation of combustible is composed from motors, reduction gear, centrifugal valve and electronic system that automatically control the noiseless transfer of the combustible to the burning area.
Olive residues consumption and energy value: In everyday practice actual consumption is 200 dm^3 of dry olive residues in 2 days. Annual consumption is approx. 18 m^3 of dry olive residues per season (from beginning of November to the end of April). With this quantity they produce heat for 250 m^2 of the apartment and olive mill and water heating.
Purchase costs: 4.500 € + costs of installation. Stove was bought 1 year ago.
Contact: KROŽERA olive mill, Fulvio Marzi - Srgaši 40, 6274 Krožera ; Phone: 00386 5 656 02 40 ;
E-mail: kmarzi@siol.net

Spain

1. **The heating plant in Hotel Sierra de Cazorla**, province of Jaen.

The heating plant of the spa hotel in Casorla runs with olive stone. These are its charactceristics:
- 2 Hot water boilers of 400kW (Figg.1-2)
- Yearly fuel (olive nut) consumption : 200000 – 230000 kg
- Pit fragments supply No.: 2 times in a month, in winter (10000-12000 kg/load)
- Hot water boiler operating temperature: 700 °C.
- Ashes are turned into compost (agricultural fertilizer).

Contact: www.hotelsierradecazorla.com

2. **BIOMASA PUENTE GENIL**: The biomass plant generate electricity from olive pomace (orujillo) in Córdoba, the technology used for obtaining electricity is the vapour cycle. The electrical power is 9,7 MW that is produced by means of steam turbine. The consumption of biomass is 71.000 tons/year. The Council of Innovation (Consejería de Innovación) has approved two requests of subvention for its construction by an amount superior to the 800.000 Euros each. Total plant investment 46 million Euros.
Contact person: Alfonso Olivas la llana, Valoriza energia - Phone: ++34915455371

MORE FORTHCOMING EVENTS

EIMA Energy November 12 to 16, 2008, Bologna, Italy
From Eima International, the international exhibition of agricultural machinery which stands as a point of reference for agriculture and allied sectors, comes EIMAEnergy, a great new event focused on renewable energy sources. EIMAEnergy has been created in cooperation with ITABIA, the Italian Biomass Association, the National Research Council CNR-Ivalsa, AMBIENTEITALIA, CRPA and CTI, all operating for years in the sector of renewables in close synergy with the industrial, institutional and academic spheres.

EUSEW, Brussels - 9-13 February 2009
Under the umbrella of the Sustainable Energy Europe Campaign (SEE), the European Commission's Directorate-General for Energy and Transport, the European Institutions and major stakeholders concerned with sustainable energy are together putting on the third edition of the EU Sustainable Energy Week (EUSEW). It will take place in Brussels, Belgium, and in other cities across Europe from Monday 9 to Friday 13 February 2009, although many side events are foreseen during the weeks immediately before and after.

The EUSEW is the key annual reference point for sustainable energy issues in Europe. The events organised during EUSEW cover key topics that highlight the multi-sectoral nature of sustainable energy development and stress the need for everyone to work together towards a common goal.

To register go to: www.eusew.eu

Intelligent Energy Europe

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