Pilot Project description

University of Udine

University of Udine established an Observatory on Renewable Energies with the following objectives:

- to monitor the trends of local energy production from renewable sources in relation to global energy demand and supply in Friuli Venezia Giulia;
- to develop technical/scientific tools for a comparative assessment and/or certification of renewable energy based on their effects on
  - the environment (GHG emissions, localised pollution, effects on tourism),
  - the economic sustainability of biomass production and biomass combustion systems,
  - the society (creation of jobs, safety and health issues of workers, awareness of the population);
- to promote new visions and strategies in the development of renewable energy technologies.

During the project a dedicated Observatory Website has been created which is available through http://agricolturasicura.uniud.it/osservatorio-sulle-energie-rinnovabili/).

Dedicated studies have been developed at the University of Udine in discussion and cooperation with a selected expert group, including:

- An analysis of the supply and production chain of woody biomass for combustion and co-generation, including a benchmarking of local competencies in the project's area (http://agricolturasicura.uniud.it/fileadmin/documents/O-combustione1.pdf)
- A study on "Gaseous emissions from biomass combustion", including its effects on air quality, public health and tourism (http://agricolturasicura.uniud.it/ fileadmin/documents/G-of-biomass1.pdf);
- An analysis of the biogas / biomethane supply and production chain, including economic, environmental and societal effects and a list of good practices (http://agricolturasicura.uniud.it/fileadmin/documents/O-filiera-Biogas.pdf)
- A concept for ICT-based solutions for biomass plants in cooperation with Palazzetti Lelio Spa

The Observatory will be a long-lasting institution in the project area and will continue to foster the networking of researchers, experts from local industries and stakeholders. The improvement in the exchange of experiences, know-how and proposals; the development of new visions and strategies for sustainable technologies and efficient renewable energies; defining focus areas for future R&D projects shall result from the observatory.

Beside 21 meetings with selected Players in the project's area, two main workshops took place:

Workshop "Termica da biomasse e qualità dell'aria" (Thermal Energy from Biomass and Air Quality), Department of Agriculture and Environmental Sciences, University of Udine, 25.6.2014, 50 participants

- Saluti delle autorità. Sebastiano Cacciaguerra, Servizio Energia Regione FVG
  Grußwort, Sebastiano Cacciaguerra, Regional Energiedienstleistung Leiter FVG
- Il progetto SmartEnergy e la filiera legno-combustione. Gianfranco Pergher, Università degli Studi di Udine
  Das Smart Energy Projekt und die Entwicklung der Holzverbrennung, Gianfranco Pergher, Universität Udine
- Presentazione dei piani di miglioramento della qualità dell'aria in Friuli Venezia Giulia. Fulvio Stel, Arpa FVG e CRMA
  Vorstellung der Pläne für die Verbesserung der Luftqualität in Friaul Julisch Venetien, Fulvio Stel, Arpa FVG – CRMA
- Gestione della qualità dell'aria e combustione della biomassa su scala domestica. Wilhelm Moser, Bioenergy 2020+ GmbH
  Maßnahmen für die Verbesserung der Luftqualität und die häusliche Verbrennung von Biomasse, Wilhelm Moser - Bioenergy 2020+ GmbH
- Esperienze di monitoraggio delle emissioni su impianti domestici. Pierluigi Barbieri – Dipartimento di Scienze Chimiche e Farmaceutiche dell' Università degli Studi di Trieste - ARCO SOLUTIONS S.R.L.
  Erfahrungen mit Emissionsüberwachungen bei Hauskesselanlagen, Pierluigi Barbieri, Fachbereich Chemie und der Pharmakologie an der Universität Triest - ARCO SOLUTIONS S.R.L.
- Prestazioni di apparecchi e caldaie allo stato della tecnica e i potenziali di riduzione delle emissioni, le opportunità offerte dal conto termico. Dario Giacomello – MCZ - Gruppo apparecchi domestici e caldaie di AIEL
  Energieleistung von Geräten und Heizkessellen und die Möglichkeiten zur Emissionensreduktion durch Regelungstechnik und Enertghiekonten, Dario Giacomello – MCZ – AIEL- Heizkessel- und Haushaltgerätegruppe
- Impianto fumario e qualità dell'aria, ruolo della corretta installazione e aspetti della sicurezza. Cesare Teccolo – Gruppo installatori e manutentori impianti a biomasse di AIEL
  Rauchabzug und Luftqualität, die Funktionen der ordnungsgemäßen Installation und Sichereitsaspekte, Cesare Teccolo – AIEL- Installation und Instandhaltung von Biomasseanlage
- Mappatura degli impianti termici, applicazioni di telematica e bigdatastorage su cloud. Marco Palazzetti – Palazzetti
  Mapping von Heizanlagenschemas, Telematikanwendungen und Datenspeicherung in der Cloud, Marco Palazzetti – Palazzetti
- Conclusioni e proposte. Sara Vito, Assessore all'ambiente ed energia del FVG; Marino Berton, Presidente AIEL
  Abschlussrede und Perspektiven, Sebastiano Cacciaguerra, Leiter Regionale Energiedienstleistung FVG, Marino Berton, AIEL Vorsitzender

Workshop "Biogas zootecnico" (Biogas from animal wastes), Codroipo, Associazione Allevatori Friuli Venezia Giulia, 22.7.2014, 24 participants

- Indirizzi di saluto, Dott. Andrea Lugo, Associazione Allevatori Friuli Venezia Giulia
- Saluti e apertura Workshop
- Il progetto SmartEnergy e la filiera del biogas, Gianfranco Pergher, Università degli Studi di Udine
- Strategie per integrare il biogas nell'azienda zootecnica, Marco Mezzadri, AIEL
- Come monitorare e ottimizzare la biologia della digestione anaerobica, David Bolzonella, Università degli Studi di Verona
- Sicurezza negli impianti di biogas: aspetti normativi e pratiche gestionali, Sirio Rossano Secondo Cividino, Università degli Studi di Udine

Further dissemination activities:

- Article in Applied Mathematical Sciences on "BiogasAgriAtex, New Methods of Risk Assessment. Explosion on Biogas Plants."
- Article in Applied Mathematical Sciences on "A Techno-Economic Feasibility Assessment on Small-Scale Forest Biomass Gasification at a Regional Level"
- Presentation in the 9th SISEF National Congress on "A GIS-based decision system for the assessment of biomass available for energy purposes in Friuli Venezia Giulia"
- Presentation in the 10th Conference of the Italian Society of Agricultural Engineering on "Development perspectives for biogas production from agricultural waste in Friuli Venezia Giulia"
- Article in Lecture Notes in Computer Science on "Characterization of biomass emissions and potential reduction in small-scale pellet boiler"