SUSTAINABLE ENERGY COMMUNITIES

Summary

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Sec-tool, from a project to its implementation

The SEC-Tools project will end by ultimo December 2008 and thus in its final stage of implementation. The project has comprised developing a Toolbox for sustainable energy practice in Communities and a range of pilot actions in Bulgaria, Brandenburg (Germany), Czech Republic, Poland, Lithuania and Latvia.

In this final Newsletter we will inform about the project's achievements and the Final Conference held in Prague, 13 November 2008.

Also we invite all to visit the project website and learn more about the SEC-Tools: www.sec-tools.net

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7 municipalities from new members States involved in the sustainable energy process

Chepelare – BG

The community of Chepelare, located is the southern mountainous part of Bulgaria, has rich forestry resources and a long tradition of wood processing activities. The municipality wants to benefit from its assets (75% of its area is covered by forests, 4 500 ha of which are municipal property, 265 days per year are sunny days) for its sustainable development.

In the present situation, oil and primary wood are the main fuels used for heating in public buildings and family hotels in city of Chepelare. Analyses of the municipal budget showed high expenditures for heating of public buildings using oil. Replacing the oil by wood chips will reduce by two thirds the heating expenditures for public buildings and family hotels. In case of residential buildings and houses the installation of an effective boiler (more then 80% efficiency) would result in a reduction in primary wood usage.

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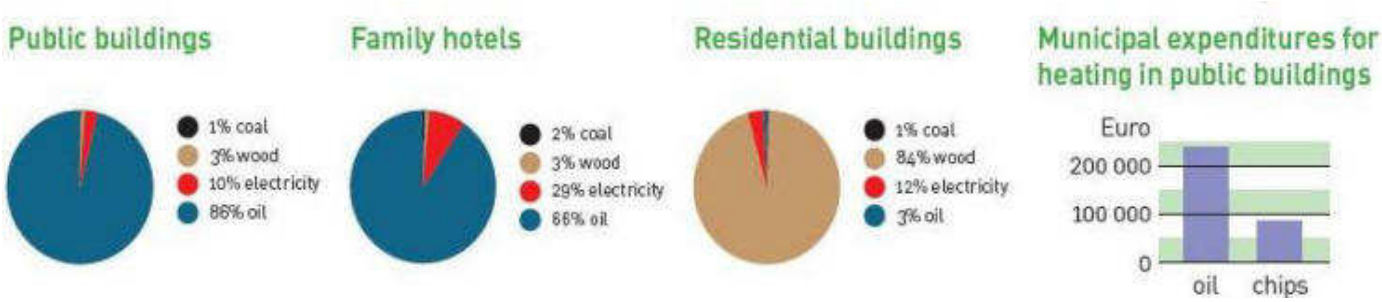

The priorities established by the municipal Energy Plan were to use biomass and solar energy for heating and hot water supply in public buildings. The Municipality of Chepelare started building partnerships with the timber and the wood processing sector and contracted timber production from its own forests with different wood processing companies. In 5 contracts for 2007 the delivery of wood chips was one of the services stipulated. Wood chips will be used for heating municipal buildings during 2008 – 2009. The next steps will be building partnerships with hotel owners by presenting them the pilot actions implemented in public buildings and their benefits from fuel conversion.

To reduce its expenditures, the municipality plans to replace gradually the existing 8 boilers using oil (3 in municipal kindergartens, the common oil boiler in the town hall building and the medical centre, 2 oil boilers in the 2 buildings of Vasil Dechev High School and the boiler in the municipal dormitory) with boilers using wood chips. The first step of this process was the replacement of the boilers in the kindergartens; the second one will be the installation of solar energy panels for hot water for the municipal dormitory and the swimming pool.

Finally, switching from oil to wood chips, the annual expenditures will decrease from 330,000 € to 75,000 €, and the CO2 emission will be reduced by 1,100 t.
For example now the oil energy consumption of Elhitsa Kindergarten is 26 tons per year, corresponding to approximately 24,500 €. After changing the fuel for heating with wood chips, the annual heating expenditures will decrease to 6,000 €.
Read more.

Iecava – LV

Iecava Municipality, located in an agricultural area in the central part of Latvia, initiated the elaboration of a district heating development plan and a long term investment program in order to reduce the heating costs and the fuel consumption. Even though the environmental consciousness is high since the nineties, the priority given to that project was the economical effectiveness.

For this project, Iecava Municipality was using long term state loan and during implementation of further steps it gained also state grants (30-50% of construction costs) and reinvested savings of previous steps. No EC grants were used in this project.

Due to financial and technical reasons (municipality was not able to cover all costs and construction companies were not able to implement such a big project within one season), the reconstruction of the district heating system was divided into 4 steps:

1) 35 automated individual heat substations for heating and hot water and replacing 5 km of heating networks by a two pipes system (costs 230,000 €);
2) reconstruction of 2.5 km of network in central system and reconstruction of central boiler house (water pre-treatment equipment, furnaces in existing boilers and two new gas fuelled boilers; costs 390,000 €;
3) replacement of 1.5 km of heating networks (costs 320,000 €);
4) replacement of 1.1 km of networks in village boiler plant system and 17 automated individual heat substations for heating were installed at customer side (costs 215,000 €).

The most important result of the implementation of the heating system development plan was reduction of the heat looses in networks six fold, which consequently led to a better quality of heating service and reduced gas consumption of the boiler plant. Compared to previous heating season, the natural gas consumption for 2006-2007 was about 20% less.
Iecava is also planning to invest in energy efficiency and energy management for public buildings, which currently represent about 10% of total energy consumption.
Read more.

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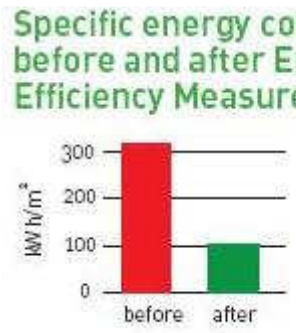
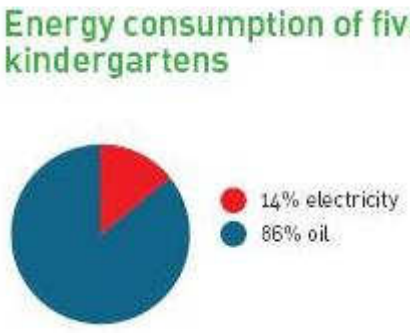
Karlovo – BG

The Municipality of Karlovo is located in a semi-mountainous area in the Rose Valley, in the centre of Bulgaria.
The priorities decided by the municipality was to refurbish public buildings which have not been renovated for more than 25 years and to undertake awareness-raising campaigns for a sustainable energy behaviour. These measures are necessary due an increase of the energy prices (the municipality manages with difficulty its energy expenditures) and due to an unacceptable level of the indoor comfort.
The main purpose of renovating municipality's public buildings was to decrease the energy consumption and to increase indoor comfort, improving the quality of life and diminishing health risks. The project started with renovation of several kindergartens and schools.

Following a long negotiation period, the Municipal Council of Karlovo took the decision to implement energy efficiency measures in 5 kindergartens – total area 8,700 m². Energy audits were prepared by an ESCO company. Once the implemented measures – improving the efficiency of the heating system and thermo-modernization of walls and roofs– the energy consumption of the buildings would decrease tremendously from 388 to 119 KWh/m2/year.





The annual energy consumption for the five buildings, after the energy efficiency measures were implemented, was projected at 900 MWh (per year) – 36% lower than before. Consequently the CO2 emission reduction is estimated at 650 t annually.




Read more.

Milevsko – CZ

Milevsko is located in an agricultural area of the southern part of the Czech Republic. The main priorities of the City Energy Plan were to switch the energy source from lignite to gas/biomass, to rebuild the distribution system and to rebuild and modernize the municipal heating system.

The energy audit suggested the following energy efficiency measures: distribution system modifications, gas boiler constructions, biomass boiler constructions, individual solutions for special cases (electricity and heat supply solutions for a number of selected buildings). The suggested set of measures were organised into three variations:
V1 – heat supply from ZVVZ Milevsko;
V2 – compound source – gas and biomass boiler (gas boiler 2 x 3MW, biomass boiler 5MW);
V3 – construction of 2 hot-water gas boilers (2 x 5MW, 2 x 0,8MW and 2 x 0,6 MW in condensation heat exchanger).

	Costs [thous. CZK]	Annual savings [thous. CZK]	Energy savings [GJ]
Var. 1	24 890	-3 009	8 887
Var. 2	66 380	-1 141	12 818
Var. 3	33 945	-9 073	12 719

According to the evaluation table below (based on adjusted input prices of fuels), the savings are substantial.

Read more.

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Utska – PL

Utska Municipality, located on the Baltic cost of Poland, based its development on health resort, tourist industry and the sea harbour. The City Council adopted its spatial policy in accordance to the principle of sustainable development with major objectives to minimize the resources use, to rationalize energy management and to switch from coal to gas/biomass.

In order to acquire new clients, the district heating company (EMPEC Ustka Ltd), which is owned by Utska municipality and E.ON Sverige company, decides the modernization of the district heating system : installation of a wood chips boiler for the production of hot sanitary water, installation of combined district heating units with the installation of the biomass boiler and the natural gas or biogas peak-load boilers. This altogether will cover about 75% of heat demand.

The municipality also supports the thermal retrofitting and revitalization of buildings. Most of the multi-family buildings have been already thermo-modernized. The completion of thermal retrofitting of multi-family residential buildings and the revitalization of old fisherman's houses are ongoing.
Once the buildings refurbished, Ustka Public Building Society are being sold on the free market and the revenues obtained are used to finance social housing. This solution has proved to be successful.
The first results of the implementation of the Energy Plan already show the improvement of the air quality and globally enhance Utska's image. In the following table, you can see a considerable greenhouse gas emissions reduction generated by modernisation of the heating system:

	Present situation	2015	2025	Emission [t/year]	Change [%]	Emission [t/year]
	a	b	b1	c =a-b	d=c/a *100	c1=a-b1
SO_2	141.56	116.5	13.1	25.03	17.7	128.51
NO_2	29.38	27.1	23.9	2.33	7.9	5.50
CO	459.49	395.5	41.4	64.04	13.9	418.11
Dust	275.24	231.9	17.4	43.38	15.8	257.85
CO_2	30 854.45	25 947.8	18 652.7	4 906.64	15.9	12 201.71

Read more.

Kaisiadorys – LT

The Kaisiadorys district is located in the centre of Lithuania and has several wood processing companies.
Kaisiadorys district heating plant supplies heating by using a natural gas fired boilers of 44.1 MW total capacity. Heavy fuel oil serves as a reserve fuel.
Due to a sharply rising of the natural gas prices, the municipally identified two priorities:
1) replacing gas with biofuels (wood chips);
2) reducing energy consumption for heating buildings by modernisation of the buildings.
The measures taken were the installation of a biofuel-fired, heat-only boiler of 5 MW capacity in 2007-2008. And locally produced wood chips will be used as a base fuel. The boiler should be used at 100% capacity in winter time working in a base load and covering 60% of total heat demand. In summer period, only 20% of boiler capacity will be used to satisfy hot tap water demand.
Investments included installation of the biofuel boiler, the construction of a wood chip storage, fuel transportation system and a new chimney. Total investment cost amounted to 3.9 million Lt.
Construction of the biomass boiler and replacement of 3.3 million m3 of gas with 14.3 thousands tons of wood chips is a highly profitable investment in the context of sharp rising natural gas prices. Heat production costs go down by 43.9% and annual cost savings amount to 2.13 million Lt/year. Also this reduces CO2 emissions into atmosphere by 6,368 t annually. Read more.

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Doderlug-Kirchhain – DE

Doberlug-Kirchhain is a rural community structured in small towns and villages in the South-West of the Brandenburg Region. Once the Energy Plan adopted, the City Council designed three first priorities as follows:
1) the improvement of district heating system by the reconstruction of networks (conversion to 2 pipes networks followed by a full renovation);
2) the modernization of end user side (installation of individual heat substations);
3) the improvement of heat production (reconstruction of existing boiler plants).

After a long negotiation, but thanks to a strong political will, the state forest administration and the local foresters from Doberlug, decided to switch to bioenergy, as the most important local renewable energy source by replacing the oil fired boiler by a wood chips heated boiler.
The use the new boiler supplied by locally produced wood chips enables the local administration to reduce its energy bill from 28.000 €/ year to 8.000 €/ year.
Read more.

Good practices from Denmark

Middelfart- DK

The municipality council has a vision and a strategy of "Green Growth". This means an enhanced focus on development that provides welfare and growth in the municipality – in a sustainable way. Sustainable development has been addressed for some decades, but "green growth" tries to develop and extend use of technologies and methods where energy consumption is reduced – in general by improving the professional level of conducting energy services in the municipality's public and private sectors.

The municipality of Middelfart started, in September 2008, the implementation of a pilot project which focuses on public and private buildings. The public buildings component of the project will focus on the following aspects:
1) Gathering of energy information for all buildings one place and systematic monitoring of consumption;
2) Ventilation systems,
3) Heating supply;
4) Lightning;
5) Implementation of CTS system;
6) Thermal building modernisation;
7) Water consumption;
8) Education of municipality staff;
9) Quality benchmarking on buildings.
Most of technical aspects mentioned above will also be addressed for the private buildings component of the project.

For the public project the payback period is 7 years, and the investment level is around 6 millions €. The financing is by bank loan, but guarantied by ESCO (TAC company). If annual savings do not correspond with the contract, TAC company must compensate the municipality.
All the houses for the private project are all from 1970 or before and the majority of them are heated by natural gas. The saving potential in these houses is between 30–70% (corresponding to energy costs of 7 billions €/ year). The financing is insured by the private households.

This project will enable energy savings of 21% per year (for its public buildings component)which corresponds to a reduction of 1,000 tones of CO2 emissions.
Read more.

Invitation to join the Covenant of Mayors

The Covenant of Mayors is an ambitious initiative of the European Commission that will bring together the mayors of Europe's most pioneering cities in a permanent network to exchange and apply good practices across these cities and beyond to improve energy efficiency significantly in the urban environment.

The Covenant consists of the formal commitment of the adhering cities to go beyond the objectives of the EU in terms of reducing their CO2 emissions through energy efficiency and renewable energy actions.

If you wish to join the Covenant of Mayors, you will find all useful information on the website of the European Commission (such as text of the Covenant in all EU languages and the Adhesion form to the Covenant). Finally, the European Commission will create soon the Secretariat of the Covenant which will establish and operate a Covenant Helpdesk and will secure personalized support for the Covenant signatories.

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International Conference - "Tools for Sustainable Energy Communities" in Prague

In the context of Energy Efficiency Business Week 2008 (EEBW), **FEDARENE** in cooperation with **ECNet** (Energy Consulting Network) and **SEVEn** organized an International Conference: "Tools for Sustainable Energy Communities" in Prague on 13th of November 2008. This was the final conference of the SEC-Tools project *(*Energy Sustainable Communities in New Member States).

Each community, with its own vision and specificities, could adopt a more convenient approach for its territory and has the capacity to give a local answer in sustainable energy development. The Conference "Tools for Sustainable Energy Communities" gave to decision makers, stakeholders and civil society at local and regional levels a testimony of sustainable energy development in Communities drawn from SEC-Tools experiences.

The conference, which presented the achievements of the SEC-Tool project, was structured in four sessions as follows:

- **Session 1: Indoor and Outdoor lighting - Potential energy savings and last technologies.**

  Possibilities of Energy Savings in Lighting – Program GreenLight, Energy Savings in Lighting in Households – Innovation at the Market, Lighting in Building Sector and Services, Energy Savings in Street Lighting.
- **Session 2: EU Strategies in Municipal Energy Sector**

  Covenant of Mayors - A New Initiative of the European Commission, Sustainable Energy Communities - SEC-Tools Project and Trends in the EU, Development of EU Strategies in Municipal Energy Sector - CONCERTO Breaks New Roads, The European Energy Award® a European certification and quality management system for energy-efficient municipalities.
- **Session 3: Czech Good Practises - Examples of Energy Savings Projects in the Cities and Villages**

  Environmental Policy of the City of Prague, Sustainable Development of the South Bohemian Region in View of Energy Consumption, Experiences on Energy Auditing for the City of Milevsko, Sustainable Energy: Significant Topic for Municipal Policy.
- **Session 4: International Experiences of Municipal Energy Efficiency Projects**

  Tools for Energy Planning at Municipal Level, Biomass Promotion in Latvian Municipalies, Pilot Actions on SEC Practice in Ustka in Poland, Helpdesk for SEC Development in Lithuanian Municipalities, Regional Aspects of the SEC Example from Brandenburg (Germany), Future Structures & Strategies for Bulgarian Municipalities, Panel Discussion on the SEC-Tools Project.

Download here the presentations for this conference.

Edited by FEDARENE with the support of the Sec-Tools Project partners

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