Geothermal Communities

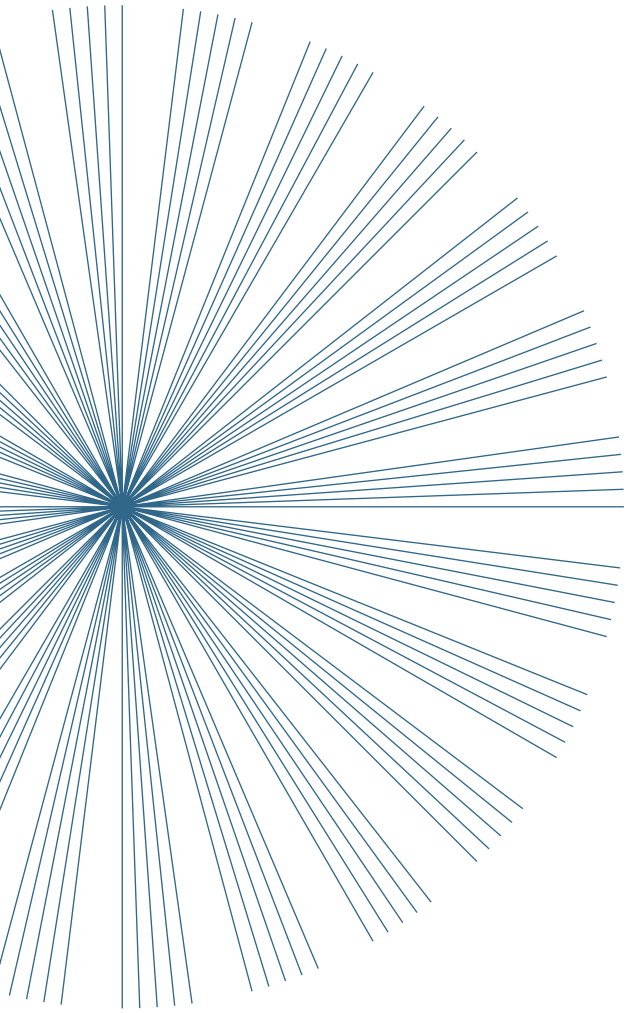
www.geothermalcommunities.eu

FP7 Concerto - 239515

First Periodic Report – Final Version

Date of Preparation: February 2011

Coordinator: Geonardo Environmental Technologies Ltd.



CONCERTO
An FP7 CONCERTO Project

SEVENTH FRAMEWORK PROGRAMME

PROJECT PERIODIC REPORT

Grant Agreement number: **239515**

Project acronym: **GEOCOM**

Project title: **Geothermal Communities – demonstrating the cascading use of geothermal energy for district heating with small scale RES integration and retrofitting measures**

Funding Scheme: **Collaborative Project – Large Scale Integration Project**

Date of latest version of Annex I against which the assessment will be made: 25/07/2009

Periodic report: **1st** ■ **2nd** ☐ **3rd** ☐ **4th** ☐

Period covered: **from 1 January 2010 to 31 December 2010.**

Name, title and organisation of the scientific representative of the project's coordinator[1]:

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Project website[2] address: www.geothermalcommunities.eu

[1] Usually the contact person of the coordinator as specified in Art. 8.1. of the Grant Agreement .

[2] The home page of the website should contain the generic European flag and the FP7 logo which are available in electronic format at the Europa website (logo of the European flag: http://europa.eu/abc/symbols/emblem/index_en.htm logo of the 7th FP: http://ec.europa.eu/research/fp7/index_en.cfm?pg=logos). The area of activity of the project should also be mentioned.

Content List

2. Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations as stated in Article II.2.3 of the Grant Agreement declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;
- The project (tick as appropriate) [3]:

  X has fully achieved its objectives and technical goals for the period;

  ☐ has achieved most of its objectives and technical goals for the period with relatively minor deviations.

  ☐ has failed to achieve critical objectives and/or is not at all on schedule.

- The public website, if applicable

  X is up to date

  ☐ is not up to date

- To my best knowledge, the financial statements which are being submitted as part of this report are in line with the actual work carried out and are consistent with the report on the resources used for the project (section 3.4) and if applicable with the certificate on financial statement.
- All beneficiaries, in particular non-profit public bodies, secondary and higher education establishments, research organisations and SMEs, have declared to have verified their legal status. Any changes have been reported under section 3.2.3 (Project Management) in accordance with Article II.3.f of the Grant Agreement.

Name of scientific representative of the Coordinator: Mr. Gabor Kitley, CEO / Geonardo Ltd.

Date: Budapest, 28/02/2011

For most of the projects, the signature of this declaration could be done directly via the IT reporting tool through an adapted IT mechanism.

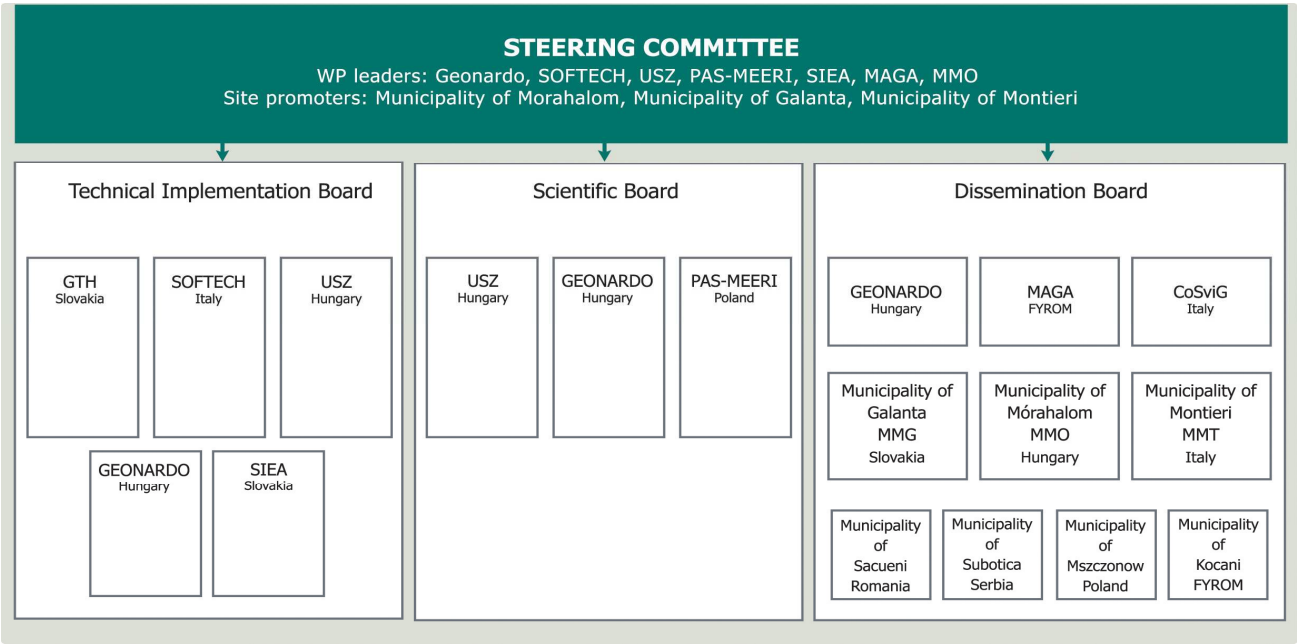
[3] If either of these boxes below is ticked, the report should reflect these and any remedial actions taken.

3.1 Publishable summary (max. 4 pages)

3.1.1. A summary description of project context and objectives

The project **Geothermal Communities - demonstrating the cascading use of geothermal energy for district heating with small scale RES integration and retrofitting measures** is a CONCERTO Phase III action, accepted and negotiated in 2009 and has started in January 2010.

The project is lead by Geonardo Environmental Technologies Ltd, a Budapest based engineering and consultancy SME with relevant experiences in EC project management and in geothermal emery applications. The project consortium consists of 16 partners altogether – including the Coordinator -, representing the relevant municipalities and technological companies/organisations, research partners and associated cities:



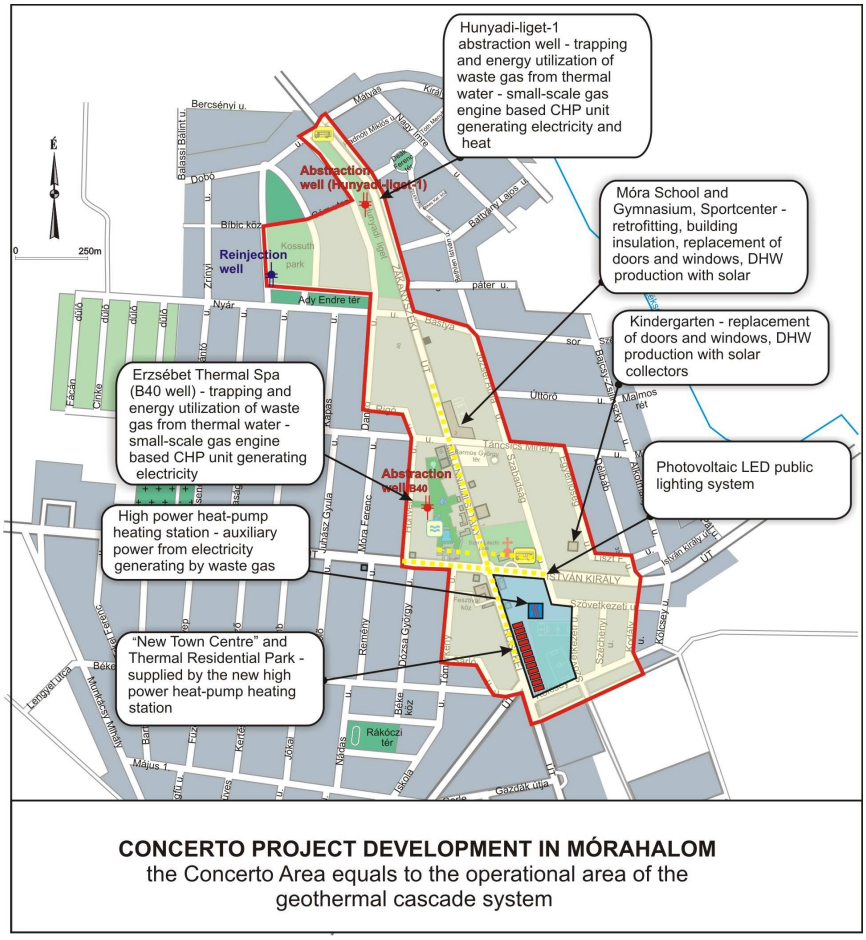
The project's overall and main objective is to promote the usage of geothermal energy and resources as a reliable renewable energy resource through demonstration actions in 3 cities involved in the project as Concerto Areas. Geothermal energy is the least known and least expanded RES in Europe, though its relevance and importance should deserve much more attention. **By using of the practically unlimited internal heat of earth, geothermal energy has one of the highest potential of all RES.** When compared with other RES – like solar or wind – it's main advantage is the practically constant energy and heat output it can provide. Besides the well known geothermal regions like Iceland or region of Tuscany (Larderello) in Italy, **Central-Eastern European countries have exceptional geothermal resources. These resources are either unexploited due to the lack of technological know-how or their utilisation is carried out in an unsustainable way; geothermal district heating projects lack the energy efficiency component and the used thermal water is generally not re-injected but instead released to surface waters.**

The project Geothermal Communities is to **demonstrate best available technologies** in the use of geothermal energy combined with innovative **energy-efficiency measures** and integration of other

renewable energy sources in three different pilot sites (Morahalom in Hungary, Galanta in Slovakia and Montieri in Italy). Furthermore the project will integrate a large number of cities as project partners (from Serbia, Romania, Poland and Italy) that either already have ongoing geothermal systems that needs the **adoption of new technologies** (e.g. Oras Sacueni, Romania) or they would like to **implement new systems** from scratch with the help of the project partners (e.g. Subotica, Serbia).

There are 3 demonstration areas in the project, where the project will implement the following measures:

1. **Mórahalom, Hungary:**
   a. **The Geothermal Cascade System of Mórahalom** (the core works were financed by the Hungarian Structural Fund *(„KEOP-4.1.0-2007-0006: Geothermal Cascade System of Morahalom (2008-) – EURO 2,147,000”*). According the plans the proportion of renewable energy within the energy utilization of public institutions will grow from 0% up to more than 80% - resulting in saving 14,441 GJ of fossil energy sources per year. 2620 kW heat capacity will be built in the geothermal heat supply system. Annual amount of 481,907 m^3 of combusted natural gas will be replaced; the annual emission of pollutants from energy utilization will be reduced by 866 t of CO_2, 318 kg of N_xO_x and 605 kg of CO.



   b. **High power heat-pump station:** The auxiliary power demand of 60 kW of the heat-pump heating station will be met by the trapping of methane production of the new abstraction well of the cascade system, while the electric power produced by trapping of the methane production of the B40 well at the spa will be used at the Thermal Spa. Currently this methane is directly emitted into the air (with a twenty-one times higher greenhouse effect than CO_2). Complex, so called combined energy utilization gas engine based CHP units are planned for the waste gases (CH_4: 65-

98%) of the abstracted thermal water, which generates electric power, and supplies auxiliary power to the system. An average water amount of 30m^3/h with a temperature of 30 C° arrives to the area of the "New Town Centre" (after cooling down in the cascade system), which is able to produce a thermal power of 450 kW in a heat-pump system with an average efficiency of 5 COP. This helps the full utilisation of the complete energy of the thermal water (including its gas content) abstracted for the supply of the cascade system at a temperature of 65-70Cº to a temperature down to 5-6 C° before reinjection. Currently there is no thermal water and heat pump combined system with similar efficiency either in Hungary or elsewhere in Central-Eastern Europe.

c. **Retrofitting and RES integration:** The area concerned in the development of the Mora Cultural Centre, School and Gymnasium (built in 1935 and 1972) is 1430 + 560 =1990 m2, and uses an annual amount of 130-140,000 m^3 natural gas for heating. By the GEOCOMN measures, gas amount of approx. 122,000 m3/ year will be replaced by geothermal energy.). Retrofitting measures of these buildings will be accompanied by a solar collector system of 175 m^2 of vertical plate collectors and the related engineering are planned, which is able to produce a hot water amount of 17,500 l/day. An intelligent control unit will optimise the use of solar-thermal and geothermal in the building taking into consideration the peak demands and the usual school cycle (45 minutes class/15 minutes break) for ventilation control. It needs to be mentioned that façade insulation and refurbishment measures will take into account the fact that the old building is part of the local cultural heritage and is under local protection. Windows will be custom made (triple glass with argon fills) made of wooden frames in a style that matches the building that was built in 1936.

2. **Galanta, Slovakia:**

City of Galanta has been operating a geothermal district heating system since the early '80s. The Concerto activities will be focused on the further utilization of the geothermal energy by retrofitting measures, connection of new areas to the district heating system and last, but not least by developing the possible reinjection techniques. The municipality's effort is to use this green energy widespread in the city and assure this energy for the next generations.

a. **Retrofitting of three old, concrete-panel based multi-level dwellings and of the elementary school and RES integration by photovoltaic system and comprehensive renewal of the lighting system and RES integration also by photovoltaic system:**
The refurbished buildings and the elementary school need less geothermal energy, which can be used for longer DHW producing on the other main part of the Concerto area. The retrofitting of the selected dwellings will include:
- Facade insulation,
- Roof insulation,
- Change of the doors and windows at the common spaces,
- Reconstruction of the rising pipes

- Using of thermostats.

Insulating will include change of windows and doors, which are in disrepair and in addition to poor thermal insulation attributes, are dangerous when handling them. The construction of windows is disrupted with cracks in the wooden frame. From the energy savings point of view, taking into account the current technical condition, the windows are the structure, which has the greatest impact on the wasteful heating of the building.

Photovoltaic panels will provide enough electricity for the lighting of the common areas of multi-storey buildings included in the project. Photovoltaics and a comprehensive renewal of the lighting system will significantly decrease the electricity consumption of the retrofitted elementary school heated from the geothermal source.

b. **Reinjection borehole research and projectworks**, including full documentation, studies, permits and assessments To secure the geothermal capacity for the next generation recent system needs a reinjection well, which is injecting the non-used or waste geothermal water back to the reservoir. Now this "waste water" is pumped into river Váh in amount more than 500 000 m^3 a year. The implementation of a reinjection borehole needs a feasibility study, research and a comprehensive project documentation to set the technical specification of the well.
c. **Connection of the natural gas heating plant to the geothermal energy.**
d. **Connection of newly developed urban areas to the geothermal district heating system**

3. **Montieri, Italy:**

Montieri is a small medieval village situated in the heart of the Tuscany Geothermal Region of Larderello, with 3 main Concerto activities:

a) Implementing a highly **innovative geothermal district heating system** by using high-enthalpy fluid. This will serve as a new, ambitious example for Central-Eastern European countries, where higher temperature fluids (medium/high enthalpy) may also be recovered (although at significantly higher investment costs). With the help of the innovative technological solutions the feasibility of tapping into medium enthalpy resources will be demonstrated. In the project to be implemented the number of dwellings served by the district heating is 425, with a total heated volume of 110,000 m3, the value of energy required and **produced by the geothermal system is estimated in 5,500 kW (20,000 GJ).**

b) **Retrofitting of selected dwellings** by using integrated approaches and techniques. Montieri also represents a challenging site for defining and testing a qualitative architectural integration of renewable energy technologies and retrofitting measures because in such an architectural heritage, the potential for intervention at the

building envelope level is quite limited. Only natural materials and methods are acceptable that are in conformity with the medieval city structure. **20% of the total dwellings in Montieri will be retrofitted during the project!**

c) An **Energy Retrofit Strategy** will be implemented over the 425 residential dwellings, part of the geothermal district-heating plan. This strategy aims at reducing energy needs, in conjunction with a building renovation. In addition these buildings will make use of geothermal heating to get a 100% free fossil fuel. The retrofitting demonstration will take care of the town high cultural and artistic value.

d) **RES Integration** – on one hand 8,5kW of photovoltaic panels system will be implemented to serve as the main electricity producer of the renewed public lighting system of Montieri. On the other hand a total of 42,5 m2 solar thermal collectors will be set up to serve as primary heating and DHW source for those (mainly distant) dwellings not connected to the district heating system.

The 3 Concerto cities in the project represent completely different climatical and technological setting, populations (Montieri: 1.200, Morahalom: 6.000, Galanta: 20.000), altered retrofitting techniques will be used and the nature of the geothermal systems are very dissimilar. This gives the project a unique added value where communities with different background will demonstrate the importance of geothermal energy.

In addition to the demonstration component through the **parallel implementation of three ambitious development works** there is also a strong complementary component of research focusing on making geothermal projects more cost efficient and technologically sound. Research work will include:

- **Integration of the geothermal energy with other RES** to outline ways of more efficient and more sustainable green-energy production (e.g. solar energy, biomass, wind) in Europe – with special focus on CH4 and other combustible gas trapping and energy production .
- **Transboundary issues** of the utilisation of geothermal energy (4D modelling of geothermal reservoirs along the Hungarian/Serbian border)
- **Socio-economic modelling** of geothermal investments, with special focus on the public perception and understanding of RES/RUE measures

Results of the project activities will be actively disseminated via straightforward dissemination actions combined with tradition and electronic training programmes and workshops organised for municipal-level decision makers. Besides the dedicated dissemination work-package, the demonstration activities will have solid impact on the environmentally-focused thinking (i.e. involving educational institution buildings into retrofitting and system integration helps the students studying there to meet with the RES/RUE measures and understand its importance). Finally, the unique **Mayors' Geothermal Club** will be set up and will continue operating even after the EC-funded period as a permanent network of city mayors and municipal-level decision makers who are interested in the sustainable utilisation of geothermal energy. It is expected that with the help of such **high-visibility pilot actions** combined with the research and dissemination efforts investment into geothermal systems can be boosted in Europe and **these investments** will be **implemented in a sensible, environmentally aware and economically sound way**.

3.1.2 A description of the work performed since the beginning of the project and the main results achieved so far

The planned duration of the project is 60 months, expanding from 01/2010 to 12/2014. During the first 12 months of the project mainly administrative, management and preparatory works have been performed, however, the retrofitting measures in Galanta at the 3 multi-level dwellings were also implemented quite ahead of schedule.

The project's kick-off meeting was held on 27-29 January 2010 at Budapest, with site visits to the Morahalom and Galanta demo sites. All partners and the EC project officer Mr. Santiago Gonzalez-Herriaz were present at this meeting, where all administrative, technical and financial issues of the project were discussed in details.

Due to the geographical makings an interim project meeting was held in June 2010 at Montieri, Italy, with most of the partners being present as well. Besides discussing the project progress in of the first 6 months a site visit at the Larderello Geothermal Area and at Montieri was held.

There were also several bilateral meetings between the coordinator and the demo sites representatives in order to keep the project on track and to help the preparatory works of the measures.

In Galanta, we decided to bring the retrofitting measures forward by a year thus we started and actually completed the retrofitting measures of the 3 multi-level dwellings in the primary Concerto area. This makes the project being quite ahead of its original schedule. The description of these measures and their results are described in Chapter 3.

The preparatory works, energy audits, planning and public procurement procedures are also in the pipeline at the other Concerto cities. The actual retrofitting and construction works will be started in 2011, as planned.

The research works in WP5 are also partially completed. A detailed study on the possible RES integration with Geothermal Energy and on the transboundary issues of geothermal energy utilisations are attached as a draft version deliverable to this report.

Technology showcase on retrofitting measures in Montieri – due to its special building structure – was also performed by the responsible partner and attached as a deliverable to the report.

The project website is available at www.geothermal-communities.eu. This website is frequently updated and all relevant information and results are available on it.

The publishable summary should be updated for each periodic report.

3.2 Core of the report for the period: Project objectives, work progress and achievements, project management

3.2.1 Project objectives for the period

According to the reporting structure of the FP7 project, a short overview of the project objectives relevant to the 1st period of the project (year 2010) is given below. As discussed earlier, the first year of the project was mainly for preparatory works, however some of the demonstration tasks (retrofitting in Galanta) and research works as well as the dissemination activities were started.

Due to the Annex 1, in the first year of the project the following 6 WPs out of 10 have been started:

WP1 – Management, Month 1 – 60
WP2 – WP3 – WP4 – Demonstration activities at the 3 Concerto Cities; Month 1-42
WP5 - Technological Research Month 1-24
WP8 – Dissemination. Month 1-60

(Though the relevant WPs are longer than the reporting period itself (12 months), a full detailed description (from Annex 1) of each related WPs for the entire span of their lifetime are given in this chapter – thus means that of course only a few (the planned) objectives have been achieved in during the 1st reporting period)

Though planned to start in 2012 only, some of the activities of research work-package **WP6 – Socio-Economic research** of Geothermal Issues were taking place in 2010 in parallel with WP5 – mainly in order to make the pilot-site case studies ready by the start of the DEMO measures - , so we will introduce its objectives and results shortly.

3.2.1.1. WP1: Management

Work-package leader: Geonardo Ltd.

WP 1.1 Internal Consortium Affaires

- Establishment of the Project Management Committee. Establishment of effective communications between management and partners. Effective communications and flow of information between partners, Preparation of Internal Consortium Agreement.
- Organisation of progress meetings: Organisation of yearly management meetings and workshops.
- IPR Management, declaration of Background IPR, monitoring and management of Foreground IPR.
- Project reports (annual, mid-term and financial) as outlined in the Grant Agreement.
- Monitoring Critical Paths, SWOT assessment, alternatives for crisis management. Identification and strategy for any correction of potential risks and dispute, which may occur.

WP 1.2 Liaison with External Parties

- Representing the Consortium towards the European Commission and the Scientific Officer.
- Liaising with other relevant Directorate Generals (including DG JRC) of the European Commission.
- Liaising with the Concerto Premium initiative and contact establishment with other Concerto projects.
- Monitoring other RES/RUE-related European initiatives (including EIE).
- Monitoring national and international initiatives liaising with International end-users and Stakeholders,
- Developing uniform guidelines for press and media appearance

WP 1.3 Geothermal Communities Engineering Project Office

- Supervision of design and implementation works at all test sites (WP2, WP3, WP4 and WP7). There will be sub-teams responsible for the relevant test site, lead by SOFTECH (for Montieri), USZ (for Morahalom) and MG (for Galanta)
- Keeping records and supervising of tendering procedures (lead by project engineering office)
- Help desk, consulting and engineering service for the involved municipalities (including associated cities).
- Supervising the compliance with standards and regulations.
- Acceptance and take-over of project works, in-situ supervision and documentation.
- Development of financial and legal conditions and elaboration of a plan for the sustainability of the project results.
- Identification and strategy for any correction of potential risks and dispute, which may occur.
- Maintaining and monitoring links with the industry ensuring that adequate competition is generated among the subcontractors.
- The project office will be located in Budapest at Geonardo HQ, with input from 3+2 key partners that will provide expert consulting and supervision of local activities: USZ (Morahalom site), SOFTECH ((Montieri Site); MG (Galanta site); and GEONARDO (WP1/4) and SIEA (WP7).

WP 1.4 Elaboration of a plan for the sustainability of the project results (also in WP 10)

- Development of financial and legal conditions description and technical guidelines for the long-term operation of the network
- Maintaining and monitoring links with associated cities and other interesting stakeholders

3.2.1.2. WP2-WP3-WP4: Demonstration activities at the Concerto Cities

Though the demonstration activities are split into 3 separate work packagers (WP2 - Geothermal System Development, WP3 - Retrofitting and Energy Efficiency Measures, WP4 – System Integration), the objectives (and the achievements in the next chapter) of these WPs will be discussed together, using separate description by Concerto Cities. These WPs are the main activities of GEOCOM project, so special attention will be paid on their introduction as well.

Concerto City: Morahalom, Hungary – Objectives of DEMO WPS

WP 2.1 Within the framework of the CONCERTO element a heat-pump centre is planned. Electricity for the heat pumps will be provided with a gas turbine that will utilise the methane

content of the thermal water currently produced at the city's wells. Another element is the integration of a solar-thermal system providing DHW for the Mora Ferenc Primary School, Kindergarten and Sports Hall complex.
Scheduled for this reporting period: selection of public procurement expert, public procurement of energy audit

WP3.2 Two public buildings will be retrofitted. The Mora Primary and Secondary school currently spends 82% of its annual budget on heating (natural gas) due to extremely poor qualities of the external walls and windows. For both buildings an intelligent system will be implemented that will control ventilation and shading (during summer). Higher-grade high-school students will be involved in the planning and implementation of retrofitting measures raising awareness and understanding among young people.
Scheduled for this reporting period: selection of public procurement expert, public procurement of energy audit

WP4.2 A combined solar-thermal and geothermal system taking into account cost-efficiency and reservoir management will implemented at the pilot site. The school and the sports hall will be insulated beyond national and EU standards. The intelligent ventilation systems will consider the usual school cycle. Methane content of the Hunyadiliget thermal well will be used to provide electricity to the heat pump centre that will provide heating and water for the new housing area in the city while the energy generated from the burning of the methane content of the B-40 thermal well will be used at the spa.
Scheduled for this reporting period: selection of public procurement expert, public procurement of energy audit

Concerto City: Galanta, Slovakia –Objectives of DEMO WPs:

At Galanta, 3 local partners are involved in the project as project partners: P11 - Municipality of Galanta (Mesto Galanta), representing the Municipality, P6 - Galantatherm s.r.o, the company (owned by the municipality) representing the Geothermal district heating operator, and P17 Bysprav s.r.o, an other municipal-owned company responsible for the retrofitting actions of the multi-level buildings.

WP 2.2 Geothermal System Development. In order to improve environmental performance of the existing system the full documentation and the requested studies of a reinjection borehole will be developed. For the further development of geothermal heating in Galanta, the strategic determine will be the possibility and the extend of the reinjection to sandstone, which must be preceded by a geological survey, which is also part of the project. From the perspective of sustainability and environmental suitability of solutions, it could be an important step, because nowadays over 500 000 m3 a year of waste geothermal water is pumped to the river Váh. According to preliminary estimates and studies, reinjection could return 60 - 80% of the water back into the reservoir (the exact value will set by the study, which is the part of the project). This activity would be aimed on securing of the complete research and project documentation necessary for the implementation of the reinjection borehole.
A new junction will be constructed and a new housing estate will be connected to the geothermal system providing hot water during the summer and once the retrofitting Works on the current estate are completed (resulting in excess capacity) district heating will also be implemented. The connection will allow to deliver to the CONCERTO area II. from April to October up to 9500 GJ (2600 MWh) of heat for the production of DHW, replacing the consumption of more than 130 000 m3 of natural gas by geothermal energy.

WP 3.3 – Retrofitting and Energy Efficiency Measures (Mesto Galanta) - Insulating will include change of windows and doors, which are in disrepair and in addition to poor thermal insulation attributes, are dangerous when handling them. The construction of windows is disrupted with cracks in the wooden frame. From the energy savings point of view, taking into account the current technical condition, the windows are the structure, which has the greatest impact on the wasteful heating of the building. This activity can achieve a saving on heating in the amount of up to 30 %.

WP 3.3 - Retrofitting and Energy Efficiency Measures (Bysprav) - Three blocks will be selected where different external wall insulation technologies will be demonstrated in accordance with the standard insulation systems often used in the country and with the decision of the dwellers. All other elements of retrofitting will be the same. This will allow the evaluation of the performance of three demonstrated systems under the specific local conditions and the typical social-housing structure of Slovakia. Further elements of retrofitting: insulated doors and windows at the common areas fully renewed rising pipes, using thermostats in the flats. The new blocks will be insulated with the technology that is most suitable for the local conditions (comparative testing of insulation methods will be performed during the project)

WP 4.3 – System Integration (Mesto Galanta)
RES Integration at the elementary school: The school has high electricity consumption due to the need of continuous light during the day. The project will include the element for the integration of renewable energy through the installation of photovoltaic panels on the performance of up to 5 kW with an annual energy gain of up to 5300 kWh (calculated on the solar radiation in the Slovak republic). Furthermore, to enhance the effectiveness of this measure, a comprehensive upgrading of lighting system in the school will be done, making it possible to achieve an average saving of electricity consumption up to 25%.
In addition to saving electricity, the upgrading of lighting fixtures contribute to improving the conditions of the education process, reduce the number of lamps, increase light output (in terms of technical standards) and it will be safe for the eyes of children.

WP 4.3 (Bysprav) – System Integration - RES integration will be done through the deployment of photovoltaic panels on the provision of electricity for lighting common areas of the housing units. For each insulated housing unit a photovoltaic system with power up to 1.5 kW will be implemented, which is sufficient for the common areas of housing units with up to 48 dwellings.

Concerto City of Montieri, Italy – Objectives of DEMO WPs:

There are 3 different legal entities involved into the project GEOCOM that are responsible for the demonstration actions at Montieri. P2 - SOFTECH Ltd, an engineering and architect-planning SME, responsible for the sensitive retrofitting measures of the medieval village of Montieri, P8 - CosVIG, a regional public body responsible for the geothermal district heating implementation and P12 Municipality of Montieri, the local government responsible for the implementation of all works, especially coordinating the retrofitting measures.

WP 2.3 Geothermal District Heating System of Montieri - Setting a new, ambitious example for Central-Eastern European countries, where higher temperature fluids (medium/high enthalpy) may also be recovered (although at significantly higher investment costs). With the help of the innovative technological solutions the feasibility of tapping into medium enthalpy resources will be demonstrated. Challenges include high pressure (15-20 bar) and temperature (200-215 ° C). Given

the height difference between the exchanger steam / hot water at 530 m above sea level and the central exchanger at 700 m a.s.l., in order to keep the circuit superheated water at a pressure of 2 bars is sufficient to pressurize the circuit share the central exchange, where jars of expansion will be installed.

Plant Technical Features

- Total energy output: 19,800 GJ
- Total power output: 5330 KW
- A double primary and secondary circuit, with use of heat exchanger plates with two thermal plants (primary heat steam / water boiler and secondary overheated water / hot water) and intermediate pumping stations.
- Utilization system: based on heat exchanger plates
- Primary thermal plant location: geothermal well
- Central location secondary heat: municipality of Montieri
- Length of distribution network: 5600 m (times 2, return) of pipes, excluding the connection to users.
- Inlet primary circuit temperature: 200 ° c
- Primary circuit overheated water temperature: 120 ° c
- Secondary circuit water temperature: 80-90 ° c

To maximize the economic efficiency a specific planning to target the intervention was elaborated, without precluding any possibility of scattered units to be connected, where the distance and the cost is within the parameters of depreciation schedule. According to calculations, the total volumes to be heated were 110,000 m3, while the total power reaches 4850 kW.
Having noted the almost complete **uniformity of the architectural features of buildings,** a calculation based on building types was implemented.
This has allowed to carefully assessing the difference in energy requirements related to heating demand for similar building. The development shows that the analytical energy requirements for buildings shall be increased by 10%, and therefore amounts to approximately 5330 kW.

WP3.4 Retrofitting at Montieri : Montieri represents a challenging site for defining and testing a qualitative architectural integration of renewable energy technologies and retrofitting measures because in such an architectural heritage, the potential for intervention at the building envelope level is quite limited. Only natural materials and methods are acceptable that are in conformity with the medieval city structure. The climatic conditions here are similar to that of the Western Balkan Countries so results will be directly applicable to South-Eastern European countries taking into account the different socio-economic conditions.
20% of the total dwellings will be retrofitted, that will have an enormous effect on the energy balance and serve as a model for future projects.

Energy audit of 425 dwellings selected for retrofitting and micro-scale RES integration will be performed. Retrofitting and RES integration will be implemented according to the special local conditions
The innovative retrofitting technologies to be used at Montieri can be listed as follows:

Day lighting:

- Central skylights opening;
- Careful selection of the skylights glass (light transmission/solar gains/light reflectance coefficient);

- Opening of skylights in order to allow the natural light to reach the lower levels of the building;
- Special care concerning the spatial distribution at each floor.

Building envelope:

- Application of thermal insulation at the roof levels and partition walls, and floors;
- Selective covering of the massive walls from inside in order to optimize the comfort conditions and the thermal inertia of the building;
- High quality double glass, wood frame vertical windows;
- High quality skylight glass (low solar gains – low reflectance).

Natural ventilation:

- Use of the high potential for natural ventilation of buildings;
- Opening of skylights to increase the natural ventilation (free-cooling, night cooling in summer);
- Keeping infiltration rates at low levels, during winter.

WP4.4 System Integration at Montieri: A catalogue of applications, integrally estimated on each technological/typology crossing will be worked-out, in order to predict the most appropriate technology and configuration for any building type. The result being a matrix of technologies, components, equipments and materials to be tested in the whole town centre, qualified and quantified in terms of energy benefits, environment impact reduction, and gas emission control
The main area of RES integration will be the modernization of the complete public lighting of the town centre by changeover to solar-powered LED lighting system. Photovoltaic modules will be adopted for a total amount of 8.5 kW to provide the electricity needs for street lighting. The current electricity peak for public lighting is 15 kW and it is estimated that with the energy efficient street lighting to be adopted by the Municipality, the 8.5 kW peak power of PV will cover the whole energy needs for such a public use. We will use central panels and closed circuit network. Besides cleaning the panels, the system does not require maintenance. It is completely automatic with dusk-to-dawn solution. This system reduces the energy demand by 35-50%, and its utilization results in a 100% energy saving from the point of view of the replaced system

The other area of RES Integration is using solar collectors for thermal energy for a total of 42,5 m2. The reason for a limited amount of solar thermal comes from the almost integral satisfaction of the community thermal need by the geothermal source. Only few dwellings might decide not being served by the district heating (due to its distance from the pipeline), including the sanitary hot water. In such dwellings, at the periphery of the geothermal district heating, solar thermal systems will be adopted to provide, all year long, solar hot water

3.2.1.3. WP5: Technological Research

WP5 is one of the two research work-packages of the project. It's main objective is to set-up a technological guideline on the future geothermal energy investment and to give a clear and transparent picture on the possible outcomes of the similar investments. It has 4 sub-WPs in order to include all relevant research and horizontal topics. The leading partner is P9 – University of Szeged, with strong cooperation and involvement with all the project partners (local data input, research and legal issues, etc.)

WP5.1 Integration with other RES
The main scope of this sub-WP is to outline ways of integrating geothermal energy with other RES (e.g. solar energy, biomass) in Europe, and evaluation of integration methods.
In this WP available experience of integrating the different RES into a cascaded facility with a view to environmental improvements and extending the utilisation time and spectrum of uses of such

facilities will be studied. At present most of the experience available is confined to general cascading such uses as health spas, space and greenhouse heating in a low temperature geothermal environment. There are very few examples regarding the cascading other RES. The results will provide the blueprints of innovative cost-effective solution for geothermal investments in the enlarged Europe. The following activities are planned: 1) Investigation of the economic factors that influence the integration of GE in energy systems. 2) Investigation of other factors that influence the integration of GE in energy systems. 3) Identification of integrated systems potential layouts. 4) Studies for the improvement of geothermal energy utilization in CEE.

WP5.2 Transboundary issues of the utilization of geothermal energy

The most significant thermal water resource in the Carpathian Basin can be found under the territory of the Hungarian-Serbian border, in the Szeged-Morahalom-Subotica triangle. The abstraction for extensive and complex utilization is currently being started on both sides of the border. For the safe and sustainable abstraction, and its international monitoring, it is necessary to determine the hydrogeological-hydrodynamic features of the common thermal water base, and to elaborate a two-phase 4D model of the water base for the mapping of the water resource and its gas content. Geology is of course not following country frontiers, so the Upper Pannonian reservoirs of the Great Plain reach to the mountains of Serbia and Romania. This strengthens the necessity of basic research, since the establishment of international abstraction monitoring systems and abstraction agreements will become necessary for the reasonable and sustainable two-directional production.

WP5.3 Reinjection monitoring and modelling

Sand stone reservoirs in the Pannonian and similar basins in Europe are a difficult medium for reinjection. To apply requested reinjection of the geothermal waste water back to the reservoir large pumps are necessary, resulting with high power consumption – sometime up to 50% of the heat power of the source. That can destroy the whole economy of the geothermal system. Different methodologies are under investigation, whose aim is to define technical solutions, which should partially or totally remove the problem and, in that way increase the economy of such geothermal systems. The newly implemented reinjection borehole (in Morahalom) will be used in simulations and model calibrations of the most prospective technologies -and studies in detail for optimum reservoir management and enabling reinjection with minimum energy consumption.

The aim of the work package is to collect data and information in production conditions that clarify the relation between well construction and well-geophysical relations of abstraction-reinjection wells constructed on Upper Pannonian sandstone reservoirs and the actual abstraction-operation methodology. The research activity is ought to answer the question about the location, the amount, abstraction and technological circumstances of the obligatory, justified abstraction and reinjection in order for the abstracted water to be reinjected, and for the abstraction to be plannable and sustainable on a long term.

WP5.4 Integrated utilization of waste gases of thermal wells

Waters abstracted from a large number of thermal wells of the Great South Plan Region have high gas (predominantly methane) content. During water abstraction (both in the case of spa uses and energetic utilization) novel technologies are available to separate and utilize the energy-content of these gases (as well as heat content of the CHP units) reducing green-house effect and increasing system effectiveness through integration. In WP2.1 Morahalom will serve as the first Hungarian pilot site for such action, as heat and electric power from the CHP units mounted on two abstraction wells will be utilized in an integrated system. In Wp5.4 researchers of the USZ involving the leaders of the other test sites will carry out an in-situ study of the Morahalom site, assess the results

of integrated use, do benchmarking, analyze the needs and potential of other possible sites and outline suggestions for wider applications.
The following activities are planned:

- Investigation of the economic factors that influence the integration of waste gas energy in RES.
- Investigation of other factors that influence the integration of waste gas energy in RES.
- Assessment of waste gas energy integration in RES potential and technologies for the South Great Plan Region.
- Building a database of South-Great Plan sites with potential in waste gas energy integration in RES.
- Providing technology transfer to projects proposing waste gas energy integration in RES.

3.2.1.4 WP8: Dissemination

WP leader: P1 – Geonardo Ltd.

Objectives Dissemination of information about the project, its objectives, the approaches and results through electronic and traditional methods. All beneficiaries have important role in dissemination, like translations, publications, content developments, conference and workshop participation, etc.
WP8.1 The very first task under dissemination was to develop the project's website available starting from the first month (January 2011.) and serving as the main platform of the project.
The website contains:

- Consortium structure, list of partners and contact points
- Private communication forum with a restricted access to the partners, for communication / discussion
- Links to stakeholders and other websites (i.e other CONCERTO projects) with relevant information of interest
- Appropriate links to the Mayor's Club and Monitoring, as and when it becomes available

The website is to regularly updated with:

- New versions of the brochures and newsletters
- Occurrences of dissemination of the project by its partners to conferences and meetings
- Announcements of relevant future meetings that a partner intends to attend
- Reports/Minutes of the kick-off, interim and final meetings (accessible only to partners)
- Results from each work package as they are released by the partners (accessible only to partners)
- Public presentation of final deliverables

WP8.2 Common Dissemination Activities

- Dissemination activities were planned in order to improve the market for development of geothermal energy and integrated geothermal/RUE/cascading RES projects in EU countries
- General dissemination of information about the project, its objectives, the approaches and results through publications and leaflets and the project Newsletter
- A project logo to be created and used in all publications and leaflets

The first **brochure** (M3) was to contain the overall aim of the project and the actions (WPs) that would be undertaken to achieve this aim. Additionally, International and National Press and Media Releases from each partner within its country are planned.

Project **electronic newsletters** are planned to be issued on a yearly basis containing all the information found in the most recent brochure and additionally:

- Summary of progress of all WPs, including all the deliverables produced since the last edition of the newsletter
- Reports of activities of each partner since the last edition of the newsletter
- Advertisement of relevant forthcoming conferences / meetings, where a partner will be presenting the work done in GEOCOM
- Advertisement of forthcoming project meetings

WP8.3 Presentation and participation at high-profile events

Provisional activities planned in general and for the period:

- Presentations and publications in international conferences (such as the World Geothermal Congress 2010) that are related to the objectives of the project
- Participation at Concerto Plus/Premium meetings and activities
- International Press and media releases.
- National Press and Media releases from each partner within its country

3.2.1.5. WP6: Socio-economic research

Leading partner: PAS-MEERI

WP6.1 Public perception of geothermal energy. Cross-national, comparative analysis of public understanding and attitudes towards geothermal energy. Evaluate and assess the society's understanding of the functioning and role of geothermal energy in energy systems and everyday use. Research will include both quantitative and qualitative methods (e.g. internet-based surveys, questionnaires, and analysis of statistical data that has been gathered for other purposes. Relevant project partners will gather the data that characterize their country).

WP6.2 Public perception and understanding of RUE measures (*pilot-site case studies*).
User satisfaction (with the implemented measures, information, energy advice, feedback-systems on consumption, etc.) and user involvement (investing in energy efficiency measures, organised in local agencies, tenants organisations). Analysis of different stakeholders / inhabitants perceptions about changes in the affected communities and acceptance of the Concerto measures.

WP6.3 Overview of market drivers, fiscal measures and subsidies. Issues such as financial constraints (on capital investment, flow of capital, and other); environmental constraints; land concessions; water rights; taxation; etc. will be thoroughly investigated in the aspect of their handling through the relevant existing legislative and administrative framework, as well as financial incentives, fiscal measures, market incentives, analysis of economic viability and cost-effectiveness in relation to reduction of CO2 emissions. Environmental and sustainability issues, reinjection, etc.

For the reported period, no activities in frame of WP6 were originally planned (as included in Annex I to the Grant Agreement). The project partners decided to initiate additional works in WP6 much earlier that in 24th months of Project duration. These works done are presented in the next chapter.

3.2.2 Work progress and achievements during the period

3.2.2.1. WP1 – Management

As requested by the reporting guidelines by the FP7, the achievement and progress of the Management WP will be discussed in the next chapter – Project Management during the period.

3.2.2.2 WP2 – WP3 – WP4 activities for the 3 demonstration sites

Just like in the pervious chapter, the periodic report of GEOCOM describes the achievements of the DEMO WPs together, by splitting the actual results into 3 subchapters, according to the Concerto Cities.
The actual investments, retrofitting, integration and system development measures are planned to be implemented in the 2nd and the 3rd year of the project, while the 1st year – that is reported now – was dedicated to the preparatory works. The project steering committee (SC) decided to put more effort on the preparatory phases in order to avoid future delays and mismanagement in the demonstration activities. This detailed planning was also suggested by the relevant EC officer Mr. Gonzalez-Herriaz during the negotiation process and at the kick-off meeting.

However, at Galanta one part of the demonstration – retrofitting – was successfully planned, the public procurement was published and accepted and the works were completed on all 3 dwellings before the end of 2010. This can be considered as the project is at least on, if not ahead of its initial schedule.

3.2.2.2.1 Concerto City of Morahalom

Due to the work plan of Morahalom, the first year of the project was dedicated to finalise the drilling works of Geothermal Cascade system (not a project component!), where the abstraction and the reinjection wells were done. Concerto activities included the problic procurement procedure preparation for retrofitting and connected works, as well as the energy audit.
Public procurement experts were contacted, and based on expertise and pricing a selection procedure was carried out. Dr. Tamás Nagymihály public procurement expert was contracted. Dr. Tamás Nagymihály carried out the public procurement of the energy audit for the Concerto Area in Mórahalom. The procedure was successfully executed and ENORA Ltd. was contracted for the task. ENORA Ltd. started work but finished the audit in January thus the results will be available for the next reporting period.
Public procurement started for the CHP gas engines with the forming of the TOR of the procurement by our staff (Mr. Tamas Medgyes and Mr. József Pásztor). Great effort has been put into dissemination – 11 articles were published online discussing the Concerto developments in Mórahalom, and our experts associated held presentations introducing the project in a number of conferences.

Results includes:

- Project management and technical staff formed, project deadlines, responsibilities defined.
- Public procurement expert contracted.

- Public procurement for energy audit executed.(to be reported in 2nd periodic report)
- Public procurement for CHP engine started with the forming of the technical TOR of the procurement.
- Energy audit started.
- Dissemination activity resulted in 11 on-line articles discussing the Concerto developments in Mórahalom.

It must be highlighted that there isn't any lagging behind is due to the elections –as a result of the national and local elections in spring and summer 2010 municipalities practically stopped functioning for several months, public procurements were halted.

3.2.2.2.2 Concerto City of Galanta

WP 2.2 Geothermal System Development – P6 Galantaterm, Ltd. carried out the whole documentation needed for the building permission and for activity evaluation by the company. This documentation includes:

- Comprehensive project documentation – the documentation counts with peak transferred power of 3000 kW, temperature gradient 70 / 50 °C. The length of the junction would be 2x1190 m and the total costs 966 120,50 EUR due to pipes placed in urban area and to the costs of the machinery room needed to connect the junction to the recent geothermal system.
- Study of the economical aspects of the junction - the aim of the study was to review the economical advantages of the proposed junction. The junction would provide 5378 GJ o heat per year, which reflects a decrease the consumption of natural gas on Bysprav site by 185 286 m3 per year. The connection will also provide a decrease of the electricity consumption of Galantaterm site by 8 %. The calculation was provided at current price level. Without EC contribution from the Geocom project the return of the investment would be 71 years. With the Geocom contribution this period is 57 years. For reaching 15 years return there should be delivered 20 236 GJ of heat per year, what is four times higher than the planned capacity.

WP 3.3 – Retrofitting and Energy Efficiency Measures (Mesto Galanta) – Municipality of Galanta is responsible for the insulation works on the elementary school.
A comprehensive budget of the insulation was carried out by an architecture office. Due to higher budget than appreciated, this activity will be divided into phases, when every year one phase will be realized. A phase is meant as a particular pavilion of the building.

WP 3.3 (Bysprav) - Retrofitting and Energy Efficiency Measures – the planned three multi-storey houses were successfully retrofitted. The activity is now completed.

The inhabitants who were interested in the insulation of their dwellings were invited to an information seminar on this project, where the project team presented the project and its main objectives. The team also presented the advantages and features of the retrofitting and gave a time for dwellers to think about the retrofitting of their house. When multi-storey houses intended for retrofitting were selected, comprehensive project documentations were developed. These projects and detailed budgets were the main documents for potential vendors in the phase of public procurement. The planned three multi-storey houses were retrofitted and almost all the planned works were realized in 2010. Now it's in the phase of final inspection.

Public procurement – the process of the public procurement was divided into three stand-alone procurements – each selected multi-storey house that has to be retrofitted has a separate procurement process. Each public procurement was coordinated by a company specialized on public procurements and has two rounds. The evaluating commissions had six members – 2 members from the municipality, 1 from the Bysprav, Ltd. and 3 dwellers from the multi-storey building that has to be retrofitted. The reason of this committee structure was a participation of the GEOCOM project partners on the procurement due to ensure, that the process will be in accordance with the projects requirements. The process of the public procurement was the following:

Public procurement of the retrofitting of multi-storey house on Česká 1437: The procurement was launched on 21/06/2010 by a market survey and by contacting of 8 potential vendors according to the survey. The procurement materials, information and the "blind" budget table were sent on 14/07/2010, with the deadline of receipt of their offers on 28/07/2010 at 13:00. The contacted companies were (date of the receipt of the offer and the offered price included in the chart):

CONTACTED COMPANY	DATE OF THE OFFER – RECEIPT	TIME OF THE RECEIPT	OFFERED PRICE IN EUR
Stavcolor, s. r. o.	27/07/2010	14:00	257 833,90
Stavomal, s. r. o.	23/07/2010	15:15	242 370,00
PS Stavby, s. r. o.	28/07/2010	10:45	226 380,51
Creacom, s. r. o.			
Staveco stavebná, a. s.	28/07/2010	11:30	220 916,19
Restako, s. r. o.	28/07/2010	11:30	221 142,25
Tecton Slovakia, s. r. o.			
Galastav, s. r. o.			

Three companies didn´t send their offers. The opening of the offers (envelopes) was held on 28/07/2010 at 18:30 by the evaluating committee. The structure of the committee was the following:

MEMBER OF THE COMMITTEE	REPRESENTS
Tibor Polák	Municipality of Galanta
Mikuláš Horváth	Municipality of Galanta
Ondrej Szabó	Bysprav, Ltd.
Peter Ottahel	Dweller of the multi-storey house
Ján Bureš	Dweller of the multi-storey house
Štefan Žužkovič	Dweller of the multi-storey house

The committee selected the four cheapest offers. The revaluation of these offers according to the detailed declared budget took place on 03/08/2010 at 17:30. After the revaluation, three potential vendors were selected, who proceeded into second round. These companies were:

- PS Stavby, s. r. o.
- Staveco stavebná, a. s.
- Restako, s. r. o.

In the second round held on 17/08/2010 at 17:30, the above mentioned three potential vendors introduced their companies and answered the questions of the committee. The order of the second round was:

- Staveco stavebná, a. s. – 17:30
- PS Stavby, s. r. o. – 18:00
- Restako, s. r. o. – 18:30

The participants decided, that the works will launch in 2010. After this introduction the secret voting of the applicants took place. The selected vendor – the result of the public procurement was **Staveco stavebná, a. s.**
The retrofitting works will be realized on Česká 1437 by this company.

Public procurement of the retrofitting of multi-storey house on Mierova 1436: The procurement was launched on 21/06/2010 by a market survey and by contacting of 8 potential vendors according to the survey. The procurement materials, information and the "blind" budget table were sent on 14/07/2010, with the deadline of the receipt of their offers on 28/07/2010 at 13:00. The contacted companies were (date of the receipt of the offer and the offered price included in the chart):

CONTACTED COMPANY	DATE OF THE OFFER – RECEIPT	TIME OF THE RECEIPT	OFFERED PRICE IN EUR
Stavcolor, s. r. o.	27/07/2010	14:00	257 833,90
Stavomal, s. r. o.	23/07/2010	15:15	242 468,37
PS Stavby, s. r. o.	28/07/2010	10:45	226 375,01
Creacom, s. r. o.			
Staveco stavebná, a. s.	28/07/2010	11:30	220 933,35
Restako, s. r. o.	28/07/2010	11:30	221 142,25
Tecton Slovakia, s. r. o.			
Galastav, s. r. o.			

Three companies didn´t send their offers. The opening of the offers (envelopes) was held on 28/07/2010 at 17:30 by the evaluating committee. The structure of the committee was the following:

MEMBER OF THE COMMITTEE	REPRESENTS
Tibor Polák	Municipality of Galanta
Mikuláš Horváth	Municipality of Galanta
Ondrej Szabó	Bysprav, Ltd.
Peter Pokorný	Dweller of the multi-storey house
Ivan Mrva	Dweller of the multi-storey house
Juraj Zálešák	Dweller of the multi-storey house

The committee selected the four cheapest offers. The revaluation of these offers according to the detailed declared budget took place on 03/08/2010. After the revaluation three potential vendors were selected who proceeded into second round. These companies were:

- PS Stavby, s. r. o.
- Staveco stavebná, a. s.
- Restako, s. r. o.

In the second round held on 17/08/2010 at 17:30, the above mentioned three potential vendors introduced their companies and answered the questions of the committee. The order of the second round was:

- Staveco stavebná, a. s. – 17:30
- PS Stavby, s. r. o. – 18:00
- Restako, s. r. o. – 18:30

The participants decided, that the works will launch in 2010. After this introduction the secret voting of the applicants took place. The selected vendor – the result of the public procurement was **PS Stavby, s. r. o.**
The retrofitting works will be realized on Mierova 1436 by this company.

Public procurement of the retrofitting of multi-storey house on Železničiarska 1432: The procurement was launched on 13/07/2010 by a market survey and by contacting of 5 potential vendors according to the survey. The procurement materials, information and the "blind" budget table were sent on 05/08/2010, with the deadline of the receipt of their offers on 17/08/2010 at 13:00. The contacted companies were (date of the receipt of the offer and the offered price included in the chart):

CONTACTED COMPANY	DATE OF THE OFFER – RECEIPT	TIME OF THE RECEIPT	OFFERED PRICE IN EUR
Stavcolor, s. r. o.			
Stavomal, s. r. o.	17/08/2010	11:30	218 715,01
Restako, s. r. o.	17/08/2010	11:45	228 689,34
Tecton Slovakia, s. r. o.			
Galastav, s. r. o.	17/08/2010	11:45	226 397,77

Two companies didn´t send their offers. The opening of the offers (envelopes) was held on 17/08/2010 at 16:30 by the evaluating committee. The structure of the committee was the following:

MEMBER OF THE COMMITTEE	REPRESENTS
Tibor Polák	Municipality of Galanta
Mikuláš Horváth	Municipality of Galanta
Ondrej Szabó	Bysprav, Ltd.
Juraj Kukučka	Dweller of the multi-storey house
Ladislav Packa	Dweller of the multi-storey house
Jozef Alfoldi	Dweller of the multi-storey house

The revaluation of these offers according to the detailed declared budget took place on 07/09/2010. After the revaluation every three potential vendors proceeded into second round.

In the second round held on 16/09/2010, the above mentioned three potential vendors introduced their companies and answered the questions of the committee. At 10:11, Restako, s. r. o. informed about their standoff from the procurement due to not enough capacities to realize the retrofitting. The order of the second round was:

- Stavomal, s. r. o. – 16:50
- Galastav, s. r. o. – 17:20

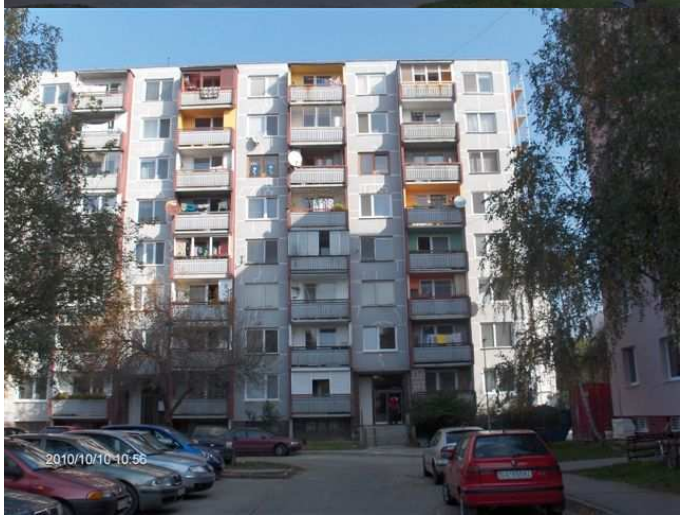
After this introduction the secret voting of the applicants took place. The selected vendor – the result of the public procurement was **Stavomal, s. r. o.**
The retrofitting works will be realized on Železničiarska 1432 by this company.

Retrofitting features – WP realization – three 8 floor multi-storey houses were retrofitted on the demonstration site Galanta. Each house has 32 dwellings, so the total number of retrofitted dwellings is **96**. The total gross floor area of the houses is **8707 m^2** (also indicated in CDS). To provide comprehensive technical information about this work package, it is necessary to compare the situation before and after the retrofitting (GEOCOM measure). The comparing will be focused on technical aspects of the buildings and on the energy efficiency.

Situation before the retrofitting – The multi-storey houses are located in a block of flats. On the other houses were no retrofitting works realized.
The houses are made of concrete panel boards, type PS 82 TT. The houses are composed of eight above-ground and one underground floor, and two sections. External walls on the facing are made of aerated concrete boards with 300 mm thickness and on the shield of reinforced concrete board with 150mm thickness, air gap 10 mm. The roof is flat and the thermal insulation is made by aerated concrete panels with 250 mm thickness and 2 x 40 mm basalt wool.
The cellar is not heated; the roof of the cellar is insulated by 30 mm thick polystyrene. The dimensions of each house are:

- Length: 36,5 m,
- Width: 10,2 m,
- Height: 23 m,
- Height of each floor: 2,8 m.

The walls (cladding) are made by a 0,01 m thick scuncheon, aerated concrete panel boards with 0,3 m thickness and by a 0,01 m thick internal plaster. Gable walls are made by a 0,01 m thick scuncheon, aerated concrete panel boards with 0,3 m thickness, 0,01 m thick closed air gap, 0,15 m thick reinforced concrete panel boards and internal plaster of 0,01 m.



Roofs are made by a coating, aerated panel boards (0,25 m thickness), 0,05 m thick

closed air gap, 0,08 m thick basalt wool, 0,15 m thick reinforced concrete panel boards on the ceiling and 0,01 m thick ceiling plaster.

Loggias are made of prefabricated reinforced panel boards. Set-out is approx. 1,2 m and the height of the railing is 1,0 m. The railings are made of reinforced panel and a steel handle.

The doors and windows in the common spaces are not insulated, made by a single glass and steel frame.

The retrofitting features – GEOCOM measure – retrofitting works included these activities:
Replacement of the windows on the common spaces (numbers are stated on each multi-storey house):

- 14 pieces of windows in the staircase in dimensions 1,2 x 1,5 m,
- 16 pieces of cellar windows in dimensions 2,1 x 0,6 m and 2 pieces in dimensions 0,8 x 0,6 m,
- 4 pieces of windows in dimensions 1,2 x 0,6 m in the machinery room of the elevator.

Replacement of the doors on the common spaces (numbers are stated on each multi-storey house):

- 2 pieces of front-doors in dimension of 2,9 x 2,9 m,
- 2 pieces of rear entrance doors in dimension of 0,9 x 2,4 m,
- 2 pieces of machinery room doors in dimension of 0,9 x 2,0 m.

The new doors and windows have double glass with vacuum insulation with U-value 1,1 $W/m^2.K$, 5 cell plastic and steel frame.

Facade insulation – the dwellers from all the three multi-storey houses chose the same system of facade insulation.

Facades were insulated by EPS polystyrene to height of 22,5 m. Because of fire safety above 22,5 m the same thickness of rockwool was used. The thickness of used EPS was 70 mm, rockwool was 70 mm thick as well.

The ceilings of the common spaces were insulated by EPS polystyrene with 70 mm thickness.

The roofs were insulated by using XPS polystyrene in thickness of 100 mm. Above the insulation a roof foil and a separation layer of geotextile was used. The machinery rooms above the roof were insulated by using XPS polystyrene of 40 mm thickness and above this insulation a separation layer of geotextile and roof foil was used.

From the plinths the old facing was removed because of disrepair. On the cleaned plinths XPS polystyrene was used in thickness of 30 mm. Horizontally, where plinth meets the facade 40 mm thick XPS polystyrene was used.

From the consoles of the loggias the old pavings and the adhesive layer was removed and the consoles were insulated from above and bottom by XPS polystyrene with 40 mm thickness. New pavings, drip edges and paints were realized on loggias besides of the insulation. These works are needed for comprehensive retrofitting.

The ceiling of the cellars, which are the floor between heated (dwelling) and not heated (cellar) area, were insulated by rockwool in thickness of 50 mm.

Hydraulic adjustment was realized on all the mentioned multi-storey houses.

Situation after retrofitting (GEOCOM result) – till the end of the year 2010 almost all the retrofitting works were realized. Only small facade works will be developed in the first quarter of 2011. These works has no impact on the energy efficiency. For better presentation of the results we are providing a short photo documentation:

Multi-storey house on Česká 1437

Multi-storey house on Mierova 1436

Multi-storey house on Železničiarska 1432

Evaluation of energy performance of multi-storey house Česká 1437 – a comprehensive energy evaluation was developed on this multi-storey house. The results of the evaluation are based on the retrofitting features listed in the project documentation. This evaluation was realized before the retrofitting works, but it contains conditions before retrofitting and the retrofitting measure. In the following years we will monitor the energy consumption of the house and compare with the results of the evaluation listed below (the energy evaluation document is attached):

CONDITIONS BEFORE RETROFITTING		
Construction element	U-value	
	Before retrofitting	Requirement according to Slovak technical standard 73 0540:2002
Ceiling of the cellar	1,11	0,75
Gable wall	0,69	0,46
Facing wall	0,77	0,46
Roof	0,37	0,30
Windows of the common spaces	3,00	2,00
Doors of the common spaces	6,00	2,00
Wall of the entrance	3,04	0,80

These figures of U-values indicate that the retrofitting of the multi-storey house is necessary. The heat requirement of the house before the retrofitting works is **254 452 kWh/year**. The heat loss of the building is **4331,67 W/K**. The standardized heat requirement on square meter is **77,98 kWh/(m^2.rok)**.

CONDITIONS AFTER RETROFITTING			
Construction element	U-value		
	Before retrofitting	After retrofitting (proposed condition)	Reduction in %
Ceiling of the cellar	1,11	0,49	55,86 %
Gable wall	0,69	0,31	55,07 %
Facing wall	0,77	0,32	58,44 %
Roof	0,37	0,18	51,35 %
Windows of the common spaces	3,00	1,50	50,00 %
Doors of the common spaces	6,00	1,50	75,00 %
Wall of the entrance	3,04	0,69	77,30 %

The heat requirement of the house after the retrofitting works will be **147 683 kWh/year**. The heat loss of the building is **3031,51 W/K**. The standardized heat requirement on square meter is **49,22 kWh/(m^2.rok)**.

By the retrofitting measures **106 769 kWh** of heat will be saved in a year, what means **41,96 %** of savings. According to these results, the building can be classed in efficient category – B – efficient building.

Evaluation of energy performance of multi-storey house Mierová 1436 – a comprehensive energy evaluation was developed on this multi-storey house. The results of the evaluation are based on the retrofitting features listed in the project documentation. This evaluation was realized before the retrofitting works, but it contains conditions before retrofitting and the retrofitting measure. In the following years we will monitor the energy consumption of the house and compare with the results of the evaluation listed below (the energy evaluation document is attached):

CONDITIONS BEFORE RETROFITTING		
Construction element	U-value	
	Before retrofitting	Requirement according to Slovak technical standard 73 0540:2002
Ceiling of the cellar	1,11	0,75
Gable wall	0,69	0,46
Facing wall	0,77	0,46
Roof	0,37	0,30
Windows of the common spaces	3,00	2,00
Doors of the common spaces	6,00	2,00
Wall of the entrance	3,04	0,80

These figures of U-values indicate, that the retrofitting of the multi-storey house is necessary. The heat requirement of the house before the retrofitting works is **256 601 kWh/year**. The heat loss of the building is **4377,03 W/K**. The standardized heat requirement on square meter is **77,98 kWh/(m^2.rok)**.

CONDITIONS AFTER RETROFITTING			
Construction element	U-value		
	Before retrofitting	After retrofitting (proposed condition)	Reduction in %
Ceiling of the cellar	1,11	0,49	55,86 %
Gable wall	0,69	0,31	55,07 %
Facing wall	0,77	0,32	58,44 %
Roof	0,37	0,18	51,35 %
Windows of the common spaces	3,00	1,50	50,00 %
Doors of the common spaces	6,00	1,50	75,00 %
Wall of the entrance	3,04	0,69	77,30 %

The heat requirement of the house after the retrofitting works will be **149 831 kWh/year**. The heat loss of the building is **3076,87 W/K**. The standardized heat requirement on square meter is **49,94 kWh/(m^2.rok)**.

By the retrofitting measures **106 770 kWh** of heat will be saved in a year, what means **41,60 %** of savings. According to these results, the building can be classed in efficient category – B – efficient building.

Evaluation of energy performance of multi-storey house Železničiarska 1423 – a comprehensive energy evaluation was developed on this multi-storey house. The results of the evaluation are based on the retrofitting features listed in the project documentation. This evaluation was realized before the retrofitting works, but it contains conditions before retrofitting and the retrofitting measure. In the following years we will monitor the energy consumption of the house and compare with the results of the evaluation listed below (the energy evaluation document is attached):

CONDITIONS BEFORE RETROFITTING		
Construction element	U-value	
	Before retrofitting	Requirement according to Slovak technical standard 73 0540:2002
Ceiling of the cellar	1,11	0,75
Gable wall	0,69	0,46
Facing wall	0,77	0,46
Roof	0,37	0,30
Windows of the common spaces	3,00	2,00
Doors of the common spaces	6,00	2,00
Wall of the entrance	3,04	0,80

These figures of U-values indicate, that the retrofitting of the multi-storey house is necessary. The heat requirement of the house before the retrofitting works is **196 132 kWh/year**. The heat loss of the building is **3 521,82 W/K**. The standardized heat requirement on square meter is **75,71 kWh/(m^2.rok)**.

CONDITIONS AFTER RETROFITTING			
Construction element	U-value		
	Before retrofitting	After retrofitting (proposed condition)	Reduction in %
Ceiling of the cellar	1,11	0,49	55,86 %
Gable wall	0,69	0,31	55,07 %
Facing wall	0,77	0,32	58,44 %
Roof	0,37	0,18	51,35 %
Windows of the common spaces	3,00	1,50	50,00 %
Doors of the common spaces	6,00	1,50	75,00 %
Wall of the entrance	3,04	0,69	77,30 %

The heat requirement of the house after the retrofitting works will be **113 278 kWh/year**. The heat loss of the building is **2 512,89 W/K**. The standardized heat requirement on square meter is **41,85 kWh/(m^2.rok)**.

By the retrofitting measures **82 854 kWh** of heat will be saved in a year, what means **42,24 %** of savings. According to these results, the building can be classed in efficient category – A – very efficient building.

We have to mention, that the floor area of this multi-storey house is 2 707 m^2 and the floor area of the others is 3 000 m^2.

Summary of WP results – by the retrofitting works realized on the selected multi-storey houses we achieved a heating energy consumption decrease by 296 393 kWh, what means 1 067,01 GJ. This saving is more than the annual heating energy consumption of a multi-storey house before the retrofitting. At the recent price level of the geothermal heating in Slovakia – 13,94 €/GJ it means 14 874,12 € of annual savings on the district heating. If we divide this figure with the number of the total number of retrofitted dwellings – 96 we, get the annual impact of the project on each household. Each household saves 3087,43 kWh (11,12 GJ) every year, what means 155,01 € of annual savings.

WP 4.3 – System Integration – The system integration includes the deployment of photovoltaic panels on the provision of electricity for lighting common areas of the housing units. During the reported period, public procurement and the application form was sent to the local electricity distributor. Till now, the distributor didn´t send the permission to connect the PV to the grid.
The planned performance of the photovoltaics on each multi-storey house will be up to 2,16 kWp with annual energy gain up to 2,4 kWh. This is an increase compared with the planned performance of max. 1,5 kWp.

3.2.2.2.3 Concerto City of Montieri

Montieri, Italy is hosting the most influential and impressive measures of the GEOCOM project – a brand-new geothermal plant for – one of the very firsts – the integrated district heating system for the Concerto City (actually a village). The majority of the total investment costs (apprx 8 million EUR in total) will be funded from the Tuscany Regional Development Fund (via Structural Fund), while the retrofitting, system integration and connecting measures are to be financed by the FP7 Concerto. This makes the Montieri investment extremely complicated by administrative means, so a careful and thorough preparatory work for the flawless implementation is inevitable.

Work progress of the project of geothermal district heating net in a nutshell:

- On the 11th of October 2008 was delivered to the Municipality of Montieri the preliminary project for the geothermal district heating system. It was approved by official decision of the Municipality Council in 29th of December 2008.
- On the 22nd of July 2009 was delivered the final project, approved by official decision of the Municipality Council on 24th of September 2009.
- On the 23rd of September 2009 was delivered the working project, it was approved by executive decision on 25th of September 2009.
- On 30th of September 2009 the application for regional funding was submitted. Tuscany Region granted the funding on 30th of June 2010.
- On the 20th of January 2010, the "Grant Agreement" of the Geocom project was approved by the Municipality of Montieri. All documents necessary to identify the LEAR and the staff for the project were prepared. Also the application to take part of Frame Program 7 through Geocom Project and the Grant Agreement, all documents, informative reports and forms required by the project's Coordinator were set up by the Municipality.
- From the 26th to 29th of January 2010, the Municipality of Montieri participated to kick-off meeting, which took place in Budapest. At the meeting, Montieri demo site was described to the other partners of GeoCom Project by Professor Roberto Pagani.
- On 3rd of March 2010, the information for the bank transfer statement was provided.

- On the 28th of September 2010, the Municipality of Montieri communicated to Comunità Montana "Colline Metallifere" the need to employ one person with a three years contract, to manage and monitor the intervention activities.
- From the 13th to 16th June 2010, the Municipality of Montieri organized the interim meeting in Montieri, with the collaboration of Softech and CosviG. The aim of this second meeting was to show the use of cascade geothermal energy system in a district heating net. Moreover, visits to the wind farm in Volterra and Montecatini, the Geothermal Museum in Lardarello and the geothermal site in Pomarance and Monterotondo were organized.
- At the moment the Municipality of Montieri is setting up all documents and technical/administrative support necessary to assign management, safety coordination and execution of works.

Work progress of the procedure to obtain funding from Tuscany Region

- On the 30th of September 2009, the Municipality of Montieri sent to ARTEA – Tuscany Region the application to obtain a specific regional contribution provided by Regional Operational Programme (POR) and co-funded by the European fund of Regional Development 2007/2013.
- On the 30th of June 2010 Tuscany Region – Direzione Generale delle Politiche Territoriali e Ambientali Settore Miniere e Energia notified to Municipality of Montieri that a contribution POR-CREO 2007/2013 ***was granted to the project for an eligible cost of € 7.500.000,00 and for an eligible contribution of € 3.116.750,00.***

Work progress of the international announcement for the competitive tender for the realization of the geothermal district heating net

The Municipality of Montieri is following the procedure to expropriate lands chosen to host the geothermal heat exchange plants and pipelines. It is expected to conclude the procedure by June 2011.
Moreover, Montieri's Technical Office is preparing a form for public tender of work management, safety coordination and works execution. This measure should speed up the proclamation of the public tender when needed.

Work progress of the project of the retrofit measures for the historical city centre

The Municipality of Montieri, in collaboration with P2- SOFTECH Ltd., is going to identify public and private buildings to include in retrofit activity and it is working on preparation of public tender to individuate private subjects interested in implementation of these works.
A catalogue of Montieri's building estate is being prepared to identify different classes of buildings that correspond to their different energy performances.
The criteria followed during the study are:
- Historical value
- Shape factor
- Contiguity

A number of retrofit technologies have been studied to improve the energy efficiency of Montieri's historical buildings. The main purpose is to propose a series of measures able to reduce energy losses through the envelope keeping the original aspect and preserving the building from decay. According to building construction typologies different materials are proposed, when it is possible natural ones are preferred. An evaluation of the cost-effectiveness of the technology is done and the payback time of each technology is determined.

Moreover some key examples of integration of energy efficiency technologies on existent buildings is worked out to demonstrate a first hypothesis of retrofit design for the historical city centre. Cost and effectiveness of the combination of technological measures are also evaluated.
Finally a early hypothesis of integration of RES technology is proposed: the building envelope of the two geothermal heat exchange plants has been designed with a semi-hypogeum structure and a roof covering of PV panels.

Detailed description of technological solutions is presented in the attached deliverable 3.1 (draft version)

3.2.2.3. WP5 – Technological Research

Leading Partner – P9 University of Szeged; main contributor: P1 – Geonardo, P5- PAS-MEERI

The main objectives of the first research WP was identified in the previous chapter. During the 1st reporting period of the project the almost final – though still not approved by the Steering Committee, so considered to be the final draft – version of the D5.1 and the related research were performed.

The main scope of WP5.1 has been to outline ways of integrating geothermal energy in energy systems in Central-Eastern Europe, and evaluation of integration methods. In this WP available experience of integrating RES into a cascaded facility with a view to environmental improvements and extending the utilization time and spectrum of uses of such facilities has been be studied. Researchers at the University of Szeged looked at the economic and environmental factors of geothermal systems operating or being planned in the South Great Plain Region, outlined potential project sites, and collected data from GeoCom project partners regarding utilization in CEE countries. The staff carried out a concise, detailed study of actual and potential geothermal projects in the South Great Plain of Hungary, as well as collected data from partners from Serbia, Slovakia, FYROM and Poland, and analysed geothermal, as well as integrated-use project plans.

The objective of the current study is the comprehensive presentation of geothermal energy utilization in the CEE partner countries of GeoCom with a focus on RES integration. In the deliverable the project presents the current situation of geothermal utilization, focusing on the regions of our partners with communal geothermal and integrated heating systems, and development concepts in the scope of our study. In the case of the three counties of the South Great Plain region we determined potential development locations and possibilities too.

The European Union assistances provide a significant resource for alternative energy developments in CEE and all over Europe; however, earlier experiences show that their utilization is quite difficult due to the lack of exact knowledge of possibilities. A solution to these problems is a comprehensive study on the potential, projects and plans that summarizes the existing and planned investments utilizing thermal energy in a region with some of the best geothermal features in CEE.

The D5.1 wish to present the geothermal features of the region with the designation of areas where thermal water can be extracted in an economic way. Geothermal energy projects require not only good hydrogeological features, but also a concentrated heat market, thus the potential development locations is influenced by the number of the population in the concerned settlements and by professionals available.

During the elaboration of the study, we aimed to develop project plans, present project summaries and outline investment concepts with the most relevant financial and environmental indicators. During the presentation of the different projects, we outlined the environmental indicators and the problems concerning geothermal energy utilization, and we determined the connection possibilities that could successfully integrate the industrial, research-development, administrative and civil organizations concerned in the utilization of RES. The synergy is needed, since the parties concerned in the utilization of thermal energy, more often than not, cooperate only to very small extent during the developments, there is no uniform opinion in questions concerning renewable energy utilization, thus the capacity of CEE to defend its own policy interests is low. Unfortunately, significant resources cannot be drawn for investments, thus the projects aiming the utilization of alternative energy are slow in progress.

Highlight clearly significant results:

The following activities had been planned and were carried out:
- Investigation of the economic factors that influence the integration of GE in energy systems.
- Investigation of other factors that influence the integration of GE in energy systems.
- Identification of integrated systems potential layouts.
- Studies for the improvement of geothermal energy utilization in CEE.

The results of the research are summarized in the deliverable: RES Integration in CEE – Case Studies. The theoretical, general conclusions of the study will be presented by the end of 2011.

Deviations from Annex I and their impact on other tasks as well as on available resources and planning:

While the scope of the research has not changed, at this stage emphasis has been given to a more practical approach instead of a theoretical one. With a number of operators including municipalities planning looking for practical solutions to their energy problems we defined analysing actual project plans and sites from the point of view of sustainability, economic viability as well as pointing out the potential for RES integration as our task for the first year of the research. The task will be completed with a general results study to be carried out in 2011.

• If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator)

As stated in Annex I the main scope of WP5.1 has been to outline ways of integrating geothermal sources in energy systems, including those with other RES. However, as WP5.4 deals specifically with integrated utilization of waste gases of thermal wells in this phase we focused on GE system layouts and their integration with biomass and present outputs related to waste gas integration under WP5.4.

While we originally planned to collect data on RES integration in Italy we ended up not including these data into the deliverable in order to maintain the coherence of the research on how RES integration may be carried out in CEE.

• a statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Work);

The final version of the deliverable including more detailed description of the above mentioned issues of RES integration will be presented by the end of the second project period..

3.2.2.4. WP6 – Socio-Economic Research

WP Leader – P5 PAS MEERI; main contributors: P1 – Geonardo, P9 University of Szeged, and DEMO CITIES representatives

As we mentioned earlier in this report, WP6 activities are planned for the M25-48 of the project, so no specific work packages objectives were envisaged for the reported period (as included in Annex I to the Grant Agreement).

However, following the study site visits in particular pilot sites (Galanta, Morahalom, Montieri) as well as discussions and common partners' decision taken during the Interim meeting in Florence - Gerfalco, Italy, June 2010, PAS-MEERI team – together with the concerned parties - prepared an additional Preliminary Questionnaire on socio-economic approach to RES and RUE (WP-6) measures before the start of the GEOCOM investment activities in demonstration sites (Galanta, Montieri, Morahalom).

The above work Preliminary Questionnaire on socio-economic approach to RES and RUE (WP-6) meets the scope and objectives of socio-economic research WP6.1 Public perception of geothermal energy and will contribute to achieve better progress towards WP6 objectives and details, as well as sounder D6.1. Study on public perception of geothermal energy (delivery date month 34th).
The partners have found such a Preliminary Questionnaire as very useful and necessary to start much earlier than in 24th month as originally envisaged in WP6).

The Preliminary Questionnaire contained key questions and issues addressing some future beneficiaries of retrofitting and other RES installations planned in frame of GEOCOM in communities of Galanta, Morahalom and Montieri. The aim was to gain a kind of general background and some orientation on local inhabitants – future beneficiaries' attitudes, state of knowledge on RES and RUE before start of investment works and before they would experience their positive results.

It is expected that throughout project duration some evolution and changes in individual approaches will be visible therefore such a preliminary background is necessary for any comparisons, evaluations and descriptions of changes among local communities in social acceptance and growth of knowledge and awareness related to RES and RUE. These issues are of paramount importance for the GEOCOM objectives, WP-6 in particular.

The issues and questions covered by the Preliminary Questionnaire (attached to this report as pdf file) were elaborated in cooperation with the GEOCOM partners from 3 demonstration sites in order to make this questionnaire properly tailored to the specifics of each addressed site and assure that it will bring true picture and representative answers. The Questionnaire was prepared in English and than translated into 3 local languages (Slovak, Italian, Hungarian).

The preliminary results:

For Morahalom the Preliminary Questionnaire survey has been already made and some more than 50 respondents were contacted during fall 2010. Next, individual sheets were collected, translated into English again and briefly summarized by the local GEOCOM partner involved in this work.
Further Preliminary Questionnaire works including surveys for Galanta and Montieri are in progress, while general statistical elaboration, analyses and conclusions by PAS-MEERI in cooperation with other partners are planned in the forthcoming period of project duration.

The additional works on Preliminary Questionnaire did not cause any deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Work);

3.2.2.5. WP8 – Dissemination

WP leader – P1 GEONARDO, contributors – all partners

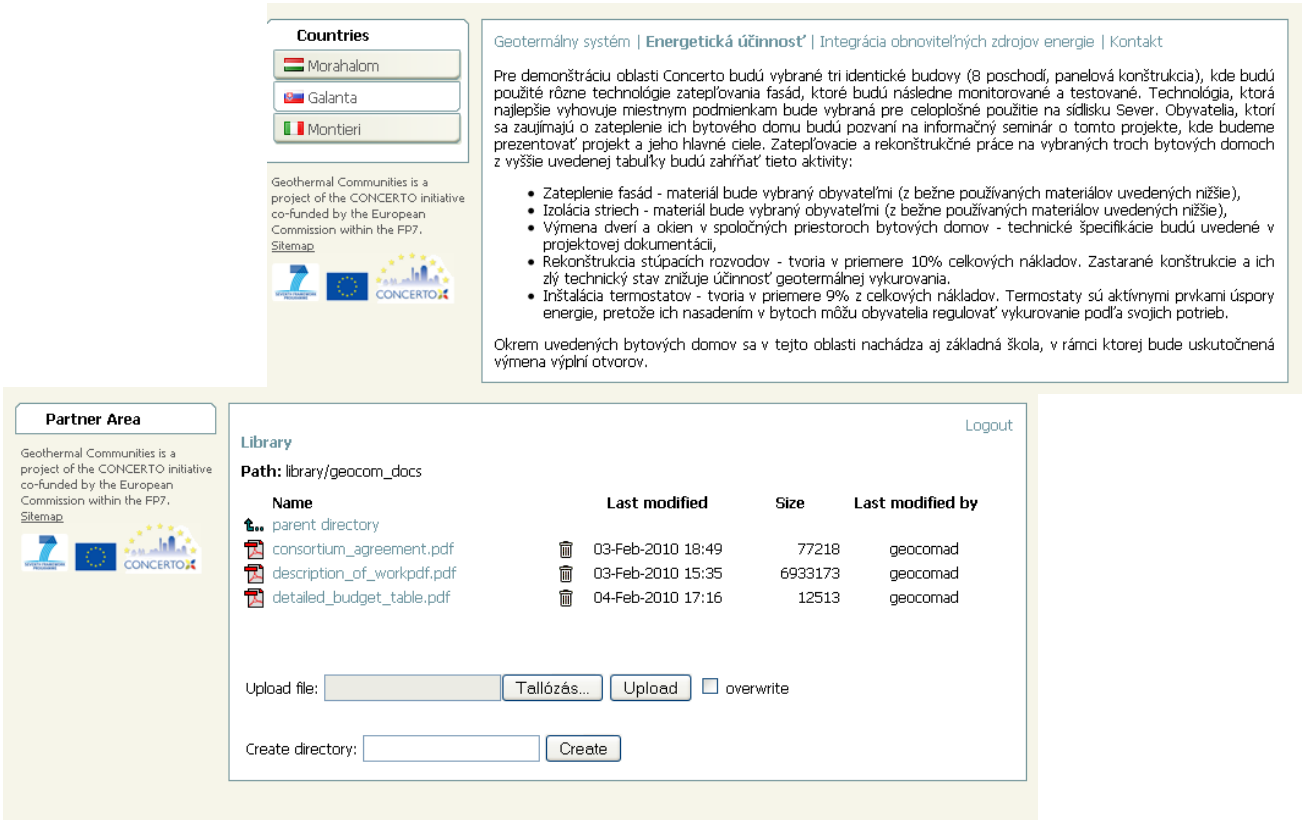
WP8.1

D8.1 - www.geothermalcommunities.eu

The draft design and structure of the official project website was introduced already at the Kick-off meeting (January 2010.). Based on the partners feedback the website was amended and further complemented and than made available from the third month of the project (March 2010.). For the first project year it has provided information about the structure of the consortium, the project research objectives (WP5/WP6/WP7), the description of the pilot sites (translated ton Hungarian, Italian and Slovakian as well) and associated cities. The website also serves as an instrument to keep partners in permanent contact: a separate part of the website is updated regularly (accessible for Consortium Members only by exclusive passwords) and ensures

that in addition to the core services adequate links are established to latest relevant results. It is regularly updated with reports/minutes of meetings (accessible only to partners).

Please find a few screenshots of the website and the Partner Area:



WP8.2 Common Dissemination Activities

Several versions of the project logo were created and introduced to the project partners already at the Kick-off meeting (January 2010.). The final logo used as the symbol of the project on the website, project brochures, partners and other relevant websites (banners) and publication etc since Month 3 (March 2010.).

General dissemination of information about the project, its objectives, the approaches and expected results have been carried out by each partner numerous occasions via presentations, publications, news articles and company newsletters etc. in order to improve the market for development of geothermal energy and integrated geothermal RES&RUE projects in EU countries. The list of all related dissemination activities are attached as a separate table to this report.

D8.2.1 Brochures 1

The first brochure (was ready in M3 – March 2010.) and contains the overall aim of the project, introduces the consortium (list of participants) and the demonstration activities planned in three demonstration sites. It has been translated to 7 different languages: Italian, Slovakian, Hungarian, Romanian, Serbian, Macedonian, Polish (and downloadable on project website and the partners' relevant website in electronic format). Altogether 2000 copies of the English version of the brochure was printed and sent to project partners for distribution (e.g.: http://www.sacueni.ro and http://www.sudirekcija.rs/pdf/geocom_en.pdf;).

D8.3 Newsletters

The dissemination leader with the agreement of the demonstration site and research WP representatives has decided to postpone the original deadline of M12 of the 1st newsletter and to instead issue a joint newsletter for M16 (April 2011.), which will include already significant research and demonstration results achieved during the first reporting period year.

WP8.3 Presentation and participation at high-profile events

- Partner number 7, MAGA has taken part in the World Geothermal Congress 2010 and introduced the project summary in its company introductory.
- The Coordinator (P1 Geonardo) and the University of Szeged (P9) were also intended to participate at the ***World Geothermal Congress in April 2010*** at Bali, but due to the volcano eruption at Iceland and the connected air-transport blockade the travel was cancelled thus no cost are charged to the project. The project brochures and the project intro-poster were however sent to the venue and were presented by the event organiser (World Geothermal Council)
- Participation at Concerto Plus: networking with other Concerto coordinators (I-II.) and distribution of project leaflets at the **CONCERTO in every city - forum for local decision makers and stakeholders - 6-7 December 2010., Brussels**
- Premium meetings and activities not yet started during the reporting period.
- National Press and Media releases from each partner within its country have been carried For the detailed list please find attached the excel sheet attached to this report.

3.2.3 Project management during the period

The structure and implementation of project management activities was strictly in line with the Grant Agreement and with the Consortium Agreement (submitted in February 2010 as deliverable D1.1). In principle the project has been completed the following way:

The Coordinator's responsibilities:

- Monitoring progress. Encompassing general coordination activities, devoted to keeping the project on track and on schedule, and the exploitation related activities.
- Collection and review financial and technical reports from all partners. Each team has been directing their own work, but discussed all administrative and technical aspects with the Coordinator. Individual financial reports have been the responsibility of the administrator of each partner, but for the overall management the Coordinator has been in charge.
- Advance-payment from the Commission had been forwarded to the partners without delay according to the rules laid down in the FP7 Grant Agreement and in the Consortium Agreement.
- Organisation of the theoretical aspects related to the objectives of the particular Work Packages and of the project as a whole.
- Supervising the information provided to the partners through the website. The website serves as the main platform of the project, but it is also an instrument to keep partners in permanent contact.

Seven Work Packages were active during the reporting period (WP1, WP2-3-4, WP5, WP6 and WP8). WP Managers have been selected based on their past experiences with the management/coordination of EC initiatives at a similar scale. They have been responsible for the technical/administrative co-ordination of the work within the assigned work package and also responsible for all the specific WP results being available on time.

The Project Steering Committee (SC) and the project Engineering Office (EO) were set up at the Kick-off meeting, including the Project Coordinator and project management representatives from the project partners comprised of WP leaders and with the Demo Sites representatives, respectively. The Steering Committee has continuously audited project progress, defined project standards and agreed on project policies. This period of the project did not see any event that would have required the intervention of the Steering Committee.

The communication between the consortium members has been excellent with regular updates and communications via e-mail, skype, telephone, and personal meetings during the various (joint) events. Two main project meetings occurred during the reporting period:

- *(26) 27-29 January 2010, Budapest: Project Kick-off meeting* and site visits to Morahalom, Hungary and to Galanta, Slovakia All partners and the EC project officer Mr. Santiago Gonzalez-Herriaz were presented. The meeting was organised by the Coordinator Geonardo Ltd. and all eligible costs (excluding the partner related travel and accommodation costs) were paid by the lead partner. The agenda of the meeting and the outputs can be found on the project website
- *14-16 June 2010, Florence and Montieri, Italy: First Interim Meeting* and site visit to Montieri Demo site. Most of the partners were presented.
- *Several bi- and tri-lateral meetings* were held between the Demo-site representatives and the project's EO staff during the first year of the project.
- ***The next general project meeting is scheduled for April 2011, to be held in Kocani (associated city), FYROM.***

Overall status of project management: the project has been on track and the performance and commitment of partners exceeded all expectations. The consortium did not experience any problems concerning project management and implementation and no changes occurred in partnership or partner status during the reporting period.

3.3 Deliverables and milestones tables

TABLE 1. DELIVERABLES DATED FOR THE REPORTING PERIOD 1

Del. no.	Deliverable name	Version	WP no.	Lead beneficiary	Nature	Dissemination level[4]	Delivery date from Annex I (proj month)	Actual / Forecast delivery date	Status	Contractual	Comments
D1.1.	Consortium Agreement	Final	1	P1	O	PP	1	1	Submitted	Yes	Submitted in February 2010
D2.3.	Pipe line & junction Galanta	N/A	2	P6	D	PP	12	18	Not submitted	Yes	Due to technical difficulties, deliverable is postponed by 6 months to M18
D3.1.	Technology showcase for retrofitting	Draft	2	P2	R	PU	12	12	Submitted	YES	Draft version – for Montieri dwellings
D5.1.	RES Integration Concept paper	Draft	5	P9	R	PU	12	12	Submitted	YES	Final version to be submitted at the end of the 2nd reporting period
D8.1.	Website	N/A	8	P1	O	PU	3	1	Available	YES	Frequently updated – a major reconstruction is planned according to the meeting with the new PO in Brussels in February 2011
D8.2.	Brochure 1	Final	8	P1	O	PU	3	1	Submitted	YES	Intro-version, created at M1 for the kick-off. New version to be published in M16
D8.3.	Newsletters	N/A	8	P1	O	PU	3	Yearly	No submitted	YES	Postponed: joint newsletter for (1st and 2nd edition) for M16 April 2011)

Milestones

TABLE 2. MILESTONES FOR THE REPORTING PERIOD 1 ONLY							
Milestone no.	**Milestone name**	**Work package no**	**Lead beneficiary**	**Delivery date from Annex I**	**Achieved Yes/No**	**Actual / Forecast achievement date**	**Comments**
M1/a	Consortium Agreements and Detailed Implementation Plans	1	P1	M1 (CA) M6 (DIP)	Yes	January 2010. and June 2010.	Submitted
M1/b	System Integration Concepts Approved, WP2 and WP3 launched	2,3,4	P1/P2/P6 and P9	12	Partially	30/06/2011	Under construction
M2	First Progress Meeting	1,2,3,4,5,8	P1 (Hosts: P8/12)	M 13 (January 2011.)	Yes	14-16 June 2010. (M6)	Interim meeing (M6). First progress meeting to be held in M16 at Kocani, FYROM. Detailed Implementation Plans for the three demonstration sites were approved

3.4 Explanation of the use of the resources

The Coordinator established an efficient and transparent financial reporting system at the kick-off meeting of the project, where all partners were trained to the special accounting criteria of the FP7. Though the Consortium consist of many partners from all over Europe, some of them from new member states, many never participated in any Community Programmes, all of them understood the reporting requirement and the requested proofs of costs.

The advance payment had arrived to the Coordinator's bank account on he last days of 2009(so couple of days before the project actually started), due to internal accounting issues of the DG TREN. The Coordinator forwarded the advance payment to all partner according to the Consortium Agreement once the relevant party signed the CA.

During the first year of the project the main cost items at each partners were the following:

- … personnel costs (based on time-sheets and actual salaries) related to WP1, WP2/3/4, WP5/6 and WP8
- … Travel costs to project meetings and to relevant conferences, meetings
- … Other costs – dissemination, printing of general and local publications, webpage development, etc.
- … Other costs – participation fee at certain conferences and events
- … Subcontracting – costs related to retrofitting works at Galanta (P17 – BYSPRAV) and to public procurements (preparation of works) at Montieri (P12 – Municipality of Montieri)

Some of the partners (mainly the public bodies) have decided to cover their personnel costs of 2010 from their own budget and not charging it to the project due to administrative issues. The Coordinator discussed these issues with all relevant partners in details and finally accepted their standpoint at this. Personnel costs at these partners will be charged to the project only from Year 2.

The spending rate of the project is in line with the workplan and with the budget foreseen in description of work (DoW). All costs reported by the beneficiaries were needed and justified in reports to achieve the project's objectives. At this point there were no ***budget reallocations*** at partners' level or at project level between partners, but the SC continuously monitors the spending and the performed activities and will act if necessary.

Partner 17 – BYSPAV decided to submit a Certificate on Financial Statement (CFS) on their Form C though the official limit for that (i.e. 375 k€ EC contribution spent) was not met. The CFS is to give details on and to monitor/ supervise the costs related to the retrofitting measures.

All partners submitted the Form C to the Coordinator and they were sent to the Project Officer in hardcopy version.

Project coordinator:

GEONARDO
STATE-OF-THE-ART AND BEYOND

GEONARDO Environmental Technologies Ltd.
www.geonardo.com

Demonstration Sites:

Municipality of Morahalom

Municipality of Galanta
Galantaterm Ltd.
Bysprav Ltd.

Municipality of Montieri
SOFTECH Ltd.
CoSviG Ltd.

Research Partners:

Slovak Energy Agency

Polish Academy of Sciences

Macedonian Geothermal Association

University of Szeged

Associated communities:

Municipality of Oras Sacueni

Municipality of Subotica

Municipality of Kocani

Municipality of Mszczonow