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6th Newsletter / October 2012

Boost the competiveness of industrial SME'ss in the cross border Greece-Bulgaria area, by helping them reduce their operating costs, throught the implementation of innovative cost-cutting technologies

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Industrial Association of Petritch
Industrial Association Karjali
Aristotle University of Thessaloniki
South-West University "Neofit Rilski"
Federation of Industries of Rhodopi
Union of Industry and Manufacture of Xanthi
Federation of Industries of Evros

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Editorial

According to one of the most famous business schools at the word IMD of Switzerland, the definition of competitiveness is: "A field of Economic Knowledge, which analyzes the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people".
This definition, and especially its main components, is the "moto" of Cross – Inno – Cut Project.
All the partners of C-I-C Project worked for more than one year to boost the competitiveness of 100 enterprises in the cross – border area by helping them reduce their functional costs. Our belief is that a firm is competitive if it can produce products and services of superior quality and lower costs than its domestic and international competitors. In than period of time our team is at the end of producing the audit reports, which means the completion of the first crucial stage of implementation of innovative C-I-C methodology. At the end of September we'll be able to publish more detailed information and statistics about the share of each one of the intervention areas to the total audit effort.
We feel that our innovative project will have a very important contribution to Greek and Bulgarian companies in their strategy for long-run profit performance and their ability to preserve its employees and provide superior returns to their owners, especially nowadays, e.g. during the economic crisis period.
Also, we strongly believe that with C-I-C project we can help the enhancement of competitiveness of Greece and Bulgaria, which were at the last positions of Word Competitiveness Rankings for 2012. Bulgaria has the 54th place over 59 countries, and Greece is at the 58th position, e.g. the penultimate country worldwide.
As a result, it is obvious that with the C-I-C project we anticipate to boost the investments in cross-border area, especially at the secondary sector. These investments need to be made, first of all internal to the companies which participated to C-I-C, and then to the rest, for bolstering the regional economy, creating satellite development and new jobs.

This is the "road" of competitiveness.
This is the "road" of development.

C-I-C mission is to create development through enhancement of competitiveness, at an entrepreneurial and at a regional level as well.

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C-I-C Advertising Campaign

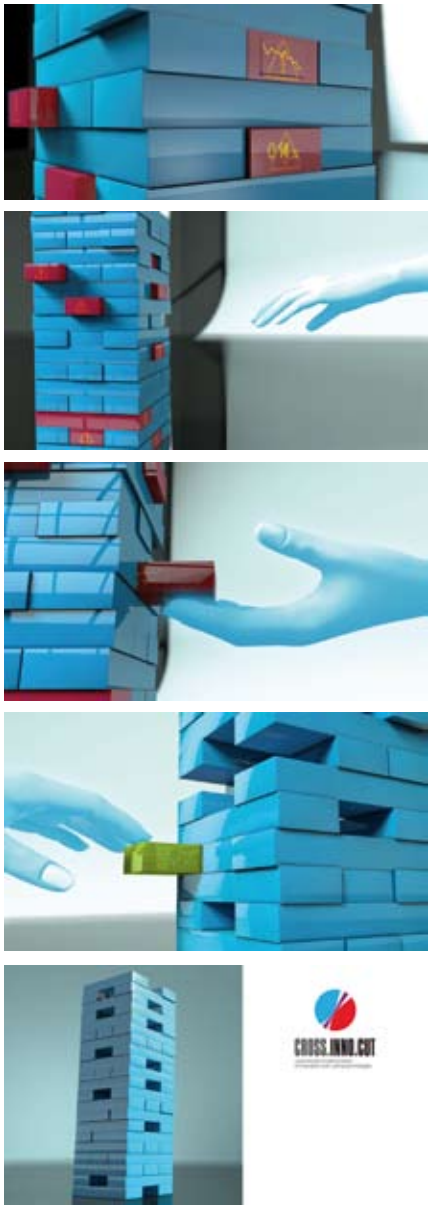
During the month of June, and following a public bid, the Colibri company (www.colibri.gr) was awarded the contract to create a TV advert in order to promote the advantages for Greek and Bulgarian companies of participating in the "Cross – Inno – Cut" project. The Federation of Industries of Northern Greece (F.I.N.G.) is the organisation responsible for the development of the TV advert.
The content of TV advert is the following:

"You want to limit the cost of your business;
Do it right!

The Cross Inno Cut is an innovative project funded by the European Regional Development Fund and National Funds of Greece and Bulgaria to contribute to the sustainability and growth of your company."
The television advert has already been put together and is being shown on national TV channels in Greece (e.g. ET3), on regional TV channels covering much of Northern Greece, and therefore a large part of the eligible region (TV 100), as well as on local channels with high viewing figures (Kavala, Evros and Serres). The level of television coverage chosen provides the most effective means in order to reach the greatest audience, thus resulting in the best possible promotion of the project. Already the hits on the website have risen sharply, while numerous companies have expressed interest in taking part in C-I-C project activities.
The TV advert will be translated into Bulgarian and will have similar media coverage in Bulgaria, managed by the Bulgarian project partner the Neofit Rilsky University.

In parallel, the project is being promoted using banners on popular websites. On the Greek side, the websites in question are the following:

www.voria.gr
www.makthes.gr
www.aggelioforos.gr



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Implementation of Phase 1: diagnostics of the project

During a 4-month period from June to September, and following the public bidding process, the Federation of Industries of Northern Greece (F.I.N.G.) and the Neofit Rilsky University selected the experts (both companies and individuals) who would implement the relevant inspection visits to 100 manufacturing SMEs in the cross-border area (70 Greek and 30 Bulgarian). More specifically, we have selected 18 experts from Greece and 5 from Bulgaria.

First of all, two separate training sessions were conducted for the Greek and Bulgarian experts. On the 6th of June 2012 a training session was held for the Bulgarian experts in Blagoevgrand, while the corresponding session for the Greek experts was held on the 18th of July 2012 at the premises of the research team Urenio at the farming division of the Aristotle University of Thessaloniki.

The purpose of the training was to explain how to use the diagnostic tool, how to insert data onto the electronic system and how to download reports from the system. Our Bulgarian colleagues have already completed their activities, while the Greek activities are due to be completed during the first half of October.

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Companies participating in Phase 1: numbers per geographical area

Following the publication of the project by the nine organisations involved in its implementation (through events, press releases, press articles in newspapers and magazines, but also with the help of electronic documentation), more than 100 manufacturing companies expressed interest in participating the C-I-C project.

The distribution of companies by geographical region is as follows:

Evros: 11
Rodopi: 7
Xanthi: 5
Kavala: 5
Drama: 4
Serres: 4
Thessaloniki: 34
Petrich: 10
Blagoevgrand: 10
Kardjali: 10

The geographical distribution of the companies in each of the areas mentioned above, reflects the current industrial concentration during this period of economic crisis. It also indicates the comprehensive coverage of all the eligible border areas.

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Design of new project logo

Following a proposal made by the Federation of Industries of Northern Greece (F.I.N.G.), the design of the project logo was changed.
The new logo is a simplified version of the original logo, since it only includes 3 colours, on a white background. More specifically, the blue and red have been taken from the flags of the two participating countries, (blue from the Greek flag, and red from the Bulgarian flag), while the space in between has a scissors symbol in purple, thus symbolising the efforts of the nine project partners to implement innovative processes in order to reduce operating costs in manufacturing SMEs.

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Cost reduction opportunities from geothermal energy: the third intervention area

As demonstrated by volcanoes, hot springs and measurements from drilling, the interior of the earth is very hot, and the temperature at its core is more than 5000 °C. This heat in the earth's interior is geothermal energy and it is so huge that it can be considered to be a practically inexhaustible source of energy.
Going from the surface of the earth towards the core, we observe that the temperature increases according to the depth. This is called the geothermal gradient. Near the surface of the earth, the geothermal gradient has an average value of about 30 °C/km. In some areas, either due to volcanic activity during a recent geological age, or due to the rise of hot water from very deep levels through fissures, the geothermal gradient is significantly greater than the average. The result is that aquifers can be found at relatively shallow depths which contain hot water or high temperature steam. These areas are called geothermal fields and exploiting their geothermal energy is very cost effective.

Such areas in Greece are the volcanic islands of the Aegean (Milos, Nisyros, Santorini, Lesvos, Samothraki, etc.), many areas in Macedonia and Thrace (Nigrita, Siderokastro, Neo Erasmio, Nea Kessani, Tychero Evrou, etc.) as well as the environs of all of the 56 hot springs in Greece.
The applications of geothermal energy vary according to their temperature and include:

- Power generation(θ>90 °C)
- Space heating (with radiators, θ>60 °C, fan-coils, θ>40 °C, floor heating systems, θ>25 °C)
- Refrigeration and air conditioning (using absorption heat pumps, θ>60 °C, or with water cooled heat pumps, θ<30 °C)
- Heating greenhouses and soil because plants grow more quickly and become bigger with heat (θ>25 °C), and also for protection from frost.
- Aquaculture (θ>15 °C) because fish require a specific temperature to grow.
- Industrial applications such as desalination of seawater (θ>60 °C), drying agricultural products, etc.
- Thermal spas (θ = 25-40 °C)

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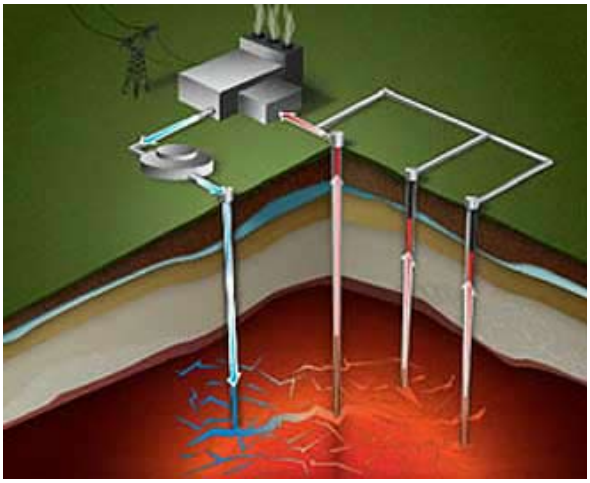
Besides geothermal fields, with today's technology, heat from rock at a shallow depth, as well as low temperature underground or surface water can be used for heating and air conditioning. This technology involves the use of a very long pipe with a small diameter buried in the ground, or in wells, where it acts as an underground heat exchanger, coupled with a water cooled heat pump which provides heating or cooling to a building.

Geothermal heat pumps consume one quarter of the electricity consumed by an electrical resistor and 1/2 that of an air conditioner. If the cost of energy is calculated over the life cycle of the system, geothermal heat pumps cost less than a system which consumes oil or natural gas. In the future, geothermal energy will be exploited using hot dry rock, which is found everywhere at depths between 3 and 5 kilometers, by artificial water circulation through it at a temperature of up to 150 °C.



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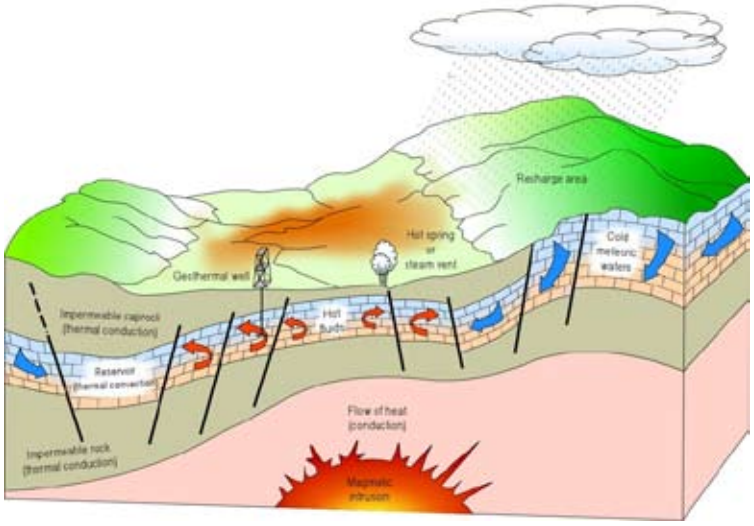
Cost reduction opportunities from geothermal energy: the third intervention area

Ground source heat pumps are characterized by high capital costs and low operational costs compared to other systems. Their overall economic benefit depends primarily on the relative costs of electricity and fuels, which are highly variable over time and across the world. Based on recent prices, ground-source heat pumps currently have lower operational costs than any other conventional heating source almost everywhere in the world. Natural gas is the only fuel with competitive operational costs, and only in a handful of countries where it is exceptionally cheap, or where electricity is exceptionally expensive. In general, 20% to 60% can be saved annually on utilities by switching from an ordinary system to a ground-source system. However, many small size installations are reported to use much more electricity than their owners had expected from advertisements. This is often partly due to bad design or installation: Heat exchange capacity with groundwater is often too small, heating pipes in house floors are often too thin and too few, or heated floors are covered with wooden panels or carpets.



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Capital costs and system lifespan have received much less study, and the return on investment is highly variable. One study found the total installed cost for a system with 10 kW (3 ton) thermal capacity for a detached rural residence averaged $8000–$9000 in 2008 US dollars. The rapid escalation in system price has been accompanied by rapid improvements in efficiency and reliability. Capital costs are known to benefit from economies of scale, particularly for open loop systems, so they are more cost-effective for larger commercial buildings and harsher climates. The initial cost can be two to five times that of a conventional heating system in most residential applications, new construction or existing. In retrofits, the cost of installation is affected by the size of living area, the building's age, insulation characteristics, the geology of the area, and location of the property. Proper duct system design and mechanical air exchange should be considered in the initial system cost.

Capital costs may be offset by substantial subsidies from many governments. Some electric companies offer special rates to customers who install a ground-source heat pump for heating/cooling their building. This is due to the fact that electrical plants have the largest loads during summer months and much of their capacity sits idle during winter months. This allows the electric company to use more of their facility during the winter months and sell more electricity. It also allows them to reduce peak usage during the summer (due to the increased efficiency of heat pumps), thereby avoiding costly construction of new power plants. For the same reasons, other utility companies have started to pay for the installation of ground-source heat pumps at customer residences. They lease the systems to their customers for a monthly fee, at a net overall savings to the customer.

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The lifespan of the system is longer than conventional heating and cooling systems. Good data on system lifespan is not yet available because the technology is too recent, but many early systems are still operational today after 25–30 years with routine maintenance. Most loop fields have warranties for 25 to 50 years and are expected to last at least 50 to 200 years.
Ground-source heat pumps use electricity for heating the house.
The higher investment above conventional oil, propane or electric systems may be returned in energy savings in 2–10 years. If compared to natural gas systems, the payback period can be much longer or non-existent.
The payback period for larger commercial systems is 1–5 years, even when compared to natural gas.
Ground source heat pumps are recognized as one of the most efficient heating and cooling systems on the market. They are often the second-most cost effective solution in extreme climates, (after co-generation), despite reductions in thermal efficiency due to ground temperature.
(The ground source is warmer in climates that need strong air conditioning, and cooler in climates that need strong heating.)

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