



EU Project EUREMplus: Boost Energy Efficiency in Manufacturing SMEs

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Nuremberg Chamber of Commerce and Industry (CCI)
Innovation & Environmental Affairs Division
Ulmenstr. 52, 90443 Nuremberg, Germany
c/o EUREM management
Robert Schmidt, Dr.-Engineer (responsible)
E-mail: iu@nuernberg.ihk.de | info@eurem.net
Websites: www.ihk-nuernberg.de | www.energymanager.eu

Editorial team

Andreas Horneber, Stefan Schmidt, Dr. Robert Schmidt, Dr. Manuel Hertel, CCI Nuremberg (DE)
Sonja Starnberger, Energieinstitut der Wirtschaft GmbH, Wien (AT)

Layout and design

Gudrun Hanauer, www.hanauer-grafik.de

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FOREWORD



Dr. Robert Schmidt,
EUREM spokesman
Nuremberg CCI, Germany

How we can manage to reduce global warming? This question was strongly discussed during the United Nations Conference (COP21) on climate change in Paris in December 2015. From the energy point of view, the answer is quite simple: more savings, more efficiency, more renewables! As of 2014, the Member States have to meet the Energy Efficiency Directive of the European Union. Thus, the European Union enters a new era of energy policy. Up to now, the focus has been on renewable energies, especially on green power. It has become clear that the costs in this field are rather high and that the desired effect can only be achieved if we find a way to interrupt the trend towards increasing energy consumption. A holistic energy policy cannot do without a strong efficiency approach. The European Union has realized that a sustainable energy system can only be achieved if energy is used consciously and prudently. The new Energy Efficiency Directive puts particular weight on energy management. The European Union expects a major leap forward by implementing energy management systems and energy audits for large energy consumers. This brochure introduces the EnergyManagers who are committed to making energy use as efficient as possible. Fortunately, there are already so many representatives for energy efficiency in enterprises that only a small number of sample projects can be presented to the public. However, we can gain a lot through these good examples and their originators, as many of these projects can easily be multiplied ten- or hundredfold, since the respective solutions can also be implemented sensibly in other companies or areas. Although the outcome is quite impressive, we cannot afford to be content with the level achieved. We still need many more of these smart “EnergyManagers” in our



**Univ.-Doz.
Dr. Stephan Schwarzer,**
EUREM vice spokesman
Austrian Federal Economic
Chamber, Austria

companies and in all other member states of the European Union and far beyond. We are very glad that the European Union supports the project EUREMplus, which aims to extend EUREM to another six European countries and to strengthen existing EUREM structures. By now, the success of the EUREM model has already encountered a high level of interest in other parts of the world as well, and Energy Management “made in Europe” under the EUREM flag can be found in South America, Africa and Asia. The improvement of energy productivity is a task which poses a great but also welcome challenge for the entire business community. However, energy efficiency, energy management or energy productivity cannot be imposed. To achieve these goals, we need people who take the lead, who spot with a trained eye where energy is wasted and who know how to intervene. On the one hand, the goal is to use the best available technologies, and on the other hand, the goal is to reduce unnecessary consumption. Our EnergyManagers are the army of energy efficiency. They do not burden the economy - they disburden it. They do not create costs, as they find solutions which will be recouped within a short time, thus helping to reduce costs and to increase the competitiveness of the respective companies while contributing significantly to global climate protection. Our clear principle is therefore “proud to save”: we are proud of our EnergyManagers and their creative power which shows within the projects, and on the results which we are able to present. We are not content to rest on our laurels, as there is still a lot more to accomplish. The EUREM Training and the EUREM Network are one thing - pro-active implementation in enterprises the other.
Let’s tackle it!

EUREM - GUARANTOR FOR ENERGY EFFICIENCY AND MORE RENEWABLES

The EUREM European EnergyManager Training is a standardized training of further education that enhances the skills of technical experts in the field of energy efficiency improvement. It covers nearly all energy-relevant issues that can arise in companies.

The training is usually held extra-occupational and consists of face-to-face sessions (160 units) and a final project work as well as online self-study (80 units).

The 160 teaching units (45 min) are held by experienced teachers and professionals. The EUREM training contents are standardized and therefore globally comparable. The quality of the training and the training organisation is ensured by periodical quality checks by external auditors.

The preparation of a so-called “energy concept” is a compulsory and crucial element of the EUREM Training.

Participants examine in detail a solution to a given energy challenge of their company – or in the case of consultants of one of their clients, – including the technical elements and an analysis of financial viability. They receive

mentoring and coaching by experienced EUREM trainers and present their concept to a jury as part of their course examination.

This means that at the end of the course, this energy improvement measure is actually ready for presentation to the management of the business or other organisation the participant is currently working for, or – in the case of consultants – to the management of the client.

Thus, they improve their competitiveness and efficiency and contribute to achieving the EU 2020 goals of improving energy efficiency, reducing greenhouse gas emissions and increasing the share of renewable energy sources. The latter is not the focus of the EUREM course, but there are also participants who develop energy concepts that deal with the use of renewable energies in their business.

However, these are just some of the benefits of the training. EUREM alumni continue to apply their enhanced knowledge and skills in their organisation, as they identify further energy improvement opportunities and plan solutions for them. EUREM providers worldwide know that this is the case, as many of them remain in contact with alumni, for example via dedicated events such as the international conferences for European EnergyManagers or network meetings at national level. Boosting energy efficiency is strongly related to an effective capacity building measure like EUREM is.



Some History

In 1999, the Nuremberg Chamber of Commerce (CCI) started the EUREM initiative and carried out first practical trainings as an "EnergyManager (CCI)" in Germany. In 2000 EUREM received a German-wide standard under the leadership of the Nuremberg CCI. EUREM was then developed in collaboration with the German-Portuguese Chamber of Commerce and Industry in Lisbon (DUAL), the Energy Institute in London and the Austrian Federal Economic Chamber (WKÖ) in Vienna in a European Project coordinated by the Nuremberg CCI.

With 'EUREM.NET - Training and Network of European Energy Managers', a successful follow-up project within the Intelligent Energy Europe Programme (IEE), EUREM was implemented in nine other EU countries between 2006 and 2009.

The IEE project 'EUREM plus: Boost Energy Efficiency in Manufacturing SMEs by Extending European EnergyManager Training and Network' (2013 - 2015) has extended the EUREM network to the six new countries Bulgaria, Croatia, Cyprus, Macedonia, Poland and Romania.

At the same time, EUREM was also introduced in additional countries in the EU and beyond and is currently provided in nearly 30 countries..



EUREM worldwide

The EUREM training is expanding all over the world. From India to Chile and from China to Mexico, more and more partners join the energy expert network of EUREM. More than 500 EnergyManagers annually are currently enrolled in the courses, so that the threshold of 4,500 European Energy-Managers is already exceeded.

EUREM licence partners all over the world: EUREM Training provider's first course:

Argentina	2011
Austria	2004
Belgium	2014
Brasil	2011
Bulgaria	2014
Chile	2011
China	2008
Croatia	2014
Cyprus	2014
Czech Republic	2008
Egypt	2011
Finland	2008
France	2008
Germany	1999
Greece	2008
Hungary	2011
India	2014
Italy	2009
Macedonia	2014
Mexico	2013
Moldova	2012
Poland	2014
Portugal	2004
Romania	2014
Slovakia	2015
Slovenia	2008
South Africa	2014
Spain	2008
United Kingdom	2004
Uruguay	2011

An effective way of climate protection

The remarkable CO₂ reduction as well as energy and cost saving potentials which were identified by more than 4,500 European EnergyManagers in their energy concepts show that EUREM is the right way to implement energy efficiency in companies and to reap the economic and ecological benefits.

The continuous evaluation of energy concepts worldwide shows that on average each European EnergyManager realizes the following savings with an energy concept developed during the EUREM training:

- Energy savings: 750 MWh/a
- Cost reduction: 30,000 EUR/a
- CO₂ saving: 200 t/a

The majority of these projects pays for itself within two to three years. It is satisfying that on average more than 75% – that means three out of four of the energy concepts elaborated during the EUREM training are put into practice. The energy saving potential identified by 4,500 European EnergyManagers during the EUREM training amounts to about 3 Mio MWh/a. That is equivalent to the average energy consumption of 750,000 households or 40 percent of the annual electricity production of a typical nuclear power plant.

EUREM is therefore truly a practice-proven instrument.



The EUREM EnergyManager Training

The target groups for the EnergyManager Training are technical experts and companies' executives as well as energy consultants and energy services. The training is usually held extra-occupational and consists of face-to-face training, online-learning, a final project work plus exam.

Face-to-face teaching

The 160 teaching units (45 min) are held by experienced teachers. Online resources for self-study and a final test complement these units.

The EUREM training contents are standardized and therefore globally comparable. The quality of training and the training organisation is ensured by periodical quality checks by external auditors.

From theory to practice: The Energy concept

Alongside face-to-face seminars, the energy concept is a key element of the practical EUREM training. The project work covers 80 teaching units and is accompanied by a professional coach. Project topics are usually the energetic weak points of the participants' companies, and the majority of the projects are implemented.

The company-specific energy concept has to be presented to an expert jury at the end of the course.

After having successfully completed these tasks the EUREM training participants receive the European EnergyManager certificate which is generally awarded in a ceremonial act.

TRAINING CONTENTS:

Engineering

- ▶ Basics of energy engineering
- ▶ Building physics
- ▶ Energy-conscious building and renovation
- ▶ Heating engineering | Geothermal energy
- ▶ Process heat | Heat recovery
- ▶ Ventilation | Air conditioning
- ▶ Refrigeration engineering
- ▶ Compressed air
- ▶ Lighting
- ▶ Electrical drives
- ▶ Green IT
- ▶ Process and load management
- ▶ Monitoring and control systems
- ▶ Cogeneration
- ▶ Solar technology
- ▶ Energy from biomass

Management

- ▶ Energy management systems
- ▶ Energy audits
- ▶ Economic calculation
- ▶ Energy contracting
- ▶ Project management
- ▶ Energy purchasing | Energy trade
- ▶ Energy legislation | Rules & Standards
- ▶ Climate protection management | Emissions trading | Clean Development Mechanism (CDM) | Joint Implementation (JI)



"I would absolutely recommend the EUREM programme to everyone who is engaged or wishes to engage in energy efficiency in industry and buildings, because the program offers a large amount of useful information and guidelines for energy conservation in all relevant areas where it is possible to save a considerable amount of energy and realize a quick return on investment"

Krunoslav Černošek / Harburg Freudenberger Belišće d.o.o. / Croatia

EUREMplus: - A FURTHER STEP OF DEVELOPMENT



Vincent Berrutto,
Head of the Energy Unit,
Executive Agency for SMEs,
Brussels

“The extension of the EUREM programme to six new countries demonstrates the growing interest and potential for high-quality training courses targeted at energy managers. The EUREM concept, based on both theory and practice, enhances the implementation of energy efficient solutions in companies. EUREM is a good illustration of how the support from the European Union can generate concrete results.” Vincent Berrutto

EUREMplus: “Boost Energy Efficiency in Manufacturing SMEs by Extending European EnergyManager Training and Network” was an EU co-funded project. The main target of this 30-months project was the expansion of the EnergyManager Training to additional six European countries and an enhancement of the participation of small and medium-sized enterprises (SME). The introduction of Energy-Manager courses in the new EUREM countries Bulgaria, Croatia, Cyprus, Mace-donia, Poland and Romania was guided and supported by EUREM members from Germany, Austria and the Czech Republic as experienced EUREM partners.

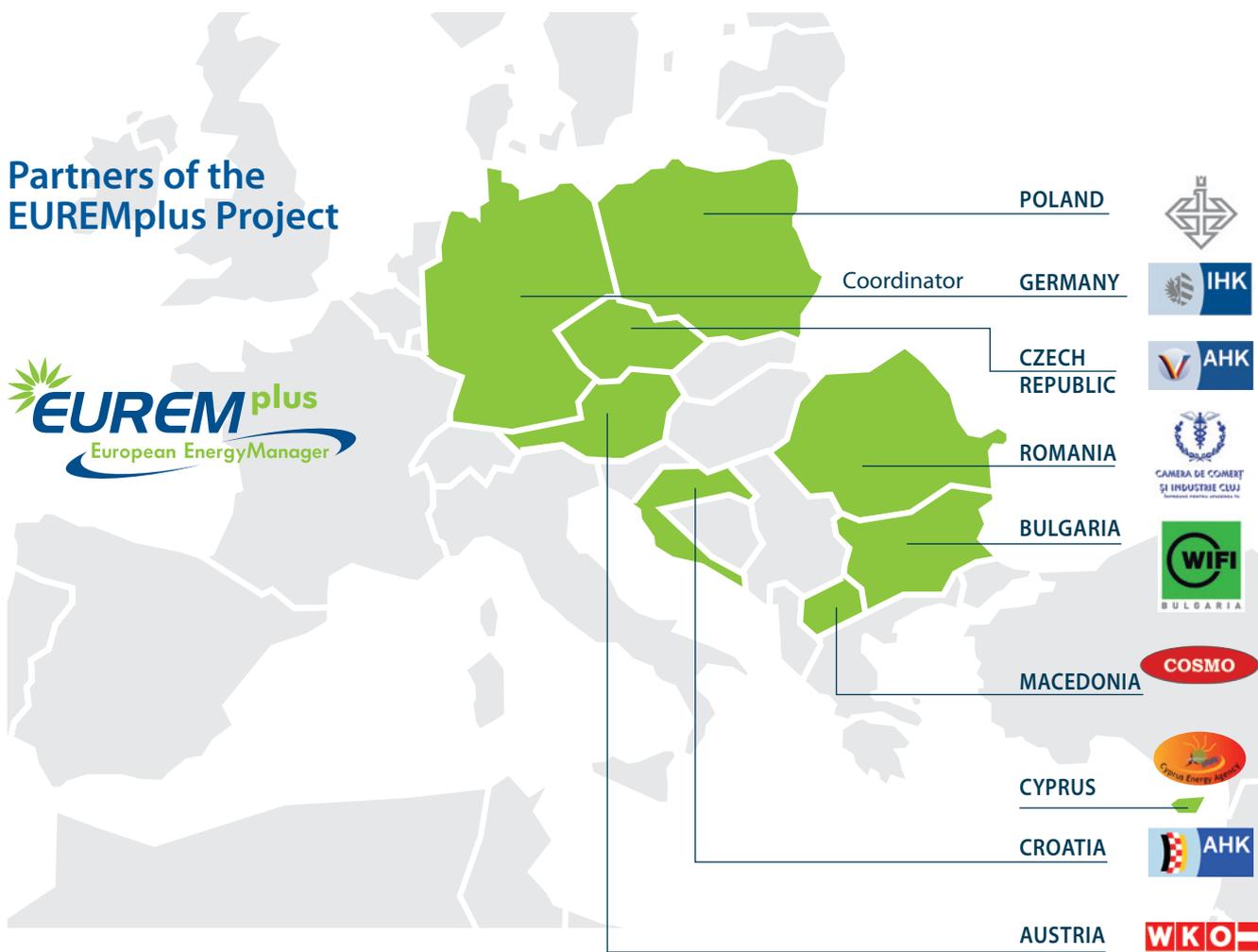
The main objectives of the project were successfully achieved. More than 250 European EnergyManager Trainees could be qualified in the six additional countries (BG, CY, HR, MK, PL, RO) and in the three experienced EUREM countries (AT, CZ & DE).

The trainees identified in their energy concepts more than 155,000 MWh/a energy savings for their companies which would save about 10 million EURO a year on energy costs. The CO₂ reduction is approximately 84,000 tons annually. Another goal of the EUREMplus project was the enhanced partici-



Representatives of the nine
EUREMplus partners
at the kick-off meeting
in Nuremberg 2013.

Partners of the EUREMplus Project



“The EUREM course fulfilled my expectations in every way. As a young engineer, I mastered the knowledge from all areas of mechanical engineering which are based more on practical applications than on theoretical knowledge. The course is intensive, with professional speakers and excellent organization. I would recommend the course to all who wish to improve and deepen their knowledge.”

Marko Maček / Naše Klasje d.o.o. / Croatia

“What has the EUREM course given me? EUREM works with diversity, can expand and systematize knowledge, it creates a platform for the exchange of information between participants. For 8 months of course, I met charismatic professionals who are open to new opportunities, people who participated, conducted, created this course. The experience gained during this course allows the company to implement solutions that increase company energy efficiency. In fact, participation in the course is only the beginning, as graduates get a useful platform to exchange experiences at national and international levels. I encourage you to take part in the next edition of EUREM, because just as energy efficiency does, also this course will pay off.”

Damian Chłodnicki / Siarkopol S.A. / Poland

pation of small and medium-sized enterprises (SME). Therefore, the course modalities were adjusted to SME needs (e.g. pilot distance-learning option and others based on survey results), supplemented by suitable awareness-raising and promotion activities. Consequently, about 50 per cent of EUREMplus participants came from SME.

Moreover, EUREMplus facilitates access to sector-specific energy efficiency knowledge. The ten sector corners bundle available mate-

Fruitful partnership

One of the key success factors of the EUREMplus project was the partnership of new training providers and experienced EUREM partners who supported the new training providers by individual coaching and consulting during the implementation phase. This model turned out to be a suitable means to handle arising questions and problems regarding the EUREM training.



rial from a variety of sources, including the energy efficiency folders elaborated by the project partners for SMEs from five sectors.

The sustainable continuation and the further improvement of the EUREM program after the project's expiration was ensured by transforming the existing EUREM Consortium into a governance model which is suitable for the effective handling of the increasing number of training providers worldwide. A new legal entity, the EUREM International GmbH, will lead the EUREM community into the future.

EUREMplus and the extension of the Energy-Manager training to six new countries were a great success. All new partners could recruit qualified trainers and many interested participants for their first EUREM training which turned out to be sustainable. Most of the training providers have already started the second training.

A huge unexpected success:

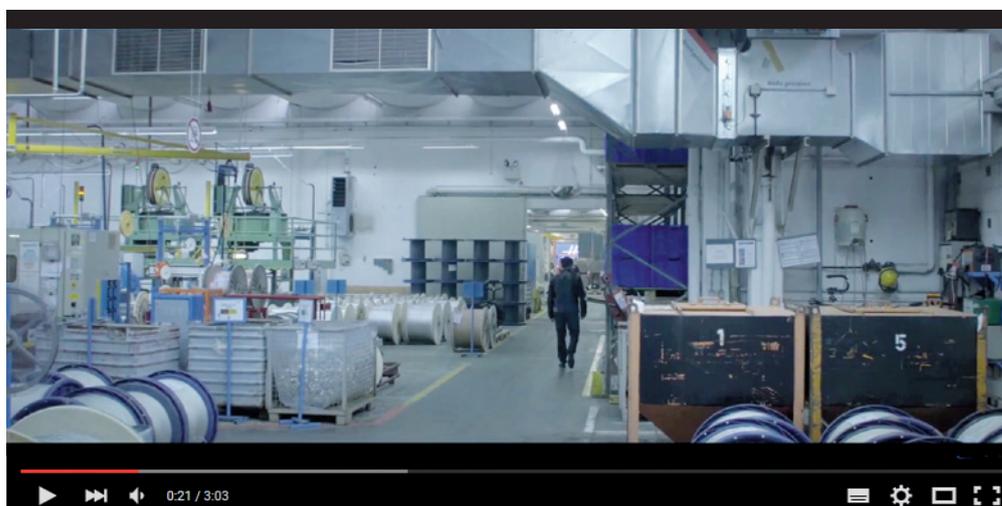
All new EUREM partners plan to continue offering the EUREM course. Some already started a second training during the project period!

**DATA:**

Project Duration: 2013 - 2015
 Budget:
 1,347,010 Euro, EU contribution 75%
 Trainings: 16
 Trainees: 254
 Calculated Investment: 48,128,705 €
 Savings Final Energy MWh / a: 155,641
 Savings Primary Energy toe / a: 22,215
 Saving EURO / a: 9,957,004 €
 Reduction of CO₂ tons / a: 83,811

EUREM video clips

A visual impression of the EUREM Trainings is available on <http://eurem-plus.eu/display/euremplus/Videos!> Nine alumni from the EUREMplus partner countries present the benefits they have reaped from better energy management and increased energy efficiency in their organisation and how the EUREM course helped them achieve this.



EUREM NETWORK – REAL & VIRTUAL



One of the success factors of EUREM is the exchange of experience among the participants.

The international EUREM conferences offer an excellent opportunity to maintain contacts after the end of the training course and to keep up-to-date on important energy matters.

During the EUREMplus project, about 360 EnergyManagers from more than 20 countries met at the 5th International Conference for European EnergyManagers in Vienna, Austria, in 2014 and at the 6th EUREM conference in Prague, Czech Republic, in 2015. The EUREM conferences provided once again an excellent opportunity to stay in touch with the

EnergyManager community. The high number of participants proved once more that the international EUREM network is alive and does not only exist virtually but also at a personal level.

A highlight and a part of the EUREM conferences is the handing over of the EUREM Awards for best practise projects. The award-winning projects are selected among the energy concepts of the current EnergyManager trainings. An international jury of EUREM providers selects the best concepts which are rewarded at the EUREM conference.



Opening of the 6th International EUREM Conference in Prague, 23. and 24. April 2015

The award is divided into three categories: small, medium-sized and large businesses. The winners come from all over Europe and beyond and have dealt with a wide variety of energy issues, including for example cooling technology, electric drives or pumps and cogeneration.

In addition to that, the EUREMplus SME Award was handed over in 2015, a special prize for the best energy concept from the six new

EUREMplus countries. The winner in this category was Damian Chłodnicki from Poland who examined the modernization of the cooling water pump system of a chemical production plant.

To support international networking and experience exchange, the conference contributions were simultaneously translated into German, English and Czech.



“My impression of the course is very positive. My goal was to get acquainted with the currently available solutions and trends relating to energy efficiency. The course is a compendium of knowledge in all fields, where today we are looking for savings and to increase energy efficiency and reduce the impact on the environment, in light of current, rapidly changing laws.”

Łukasz Kuter / Pilkington Automotive Sp. z o.o. / Poland



Winners of the EUREM Awards 2014 in Vienna (picture below) and 2015 in Prague (above) with representatives from the EUREMplus consortium and the EASME

SURVEY RESULTS

The growing number of EUREM alumni around the world form a network with a lot of insight and experience in energy matters concerning businesses. The EUREMplus project provided the opportunity to let them have their say on a number of issues:

What prevents businesses from taking energy efficiency measures and what supports them?

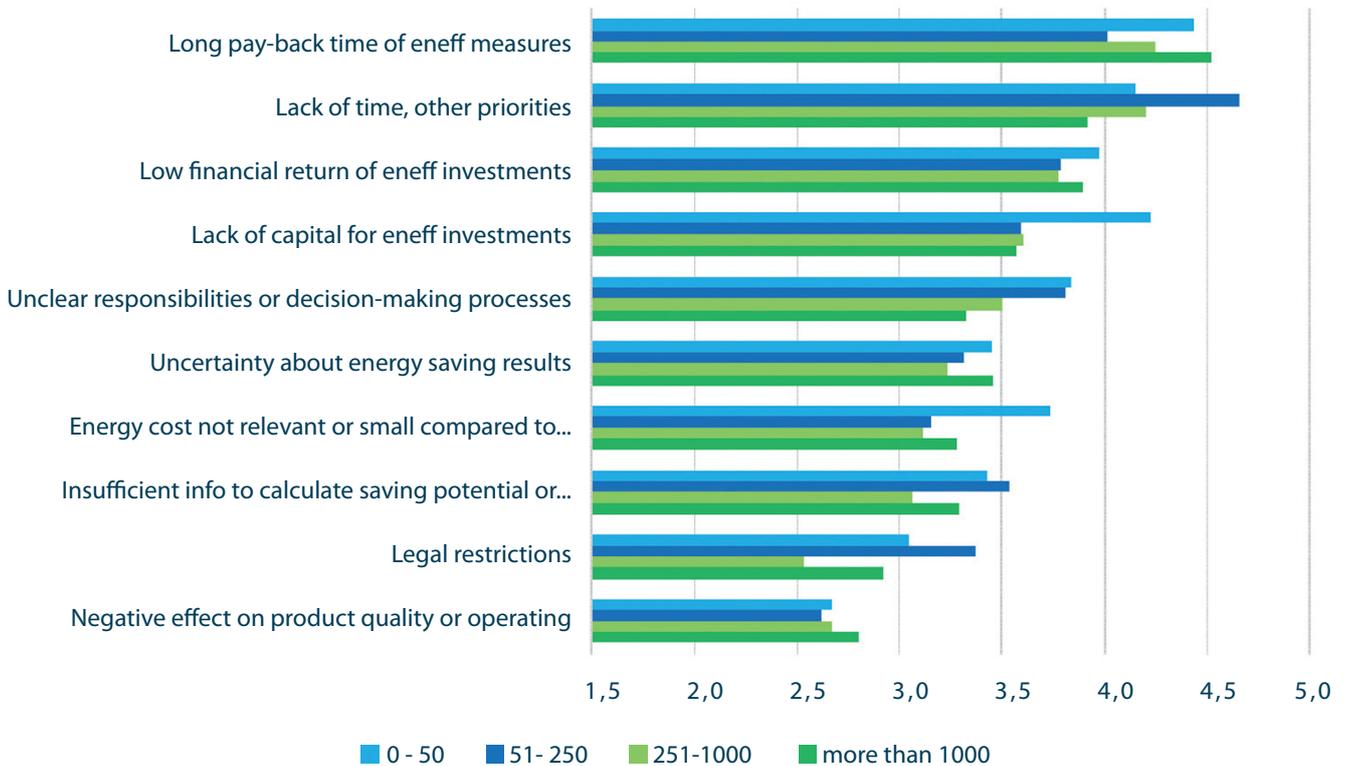
The most important factors hampering the implementation of energy projects are a long pay-back time of proposed measures and too little time to address the issue.

An unstable legal framework also discourages action. SMEs and larger businesses had relatively similar views, with SMEs finding most of the barriers (e.g. lack of capital) even more relevant than bigger companies did.

For initiators of energy efficiency measures, "cost reduction" was by far the most important issue for all company sizes, with "a high interest of top management teams in environmental and energy issues" ranking next. For the group of smallest companies, the availability of subsidies is of vital importance as well.

A brochure summarising results and conclusions is available at www.eurem-plus.eu

Average Relevance of Hampering Factors - by Company Size, n=293



Course Contents and Methodology:

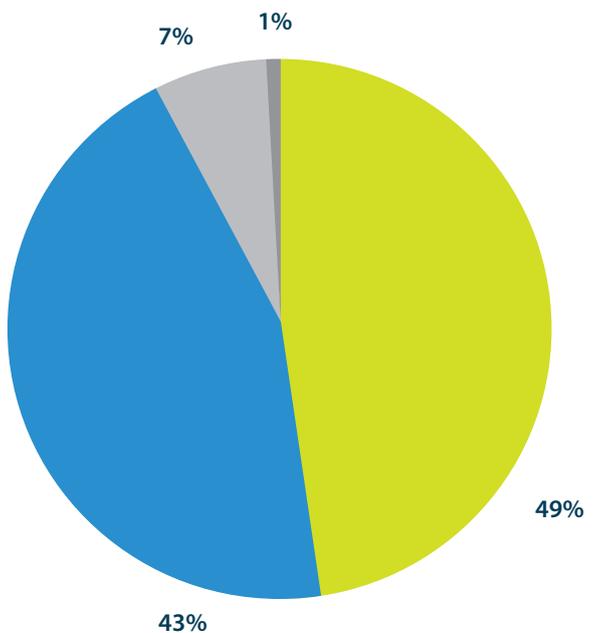
This survey gave alumni the chance to express their view, assessing their training with a few years of experience since course completion. Results show that 92% of graduates are satisfied with the EUREM training. They confirmed that the selection of course topics and the amount of time spent on each of them are still appropriate. When it comes to the personal benefits, they name improvement of expertise, professional development and enlargement of their professional network as the most important results of their course participation.

How Much Energy Do EUREM Alumni Save Following the Implementation of Their Course Project?

About 75% of the measures planned in the energy concepts are implemented in the participating businesses. About 65% of respondents said they had already implemented additional projects, saving around 2,000 MWh per year, and a considerable number of recent graduates had not yet taken follow-up action, but planned to do so.

How satisfied are / were you overall with the EUREM Course?

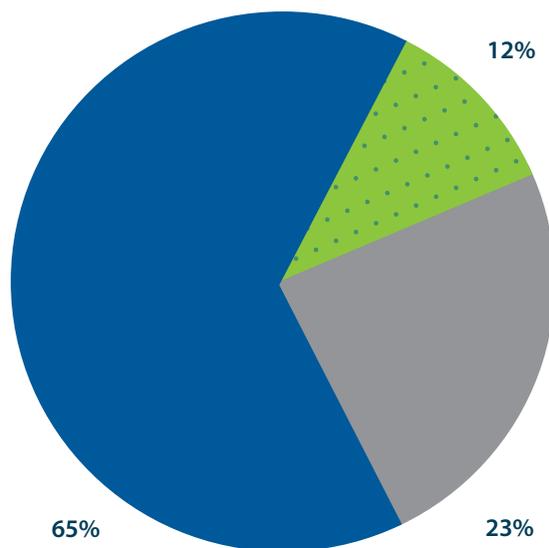
n=421



■ very satisfied ■ rather satisfied
 ■ rather dissatisfied ■ very dissatisfied

Implementation of further projects

n=439



■ Yes ■ Planned in 2-3 years (DE) ■ No

SECTOR FACTSHEETS

The EUREM training programme is by definition cross-sectorial. This means that course and training materials focus on technologies, methods and topics relevant for energy efficiency in almost any business or organisation. In addition, the project partners wanted to create a place that facilitates easy access to the wealth of sector-specific information that is already available but spread over many websites worldwide, thus saving EUREM participants, alumni and other interested persons valuable time.

On these new Sector Corners of the EUREM website, there can be found free online resources, such as handbooks, benchmarking tools, case studies & success stories for the following 10 sectors:

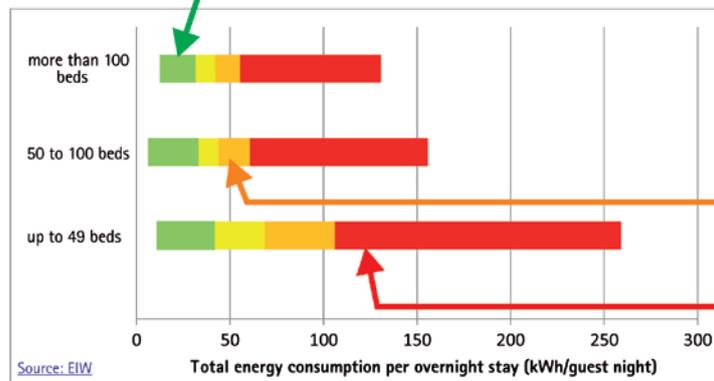
Construction Material, Metalworking, Paper & Cardboard, Plastics & Rubber, Printing, Wood Products & Furniture, Bakeries, Meat Processing and Other Food & Drinks Production, as well as Hotels & Restaurants.

Most of the materials are in English or German, but there also are some resources in 13 other languages.

Given that in many countries there is very little such information available, especially for SMEs, the EUREMplus partners also designed folders that give an introduction and practical hints for improvement measures for five different sectors. These folders are also available from the sector corners. www.eurem-plus.eu

Hotels & Tourism: TOTAL ENERGY CONSUMPTION PER OVERNIGHT STAY

yearly total energy consumption in kWh
Number of overnight stays



Source: EIW

If you are in the **GREEN** area, then you probably use energy efficiently. You have no immediate need for action, but think about further improvements nevertheless.

If you are in the **YELLOW-ORANGE** area, then you probably have savings potentials. Inform yourself and plan efficiency measures.

If you are in the **RED** area, this could be an indication of high potential savings. Localise inefficiencies in your business and implement concrete measures.

ARKUSZ INFORMACYJNY EFEKTYWNOŚĆ ENERGETYCZNA W BRANŻY STOLARSKIEJ I MEBLARSKIEJ

Niniejsza broszura zawiera przegląd sposobów na szybką i łatwą obniżenie zużycia energii w Państwa działalności oraz poradę, jak stać się firmą efektywniejszą energetycznie. Dowiedź się Państwo, jak i od czego zacząć poprawę efektywności energetycznej a praktyczne sposoby i rekomendacje wybierzcie od ekspertów posiadających jako praktyków jej doświadczenia. Zestawienie to składa się z czterech faz ciągłego procesu poprawy efektywności energetycznej:

PLANUJ - W fazie PLANUJ planujesz sposoby na uzyskanie efektywności energetycznej po wstępnym przeglądzie i oszacowaniu Twojego profilu energetycznego. Wskazując fazy DZIAŁAJ dobierasz zestaw środków, z których wybierasz te, które chcesz wdrożyć. Kluczowe dane w kolejnej fazie - DZIAŁAJ - to podjęte decyzje o pracy wykonawczej. Po tym cyklu rozpoczyna się kolejny cykl.

ENERGY EFFICIENCY FACT SHEET HOTELS & TOURISM

This fact sheet provides you with an overview of how to quickly and easily reduce the energy consumption in your business and how to become more energy efficient. The fact sheet is structured according to the four phases of the energy management process:

FOKUS ENERGIEFFIZIENZ METALLVERARBEITUNG

Dieses Informationsblatt soll Ihnen einen Überblick verschaffen, wie Sie in Ihrem Betrieb schnell und einfach den Energieverbrauch reduzieren und energieeffizienter werden können. Das Infoblatt ist anhand der vier Phasen eines kontinuierlichen Verbesserungsprozesses aufgebaut:

PLAN - Erheben und sammeln Sie Ihre Energiedaten
- Rechnungen von Strom, Gas, Fernwärme, Diesel etc.
- Messungen - Aufzeichnungen der Zählerstände
- Energiezähler - entweder auf Anfrage oder per Internetzähler
- Eventuell Messungen einzelner Geräte - Schätzungen (anhand der Geräteart)

DO - Erstellen Sie Ihre Energieprofile
Mit Hilfe von Branchenzahlen (siehe Seite 3) können Sie eine erste Einschätzung treffen, ob Verbesserungspotential in Ihrem Betrieb vorhanden ist. Wenn Ihr Stromverbrauchs Leistungsprofil (z. B. 15-Minuten-Intervall) bereitgestellt können Sie Strompreise außerhalb der Betriebszeiten aufspüren und die Anschlussleistung optimieren.

CHECK - Analysieren Sie Ihre Ist-Situation und planen Sie Maßnahmen

ACT - Erstellen Sie eine Geräte- und Anlagensliste und ermitteln Sie Ihre Hauptverbraucher
Dokumentieren Sie Art und Anzahl Ihrer wesentlichen Anlagen/Geräte mit folgenden Daten je Gerät:
- Alter - Betriebsstunden - Nennleistung - tatsächliche Leistung für folgende Bereiche gebrauch.
Bei der Metallverarbeitung wird die meiste Energie üblicherweise für folgende Bereiche gebraucht:
- Heizung - Belüftung - Druckluft - Elektrische Antriebe
Prozesswärme kann ebenfalls einen bedeutenden Anteil ausmachen, z. B. bei Gießereien oder Oberflächenveredeln.

PLAN: Analysieren Sie Ihre Ist-Situation und planen Sie Maßnahmen

DO: Erstellen Sie eine Geräte- und Anlagensliste und ermitteln Sie Ihre Hauptverbraucher

CHECK: Analysieren Sie Ihre Ist-Situation und planen Sie Maßnahmen

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ΕΘΙΚΟΝΟΜΗΣΗ ΕΝΕΡΓΕΙΑΣ ΑΡΤΟΒΙΟΜΗΧΑΝΙΑ

Αυτό το φυλλάδιο παρέχει πληροφορίες για το πώς μπορείτε να μειώσετε εύκολα και γρήγορα την κατανάλωση ενέργειας στον εργασιακό σας χώρο να αυξήσετε την ενεργειακή σας απόδοση. Παράτα συνολικός να το βρείτε που πρέπει να ακολουθήσετε ως σταδιακά από ελαφρώς. Σύνολο της διαδικασίας εξοικονόμησης ενέργειας και αύξηση της ενεργειακής απόδοσης να ξεκινήσει με τη χρήση των καλύτερων εργαλείων. Διακρίνονται τέσσερις φάσεις στη διαδικασία αυτή:

ΣΧΕΔΙΑΣΜΟΣ - από την προκαταρκτική ανάλυση του υπάρχοντος ενεργειακού καταστάσης, ως τη διαμόρφωση του ενεργειακού προγράμματος, με σκοπό να πραγματοποιηθεί σύμφωνα στο πλαίσιο των 2 εβδομάδων. Κατά το στάδιο της υλοποίησης, εφαρμόζονται τα μέτρα και μετά παρακολουθείται τα αποτελέσματα τους στο στάδιο της παρακολούθησης. Ο κύκλος ολοκληρώνεται με το στάδιο των αντιστάσεων όπου υλοποιούνται περαιτέρω τροποποιήσεις και βελτιστοποιήσεις.

ΥΛΟΠΟΙΗΣΗ - από την προκαταρκτική ανάλυση του υπάρχοντος ενεργειακού καταστάσης, ως τη διαμόρφωση του ενεργειακού προγράμματος, με σκοπό να πραγματοποιηθεί σύμφωνα στο πλαίσιο των 2 εβδομάδων. Κατά το στάδιο της υλοποίησης, εφαρμόζονται τα μέτρα και μετά παρακολουθείται τα αποτελέσματα τους στο στάδιο της παρακολούθησης. Ο κύκλος ολοκληρώνεται με το στάδιο των αντιστάσεων όπου υλοποιούνται περαιτέρω τροποποιήσεις και βελτιστοποιήσεις.

ΠΑΡΑΚΟΛΟΥΣΗ - από την προκαταρκτική ανάλυση του υπάρχοντος ενεργειακού καταστάσης, ως τη διαμόρφωση του ενεργειακού προγράμματος, με σκοπό να πραγματοποιηθεί σύμφωνα στο πλαίσιο των 2 εβδομάδων. Κατά το στάδιο της υλοποίησης, εφαρμόζονται τα μέτρα και μετά παρακολουθείται τα αποτελέσματα τους στο στάδιο της παρακολούθησης. Ο κύκλος ολοκληρώνεται με το στάδιο των αντιστάσεων όπου υλοποιούνται περαιτέρω τροποποιήσεις και βελτιστοποιήσεις.

ΑΝΑΛΥΣΗ ΥΦΙΣΤΑΜΕΝΗΣ ΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΕΠΙΤΟΙΧΙΣΜΟΣ ΜΕΤΡΩΝ

ΒΗΜΑ 1: Συλλογή Ενεργειακών Δεδομένων
Από τον εργοστάσιο να βρούμε τα ενεργειακά δεδομένα:
- Ταυτότητα ηλεκτρικού, υδροπαικίου, πετρελαίου, θέρμανσης, κλπ.
- Ενδείξεις Μετρητών
- Μετρήσεις, με τη χρήση τεχνικού εξοπλισμού (επιχειρήσεις βελτίωσης από εργασίες ενεργειακές είτε μέσω ασύρματου, είτε μέσω αισθητήρων)
- Ενδείξεις και καταγραφές σε ηλεκτρονική μηχανή με συσκευασίες

ΒΗΜΑ 2: Αποτίμηση λίστες εξοπλισμού και εντοπισμός των κύριων καταναλωτών
Καταγραφή του τύπου και του αριθμού των συσκευών και μηχανημάτων, συμπεριλαμβανομένου της υποκατηγορίας, της κεραιμικής ισχύος και των ναρκα καταναλωτών. Είναι τσιπ της παραδοσιακής, σε τσιπ με τη χρήση των καταναλωτών ενεργειακών είναι:
- Φούρνοι - Ηλεκτρικοί κεντρικοί και συσκευές
- Ψυγεία
- Εξοπλισμός hot water - Θέρμανση αναρροφών

ΒΗΜΑ 3: Δημιουργία Ενεργειακού Προφίλ
Δημιουργία ενεργειακού προφίλ με την κατανάλωση ενεργειακών τσιπών.

ΒΗΜΑ 4: Σχεδιασμός μέτρων ενεργειακής απόδοσης
Στη συνέχεια 2 παρατίθενται κατάλληλοι με μέτρα ενεργειακής απόδοσης για την εργοστάσιο. Με ενεργειακή επιθεώρηση ή ένας ενεργειακός έλεγχος μπορούν να ανακαλυφθούν οι αιτίες της διαφοράς και την επαλήθευση των κεραιμικών κόστους και την εφαρμογή της βελτιστοποίησης, την εφευρεθεί ενεργειακές καταστάσεις. Μπορείτε να αξιοποιήσετε το Ταβλό Εργασιακού και Αποδοτικού να οργανωθεί στην εργοστάσιο ενεργειακή αναμόρφωση (www.eim.gr/cpi/)

PLAN - After a first analysis of the status quo of your energy situation and drawing up your energy profile, you plan energy measures in the "PLAN" phase. In the subsequent "DO" phase, you implement these measures and track their results with key indicators in the "CHECK" phase. The "ACT" phase, where you decide whether any adjustments are necessary, completes the circle. After that, you can start a new cycle of improvements.

DO - After a first analysis of the status quo of your energy situation and drawing up your energy profile, you plan energy measures in the "PLAN" phase. In the subsequent "DO" phase, you implement these measures and track their results with key indicators in the "CHECK" phase. The "ACT" phase, where you decide whether any adjustments are necessary, completes the circle. After that, you can start a new cycle of improvements.

CHECK - After a first analysis of the status quo of your energy situation and drawing up your energy profile, you plan energy measures in the "PLAN" phase. In the subsequent "DO" phase, you implement these measures and track their results with key indicators in the "CHECK" phase. The "ACT" phase, where you decide whether any adjustments are necessary, completes the circle. After that, you can start a new cycle of improvements.

ACT - After a first analysis of the status quo of your energy situation and drawing up your energy profile, you plan energy measures in the "PLAN" phase. In the subsequent "DO" phase, you implement these measures and track their results with key indicators in the "CHECK" phase. The "ACT" phase, where you decide whether any adjustments are necessary, completes the circle. After that, you can start a new cycle of improvements.

STEP 1: Develop an equipment list and identify your main consumers
Document the type and number of your main devices with the following information per machine:
- Age - Rated power - Operating hours - Actual power

STEP 2: Develop an equipment list and identify your main consumers
Document the type and number of your main devices with the following information per machine:
- Age - Rated power - Operating hours - Actual power

STEP 3: Develop an equipment list and identify your main consumers
Document the type and number of your main devices with the following information per machine:
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AUSTRIA

Austrian Federal
Economic Chamber (WKÖ)

Dr. Stephan Schwarzer
Austrian Federal Economic
Chamber

Tel. +43 590900-4195
Stephan.Schwarzer@wko.at
www.wko.at



The Austrian Federal Economic Chamber (Wirtschaftskammer Österreich) coordinates and represents the interests of the Austrian business community on a national and international level. Within the system of the Austrian Economic Chambers, it functions as the umbrella organization for the trade associations for different industries and the nine regional chambers who have local offices to provide services in close proximity to members. Membership includes all Austrian companies in operation, altogether some 440,000 businesses.

WKÖ has been offering the EUREM training since 2004, and by the end of 2015, 600 EnergyManagers will have successfully completed the course.

The Energy Institute for Business (Energieinstitut der Wirtschaft) was founded in 2008 to conduct research and to implement projects that contribute to Austrian businesses becoming more and more sustainable in their energy use.

Results in EUREMplus

Trainings: **3**
 Trainees: **78**
 Final Projects:
 Savings Final Energy MWh /a: **64,801**
 Savings Primary Energy toe /a: **9,249**
 Reduction of CO₂ tons /a: **25,269**
 Saving EURO /a: **2,534,058 €**
 Calculated Investment: **27,585,933 €**
 Coaching: Bulgaria, Poland



BULGARIA

WIFI Bulgaria (WIFIBG)



Desislava Kisyova
WIFI Bulgaria
 Tel. +359 2 9630868
 desislava.kisyova@wifi-bg.bg
 www.wifi-bg.bg



WIFI Bulgaria is an adult training organization. It represents WIFI, which is part of the Austrian Economic Chamber and one of the largest training institutes in Europe - WIFI International Network - in Bulgaria. The organization offers training for all possible sectors and professional levels - from workers who need specific professional knowledge to managers who need to develop specific social/soft skills. All participants of WIFI-trainings graduate with official certificates recognised throughout Europe, a guarantee for quality and sustainability.

WIFI Bulgaria has a pool of more than 11,000 highly qualified, specially trained and

certified trainers of the highest international level that are leading experts in their field and can transfer know-how with high practical relevance.

WIFI Bulgaria offers more than 30 different training topics from the large portfolio provided by WIFI and has a client network of more than 30 Austrian companies in Bulgaria, but also more than 50 national and international companies.

WIFI Bulgaria also offers the WIFI Academy which covers all levels and sectors of the business in a modular way, with training programs with a focus on business skills (Corporate Management, Marketing and Sales, Human Resources, Logistics, Financial Management, Project Management and Process Management, Facility Management) and training programs related to social competences (Communication, Customer-Oriented Behavior, Conflict Management, Conducting Successful Negotiations, Presentation Techniques, etc.)



Results in EUREMplus

Trainings: **1**
 Trainees: **15**
 Final Projects:
 Savings Final Energy MWh / a: **12,780**
 Savings Primary Energy toe / a: **1,824**
 Reduction of CO₂ tons / a: **4,385**
 Saving EURO / a: **752,545**
 Calculated Investment: **2,475,474 €**

CROATIA

German-Croatian Chamber of Industry and Commerce (DKIHK)



Daniela Buntak
DKIHK Service Ltd
 Tel. +385 16311617
 Daniela.Buntak@ahk.hr
 www.ahk.hr



The German-Croatian Chamber of Industry and Commerce (DKIHK) is a business to business organization of about 370 German, Croatian and international companies, founded in the year 2001. The DKIHK is a registered association according to Croatian law. It is part of the worldwide German Chambers of Commerce network (AHK). In the framework of the export initiatives "Energy Efficiency" and "Renewable Energies" of the German Federal Ministry of Economics, DKIHK has been involved, since 2007, in implementing various projects aimed at enhancing a dialogue of German and Croatian experts and fostering co-operation between enterprises from both countries.

Thanks to these projects, the DKIHK has been able to establish and strengthen its reputation among decision-makers from the government, institutions and companies as a reliable and active international organization promoting energy efficiency and renewable energies in Croatia. Relevant to the imple-

mentation of EUREMplus in Croatia are the good connections of DKIHK to potential training partners and experts as well as a wide range of contacts to SMEs from different branches nationwide.

The DKIHK employs a motivated and highly-skilled international team with profound knowledge of the Croatian energy-sector and long-lasting experience in marketing activities and project-management.

Results in EUREMplus

Trainings: **2**
 Trainees: **22**
 Final Projects:
 Savings Final Energy MWh / a: **3,753**
 Savings Primary Energy toe / a: **536**
 Reduction of CO₂ tons / a: **1,111**
 Saving EURO / a: **195,305 €**
 Calculated Investment: **520,932 €**



CYPRUS

Cyprus Energy Agency (CEA)



Orestis Kyriakou
Cyprus Energy Agency
Tel. +357 22 667716
orestis.kyriakou@cea.org.cy
www.cea.org.cy



The Cyprus Energy Agency is a non-governmental, non-profit organization established in 2009 with co-financing from the European Commission by the "Intelligent Energy Europe" programme and the Cyprus Union of Communities.

The educational activities of the CEA have been classified among the 20 best in Europe, based on the evaluation made for the "Local Energy Action Awards 2011" (More information: <http://www.managenergy.net/resources/1425>).

Particular emphasis is given to the training of pupils and students. By means of enjoyable activities and presentations, competitions, the distribution of printed material, experiments and demonstration, students learn how to save energy through simple activities, become familiar with renewable energy sources and learn how to protect the environment. Up until now, the Cyprus Energy Agency has visited more than 150 schools of all educational levels, and more than 18,115 students and 1,570 teachers were trained. In 2012, the

"energy box" containing useful materials for teachers and students will be distributed to all elementary schools in Cyprus, in collaboration with the Ministry of Education and Culture. The CEA is also the National Contact Point for the U4Energy Initiative.

More than 1,000 people from other target groups have been trained as well by the Cyprus Energy Agency in seminars on topics such as: RES utilization in Buildings, Energy Performance of Buildings, Energy Performance of Existing Buildings, Training on Energy Issues for Unemployed Engineers, Liquid and Solid Biofuels, Local Action for Tackling Climate Change.

Moreover, presentations on eco driving, eco-friendly cars and energy saving in offices were provided to the staff of local authorities, while presentations on energy saving techniques in households and RES utilisation in residential buildings were directed towards the general public.

It is also important to note that the CEA has been appointed by the Organizations of Local Authorities in Cyprus as the executive agency for the promotion of the "Covenant of Mayors (CoM)" in Cyprus. The CEA develops and monitors the implementation of Sustainable Energy Action Plans of local authorities involved in the CoM (www.eumayors.eu) or the "Pact of Islands" (www.isle-pact.eu).



Results in EUREMplus

Trainings: **2**
 Trainees: **19**
 Final Projects:
 Savings Final Energy MWh / a: **2,191**
 Savings Primary Energy toe/ a: **313**
 Reduction of CO₂ tons/ a: **41,169**
 Saving EURO/ a: **858,082 €**
 Calculated Investment: **1,371,193 €**

CZECH REPUBLIC

German-Czech Chamber of Industry and Commerce (GCCIC)



Hana Potůčková
German-Czech Chamber
of industry and commerce
(GCCIC)

Tel. +42 221490306
potuckova@dtihk.cz
www.dtihk.cz



The GCCIC in Prague was founded in 1993 as a successor of the German Business Delegation in the Czech Republic. Today, about 650 companies – including the most important investors in the Czech Republic – are members of the Chamber. The GCCIC is part of the network of German Chambers abroad. This network is coordinated by the German Federation of Industry and Commerce (DIHK) in Berlin.

The main task of the chamber is to improve and intensify relations and contacts between businessmen of both countries. Different corporate publications, e.g. the bilingual magazine 'PLUS' support this objective. For a more efficient organization of the consulting services of the Chamber, the GCCIC founded a subsidiary company in 2010, called AHK Services s.r.o. whose only owner (100%) is the GCCIC. AHK Services offers a wide range of services, including research of potential business partners, market studies, support in setting up a business and basic information about the legal and economic framework in

both countries. Special competence centres were created, in order to offer sector-oriented know-how in the following fields: Energy & Environmental Technologies, Automotive & Engineering, Innovative Technologies, Food Sector. AHK Services s.r.o. also organizes and offers technical conferences, seminars, fact finding missions to Germany and the Czech Republic as well as workshops for companies from both countries.

Since 2008, GCCIC/AHK Services has been offering the training course for European EnergyManagers (EUREM) and by the end of 2015, 107 EnergyManagers have successfully completed the course.

Results in EUREMplus

Trainings: **2**

Trainees: **21**

Final Projects:

Savings Final Energy MWh / a: **8,885**

Savings Primary Energy toe / a: **1,268**

Reduction of CO₂ tons / a: **9,946**

Saving EURO / a: **490,000**

Calculated Investment: **1,777,551 €**

Coaching: Romania, Croatia

GERMANY

Nuremberg Chamber of Commerce and Industry



Dr.-Ing. Robert Schmidt
Nuremberg Chamber
of Commerce and Industry
Tel. +49 (0)911 1335-299
iu@nuernberg.ihk.de
www.ihk-nuernberg.de



The Nuremberg Chamber of Commerce and Industry (CCI) represents 133,000 enterprises in the Nuremberg region, offering information, consulting, training and advisory services. It has been very active in energy-related matters for years and is experienced in EU projects (e.g. LIFE, ADAPT, INTERPRISE, SAVE, CENTRAL EUROPE). Through the setting up of diverse user clubs and working groups for the individual subject areas, a highly competent knowledge and enterprise-based energy network has been built up. The CCI Nuremberg offers single and group consulting services for the members of the Chamber of Commerce and Industry in energy-related matters as well as guidelines, handbooks, publications and

manuals for energy users. Rapid and state-wide dissemination of project outcomes through the Association of German Chambers of Commerce and Industry (DIHK) is guaranteed, for CCI Nuremberg is a member of the umbrella organisation DIHK and closely connected with it.

Results in EUREMplus

Trainings: **2**
 Trainees: **30**
 Final Projects:
 Savings Final Energy MWh / a: **2,707**
 Savings Primary Energy toe / a: **386**
 Reduction of CO₂ tons / a: **1,263**
 Saving EURO / a: **582,000**
 Calculated Investment: **2,553,000 €**
 Coaching: Cyprus, Macedonia



MACEDONIA COSMO Innovate Center



Edvard Sofeski
COSMO Innovate Center
 Tel. +389 22448077
 es@cosmoinnovate.com.mk
 www.cosmoinnovate.com.mk



COSMO Innovate Center offers consulting services for producing, service and trade enterprises. Cosmo Innovate Center is the Macedonian leader in informal life-long and on-site training in companies, legal-economic, financial and marketing outsourcing consulting, projecting and consulting in productive-energetic technologies and building. The services of Cosmo Innovate Center are divided into the following fields: building, environment, industry and economy.

COSMO Innovate Center is active in the organisation of trainings, seminars, networking events and international conferences on energy efficiency. COSMO was engaged

by the Energy Agency of the Republic of Macedonia as a consultant for the preparation of the application for the project "ENERSupply" in the first call of the South East Europe Transnational Cooperation Programme. The project was later successfully implemented by the project partners. Since 2009, COSMO has been organising an annual regional energy efficiency seminar and networking event, the "Macedonian Energy Day". Speakers and trainers are relevant local and regional experts in energy efficiency. A number of these experts are engaged as short-term experts for ongoing projects. Starting from 2011, COSMO has also been organising regional networking events, the Montenegro Energy Efficiency Networking Day, the Slovenian Energy Efficiency Networking Day and international energy efficiency conferences, namely the 2008 and the 2010 COSMO Energy Efficiency Conferences.



Results in EUREMplus

Trainings: **2**
 Trainees: **22**
 Final Projects:
 Savings Final Energy MWh / a: **16,462**
 Savings Primary Energy toe / a: **2,351**
 Reduction of CO₂ tons / a: **11,487**
 Saving EURO / a: **1,634,509**
 Calculated Investment: **3,853,138 €**

POLAND

Polish Chamber of Commerce (KIG)



Katarzyna Grzejszczyk
Tel. +48 2 26309628
kgrzejszczyk@kig.pl
www.kig.pl



The Polish Chamber of Commerce is the biggest institution of corporate self-governance in Poland organized on a voluntary basis. It associates about 140 chambers of commerce and industry and other business organizations with more than 200,000 member enterprises from the whole territory of Poland. Through its members network, the KIG is capable to address a large number of Polish SMEs. The KIG represents the interests of Polish entrepreneurs vis-a-vis the government and local bodies of state administration and co-operates with the parliament by providing opinions on new draft regulations concerning the economy. The substantive work of the Polish Chamber of

Commerce is done by its committees. The committees are social bodies grouping representatives of different economic sectors and headed by well-known business practitioners. The Chamber arranges for commercial missions, exhibitions and trade fairs in Poland and abroad and other forms of foreign trade promotion. Training courses and conferences on current economic subjects are an important part of the Chamber's activities. The Chamber continuously meets the highest standards of business ethics. The socially most highly committed entrepreneurs get awards in the annual "Fair Play Enterprise" program. The Court of Arbitration at the Chamber adjudicates on disputes between corporate bodies. The KIG successfully applies for and implements projects with national or EU co-funding aimed at strengthening business capacity in Poland.



Results in EUREMplus

Trainings: **1**
Trainees: **23**
Final Projects:
Savings Final Energy MWh / a: **27,275**
Savings Primary Energy toe / a: **3,893**
Reduction of CO₂ tons / a: **18,433**
Saving EURO / a: **1,489,865**
Calculated Investment: **4,590,000 €**

ROMANIA

Cluj Chamber of Commerce and Industry (CCICJ)



Elisabeta Dumitrescu
Camera de Comert si
Industria Cluj
 Tel.: +40 36 4730986
 erzsi@ccicj.ro
 www.ccicj.ro



The CCICJ is an autonomous, non-governmental, apolitical organization representing the interests of its member companies. Our Chamber, with its 600 members, is the largest in the North West Development Region of Romania.

The CCI's main activities are threefold: Providing professional services to members; lobbying the interests of the local business community to authorities and government bodies in Romania and abroad; and collaborating with institutions for regional development;

While assisting the members in policy and regulatory processes, the organisation is also focused on the energy and water sectors and has developed an in-depth knowledge of the interests, experiences and needs of energy and water consumers.

CCICJ has been a training provider for over 20 years and established long term cooperation with universities, vocational training institutions, organizations in the field of employment and many more. The CCICJ is a founder and active member in the Employers Association of Training Providers in Romania (<http://www.apffp.ro/>) and is one of the founders of the N-V Regional Pact for Employment and Social Inclusion (www.stp-nv.ro). As part of these organizations, the Chamber contributes to periodically submitting legislative proposals and advocating the improvement of the training activity in general. Thus, the CCICJ has the means available for standardizing the EUREM course by developing procedures and gaining national acceptance.

The Chamber's advocacy maintains a focus on the principles of affordability, accessibility

and empowerment through information and education. Since CCICJ confident that local companies will embrace cleaner and more efficient ways to fuel and power generation, it has hosted a series of events to promote clean or green energies, such as wind power, hydro-energy, biomass, solar power, Paulownia trees, etc. over the last 2 years.

The chamber stays informed on the issue of energy through regular contact and work with government and non-government agencies, service providers and business organisations.

CCICJ has recently been involved in designing a development strategy for Cluj County for the period 2014-2020 which included plans for green, clean and affordable energy, as well as for lowering energy consumption and thus at the same time pollution.

Moreover, the Cluj Chamber of Commerce and Industry decided to show its commitment to the local community by accessing European funds and offering to youths and adults and especially to vulnerable groups of women and long-term unemployed a series of technical courses for occupations such as: welder, painter, carpenter, human resources manager, project manager.

The chamber also brokered the organization of technical courses on new technologies by disseminating and putting at work our infrastructure, in order to organize technical courses, e.g. as a waste disposal manager.

Results in EUREMplus

Trainings: **1**
 Trainees: **25**
 Final Projects:
 Savings Final Energy MWh / a: **16,787**
 Savings Primary Energy toe / a: **2,396**
 Reduction of CO₂ tons / a: **10,748**
 Saving EURO / a: **1,420,640**
 Calculated Investment: **3,401,484 €**

