

## EUREM (European Energy Manager)

# Training and Network from Nuremberg cut energy costs and reduce greenhouse gases worldwide

**Megatrend Resource and Energy Efficiency:** The "Oil Age" is coming to an end; energy costs are skyrocketing and breaking one record after another. There appears to be no change in sight since energy consumption is increasing rapidly in newly industrialized countries. One further megatrend is the protection of climate and environment. It is certain that human beings have significantly contributed to the greenhouse effect. Therefore, every effort has to be done to reduce damaging greenhouse gases, especially carbon dioxide (CO<sub>2</sub>). This idea of environmental protection and the high energy costs drive more and more enterprises to reduce their energy consumption and to improve their energy efficiency.

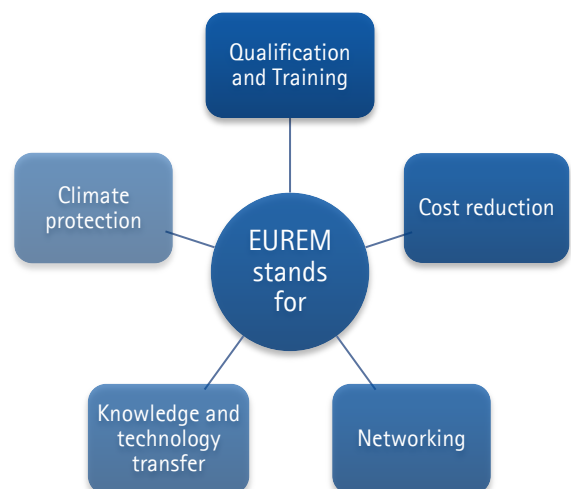
**"Energy Managers" for measurable results:** This is precisely the task for the European Energy Manager (EUREM): They promote company-wide energy savings and hence contribute to climate protection. The energy concepts of more than 2000 trained EnergyManagers resulted in energy savings of 1,500,000 MWh, cost savings of 60 million Euros per year, a CO<sub>2</sub> reduction of 400,000 tons per year and investments of 200 million Euros.

**Becoming a global market leader within just one decade:** EUREM was developed as a continuing education program by the Nuremberg Chamber of Commerce and Industry (CCI) and was carried out there in 1999 for the first time. Within ten years, an internationally recognized qualification has been developed which is currently offered in 12 EU-countries and China.

The goals of the EUREM project are to

- ▶ train and qualify specialists
- ▶ build up a network of experts
- ▶ intensify the transfer of knowledge and technology
- ▶ share information and experience
- ▶ improve the competitiveness of companies
- ▶ support energy efficiency technologies and export activities
- ▶ promote environmental and climate protection worldwide

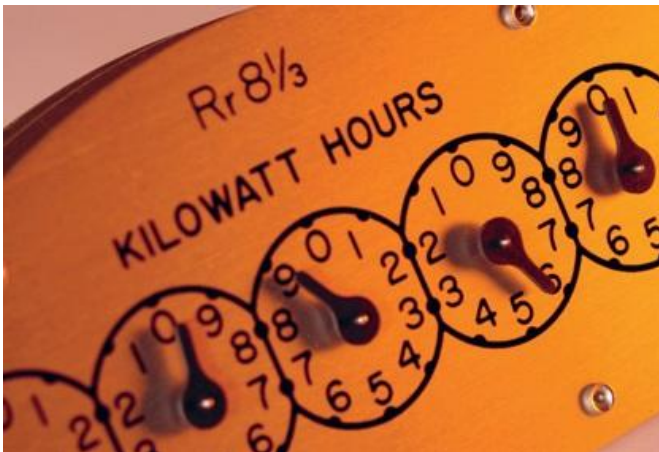
However, EUREM is not only a continuing education program, but also a global networking community of energy efficiency experts. The participants and graduates regularly meet on conferences, workshops and online platforms to exchange experiences, get information on current energy topics and help each other with various tasks.



## Do companies need Energy Managers?

Hardly any experts doubt that prices for energy will significantly increase even if the global financial and economic crisis left a dent in the curve of increasing oil prices. Energy costs were and still are largely ignored in many companies. But also in sectors which are less energy intensive, companies start to focus on energy consumption. Rising energy prices make investments in savings measures increasingly attractive. The training of one employee to become an energy manager helps to make the right decisions. Additionally, a new function is created within the company - the one of the energy manager.

However, there are multiple reasons for the implementation of an energy manager within the company. Despite higher efficiency and quality standards in production companies, it is still possible to cut costs and save energy. Particularly interesting for entrepreneurs: The development of cost-cutting potential improves the competitiveness of the company. Furthermore, by cutting costs, the company contributes actively to climate protection and resource conservation. Environmental commitment, which is valued by many customers, becomes more visible and will be honored accordingly.



The liberalization of energy markets in Europe and around the world bears many chances and the energy manager knows how to use them. The current requirements like the compensation of skyrocketing prices especially with regards to oil, electricity and gas, the implementation of an environmental management system according to European standards EMAS or ISO 14001 or of an energy management system according to EN DIN 16001 - all these plans and goals rise and fall with the qualification of appropriately trained experts.

Companies count on direct positive effects thanks to energy savings. But also employers within the companies benefit from the participation in the EnergyManager Training. Apart from new knowledge, they receive an individual certificate which reinforces their personal competitiveness and helps them to secure a sustainable job. One version of the certificate is written in the respective national language and one in English. Their prospects on the job market increase. Therefore, companies and employees benefit equally from EUREM - a classic win-win situation. With EUREM a new and useful function of a comprehensive and competent energy manager has been created, which is comparable with the function of environmental protection officers or quality managers that were established within companies around the world in the early 1990s.

## EUREM – A decade of success

EUREM started in Nuremberg as a model of success. Already in 1992, the CCI Nuremberg recognized the trends and founded its IHK-AnwenderClub Energie (CCI energy users club). In 1997 the project "Energy-Half", promoted by the EU, followed. 16 companies from the Nuremberg region participated in the pilot project.

Finally, in the year 1999 the first practical training called "EnergieManager (IHK)" started in Nuremberg. The following year further CCIs offered this program. Together with the German-wide umbrella organization, the German Chamber of Industry and Commerce (DIHK) and the company pe projects energy GmbH (located in Nuremberg/Hamburg), the training was standardized and respective framework conditions were written down in a conceptual guide. According to this concept, currently 39 CCIs in Germany offer the qualification as an EnergyManager.

In 2003 the co-funded project by the EU EUREM I started under the leadership of the Nuremberg CCI. The "EnergieManager (IHK)" became the European EnergyManager and was offered by four European partners (UK, PT, AT, DE). However, the European EnergyManager achieved its breakthrough thanks to the EU project "EUREM.NET - Training and Network of European EnergyManagers" which was carried out in 2006-2009 by 14 partners within 12 EU countries. Again, the Nuremberg CCI was leader and coordinator of this project with a total budget of 1.44 Mio. Euro. In the course of this project, a consortium was formed that developed a concept for the continuation of EUREM after the public funding had come to an end. EUREM is a real example of best practice which makes clear that funded projects may also be sustainable. The project EUREM produced the registered brand EUREM - the European EnergyManager, a worldwide recognized qualification.



Today, EUREM also exists in China under the name "European EnergyManager licensed for China". Two courses have already taken place: in each case one part in Germany and another part in China.

In South America four Mercosur states are going to start with the EnergyManager Training in 2011: Argentina, Brazil, Chile, and Uruguay.

The project EUREM produced the brand EUREM: A simple continuing education offer of one CCI becomes an international qualification standard. With regards to the classical core tasks of a CCI, this project may regarded to be really

**'unconventional'.**

Furthermore, the project contributes significantly to climate protection, competitive growth, resource conservation as well as to personnel and network development, export and investment promotion, and to the regional and international transfer of knowledge and technology.

## Contents and structure of training

Experts and executives who are self-responsible part of companies (e.g. operating managers, production managers, energy officers, maintenance engineers, process engineers, and factory technicians) as well as energy service provider are the typical target group for the EnergyManager Training.

The training is usually held extra-occupational and consists of the three following elements: face-to-face teaching (160 teaching units, 45 min each), self-learning and energy concept (80 teaching units in total). During the courses the participants acquire the theoretical knowledge which they may then apply in the course of their projects for the first time in practice.

The subject matter comprises two areas: engineering and management. Almost any energy relevant application in a company is part of the training. Of course, the subject matter is constantly adapted to the changing basic conditions. Currently the following topics are part of the training:



### Management

- ▶ Energy management systems
- ▶ Economic calculation
- ▶ Energy contracting
- ▶ Project management
- ▶ Energy purchasing, energy trade
- ▶ Energy legislation | rules and standards
- ▶ Climate protection management | emissions trading | CDM | JI

### Engineering

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

The nearly unique EUREM standard guarantees a strong basis for the training in different countries of the world. But: Individual adaptations to the country specific requirements can partly be made. By this way geographical factors can be taken into account. For example: Finland is able to focus more on heating processes and Portugal more on air conditioning and refrigeration engineering. Thereby a flexible breathing product is created which is despite of that based on a hardly defined structure of the curriculum.

## From theory to practice: Energy concept

Besides face-to-face seminars, energy concept (project work) is a key element of the practical training to become an Energy Manager (CCI). During projects the participants may practice their acquired theoretical knowledge. Usually the energy concept covers energetic weak points in the company that were already known at the beginning of the training. Energy concept begins where problems in the company of the participant arise and, if the concept is implemented, brings financial benefits which are directly associated with the training. This is done by professional coaching.

The topic may be selected with the help of the following questions:

- ▶ Are there any weak points in the company which should be improved?
- ▶ Is there a substantial consumption of energy? (e.g. > 1000 MWh / a)
- ▶ Would it be possible to improve this area with corresponding measures?
- ▶ By optimizing the area, are there any energy savings (> 10 %) possible?
- ▶ Does the weak point thematically belong to the training contents?

Together with understandable calculations, the results of the project work should be submitted in a report. Additionally the participants must summarize their most important conclusions within one page. Since the participants usually have to convince their managing directors of the benefits arising from the suggested measures, they are to present their projects in front of an audit committee, acting as a virtual board of directors, which is – besides of a written test of two hours – part of the examination. The evaluation of the project works during several years shows the following average results:



### Average saving potentials per EUREM project work

Energy-saving potential	750 MWh / a
Cost-saving potential	30,000 € / a
CO <sub>2</sub> reduction potential	200 t / a
Investment costs for measure	100,000 €
Payback period	3 – 4 years

It is quite obvious that there are more winners along the exhausting road to more energy efficiency: the money box of a company by low payback periods and the climate protection by reducing greenhouse gases like methane or carbon dioxide.

## Networking strengthens – the EnergyManager community

One of EUREM's main goals is to promote the networking of EnergyManagers. Participants should not only go back to their companies after the training but should also stay in contact with each other, exchange experiences and help each other with various tasks. EUREM offers various networking and exchange platforms – in reality and virtually. In the course of and after the training, participants get access to an electronic platform which may be compared to a social community.



1<sup>st</sup> International Conference for European EnergyManagers in March 2009 in Nuremberg, Germany

There they may take part in discussion forums and directly contact each other.

Furthermore this 'e-Forum' serves as an information platform. The participants have access to the latest news on energy engineering and politics downloads of all training documents and get further useful tools and references.

The platform may be accessed via the English-language portal [www.energymanager.eu](http://www.energymanager.eu). Additionally, all nations offering EUREM programs run their own country portals in the corresponding language.

Even in times of virtual social networking the best impressions are personal. Therefore, EnergyManagers are regularly invited to specialist forums, workshops and experience exchanges. Moreover, international EUREM conferences are held regularly (e. g. 2009 in Nuremberg, 2010 in Vienna, 2011 in Prague) where EnergyManagers from all over Europe meet.

At the 2<sup>nd</sup> International Conference for European Energy Managers, the first "EUREM Award" for the best energy concepts of the year was given to the EnergyManagers. The award was developed as a further product of the program to encourage participants and serves as an excellent marketing instrument for the internationally registered brand EUREM.



2<sup>nd</sup> International Conference for European EnergyManagers in April 2010 in Vienna, Austria



[www.energymanager.eu](http://www.energymanager.eu)

## Indirect effects: transfer of knowledge and technology



Energy forum 2008 in Shenzhen, China, visit of a power plant

By realizing the projects of their EnergyManager the respective company directly benefits from reduced energy costs. In addition, there are also indirect positive effects on the economy which may not be expressed in concrete figures. EUREM brings together employees and companies from various sectors, branches and countries. Apart from regular opportunities to exchange experience, EUREM also promotes the regional and international transfer of knowledge and technology and, ideally, fosters economy and export.

Cooperation exchanges and platforms are provided by the Chambers who focus on energy savings, energy efficiency, climate protection, and renewables. Thus, the EUREM energy experts search for the world's best technical solutions. In real and virtual cooperation exchanges enhance the prospects of providers and consumers to get into contact. Example: German engineering and energy service providers supported energy concepts which were carried out by EnergyManagers in Chinese companies (e.g. hotel, school, administration building, golf course, shopping mall, and heating plant) by coaching them and were thus able to establish business relationships with other Chinese companies. The trust that had been built up during the personal coaching was the fundament for this positive result. Under the leadership of the

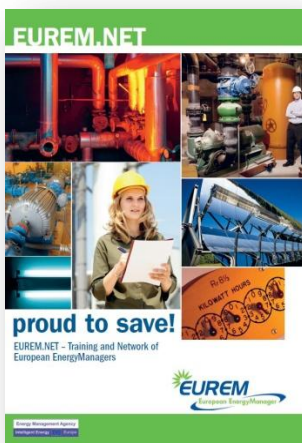


A solar thermal power plant i.e. for Desertec

Nuremberg CCI an energy study was developed in a part of the Changping District in Beijing which serves as a model to show how and at what costs a sustainable city can be achieved.

Both sides win: User and provider. Even across national borders.

'Proud to save' is the title of the EUREM project brochure. It summarizes best practices of energy concepts in different EUREM countries. The publication supports the international knowledge and technology transfer.



EUREM project brochure.

Download: <http://www.ihk-nuernberg.de/proud-to-save>

## The EUREM.NET project: European initiative guarantees energy efficiency

'EUREM.NET - Training and Network of European EnergyManagers' has been a project of the European programme *Intelligent Energy Europe*. The goal of EUREM.NET was to implement the training programme for European EnergyManagers (EUREM) in the majority of EU countries. For that reason, the EUREM standardized training programme, which was developed in the years 2003-2005 by the Nuremberg CCI, The Energy Institute in London, UK, the German-Portuguese Chamber of Commerce and Industry in Lisbon (DUAL) and the Austrian Economic Chamber (WKO) in Vienna, was implemented by nine other EU countries. CCI, WKO and DUAL supported these nine countries as a coach due to their long-term EUREM experiences.

EUREM is now operated regularly at the highest level by twelve European countries as the standard qualification programme in the energy management area. The turbulent developments on the energy market require an approach which makes it possible to implement modern energy management systems in companies and to enhance there the energy efficiency.



Kick-Off-Meeting EUREM.NET consortium in Nuremberg,  
December 2006

EUREM is this approach, as the remarkable energy-, CO<sub>2</sub>- and cost saving potentials show.

The EUREM.NET approach and the first version of the EUREM training materials were developed in the EU co-funded SAVE II project "European EnergyManager" between 2003 and 2005 by the CCI, DUAL, WKO and the British Energy Institute. The EUREM training programme was implemented in these countries. This preparation work and the experiences from the training courses facilitated the subsequent project EUREM.NET.

Four main goals were determined at the beginning by the EUREM.NET partners, in order to implement a standardized qualification for European EnergyManagers (EUREM) throughout Europe:

- ▶ EUREM courses running in twelve EU countries
- ▶ Continued development of the EUREM training materials
- ▶ National acceptance of EUREM European wide certificate
- ▶ Formation of a network for European EnergyManagers

With EUREM.NET all these goals were reached and requirements fulfilled. The results also show that due to EUREM the energy efficiency has been optimized in the companies and remarkable energy-, cost- and CO<sub>2</sub> - savings have been achieved and realized in all twelve EU countries.



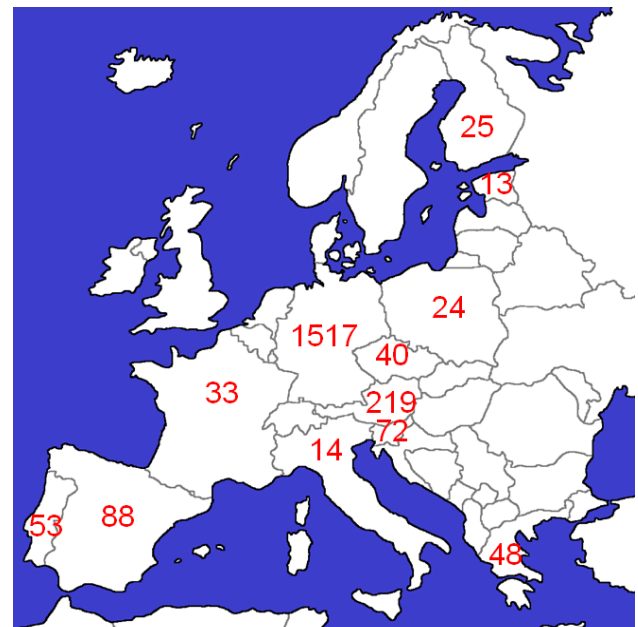
## Results: What has been achieved so far?

All together more than 2000 EnergyManagers have graduated in Europe so far. This amounts to a reduction of 1,500,000 MWh per year calculating with an average reduction of around 750 MWh per project for all participants. This corresponds to approximately 20 percent of the annual output of a nuclear power plant. On the other hand, the projects brought the economy a financial relief of 60 million Euros per year. These savings are not only achieved once but every year!

In a study carried out together with the Hochschule Weihenstephan-Triesdorf (University of Applied Sciences) the likelihood of a realization of the projects was rated: More than 80 percent, i.e. four out of five, of the projects developed in the course of the training are realized. In 80 percent of the cases the projects were actually realized within six months.

The online survey of EnergyManagers also showed that the used calculation methods from the EnergyManager program are of high quality. In most cases the calculations regarding potential savings were very reliable or even chosen too conservative.

For more than a half of the participants, the projects carried out during the training were not the only optimization measure. EUREM is sustainable. EnergyManagers identify themselves as energy managers and always look for further potentials. EnergyManagers are, in a positive way, infected by a virus which makes them constantly look for energy saving and efficiency improving opportunities – for the benefits of economy and environment.



Qualified EnergyManagers in Europe (Number), Feb. 2011

Certainly, one of the reasons why EUREM has become successful is that its participants are very pleased with their training. Nine of ten EnergyManagers would recommend the training to others. EUREM can additionally provide an impetus to continuing education. Two thirds of the graduates intend to improve their skills in the energy sector also after the EUREM program has ended. In addition to the practical training, the Nuremberg CCI therefore offers a comprehensive range of training courses and networking opportunities as an after sale service. Examples of energy efficiency events within the last twelve months: Green-IT, Eco-design, conveyor techniques in industrial intralogistics, automation of buildings, lighting/illumination, compressed air solutions.

## What are the next steps? – The future of EUREM

The steering committee developed in the course of EUREM.NET (consisting of the partners Austria, Czech Republic, Finland, Germany, Greece, and Portugal) will drive EUREM forward. Currently, the EUREM steering committee is chaired by the CCI Nuremberg, Germany.

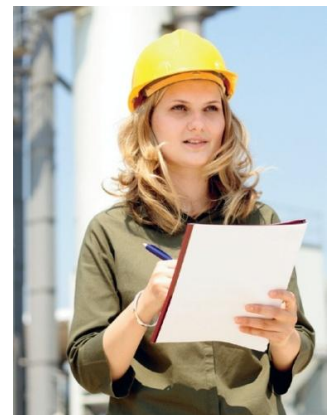
A considerable number of further countries around the world are strongly interested in implementing EUREM. By means of a licensing agreement the partners of the corresponding countries are granted the right to offer EUREM. Corresponding discussions are already being carried out with Egypt, Morocco, Hungary, Turkey, Slovakia, and Moldova. The Mercosur states Argentina, Brazil, Chile and Uruguay purchased the license rights in February 2011. The extension of EUREM is pushed mainly by the strong international network of Chambers of Commerce and Industry all over the world.



The extension will also cause various challenges which will have to be solved: whether global marketing concept, quality assurance or translation of training documents into the corresponding languages. The CCI Nuremberg and their partners in the steering committee are currently working on the solution of these and other challenges no one would have thought of more than ten years ago when the idea of the qualification as an "EnergyManager (IHK)" was born.

The following are the six development steps for EUREM:

- 1. Growing number of training providers and graduates:** Our declared objective is to train 1000 additional European EnergyManagers per year.
- 2. Geographic expansion:** It is of high importance to make EUREM available in more areas of the EU. At the same time, the cooperation particularly with America and Asia is of interest.
- 3. International register:** To strengthen the brand EUREM and to underline the importance of the qualification on a high level, a register of all graduates should be implemented. Each participant will then receive a standardized register number (country-city-number, e.g. DE-NUE-0001).
- 4. Vertical specialization:** Advanced modules will be developed and offered to give participants the opportunity to specialize themselves. There are already advanced modules for the areas compressed air, lighting and refrigeration engineering.
- 5. Continuing development:** The energy sector is constantly changing. New laws and technologies require the adaptation of existing training documents to the latest advances.
- 6. Larger network:** By carrying out further real meetings and by increasingly taking advantage of Web 2.0 opportunities the networking aspect will be strengthened. This includes also annual international EUREM conferences and EUREM awards.



Together with many chamber organisations and specialized companies the EUREM project has gained a remarkable status until now. Together with chamber organisations EUREM has a high potential for a successful run worldwide.