

meetMED professional training on Energy Audits in Industrial Small to Medium Enterprises (SMEs)

Training report

8-12 December 2019 – Cairo, Egypt

On 8-12 December 2019, the meetMED professional training on Energy Audits in Industrial Small to Medium Enterprises (SMEs) was hosted by the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) in Cairo, Egypt. This meetMED activity was jointly led by RCREEE and CRES (Greece).

Dr Ahmed Badr, RCREEE Executive Director, Dr. Matteo Barra, meetMED Project Manager, and Mrs Rim Boukhchina, RCREEE Senior Sustainable Energy Expert and leader of this meetMED activity, welcomed the participants to Cairo and opened the event by wishing to all the participants a fruitful training. Dr Badr underlined the importance of the security of energy supply, mentioned the technological innovations spreading all over the world resulting in significant changes for the energy sector, and finally highlighted the importance of energy audits in SMEs. Dr Barra continued by illustrating the professional training activities in the meetMED Project and Mrs Boukhchina concluded the session by presenting the program of the training week.

Participants were energy experts from the Ministry of Energy and Mineral Resources and JREEEF (Jordan), MAEE (Morocco), Ministry of Electricity, JCEE, EgyptERA, NREA and NECE (Egypt), REAoL and GECOL (Libya), ANME (Tunisia), LCEC (Lebanon), APRUE (Algeria). Representatives from SwitchMed and from the EU Technical Assistance to Renewable Energy and Energy Efficiency Programme in Jordan also contributed to the training with their experience on professional capacity building.

During the training, they were provided with the necessary skills and knowledge to improve energy efficiency and profitability in the industrial sector as well as to gain required methodology for the completion of a thorough energy audit. One of the most important parts of the training course was the exchange of national experiences in the region among the participants, especially on planning and implementing EE plans and related measures for industrial SMEs. Proven best practices for optimizing energy-intensive equipment and systems have been also presented, raising the interest of the participants as they could be replicable.

The topics analyzed during the seminar concerned initially general information on energy conservation and energy efficiency, energy management and energy audit; subsequently, the seminar got more detailed on the specific parameters of energy issues (electrical and thermal energy management), while practical instruments like ISO 50001 & 50002 for energy auditing and management, tools for energy auditing, energy performance assessment of equipment and SMEs were presented. The seminar concluded by focusing on more logistic issues, such as the

economic analysis and project financing, measurement and verification (M&V) and demand side management programs.

Vivid discussions enabled the exchange of experiences and best practices among the participants, thus a fruitful collaborating environment. Among the concrete outcomes from these discussions were: the need and wish of the participants for the creation of an online group/platform, where they could continue their exchange, mutual support and collaboration even after the end of the seminar/ project; and the importance of proper training on energy audits inasmuch as the number of experts and well-trained professionals would increase, thus resulting in more efficient buildings and real energy savings.

Conclusions:

Suggestions on the context and structure of a future Training Scheme on Energy Audits

- It is very important the training be combined with practice: as an example was presented a best practice, where a 2-week training course took place in a hotel: the theoretical sessions occurred the 1st week in a conference room of the hotel, and the practice (energy audit of the hotel by the trainees with the guidance of the trainers) occurred *in situ* and with real data during the 2nd week.
- E-Learning could be a solution, especially if it results in cutting the cost to a minimum, (having a webinar for the theoretical part and in situ practical lessons). However, it has been strongly underlined that face-to-face trainings work better for such context of training (energy audits).
- The suggested duration for a successful training is 3-5 days of theoretical lessons and 3-5 days of practical, hands-on lessons.
- The importance and the need of well-trained trainers (and of 'training the trainers' activities) were also highlighted, in order to disseminate the technical capacity on energy audits and on energy efficiency in general to the largest audience: from school pupils to university students, national and local public authorities, public and private companies, banks and investors, general public.
- The involvement of the universities was positively perceived. It was mentioned that the integration of modules on energy efficiency, savings (and audits) in graduate and post graduate level existing courses has started in Egypt, and the response of the students (measured by the registrations to the specific course in comparison to the previous years without the abovementioned modules) had significantly increased.

Financial Issues of the training

- The importance of financing the training was underlined. In particular, funding is needed from the industries, from the “inside” or with other financing instruments (programs) otherwise the lack of resources can create a great barrier for the professionals.
- Companies should be encouraged and convinced to support their employees for the energy audit training.
- The representative of FRESH - a large Egyptian manufacturing company with an interest in employees’ training - underlined the importance of energy audits and the financial advantages, and, particularly, mentioned the huge potential for energy savings in SMEs. To support his thesis, he gave an example of how to obtain 60% savings in one of their industries starting from one monitored action. These savings could be used for training of the employees.

Legislation Issues and Framework

- The importance of sustainability of rules and legal framework, detection of the costs, not only for energy, but also for sustainability in general was thoroughly underlined.
- The legislative framework can accelerate the granting the certification to energy managers. However, this alone have not increased the number of people asking/ supporting the training, if there is no support from the industry/ companies.
- The need for one common database of registered trained energy auditors among the participating countries was thoroughly underlined during the seminar and specifically mentioned during the conclusion session, as a necessary result of this fruitful seminar/ meeting of regional energy experts. This action enables the continuation of the exchanges and connections created during the Seminar, as well as the establishment of a network dedicated to the cultivation of the existing outcomes and the further development for energy efficiency in the region.

Key messages/ minutes to be remembered:

- The importance of the security of energy supply: as example for the underlying of the importance of energy supply, the mortality and maternity indicator in Yemen was analyzed. As mentioned by Dr Badr, executive Director of RCREEE, it has been significantly improved after the development of RES in the country. Medium and small scale RES interventions have been implemented, some of those in hospitals and other important for the public buildings, having as a result the availability and access of energy use by more people in everyday life, fact that is saving lives.
- The significant changes in the energy sector (production and storage), resulting from the technological innovations which are taking place in all over the world: lithium batteries, solar PV, and nowadays, 5G energy which is being researched in China could be the start of a new era.
- The importance of Energy Audits in SMEs.
- The importance of accurate data, which in many cases are difficult to find in the participant countries. Data on electricity can be more easily found, but on thermal energy or transportation not so easily, there is an important lack on realistic data.

- Energy efficiency in some countries is not a trendy issue, since energy is quite cheap, and investments for energy efficiency could not be cost-effective.
- The importance of monitoring: there is lack of a sustainable methodology applied in the participating countries, leading to problems caused by the lack of an effective monitoring, which could enable the interested parties to apply a more effective policy in practice. In some cases, there are existing policies, but there is no monitored result from their implementation. Each partner shared examples and experience from their own country, resulting an active and fruitful discussion and opinion exchange.
- An overview of the auditing practices and challenges of each country, given specific examples was made.
- Financing energy efficiency programs were also discussed and this led to questions related to risk and guarantee.
- During the Q&A and Discussion Session, the importance of national expertise, the human capacity of energy efficiency issues was raised.
- The calculation of the financing parts of the design is of extreme importance, especially for engineers, since without it the project cannot be realized. Issues which were explained: the calculations for the interest rate; How to control the financial mechanisms in the country; The nominal vs real interest rate; Time value of money- present and future value, with example- exercises and other important issues
- Essential issues of energy management and audit (ISO 5001 & 5002), energy calculations and thermal and electrical energy management were presented.
- A crucial issue that raised discussion was the certification of the auditors, of energy inspectors and the mandatory or voluntary framework existing in the Mediterranean countries.
- The exchange of information was valued so important, that the participants agreed to a spontaneous decision to create a group through WhatsApp in order to be able to continue the networking after the end of the seminar and the return to their countries.
- A presentation on the financing mechanisms of RE and EE projects through different ways was made, and the guaranteed savings, shared savings and the independent services provider's contracts were explained in details.
- The measurement and verifications protocols, procedures and some tips were presented.
- The demand side management and how to balance the equation between the demand and the supply was mentioned, as well as the advantages of use "time of use tariff structure" and its effects, especially on the residential sector.
- The measures of the performance through different ways for different systems were analyzed.
- Regulations and financial incentives from the Tunisian government that have been established at 2004 till September 2017 in order to promote the renewable energy at the residential sector through soft loans with grants to be granted to the banks through STEG were described. This incentives successes for the solar water heaters and the solar PV as well. Discussion of the 30/30 strategy

- The Lebanese experience gave in depth information about NREAP and NEEAP in Lebanon. The main reasons of the support in order to develop the ESCOs in Lebanon was described and how it effect the whole situation in Lebanon
- Jordan presented the REEE II and REEE II TA Programs that have been funded by EU in order to achieve their target, the Jordanian NEEAP and PA-CEMP in Jordan.
- The Grant of 50% from JREEEF to support the energy audits studies with maximum ceiling of 10000 Jordanian dinar cost of the study and they also support Implementation phases with 0% interest loans. At the end discussion on the energy saving measures and potentials was made.

Way forward towards the meetMED report on EE in buildings

Next meetMED professional training will focus on energy efficiency in the building sector and will take place in Tunis next February 2020.

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