ITS Combined Event on lessons learned on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries

RWP.09

Stockholm, Sweden, 9-11 February 2016

INOGATE Technical Secretariat and Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives

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<th>Full Form</th>
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<tr>
<td>AHEF</td>
<td>Ad Hoc Expert Facility</td>
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<tr>
<td>AM</td>
<td>Armenia</td>
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<tr>
<td>CWP</td>
<td>Country Work Plan</td>
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<td>EE</td>
<td>Energy efficiency</td>
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<td>EED</td>
<td>Energy Efficiency Directive</td>
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<td>EnC</td>
<td>European Community</td>
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<td>EPB</td>
<td>Energy Performance in Buildings</td>
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<td>EPC</td>
<td>Energy Performance Contract</td>
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<td>ESCO</td>
<td>Energy Service Company</td>
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<td>EU</td>
<td>European Union</td>
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<td>ITS</td>
<td>INOGATE Technical Secretariat</td>
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<tr>
<td>MD</td>
<td>Moldova</td>
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<td>MS</td>
<td>Member State</td>
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<tr>
<td>NEEAP</td>
<td>National Energy Efficiency Action Plan</td>
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<td>PC</td>
<td>Partner Country</td>
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<tr>
<td>Q&amp;A</td>
<td>Questions and Answers</td>
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<tr>
<td>RES</td>
<td>Renewable Energy Sources</td>
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<td>RWP</td>
<td>Regional Work Plan</td>
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<td>TA</td>
<td>Technical Assistance</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>V&amp;M</td>
<td>Verification and Measurement</td>
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1. PART 1 – EUROPEAN COMMISSION

1.1. Background

<table>
<thead>
<tr>
<th>Assignment Title:</th>
<th>ITS Combined Event on lessons learned on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries, RWP.09</th>
</tr>
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<tbody>
<tr>
<td>Beneficiary Organisation:</td>
<td>Armenia: Ministry of Energy and Natural Resources; R2E2 Fund; Georgia: Ministry of Energy; Ministry of Economy and Sustainable Development; Tbilisi City Hall; Moldova: Energy Efficiency Agency; Energy Efficiency Fund; Ministry of Economy; Ukraine: State Agency on Energy Efficiency and Energy Savings; Ministry of Regional Development, Construction, Housing and Communal Services; Ministry of Energy and Coal Industry, KyivESCO</td>
</tr>
<tr>
<td>Beneficiary Organisation - key contact persons – name and e-mail address</td>
<td>Names and e-mails of 17 participants of the event are provided in Annex 1 of this report</td>
</tr>
<tr>
<td>Deliverables Produced</td>
<td>Final report and presentations</td>
</tr>
<tr>
<td>Expert Team Members</td>
<td>Bengt Månsson, Oleksandr Antonenko</td>
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1.2. Essence of the Activity

The Combined Event on lessons learned on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries (RWP.09) took place in Stockholm, Sweden between 9 and 11 February 2016. The event became a logical step of ITS cooperation with Moldova on the improvement of legislation framework for ESCO. The Energy Efficiency Agency of Moldova officially submitted ITS recommendations for approval and started preparation for a practical implementation of EPC in September 2015. Thus, it was very important for ITS to follow-up with the achieved results and to show decision makers from Moldova and other INOGATE Partner countries the work of the EU ESCO market in practice.

This Combined Event also complements another ITS capacity building activity RWP.08 “Combined Event on the Benefits and Requirements of the EU Directive on Energy Performance in Buildings”. Whereas the RWP.08 enhances the capacity on the implementation of reforms to the building sector, RWP.09 provides Partner Countries (PCs) with a set of effective tools on how to support the implementation of these reforms.

The Overall Objective of the event was consonant with the INOGATE Technical Secretariat (ITS) Strategy i.e. to focus on policy-related topics which are in line with the requirements of the Energy Efficiency Directive (EED) 2012/27/EU. The ITS fully achieved the overall and specific objectives of the combined event (see section 2.2) that were related to the improvement of the capacity of participants to approximate with EU legislation and promote viable energy service markets in their countries.

1.3. Key Findings

1. The selection of a real EPC project as a case study for the event and invitation of lecturers with hands-on experience enabled an efficient transfer of knowledge to the participants. The Swedish counterparts were very enthusiastic about sharing their positive and even more important negative
experience with INOGATE PCs. This allowed the participants to enhance their capacity on the details of the EU/Scandinavian ESCO markets over a short period of time.

2. Inviting the representatives of different stakeholders involved in the implementation of ESCO market, i.e. relevant ministries, agencies, municipalities and funds facilitated the 3-layer networking: internal per country, among the PCs and with participants’ peers in the EU.

3. All Swedish speakers not only highlighted the importance of the policy design to support the development of ESCO market, but showed the real results of the policy measures. Sweden, using EPC and other instruments has managed to achieve a 20 per cent reduction of energy consumption in the public sector during the last 20 years. Thus, the learned experience on policy design can considerably contribute to the reduction of energy dependence and improvement of energy security of the PCs.

4. The event also provided an excellent platform for the exchange of experience among Partner Countries. To stimulate the interest, the participants were also asked to develop presentations on key barriers for ESCO in their countries and to answer test questions before the event. This approach revealed the gaps in knowledge that were filled-in during the event.

The main benefits of the activity for the Beneficiaries are:

1. The participants improved their understanding on elements of the Energy Efficiency Directive (EED) and the promotion of viable energy service markets in their countries. The enhanced capacity will facilitate the fulfilment of PCs’ obligations under the Energy Community Treaty.

2. The participants learned about EU and Scandinavian experience to support the improvement of energy efficiency in buildings. They understood that EPC is not a ‘one-size-fits-all’ solution and that it has its own benefits and drawbacks. However, once carefully planned, the ESCO market can deliver guaranteed energy savings that no other comparable EE instrument can provide.

- The Beneficiaries took ownership in the following way:
  1. Moldova has submitted the ITS recommendations and model EPC, developed within the country specific (AHEF.119.MD) assignment, for approval to the Public Procurement Agency.
  2. Ukraine has adopted a new law and secondary legislation on ESCO as well as identified and removed key barriers for the development of viable energy service markets.
  3. Georgia started considering opportunities to include the key information on the promotion and the development of ESCO market in the country’s first draft of the National Energy Efficiency Action Plan (NEEAP) that is planned to be published in May 2016.
  4. Armenia shared its experience in the implementation of ESCO projects with the World Bank (WB & IDO) and the Global Environment Facility (GEF) and started considering opportunities on the implementation of EPC projects without the support of donor organisations, but with respect to the local conditions of the ESCO market.
1.4. Challenges Faced

1. EPC is a long term contract that is usually valid for more than 10 years. Therefore, the first challenge was to identify a real EPC project that had been running for the last 5-8 years as well as to involve the project’s representatives who were willing to share the achieved benefits and problems faced.

2. The second challenge was to implement the event in a cost-effective way. The selected EPC project in Lycksele Municipality was located 715 km north of Stockholm and it would have been difficult to bring all participants there due to time and budget constraints. Thus, ITS invited three demand side experts from Lycksele Municipality to Stockholm to share their experience with participants during the second day of the event.

3. The last but not least challenge was to make sure that some delegates participated in all sessions of the event. Despite the fact that the most of the participants were very eager to find more information about the EU/Scandinavian ESCO experience, two participants from the R2E2 Fund of Armenia did not show the required discipline in terms of presence and attention during the presentations and thus hampered other participants. ITS experts put a lot of efforts to remedy the situation during the implementation and at some point of the event stopped the lecture until these two participants came back to the conference room.

Table 1. Impact Matrix

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Developments</th>
<th>2012 (%)*</th>
<th>Feb 2016 (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>Support of the implementation of EED and its elements related to ESCO</td>
<td>0%</td>
<td>40%</td>
</tr>
<tr>
<td>Regulation</td>
<td>Support of the development and approval of model EPC</td>
<td>10%</td>
<td>50%</td>
</tr>
<tr>
<td>Technology</td>
<td>Support of the development and utilisation of modern EE technologies, primarily in buildings</td>
<td>5%</td>
<td>50%</td>
</tr>
<tr>
<td>Environment</td>
<td>An EPC project can provide guaranteed energy savings that might not be achieved under the normal contract conditions</td>
<td>5%</td>
<td>55%</td>
</tr>
<tr>
<td>Economics</td>
<td>Indicators of decreased energy dependency</td>
<td>4%</td>
<td>14%</td>
</tr>
<tr>
<td>Social</td>
<td>Better indoor climate and living conditions for citizens.</td>
<td>5%</td>
<td>45%</td>
</tr>
</tbody>
</table>

* The impact is estimated based on the experts’ opinion under the current circumstances and can be changed over time.

Note: It is particularly difficult to quantify the impact of capacity building activities. The figures provided in the table should therefore be considered with great caution.
2. PART 2 – BENEFICIARIES

2.1. Executive Summary

This report presents the results of the combined event on lessons learned on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries which took place in Stockholm, Sweden between 9 and 11 February 2016. The overall objective of the combined event was to align the national legislations of Armenia, Georgia, Moldova and Ukraine with the EnC acquis with specific regard to promote viable energy service markets.

A total of 17 delegates from four INOGATE Partner Countries participated in the event (see Figure 1). The programme of the event combined presentations, site visits and workshops delivered by a range of stakeholders who are actively engaged in the implementation and promotion of ESCO. The Swedish Energy Agency provided the relevant policy background at the Swedish and European levels. Three demand side experts from the Lycksele Municipality contributed to the event with the practical experience of the implementation of a 7-year EPC project for 49 municipal buildings. The delegates also presented their own experience and discussed possible solutions on how to overcome the identified challenges.

In order to assess the improvement in knowledge resulting from the learning experience, the participants were asked to complete a tailored test before and after the combined event. The test results demonstrated an average 27% increase in knowledge. The results of the confidential questionnaires also showed a significant improvement of participants’ understanding of reforms needed to approximate with EU legislation and to promote viable energy service markets.

The combined event was a unique opportunity for the participants from the INOGATE PCs to learn about best practice from the range of stakeholders with differing backgrounds. The participants were able to engage extensively with Swedish experts on key EU legislative instruments and their implementation in Sweden. The event was also a great opportunity for networking and nurturing ties among INOGATE beneficiaries and with their Swedish counterparts, which is expected to generate further collaboration in this area. Overall, the event can be described as a success from the perspective of the participants and the organising team.
2.2. Introduction

The combined event on lessons learned on EPC, EU experience and applicability in the Partner Countries (RWP.09) took place in Stockholm, Sweden between 9 and 11 February 2016. The overall objective of the combined event was to support the alignment of the national legislations of Armenia, Georgia, Moldova and Ukraine with the EnC acquis with specific regard to the energy services and EPC requirements of the Energy Efficiency Directive 2012/27/EU (EED).

The Specific Objectives of this event were:

- To help the participants to understand specific elements of the Directive 2012/27/EU in order to contribute to the approximation with the EU legislation and fulfilling the requirements of the EnC acquis;
- To improve the capacity of participants from the PCs directly involved in the implementation, development and promotion of viable energy service markets in their countries.

2.3. Participants

A total of 17 delegates from Armenia, Georgia, Moldova and Ukraine participated in the event. The participants represented different ministries, governmental agencies and the EE/RES funds involved in the development and promotion of ESCO market. ITS invited four delegates from each partner country and an additional participant, who represented the UNDP-ESCO project in Moldova, participated at the event at his own costs. The list of participants is provided in Annex 1 and Figure 2 illustrates the composition of the group. The event was effectively implemented as all invited participants came to Stockholm and attended all training sessions. Unfortunately, the two representatives of the Armenian R2E2 fund made some attempts to not to attend the lectures, but this was prevented by ITS experts.

![Fig. 2 Composition of the trainees’ group](image)

Taking into account the fact that most of the delegates represented governmental bodies responsible for the improvement of energy efficiency in the country, the participants showed a strong interest in policy-related issues supporting the development of ESCO market. The event was facilitated and moderated by Bengt Månsson, a senior ESCO expert who has successfully implemented more than 30 EPC projects in Sweden. In total, nine experts from Sweden took part and generously contributed to
the delivery of the event with presentations and site visits, including three experts from the Lycksele Municipality who arrived to Stockholm from north Sweden to share their experience with the INOGATE group. Therefore, the participants were able not only to learn from the Swedish experience, but also to meet and establish contacts with their peers from the EU.

2.4. Expert Presentations

The programme of the combined event (Annex 2), contained a series of presentations by a range of stakeholders who are actively involved in the promotion and implementation of EPC projects in Sweden:

- Swedish Energy Agency;
- Energy Efficiency Suppliers Association;
- Lycksele municipality - client of the EPC project selected as a case study of the event;
- Demand side EPC experts – consultants who work closely with the EPC clients (municipalities) that do not have enough experience in the procurement and implementation of EPC;
- Siemens - ESCO with largest EPC portfolio in Sweden, incl. the EPC project in Lycksele.

The meeting with the Swedish Energy Agency helped the participants to understand the institutional and organisational framework for energy services in Sweden. Taking into account that Armenia, and Georgia do not have a separate governmental bodies responsible for the improvement of energy efficiency in the country, it was very important to show the participants the importance of the organisational setup for energy efficiency. Mr. Glenn Widerström presented general information about the Swedish energy policy, legislative and institutional framework for ESCO. He also presented key figures on the energy sector in Sweden and highlighted that due to the well-planned policy design to support the development of ESCO and other EE instruments, the energy consumption of Swedish public administration sector has decreased by 20% during the last 20 years.

Ms. Lotta Bångens shared with the group the experience of enhancing the dialog between the building owners and the members of the Energy Efficiency Suppliers Association (Figure 3). She also presented the overview of ESCO experience in EU Member States (MS), challenges and benefits for the economy. The most interesting part of presentation was devoted to ESCO success factors and lessons learned in the EU.

Fig. 3 Visit to the Swedish Energy Agency
Using the opportunity that the Swedish Energy Agency has one of the best testing laboratories in the EU, the participants were given a chance to get acquainted with the EU policy, market surveillance and testing of energy related products. Mr. Carlos Lopes showed the participants the modern equipment used for testing the products (Figure 4) and explained the procedures of the tests according to the EU ecodesign and energy labelling Regulations.

![Visit to the Testlab of the Swedish Energy Agency](image)

**Fig. 4 Visit to the Testlab of the Swedish Energy Agency**

The hands-on experience of the procurement and implementation of the EPC project for 49 municipal buildings was presented by three representatives of the Lycksele Municipality: Mr. Håkan Westman, Mr. David Hermansson, and Mr. Sune Silverhall. The EPC project was initiated in 2008 and it is currently at the last stage of the verification and measurement (V&M) of the guaranteed savings. Thus, the participants were able to find out the practical details of the implementations of all stages of a real EPC project: initiation, preparation, development, implementations and V&M.

Mr. Bengt Månsson and Mr. Stig Lundberg provided participants with the practical details of their cooperation with clients who wanted to improve energy efficiency and indoor climate of their buildings but did not have necessary experience in the procurement and implementation of EPC. Two demand side EPC experts gave the presentations on the key barriers and possible solutions while initiating and implementing EPC.

Mr. Joakim Sellgren showed the technical solutions for the implementations of EPC by Siemens, the largest ESCO in Sweden. Siemens constantly update its software and hardware to provide the EPC clients with the latest technologies and environmental solutions. Despite all difficulties of ESCO business, the company sees number of benefits and significant potential of EPC in the future. According to Mr. Sellgren, EPC with guaranteed savings is a key instrument on the energy market that guarantees the certain level of energy performance, ensures comfort indoor climate and the most important – safeguards the repayment of the investments in the EE measures.

The ITS expert, Mr. Oleksandr Antonenko presented the ITS experience on ESCO that included main findings and recommendations of two country specific technical assistance (TA) projects:

- **CWP.08.MD (AHEF.119.MD)** Technical assistance to the Energy Efficiency Agency on organizing the operational framework for Energy Service Companies (ESCO).
- **CWP.05.AM (AHEF.090.AM)** Capacity building of the personnel of energy service companies (ESCO) and recommendations for regulatory framework.
Mr. Antonenko also conducted a group exercise on the procurement of EPC tender using financial and technical weighting criteria. The purpose of the exercise was to equip participants with the practical knowledge and skills on evaluating ESCOs’ offers. For the purpose of this exercise the participants were divided into four groups (one representative of each PC in each group, i.e. four participants from different PCs in each group). Each group got three tender proposals from which they had to select a winner (Figure 5).

Fig. 5 Group exercise on the procurement of EPC tender

At the end of the event the participants made presentations on key barriers and progress made for the improvement of ESCO markets in their countries. The delegates were very eager to find out the recent development in this area from their neighbours as each PC except Georgia has already achieved certain results in the promotion of ESCO:

- Moldova has approved the Governmental Decree on ESCO, transposed EU Directive on public procurement and submitted the ITS recommendations and model EPC, developed within AHEF.119.MD assignment, for approval to the Public Procurement Agency. However, the country has not started the practical implementation of EPC projects yet;

- Ukraine has adopted a number of primary and secondary legislation acts on ESCO, identified and removed key barriers for the development of viable energy service markets, but also has not started the practical implementation of EPC yet.
Armenia, despite the lack of legislation framework on ESCO, implemented about 60 EPC projects (612,000 m² Atemp) total worth of $9.8 mln during 2012-2015. They country developed their own EPC methodology that is different from the EU best practice and more applicable for local conditions. Thus, the Armenian decision makers started considering opportunities on the implementation of EPC projects without the support of donor organisations, but with respect to the local conditions of the ESCO market.

All presentations were published on the INOGATE web-portal. The web-portal was used as a principal source of communication with the participants both before and after the combined event.

### 2.5. Baseline assessment

The conducted baseline assessment aimed at providing a benchmark against which to monitor and evaluate the event’s impact on enhancing the skills and knowledge of the participants to independently promote viable energy service markets in their countries. A tailored test (Annex 3) and self-assessment questionnaires (Annexes 4 & 5) were the key tools for the baseline assessment.

**A tailored test**

A test was carried out before and after the Combined Event to measure the participants’ knowledge acquisition as a result of the event (Annex 3). The test was designed to accurately define the existing level of awareness and knowledge on EPC/ESCO by the participants. The unanswered questions by the participants revealed specific knowledge gaps which informed lecturers of particular areas on which to concentrate the focus of their presentations. The number of unanswered questions also helped participants to focus their attention during the presentations and site visits. Figure 6 shows the results of the ‘before’ and ‘after’ tests, per delegate and in average.

![Fig. 6 Results of the ‘before’ and ‘after’ tests, per delegate and in average](image)

As can be seen from Figure 7, the average score before and after were 54% and 81% respectively, showing a substantial increase in knowledge as a result of a 3-day combined event. 9 out of 17 participants scored above 80% and only one delegate scored below 60% at the end of the event. It is clearly demonstrated from the results of this test, that the Combined Event was successful in
transferring knowledge and know-how to the participants from the PCs. At the same time the comparison of the average results per country (Figure 7) revealed that participants from Armenia improved their skills the most whereas the participants from Georgia showed the minimum improvement in knowledge. The participants from Moldova and Ukraine showed a relatively strong knowledge before the event that and the improvement of skill after the event that is related to the active transposition of the EED and legislation on ESCO into the national legislation framework.

Fig. 7 Results of the ‘before’ and ‘after’ tests, per delegate and in average

**Self-Assessment Questionnaires**
In order to further validate the results of the ‘before and after’ test, the additional metric in the form of a Self-Assessment Questionnaires were used. In the beginning and at the end of the event the participants were asked to fill in confidential questionnaires (Annexes 4 & 5) that allowed them to self-assess their familiarity, skills and experience in relevant areas covered during the Combined Event (ESCO/EPC concept, guaranteed savings, baseline, tendering etc.). On average, the questionnaires revealed that the participants felt that their capability was ‘Satisfactory’ at the beginning of the event but this had increased to ‘Good’ and ‘Full understanding’ at the end, thereby demonstrating a clear increase in the participants’ self-assessment of their capacity to support the development of energy service markets in partner countries (Table 2).
Table 2. The results of the confidential evaluation on understanding ESCO/EPC after the event

<table>
<thead>
<tr>
<th>Key elements of EPC/ESCO</th>
<th>Full understanding</th>
<th>Good understanding</th>
<th>Satisfactory understanding</th>
<th>Weak understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General concept of ESCO and EPC</td>
<td>10 participants</td>
<td>7 participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. EPC with Guaranteed savings</td>
<td>10 participants</td>
<td>7 participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reference value (baseline) for EPC</td>
<td>6 participants</td>
<td>11 participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Measurement and Verification</td>
<td>8 participants</td>
<td>9 participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. EPC tendering procedures</td>
<td>7 participants</td>
<td>9 participants</td>
<td>1 participant</td>
<td></td>
</tr>
</tbody>
</table>

Finally, 16 out of 17 participants indicated that the event was useful for their professional activities and 15 participants indicated that Swedish experience is fully or partially applicable for their home countries. In average, the organisers also received high score for the overall organisation of the event (4.4, where 5 is ‘excellent’ and 1 is ‘poor’) and for the provided help before and during the event (4.5, where 5 is ‘excellent’ and 1 is ‘poor’).

The ITS also asked participants to describe how the acquired knowledge and experience would help them to contribute to their organisations’ work, especially to support the development of energy service markets. As a result of the survey, the participants provided the following answers:

- “I work for the ministry that designs the state policy in the field of energy efficiency and renewable energy in my country”;
- “I have gained knowledge on EU legislative framework and practical implementation of real EPCs that will help me to promote ESCO”;
- “The Energy Efficiency Fund will take an active part in the implementation of EPC projects in Moldova as a manager of the Loan guarantee Fund for ESCO”;
- “The Energy Efficiency Agency will be more involved in the development of the ESCO market”;
- “This gained experience will help to develop the knowledge in our country and create the baseline for reinforcing of EE indicators in Georgia”;
- “This will help us at the initial stage of the identification of result-oriented strategy goals for developing ESCO market in the country”;
- “There is possibility to use Swedish ESCO experience while implementing ESCO in Ukraine”;
- “All deliverables of the project will be partially and/or fully used to design the operational rules of ESCOs to operate in Moldova”;
- “I got encouragement to continue energy monitoring penetration process”;
- “Every topic discussed at the event will be useful for implementing future reforms”;
- “For the improvement of legislation framework.”

As a part of the questionnaire, ITS also asked participants to make suggestions for the improvement of similar events in the future and though most participants highlighted that the event was very well-organised, five participants expressed interest to visit the real sites that used EPC to implement EE measures.
2.6. Conclusions

The ITS Combined Event on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries in Stockholm, Sweden between 9 and 11 February 2016 was clearly a successful event, as is demonstrated for a number of reasons. First of all, the tightly-packed programme provided a wealth of know-how to participants through a combination of expert presentations, group exercises and site visits. These activities explored the implementation of EPC from the perspective of different stakeholders (government, municipalities, ESCOs, demand and supply consultants) and underlined the importance of partnership and joined-up thinking across stakeholder groups.

Secondly, the importance of the policy design to support the development of ESCO market was highlighted by all speakers. During the presentations the lecturers showed the delegates the real results of the policy measures that were expressed in a 20 per cent reduction of energy consumption by public sector during the last 20 years. Thus, the presented and learned experience on policy design can significantly contribute to the reduction of energy dependence and improvement of energy security of the PCs.

Finally, the delegation (except two Armenian participants), demonstrated a very strong motivation to learn and participate in all the activities organised during the combined event. It was clear from the eager Q&A sessions and speakers’ feedback about the high level of questions, which were raised during the presentations. The participants were also asked to develop presentations on key barriers and progress on ESCO and were very eager to find out the recent development in this area from their neighbours. The unanswered questions of the test before the event also revealed the gaps in knowledge that were filled-in during the event and contributed to the enthusiastic engagement.

Overall, the test and evaluation performed before and after the combined event prove beyond doubt that the participants’ knowledge and ability was improved significantly as a direct result of the combined event. The ITS fully achieved the overall and specific objectives of the combined event and the result of the survey demonstrated a clear increase in the participants’ self-assessment of their capacity to support the development of energy service markets in partner countries. The feedback from the Swedish contributors indicated that they too benefited from being involved in the event, and were grateful to have the opportunity to showcase their know-how and achievements, as well as to learn from their peers form the INOGATE PCs. Informal bonds and connections were made between all parties and it is hoped that this combined event will be an important step in further collaboration between the EU and INOGATE PCs in the energy efficiency field.
<table>
<thead>
<tr>
<th>NN</th>
<th>Country</th>
<th>Full name</th>
<th>Position</th>
<th>Participants' sending Institution</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Armenia</td>
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</tr>
</tbody>
</table>
Annex 2: Agenda of the Combined event

Agenda

Combined event (training course and site visits) on lessons learned on Energy Performance Contracts (EPC), EU experience and applicability in the Partner Countries

Stockholm, Sweden, 9-11 February 2016

Day 0 (8 February)
Participants arriving in Stockholm, Sweden,

Day 1 (9 February)
8.30-9.30 Welcome and intro overview of programme
9.30-10.00 Travel to Swedish Energy Agency “Energimyndigheten”
10:00-12:30 EU/Nordic Experience and lessons learned on EPC, including legal/procedural development of EPC/ESCOs
   Introduction of Swedish energy policy, legislative and the institutional frameworks for ESCO; Regulatory incentives to foster the development of an ESCO market
12:30-13:00 Travel back to the hotel
13:00-14:00 Lunch
14:00-15:45 Presentation on hands-on practical experience in developing and running EPC by supply side ESCO local experts
   Important elements that need to be considered, adapted and incorporated into project planning in order to produce a viable and successful EPC /Representative of SIEMENS
15:45-16:00 Coffee break
16:00-17:00 Presentations on the results of CWP.08.MD and CWP.01.AM and any potential challenges associated with the approval of ITS recommendations / Bengt Månsson & Oleksandr Antonenko

Day 2 (10 February)
09:00-09:15 Introduction to a recent EPC project implemented by the Lycksele Municipality – the session will be held by three demand side experts from Lycksele Municipality/ Håkan Westman, David Hermansson and Sune Silverhall
09:15-9:45 Initiation of EPC
9:45-10:45 Preparation for the procurement of EPC
10:45-11:00 Coffee break
11:00-12:00 EPC Phase 1: Project Development
12:00-13:00 Lunch
13:00-14:45 EPC Phase 2: Implementation of Energy Efficiency Measures
14:45-15:00 Coffee break
15:00-16:15 EPC Phase 3: Follow up of energy savings achieved.
16:15-17:00 Q & A session and discussion

Day 3 (11 February)
09:00-10:15 The practical implementation and running of the ESCO business / Bengt Månsson

10:15-10:45 Q & A session and discussion

10:45-11:00 Coffee break

11:00-11:45 Procurement of EPC-contracts according to the EU Public Procurement Directive / Bengt Månsson

11:45-12:30 Workshop on the procurement and selecting a winner of the EPC tender / Oleksandr Antonenko

12:30-13:30 Lunch

13:30-14:45 Meeting with MAKDEBO EPC consultant team / Bengt Månsson, Stig Lundberg

   Practical experiences and case studies from services rendered by EPC consultants to public entities (e.g. state and local budget organisations)

   Sharing experience from the practical implementation of EPC contracts including discussions on the implementation barriers encountered and measures available/needed in order to overcome such barriers for the implementation of EPC in PCs.

14:45-15:00 Coffee break

15:00-16:30 Presentations by participants on barriers and perspectives for the implementation of ESCO projects in INOGATE PCs (20 min for each country)

16:30-17:00 Q & A session and discussion

17:00-18:00 Conclusion and evaluation of the event

Day 4 (12 February)
Participants’ departure to their respective home countries.
# Annex 3: TEST for Combined event

**Name __________________________________________**

## TEST for Combined event on ESCO

Some questions can have more than one correct answer

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Points</th>
<th>Correct + Wrong Answers</th>
</tr>
</thead>
</table>
| 1. Among other requirements, the Directive on Energy Efficiency (2012/27/EU) requires the Member States to promote energy services market by: | a) Providing model Energy Performance Contract (EPC) for public sector  
b) Include information on ESCO development in the National Energy Efficiency Action Plan (NEEAP)  
c) Using EPC to annually renovate 3% of the total floor area of building occupied by central government  
d) Using only EPC for renovation of governmental buildings after 01.01.2020 | a= 6 points  
b= 6 points  
a+b = 10 points  
correct + wrong answers:  
c,d = -2 |
| 2. According to the EU Directive on Energy Efficiency, Member States should encourage public bodies (at regional and local level) to: | a) To adopt energy efficiency plan  
b) Put in place an energy management system  
c) Use, where appropriate, ESCO and EPC to finance renovation of buildings  
d) All above answers are correct | a,b,c = 4 points  
d= 10 points |
| 3. The Promotion of Energy Services is supposed to contribute to the following Swedish SE target(s) | a) Reduce energy intensity by 20% between 2008 and 2020  
b) Reduce greenhouse gas emissions by 17% by 2020, compared with 2005.  
c) Achieve fossil fuel independent vehicle fleet by 2030.  
d) All above targets. | a= 6 points  
b= 6 points  
a+b = 10 points  
c = -2  
d= 6 |
| 4. The energy consumption of Swedish public administration sector has ______during last 20 years | a) Decreased by 20%  
b) Decreases by 10%  
c) Increased by 10%.  
d) Increased by 20%. | d= 10 points  
correct + wrong answers:  
a,b,c = -2 |
| 5. Please indicate the key attributes of EPC with guaranteed savings in Swedish Public sector: | a) Majority of EPC projects are financed by ESCOs (using loans or own resources)  
b) Majority of EPC projects are financed by Clients (using loans or own resources)  
c) If guaranteed savings are not delivered, both a Client and an ESCO share the losses  
d) If guaranteed savings are not delivered, the ESCO makes up the difference. | b= 6 points  
d= 6 points  
b+d = 10 points  
correct + wrong answers:  
a,c = -2 |
6. What is the difference in costs between EPC with guaranteed energy savings and a normal contract on the implementation of energy efficient measures in Sweden?
   a) EPC is almost two times more expensive for the client than a normal contract
   b) Costs for EPC and normal contract are almost the same
   c) Normal contract is slightly more expensive for the client
   d) Normal contract is almost two times more expensive for the client than an EPC

   a= 10 points
   correct + wrong answers:
   b,c,d = -2

7. The lack of experience in implementing EPC by local municipalities in Sweden is resolved by?
   a) Involving the representatives of the Swedish Energy Agency
   b) Involving independent demand-side EPC consultants
   c) Involving representatives of the special unit on ESCO in Stockholm City Council
   d) Creating a new ESCO unit in the local municipality and employing in-house ESCO experts

   b= 10 points
   correct + wrong answers:
   a,c,d = -2

8. What is the building portfolio of EPC project in Lycksele municipality in Sweden:
   a) 9 buildings
   b) 19 buildings
   c) 29 buildings
   d) 49 buildings

   d= 10 points
   correct + wrong answers:
   a,b,c = -2

9. EPC is common for large-scale (more than one building) projects in public sector in Sweden because of the following reason(s):
   a) Overhead/transaction costs are too high for small projects
   b) ESCO risk for large scale projects is lower, i.e. buildings which have a greater potential for energy savings can compensate for those with less
   c) It is easier for a municipality to arrange one tender for a number of buildings than a number of tenders for individual buildings
   d) All above answers are correct

   a,b,c= 4 points
   d= 10 points

10. Model EPC in Swedish public sector provides the following rights for the client and ESCO:
    a) ESCO has a right not to continue EPC after it provides proposals and calculation of total costs of EE measures (at the end of phase 1 “Development” of the EPC)
    b) Client has a right not to continue EPC after an ESCO provides proposals and calculation of total costs (at the end of phase 1 “Development” of the EPC)
    c) ESCO can decrease the guaranteed savings if the guaranteed savings were not achieved during 3 years in a row
    d) Client can increase the guaranteed savings if the surplus of savings is more than 10% during 3 years in a row

   b= 10 points
   correct + wrong answers:
   a,c,d = -2
Annex 4: Questionnaire for immediate evaluation (at the first day of the event)

<table>
<thead>
<tr>
<th>INOGATE Technical Secretariat -Questionnaire-</th>
</tr>
</thead>
</table>

**Q1:** How would you rate your overall knowledge and understanding of reforms needed to support the development and promotions of energy service markets?

- [ ] Excellent
- [ ] Good
- [ ] Satisfactory
- [ ] Basic
- [ ] None

**Q2:** How much do you know about the requirements of the Energy Efficiency Directive 2012/27/EU with regards to ESCO?

- [ ] Extensive knowledge
- [ ] Good knowledge
- [ ] Moderate knowledge
- [ ] Basic knowledge
- [ ] None

**Q3:** What is your overall knowledge and familiarity with the ESCO and Energy Performance Contracts?

- [ ] Excellent
- [ ] Good
- [ ] Satisfactory
- [ ] Basic
- [ ] None

**Q4:** How much do you know about EPC with guaranteed savings?

- [ ] Extensive knowledge
- [ ] Good knowledge
- [ ] Moderate knowledge
- [ ] Basic knowledge
- [ ] None

**Q5:** How much do you know about the establishment of the reference value (baseline) for EPC?

- [ ] Extensive knowledge
- [ ] Good knowledge
- [ ] Moderate knowledge
- [ ] Basic knowledge
- [ ] None
Q6: How much do you know about the Measurement and Verification for EPC?
☐ Extensive knowledge
☐ Good knowledge
☐ Moderate knowledge
☐ Basic knowledge
☐ None

Q7: What is your knowledge and familiarity with the tendering procedures for EPC?
☐ Excellent
☐ Good
☐ Satisfactory
☐ Basic
☐ None

Q8: How would you rate the capacity of your organisation to support the development and promotions of viable energy service markets?
☐ Excellent
☐ Good
☐ Satisfactory
☐ Basic
☐ None

Q9: Please name your main expectations that you have about this event
1. 
2. 
3. 

Q10: Please briefly describe your role and contribution in your organisation’s work, especially to support the development of energy service market
Annex 5: Questionnaire for immediate follow-up, after the event

The overall objective of this event is to increase the capacity of the participants to support the development of energy service markets in partner countries. Please answer to what extent the objective of the event has been achieved.

<table>
<thead>
<tr>
<th>Elements of ESCO/EPC</th>
<th>Full understanding</th>
<th>Good understanding</th>
<th>Some understanding</th>
<th>Weak understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General concept of ESCO and EPC</td>
<td></td>
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<tr>
<td>2. EPC with Guaranteed savings</td>
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<td></td>
</tr>
<tr>
<td>3. Reference value (baseline) for EPC</td>
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<tr>
<td>4. Measurement and Verification</td>
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<tr>
<td>5. EPC tendering procedures</td>
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</tr>
</tbody>
</table>

Q1: Was the event useful for your professional activities?
☐ Yes
☐ Somehow
☐ No

Q2: Is Swedish experience applicable for your home country?
☐ Yes
☐ Somehow
☐ No

Q3: How would you rate the overall organisation of the event?
☐ Excellent
☐ Good
☐ Satisfactory
☐ Basic
☐ Poor

Q4: How would you rate the help of organisers before and during the event?
☐ Excellent
☐ Good
☐ Satisfactory
☐ Basic
☐ Poor
Q5: How would you rate your overall knowledge to support the development and promotions of energy service markets?
☐ Extensive knowledge
☐ Good knowledge
☐ Moderate knowledge
☐ Basic knowledge
☐ None

Q6: Please name the most interesting topics that you have learned during this event
4. 

5. 

6. 

Q7: What would you suggest to improve such events in the future?

Q8: Please briefly describe how the acquired knowledge and experience will help you to contribute to your organisation’s work, especially to support the development of energy service markets