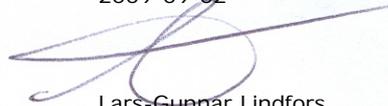


Accelerating energy efficiency improvement in the public sector, using Energy Performance Contracting

A workshop on Nordic experiences
and needs for improvements

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<p>Summa</p> <p>This report provides documentation on a workshop on experiences of Energy Performance Contracting (EPC) in the Nordic countries, aiming to identify strengths, weaknesses and needs for improvements. The results of surveys undertaken to inform presentations and discussions at the workshop are reported. Furthermore, the outcomes of the discussions during the workshop and resulting recommend actions for different actors to further and accelerate the use of EPC in the public sector are reported. Target groups for this documentation are existing and potential EPC customers, providers and policy-makers.</p>	
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Summary

IVL Swedish Environmental Research Institute was commissioned by the Nordic Council of Ministers' working group for Energy Efficiency to organise a workshop on Nordic Experiences of Energy Performance Contracting (EPC). The aim of the workshop was to share knowledge and experiences of EPC among public sector actors, providers and experts in the Nordic countries and to result in an action plan for how EPC can be made an even more effective and simple way of working the public sector in the Nordic countries. Prior to the workshop, two surveys were carried out to capture present experiences. The surveys then formed the basis for workshop presentations and discussions on strengths, barriers and needs for improvements.

The present report provides documentation on the survey responses and the outcome of the workshop.

Strengths and weaknesses as perceived by customers and providers are listed, as are suggestions for improvements. Proposed actions for improvements are listed along with actors considered to be able to undertake the actions to strengthen work with EPC in the public sector.

The market for EPC is further developed in Sweden than in Denmark, Finland and Norway, and therefore experiences of implementing EPC projects was unevenly distributed among the countries. Nevertheless, many of the recurring themes and needs are the same across the countries, and knowledge transfer is of the essence. Knowledge sharing and dissemination of the model across the Nordic countries is discussed in the present report.

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1 Introduction

Energy Performance Contracting (EPC) is a powerful business model for energy efficiency improvement measures. Essentially, EPC means that investments into energy efficiency improvements are financed by guaranteed energy savings¹. In recent years, many actors in the public sector (at least in Sweden) have deployed EPC in pursuit of energy efficiency improvement measures. There are now valuable experiences to take advantage of in order to reinforce work with EPC. This will help the public sector in setting a good example for ambitious work with energy efficiency improvements, in accordance with the Energy Services Directive.

Experiences so far suggest that current practice has strengths as well as weaknesses and that there is a need for improving work with EPC. Furthermore, experiences differ among the Nordic countries. EPC providers and authorities alike suggest that the use of EPC is not widely adopted in the other Nordic countries. Therefore, there is also an opportunity for knowledge transfer among the countries, and the differences may yield important insights about strengths and weaknesses of EPC in its current forms, and improvements needed to simplify and strengthen the use of EPC in the public sector in the Nordic countries.

2 Aim of the workshop

The aim of the workshop was to share knowledge and experiences of EPC among public sector actors, providers and experts in the Nordic countries and to result in an action plan for how EPC can be made an even more effective and simple way of working the public sector in the Nordic countries.

3 Method

The project comprised two surveys to capture present experiences and a workshop where the survey results formed the basis for discussions on strengths, barriers and needs for improvements.

3.1 Survey

A survey was carried out to identify current experiences and perceived needs among EPC providers and public sector property owners with experiences of purchasing and using EPC. In addition, in Nordic countries where EPC is not yet widely used, the survey targeted providers of energy services, and public sector property owners with an interest in EPC to ascertain their knowledge, experiences and perceived needs for improvements to simplify use of EPC.

¹ Other terms such as performance contracting or energy services are sometimes used and a company that provides these is sometimes called an ESCO (Energy Service Company). These are wider terms however and may refer to a range of energy services and companies, including EPC and EPC providers.

Questionnaire respondents				
	Denmark	Finland	Norway	Sweden
Providers	3 (4)	3 (X)	3 (6)	2 (3)
Public sector	2 (6)	17 (X)	0 (17)	13 (47)

In Sweden, public sector actors experienced in using EPC were identified from previous research and in consultation with the Swedish Energy Agency. A questionnaire in Swedish was sent to some 25 municipalities or property companies owned by municipalities (out of 290 municipalities in total), and to six counties or regions (out of a total of 20 counties or property companies owned by regions, and two national public sector property owners). 13 of these 33 organisations responded. Consequently, the survey results do not convey a picture of the entire Swedish public sector market, but rather experiences from a number of users of EPC, in accordance with the aim of the project. The questionnaire was handed out to three large EPC providers in Sweden, during visits to them, two of which returned completed questionnaires. All of these EPC providers presented their experiences at the workshop, addressing the issues that were included in the questionnaire.

The representatives from the Nordic Council of Ministers from each country provided names of potential Danish and Norwegian respondents for the questionnaire. The questionnaire in English language was sent to 17 Norwegian and six Danish municipalities, six Norwegian and four Danish EPC or energy services providers. There were no responses from Norwegian municipalities, three from Norwegian providers, two responses from Danish municipalities and three responses from Danish providers. This lack of responses may partly be due to lack of knowledge on and experience of EPC, and perhaps partly due to the fact that the questionnaire was in English. (Participants from Norway and Denmark testified to the limited use and experiences of EPC in these countries).

The survey to Finnish public sector actors and providers respectively, was translated to Finnish, and sent out by a Finnish company, operating as an affiliated government agency, in the area of sustainable energy use. The questionnaire yielded 17 responses from municipalities and three providers. One reason for this comparatively large number of responses may be partly due to the fact that the questionnaire was in the native language and sent out by a national organisation. An additional reason may be that the workshop was held in Finland (the questionnaire also referred to the workshop).

Some of the responses from EPC providers were representatives from the same company in the different countries. They were aware of the fact that representatives from the same company also responded to the questionnaire in the other countries, but were able to offer first hand experiences of the situation in the country.

3.2 Workshop

A workshop was organised in Helsinki, Finland 26 May 2009. The aim was to present current experiences and to discuss strengths, barriers and needs for improvements, across the Nordic countries. The workshop was a whole-day event, with presentations in the morning and discussions in the afternoon. The workshop was aimed at EPC customers and providers (or potential ones with an interest in learning more), experts and representatives from authorities. Invitations were sent out to the same customers and providers who received the survey questionnaire, and also to experts

and authorities from the Nordic countries. The aim was some 25 participants and the actual number was just over 30. Two participants were from Denmark, 15 from Finland, three from Norway and 12 from Sweden. These numbers include the organisers (two), the representatives from the working group for energy efficiency from the Nordic Council of Ministers (five) who also represent the relevant Ministries or Government Agencies in the countries respectively. Among the participants were EPC providers, a customer and an expert who also shared their experiences in presentations in the morning session.

The participants comprised seven customers (or potential customers), 15 providers of EPC or other energy services, seven representatives from national authorities, and one expert.

4 Survey results – workshop presentations

In this section, the results from the survey and key points from the workshop presentations on strengths, barriers and need for improvement are presented together. In some instances where respondents referred to issues in a particular country, the country is indicated in the bullet points. Many of the concerns, as well as perceived strengths of EPC are shared among the Nordic countries, in spite of the different levels of experience. A Nordic perspective is further discussed in section 6.

4.1 EPC providers

4.1.1 Strengths

The comments regarding strengths, expressed in the survey, were related to the strengths of the concept (perhaps also as it is in working in practice) rather than with different aspects of current practice that are working particularly well. The results are summarised below.

- the idea is great
- Focus on energy efficiency improvements, secures good quality and not only focus on lowest price
- Provider with an extensive competence and holistic view covering;
 - energy efficiency improvement
 - reduced future energy costs
 - renovation/modernisation of buildings and technical equipment
 - decreased environmental impact
 - increased indoor climate
 - education of (operational) staff
 - financial possibilities and long term co-operation
- The customer perspective – influence on energy behaviour
- The saving guarantee
- "If the will to reduce energy use is present, the tools are available!"

4.1.2 Weaknesses and barriers

- Procurement issues, e.g.
 - Regulations on public procurement (especially Sweden)
 - Need for clear procurement models
 - Some concepts for purchasing are too complicated → increased costs that must be paid for by the savings!
- Requires well-functioning cooperation between customer and provider
 - Customer and provider must share a vision from the beginning
 - New way of thinking; the customer must be engaged, the decision-makers must understand and accept
- The financing concept; in- or ex-house? Who owns the equipment?
- How to handle situations where the guarantee is not reached
- Need for clear and well-defined baseline descriptions of temperature, building maintenance, indoor climate...
- "Unserious providers may kill the market"
- Clear definitions, stable tools
- Behaviour, competence, understanding from people in public sector
- Need for support from authorities both for customer and provider
- Access to finance for the initial investments/under-developed financial support from authorities
- Financial restrictions from central government make it difficult for public entities to invest in EPC projects (DK)
- Poor competition between providers
- Possibilities to give the customer a long term benefit and the possibility to run energy savings after the contract period
- Low energy prices

4.1.3 Needs for improvement

- Clear frameworks, standards and EPC purchasing models, initiated by authorities
- Clear definitions on EPC, outsourcing, financing, implementing, assembling
- Information, education and dissemination
 - National organisation/forum for ESCOs (exists in Sweden)
 - Dissemination activities (like this workshop!)
 - Case examples to learn from
 - Education of tendering for partnership and how to set requirements for achieving the best result and avoiding huge tendering costs
- Simpler decision-making, e.g. by reducing financial restrictions
- Implement energy classification for buildings (Norway)
- "*Stop talking cost-effectiveness and start talking profit*"

4.2 EPC customers

4.2.1 Strengths

- Things get done! Fast and visible results
- Holistic view from one contractor, "ready-to-use" concept, minimised number of procurements
- Reporting to the owner
- Renewal of appliances
- Improved indoor climate
- Reduced environmental impact
- Economy and saving guarantee
- Control over energy costs
- Self funding, no need for own equity capital
- Saving guarantee facilitates acceptance among decision-makers

4.2.2 Weaknesses and barriers

- Procurement
 - Laws on public procurement may counteract the most energy efficient measures
 - Hard tender evaluations, difficult to compare tenders
 - Requires thorough work specifications and reliable baseline data
 - Long-term contracts
- Costs and market actors
 - Few market actors → increased pricing
 - Very dependent on the provider (and a competent project manager)
 - More expensive for the customer than if undertaken in-house
 - Poor knowledge of costs of purchased measures
- Low flexibility if change in e.g. business, volume, saving ambition, time dimension
- "We have only good experiences"
- People
 - New model → suspicion; "This is how we've always done..."
 - Necessary with involvement from all affected parties
 - Easy to underestimate the need of resources from the customer
 - Affected parties must realise the importance of co-operation
 - Lack of capabilities and resources – more personal responsibility is needed
 - Lack of knowledge and political awareness, how to convince decision-makers about the meaning of EPC
 - Lack of time and knowledge on how to get resources
- Economy
 - Money! Equity capital. The financial crisis
 - Long payback periods on some measures → limited scope
 - Lack of investment subsidies
- Old technical systems

4.2.3 Needs for improvements

- Procurement
 - adaptation of laws on public procurement to facilitate specification and evaluation of EPC providers, renewal of competition regulations
 - methods and education of purchasing, standardised contracts
- Information, definition and education
 - information to and education of staff
 - information to the customers of the need for skilled resources
 - open presentation of advantages and drawbacks, more evaluations of conducted EPC projects, good examples
 - information to politicians, clarification that EPC means both saving of energy and environment
 - possibility to make various tests before the contract
- Economical support
 - governmental subsidies
 - easy presentation of a project's life cycle profits
 - web tool for calculation of profits and alternative pathways

5 Workshop discussions

The workshop comprised three group discussion sessions, in addition to the presentations held in the morning. The first group discussion focused on strengths, weaknesses and needs for improvement given the current status of EPC. The second group discussion addressed future visions of EPC in 2015, that is, the short to medium term future. The third group discussion focused on actions needed to remedy weaknesses and barriers and achieve the future vision. Many of the issues from the survey came up in the discussions (and the discussions were themed around issues emerging in the survey).

Most of the strengths, weaknesses, needs for improvements, future vision and proposed actions are different sides of the same coin. Therefore, the three discussions are not presented separately here. The future vision is summarised in the box below, followed by proposed actions in Table 1.

* <u>FUTURE VISION</u> *
<ul style="list-style-type: none"> • EPC is established and well-renowned in the Nordic countries and has a good reputation – more than 50 projects are in progress • The procurement procedure is working smoothly and is not considered too complicated either by customers or providers • The market is well-functioning with more actors and valuable competition and there is no longer a fear for unserious players • Authorities understand that EPC may contribute to achieving great energy efficiency improvements and thereby fulfilling EU directives. Incentives have been introduced that stimulate the use of EPC. • Networks and information channels are established and the knowledge level is high. The communication process is successful through the definition of terms that people do understand • Competences and skills of both buyers and providers have increased and so have profits/savings • Customers are comfortable with the concept and ask for EPC services • The EPC concept has been developed; <ul style="list-style-type: none"> ○ Procedures for baseline definitions and comfort/saving guarantees have been established ○ EPC is not comprising too many issues to assure high competition and understanding

Table 1 below presents suggested actions to strengthen work with EPC in the public sector.

Table 1. Proposed actions to strengthen the work with EPC in the public sector

Theme	What	Who
Public support	Communicate support for EPC	Authorities
Public support	Require that EPC be considered for regeneration projects	Authorities
Public support	Considering EPC when planning energy efficient improvement (partly as a way to fulfil the ESD)	Buyer organisations
Public support	Financial support for municipalities' investments, e.g. subsidies or cheap loans (maintain these where they are already in place)	Authorities
Definitions	There is a need for clear communication of the concept (due to the confusion arising from differing terms. (An international standard is underway, establishing a definition). Avoid overemphasis on definitions, and concentrate on communication needs and customer demand.	
Definitions	Explain in plain language what EPC is about, instead of putting the term and acronym at the centre	Independent organisations, authorities, providers
Procurement	Clarifications regarding the public procurement rules, to address buyers' concerns	Independent organisations, authorities

Theme	What	Who
Procurement and contract	Negotiate with both technical staff and those with responsibility for the budget in the buyer organisation when establishing the contracts	Providers; (buyer organisations)
Procurement and contract	Customers need to understand EPC and its implications, including contractual arrangements (organise networks, training events, manuals and guidelines, good practice cases etc. to this end)	Buyer organisations, independent organisations, authorities (providers)
Procurement and contract	Regulate in the contracts what payments are made, by whom, under what circumstances, in case of failure to fulfil the guaranteed savings (as in all business agreements)	Providers and buyer organisations
Competition	Allow EPC providers' ability to provide good EPC projects and honour financial guarantees, to be evaluated on other grounds than previous EPC projects (to facilitate market entry for new providers)	Buyer organisations
Competition	Consider allowing group tendering by consortia of smaller providers (while recognising the need for them to manage the risk-sharing)	Buyer organisations
Information	Spreading the message about the EPC concept	Providers, authorities, independent organisations
Information	Assessment of existing guidelines and manuals for various aspects of EPC, and amendments/updates and production of additional ones if needed	Authorities, independent organisations
Information	More evaluation and information of conducted EPC projects, good examples, case examples, success stories, market surveys, spreading of the EPC concept	Independent organisation, customers and providers
Information	Guidelines, vocabulary, information web-site and maybe list of recommended providers	Authorities
Networking	Networks and EPC fora for increased knowledge and awareness of EPC, advisory board for open discussion	Independent organisations, authorities
Collaboration and commitment	Develop models for sharing cost savings with O&M staff, to motivate them to play an active role in the collaboration to achieve the energy savings.	Buyer organisations
Collaboration and commitment	Recognise that the savings guarantees by the providers are important to achieve the savings (difficult for property owners to achieve the savings on their own)	Buyer organisations
Competence	Develop training programmes for O&M staff to ensure the fulfilment of the energy and cost savings	Buyer organisation; (Providers?)
Competence	Develop support for small and/or inexperienced EPC buyers to manage the high demands for competence on the part of the buyer organisations	Authorities, providers, independent organisations, networks
Competence	Develop/support mechanisms for capacity building among staff in the buyer organisations, so that energy savings are sustained after the project.	Buyer organisation
Competence	Introduce the EPC concept and energy efficiency improvement in the education	Authorities
Commitment and competence	Secure buy-in among political decision-makers and within the O&M organisation	Buyer organisation, Providers

6 Nordic perspective

The degree of experience in using EPC was found to differ among the Nordic countries included in the study. Initial discussions with representatives from energy authorities in Denmark, Norway and Finland, as well as EPC providers with presence in several countries, suggested that the use of EPC was so far very limited in these Nordic countries. In Sweden, previous investigations of conducted EPC projects showed that a fair number of municipalities and regions had implemented EPC as an energy efficiency improvement measure. Some of them had even reached the phase of project evaluation (phase 3) or completed projects.

The differences in experiences among the Nordic countries in the present study were also reflected in the number of organisations identified as experienced and relevant to target for the survey and invitation to the workshop, and in the response rates for the survey and workshop participants from the different countries respectively². The results of the questionnaires that were completed and returned also showed that a larger number of projects had been carried out in Sweden compared with the other countries, and a perception of greater demand for EPC services in Sweden. This suggests that there is a great untapped potential in Denmark, Finland and Norway for energy efficiency improvements through EPC.

While some structural differences between the countries were proposed in the survey responses, few particularities came up in the discussions during the workshop. Major themes during the workshop, based on strengths and weaknesses identified in the survey, were those presented in table 1 in the previous section.

6.1 Public procurement

One presenter pointed out that public procurement legislation in the EU member states are governed by an EU directive on public procurement. Therefore, there should be no significant differences among the EU member states. In the present context, Norway may be an exception since Norway is not a member of the EU. Potential differences in national Acts, arising from each country's implementation of the directive, were not discussed.

Finnish respondents to the survey, suggested that in Finland there is no procurement model for comprehensive investments such as those in EPC projects, but only for individual investments. This needs to be addressed.

According to a Danish survey respondent and workshop participant, there is an investment cap for municipalities acting as a barrier for comprehensive energy efficiency improvement measures like EPC. Denmark may be able to draw on the ability of EPC to let future savings fund investments (in a similar manners to Swedish municipalities) to overcome this barrier. Alternatively, it should be Danish authorities should be made aware that rules need to be changed in order that they may fulfil the intentions of the Energy Services Directive.

Among Swedish actors, the Public Procurement Act was perceived to be a barrier for the use of EPC. One of the presenters at the workshop, however, argued that the Act as such is not a barrier,

² A substantially greater number of public sector participants were from Finland while no buyer organisation participated from Denmark and Norway. The fact that the workshop was held in Finland is most likely a contributing factor.

but rather the understanding of how to apply it for the procurement of EPC services was the barrier. Guidelines and knowledge transfer is needed both within Sweden and might be useful among the Nordic countries. A set of Swedish procurement guidelines for EPC have just been published by the Swedish Environmental Management Council. An EU project aiming at capacity building on EPC, through training events, websites and development of guidelines, has participants from Norway and Sweden. Actors from Denmark and Finland could be kept informed on developments in this EU project, in order to harness these developments for Nordic benefit.

Nordic knowledge transfer events could be organised, with participants from the Swedish Association of Local Authorities and Regions, its counterparts from Denmark, Finland and Norway, and other experts on public procurement and the national regulations and practices respectively.

The Nordic countries could produce guidelines (adapted to the national circumstances), but drawing on experiences from Sweden in order to avoid difficulties experienced by Swedish customers and EPC providers.

Knowledge dissemination among local authorities and regions, through various channels such as events, workshops, information brochures and web pages.

6.2 Competition

Few EPC providers and limited competition was addressed as a weakness on the Swedish market. This was not brought up by the other Nordic countries, perhaps due to the fact that EPC is not used to any great extent in these countries. As the market develops, authorities and customers may wish to take care to encourage the existence of several providers.

One barrier mentioned in Sweden was the requirement for references for EPC projects delivered previously by an EPC provider. In the case of Sweden, such a requirement supports the dominant providers and blocks new entrants.

Ensure that many potential EPC providers (also smaller ones who may consider co-tendering if that is an option) are targeted by information and knowledge transfer initiatives.

Measures to support smaller EPC providers, such as co-tendering, should be considered (while recognising and highlighting potential risks both to the providers and the customers).

Criteria for evaluating competent delivery of EPC services including financial guarantees, other than through actual previous EPC projects, should be considered in invitations to tender and tender evaluations.

6.3 Competence, collaboration and commitment

The need for competence and resources in the buyer organisation does not differ among the Nordic countries. Furthermore, some of the competencies required are not specific to EPC, but relate to good project management skills in general. However, a good understanding of EPC and its implications, also contractual ones, is specific to this type of long-term collaborative venture.

Potential and therefore less experienced EPC buyers, felt that the demands on the buyer organisation were very high. Therefore, knowledge transfer and support for public sector organisations new to EPC is needed. Given that there is a larger number of public sector customers in Sweden than in Denmark, Finland and Norway, knowledge transfer could take place on a Nordic basis.

While good project management skills are needed in general, project management training courses could be run with EPC cases as examples, and operations and maintenance managers and staff could attend these courses as a part of their professional development plan.

In a similar way, the need for learning during the project to sustain savings after the project, the need to incentivise operations and maintenance staff in the buyer organisation, and good communication among all parties are important characteristics for EPC projects regardless of country. Currently, no model for incentivising staff is in place in any of the Nordic countries. Forms for such models could be discussed in national as well as Nordic fora.

Networks, training events, information and guidelines and best practice cases are needed to transfer knowledge from more experienced to potential EPC buyers, and support smaller buyer organisations.

“Soft” issues like understanding and realising collaboration, are challenging and require focus.

7 Conclusions and recommendations

The survey and workshop, undertaken to harness experiences and accelerate the use of EPC in pursuit of energy efficiency improvement measures, identified a number of strengths and also areas for improvements. The market for EPC is further developed in Sweden than in Denmark, Finland and Norway, and therefore experiences of implementing EPC projects was unevenly distributed among the countries. Nevertheless, many of the recurring themes and needs are the same across the countries, and knowledge transfer is of the essence.

A number of issues were identified and propositions made for an action plan. It should be stressed that a number of initiatives in the area of EPC are underway, at least in Sweden and in the EU. To ensure that and duplication of work is avoided it is imperative that these initiatives are conscious of each other and complementary in their efforts to strengthen the use of EPC.