IEA DSM Task X – Performance Contracting

Country Report FINLAND

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1 EXECUTIVE SUMMARY

The history of EPC in Finland started some ten years ago. Of the two known ESCOs, only ABB was able to maintain a certain level of operation, but until 1998 the EPC concept had been quite unknown to the clients.

Finland's Energy Audit Program, launched in 1993 as a part of the national Energy Conservation Program, revealed a significant amount of energy saving opportunities in industry and service sector buildings. Based on feedback from the audited companies, lack of capital or lack of will to use the limited capital on energy conservation was seen as one clear barrier. The EPC development process that started in 1996 was mainly targeted at improving the efficiency of the national Energy Audit Program.

The first step taken was a visit to Canada in the spring of 1997. Motiva, together with a group of national experts, visited several organizations to gather information on ESCO activities in order to form a good picture and a vision of how to develop the market in Finland. This visit convinced all participants of the prospects of the EPC concept, and a development project was started in the autumn of 1997. By the next summer, a set of model documents had been created and the first pilot project was launched later that year. 1999 was spent mostly in testing the developed concept, and the Motiva ESCO Concept was finally published in the autumn of 2000. The Motiva ESCO Concept describes both the theories and the basics of EPC, as well as a clear three-step approach for a concrete EPC application. The idea of the Motiva ESCO Concept is not so much to standardize the EPC projects as to create and improve awareness of the different options and of the risks involved.

Although Motiva kept quite a low profile while the concept was still being tested, the interest in the market started to grow. The first new ESCOs entered the market in 1999, and by the end of 2000 some half a dozen parties could be listed as potential ESCO companies. However, at the end of year 2002, only three ESCOs were really active. One ESCO, with a few projects during period 1999-2001, closed down its operation in 2002 due to organisational restructuring in the company. In December, one new major player announced that it was close to signing its first contract, and a few smaller players are still in position to enter the market as soon as suitable clients and projects are found. It is expected that some 5 new ESCOs will enter the market place in 2003. There is also a need for this, since the client side has started to get interested in utilising the EPC option.

The EPC market in Finland is now expanding. As of spring 2002, only a few projects had been started. Between July-December, the number increased to nearly 20, and during the last three months of the year the total turnover of the six launched projects reached USD 2.5 million. There are still some areas that need further development and public support, but the point where the ESCOs must take the lead role themselves is not far away. International co-operation can speed up some parts of the total picture by providing tested procedures. EPC is also mentioned in the Government's new Energy Conservation Program as one concept to be further developed and promoted.

2 ADMINISTRATIVE INFORMATION

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3 METHODOLOGY

This Country Report has been written by Motiva Oy which, since 1966, has been the central body for developing and promoting EPC in Finland on behalf of the Ministry of Trade and Industry. The information presented is based on experience of pilot projects, as well as on discussions with Finnish ESCOs during the last few years.

4 GENERAL ENERGY CONTEXT

4.1 Deregulation

Finland has made a rapid changeover from a regulated market to an open market that favours competition. Today, the market parties themselves make their energy decisions on imports, pricing and capital expenditures without the intervention of public authority. Price regulation was abandoned as long ago as the end of the 1980s, as was power plant construction subject to permits. In planning capital expenditure, the Finnish Parliament can influence the building only of nuclear power and hydroelectric facilities.

Open competition in the electricity market was introduced in 1995 by the Electricity Market Act. In the first stage, the parties involved were large users whose power requirement was over 500 kW. From the beginning of 1997, small users were also allowed to purchase their electricity on the open market. Because households generally do not have the technical capability to invite competitive tenders from their electricity distributors, the position of small users was improved by creating a system based on typical load curves. Consumer protection legislation was also developed to safeguard the interests of small consumers on the electricity market.

Because of the monopolistic nature of operation of the power grid, a separate monitoring authority, the Electricity Market Authority, was set up. In addition, the transmission of electricity over the national grid, and the cross-border connections with Sweden, Norway and Russia, are managed by a separate grid company, Fingrid Plc., which is owned by two major producers, the Finnish Government and institutional investors.

4.2 Privatisation

Before deregulation, Finland had two major power generators, one being state-owned and one being industrially owned. Most of the municipalities owned local companies operating within the area of the municipality. The major cities had normally co-generation of heat and power, but small municipalities had heat-only production and purchased all their electricity from the two major power generators.

Even before reform of the electricity market, a process of consolidation in the electricity sector had started. Over a 15-year period, the number of electricity distribution companies has fallen from about 150 to 115. This strong trend is expected to continue. Concurrently, the number of electricity retailers is declining. So far, the electricity market is going through a period of transition and it will probably take a few years before the market functions fully in the way that it is supposed to do. Deregulation also changed the situation, so that power production, distribution and retailing must be in separate companies.

Today one of the major parties in the electricity market, Fortum, is a state-owned company, but the state's share of ownership has been declining. Some municipalities still own local retail companies, but the number has been declining as the five to six major actors (which now also include several foreign companies) are constantly developing their strategic alliances and trying to achieve satisfactory market shares. In principle, Finland's electricity retail market is fully open to competition, and the market is also available for the producers.

4.3 Public policies

The Finnish energy strategy, approved by Parliament in the autumn of 1997, states that the objective of energy policy is to create conditions that support both economic and employment policies, brought about by application of economic guide measures and market mechanisms. These conditions should ensure the availability of energy, keep the price of energy competitive and enable Finland to meet her international commitments with respect to environmental emissions. In particular, energy strategy measures are concentrated on the following fields of action:

- Development of the structure of energy production in a direction that involves reduced emissions of carbon compounds
- Promotion of the energy market
- Promotion of the efficient use of energy and energy conservation
- Promotion of the use of bio-energy and other sources of indigenous energy
- Maintaining a high standard of energy technology
- Ensuring a sufficiently diversified and advantageous energy procurement capacity, *and*

- Ensuring a secure supply of energy

The Ministry of Trade and Industry (MTI) set up a Working Group in February 2000 to update Finland's Energy Conservation Program. One proposal by the Working Group concerns Performance Contracting. The Working Group suggests that, particularly in order to speed up energy-saving investments in the public sector, the operational conditions for ESCOs should be improved. Furthermore, the WG suggested that Model Contracts for EPC should be developed and put into practice, and that a system which provides securities for EPC loans should be developed and put into practice.

During the autumn of 2002, both the Energy Conservation Program and the Programme for the Promotion of Renewable Energy Sources were rapidly updated. The EPC remains also in the updates as one area to be further developed and promoted.

For several years, MTI has supported the development of EPC in Finland. A 10 % subsidy has been available since 1997 for companies and municipalities in the Voluntary Agreement Scheme. This subsidy could be bundled into the Performance Contracts. In 2002, the basic subsidy was increased to 15 to 20 %, with an additional 5 % as a special offer if EPC is utilised.

4.4 Energy use, key sources

Northern conditions imprint their stamp on Finland and the life of Finns. The substantial temperature differences between the seasons, the long and dark heating season – resulting in an annual average of 4000 to 6500 heating degree-days – together with long geographical distances, all have a direct influence on energy use. About 80 % of Finland's foreign trade consists of exports from the forest and paper industry, the metal and engineering industry and the chemical industry, all of which use large amounts of energy.

A typical feature of Finland's energy production is the large proportion of co-generated heat and power, both in the district heating of communities and in industry. Another characteristic feature is industry's own electricity generation: more than half of the electricity that it uses is from its own power plants or as a by-product of processes.

Finland is dependent on imported energy, because only somewhat less than a third of the total use is covered by domestic sources and fuels – hydro power, peat, wood and wastes.

Bio-energy and other renewable sources of energy account for about a quarter of Finland's energy supply, giving Finland a top ranking amongst the world's industrialized countries. Within industry, biomass represents about half of the fuel consumed.

In 2001, primary energy consumption in Finland was 32.3 Mtoe. Compared to 2000, the increase was 4.9 %, but the main reason for the low level in 2000 was the exceptionally warm weather – 2000 was the warmest year for several decades. Total electricity use in

2001 was 81.2 TWh, an increase of 2.6 % over that of 2000. The energy end use breakdown by sectors in 2001 is shown in Table 1.

Table 1. Energy end use by sectors 2001

Sector	Share
Industry	49 %
Transport	16 %
Space heating	22 %
Other	13 %

Total CO2 emission from fuel combustion in 2001 was 60 MT, which is 11 % higher than in 1990. The low level in 2000 (54.9 MT) was mainly due to the warm weather and good availability of hydro power and imported electricity. The breakdown of the main energy sources in 2001 is shown in Table 2.

Table 2. Total primary energy use by energy source, 2001

Energy source	Share
Oil	26 %
Coal	12 %
Natural gas	11 %
Nuclear power	17 %
Electricity import	3 %
Hydro power	3 %
Wood	19 %
Peat	6 %
Other domestic	1 %

5 DEFINITION OF ESCO/PERFORMANCE CONTRACTING, INCLUDING THIRD PARTY FINANCING

5.1 Target markets

The market for Performance Contracting has been estimated by using Motiva's data on energy-saving measures proposed in the energy audit reports of Finland's Energy Audit Program. All proposed measures with a payback time between 2 and 6 years are considered as potential for ESCOs. This means that the ESCOs could carry out roughly 50 % of the investments, which leads to an estimated potential market value of USD 200 million in the service sectors. A study carried out in 2002 showed that there is another USD 200 million potential in the industrial sector. The potential of the energy sector is still unknown.

The payback times of energy conservation measures, number of measures and total investment required, as proposed in energy audits, are shown in Table 3.

Table 3. Energy conservation measures from 1 920 energy audits reported during the 1995-2000 period

Payback time in years	Number of proposed measures	Calculated savings ($ million)	Calculated investments ($ million)
0	3167	5,10	0
0 to 1	2618	7,45	2,72
1 to 2	1533	4,45	6,45
2 to 3	1054	3,33	8,07
3 to 4	734	3,18	11,30
4 to 5	526	1,68	7,58
5 to 6	414	9,97	5,28
6 to 7	350	3,30	20,45
7 to 8	238	0,55	4,13
8 to 9	270	0,33	2,28
9 to 10	312	0,45	4,27

The one figure, which is not in line in this table, is the total investment for the 6-7 years payback time. This significantly higher figure is probably indicative of the fact that many energy auditors do not look for measures which are today clearly out of range of the implementation criteria. Also the number of proposed measure declines rapidly when the payback time increases. The introduction of Performance Contracting could significantly increase the number of measures in the 3-6-year range – and maybe also longer payback times in the future.

The realisation rate of measures, proposed in energy audits, is shown in Tables 4, 5 and 6. The measures classified as ”Considered” or ”Rejected” are clearly potential for Performance Contracting, as are some of those classified as ”Decided”. Some of the “Implemented” measures could also have been implemented if the concept had been available.

Table 4. Realisation of energy-saving potentials in the public services sector: 310 buildings, 1 781 energy-saving measures

Public	**Heat**		**Electricity**		**Water**		**Costs**	
Status	**GWh**	**%**	**GWh**	**%**	**km3**	**%**	**$ million**	**%**
Implemented	21,1	58,3	3,0	58,3	24,2	52,5	1,04	60,7
Decided	3,3	12,7	0,7	12,7	2,4	5,3	0,16	9,7
Considered	4,2	13,9	0,7	13,9	7,3	15,8	0,22	13,0
Rejected	4,0	7,9	0,4	7,9	7,0	15,1	0,17	9,7
Not informed	2,3	7,2	0,4	7,2	5,2	11,3	0,12	6,9
Total	**35**	**100**	**5**	**100**	**46**	**100**	**1,71**	**100**

Table 5. Realisation of energy-saving potentials in the private services sector: 115 buildings, 893 energy-saving measures

Private	**Heat**		**Electricity**		**Water**		**Costs**	
Status	**GWh**	**%**	**GWh**	**%**	**km3**	**%**	**$ million**	**%**
Implemented	17,5	54,9	5,0	53,2	20,8	55,0	0,89	54,4
Decided	1,7	5,3	0,1	1,6	4,8	12,8	0,07	4,3
Considered	3,6	11,4	1,4	14,6	4,0	10,6	0,19	11,9
Rejected	5,4	16,9	1,6	17,2	5,6	14,8	0,29	17,9
Not informed	3,7	11,6	1,3	13,6	2,5	6,7	0,19	11,6
Total	**32**	**100**	**9**	**100**	**38**	**100**	**1,64**	**100**

Table 6. Realisation of energy-saving potentials in the industrial sector: 68 sites, 686 energy-saving measures

Industry	Heat		Electricity		Water		Costs	
Status	**GWh**	**%**	**GWh**	**%**	**km3**	**%**	**$ million**	**%**
Implemented	41,0	38,1	12,0	55,5	102,4	30,6	1,45	40,4
Decided	13,1	12,2	2,9	13,3	4,2	1,2	0,38	10,6
Considered	22,8	21,2	2,9	13,6	137,4	41,1	0,69	19,3
Rejected	27,2	25,3	2,4	11,0	88,2	26,4	0,93	25,9
Not informed	3,4	3,2	1,4	6,7	2,1	0,6	0,13	3,8
Total	**108**	**100**	**22**	**100**	**38**	**100**	**3,58**	**100**

The ESCO potential in the process industry has not yet been estimated, but looking at the total energy use in comparison with the service sector and the industrial sector SMEs, it alone could easily be significantly higher. These numbers include only clean energy saving measures. If Performance Contracting can be applied to the energy conservation part of all renovations in general, the total market could be doubled.

An estimate of USD 15 to 25 million has been given for the annual turnover of EPCs in Finland, but before the average saving potentials from the process industry are received, all numbers are more or less just today's best guess.

5.2 Size of ESCOs

Today, the size of Finnish ESCOs is quite small if they are sized on the basis of annual turnover or estimated ability to handle projects. The total value of the Finnish ESCO market in 2002 was only about USD 3 million.

Two ESCOs are operating as a part of, or as subsidiaries of, larger companies (ABB and Jaakko Pöyry Group). With these parties, the number of projects will be limited more by lack of engineering and marketing resources than by lack of capital. At the present immature market stage, the marketing of ESCO projects is quite laborious.

The few other ESCOs, of which only one is actively working in the market, are small in terms of both the companies themselves and of their financing abilities. They could be expected today to be able to launch one or two projects per year, if they had to be self-financed and the loans were to go on to their own balance sheets. A rough estimate is that, today, these ESCOs together would be able to develop an annual turnover of no more than one million per year. If flexible financing mechanisms can be developed, the number of these small ESCO could increase by another half dozen, and the annual turnover could go up to USD 0.5…1.5 million per ESCO.

5.3 Type of ESCOs

From Motiva's perspective, there are four different type of parties in the Finnish market place, as classified by the background and basic motive of the party.

Type A ESCOs are utilities, and they have two main interests in the ESCO business. The first is customer service, which has acquired a new meaning after deregulation of the electricity market. The second is the possibility of a long-term contract which will give some benefit to the utility when the client is next in the process of inviting tenders for electricity purchase.

Type B ESCOs are consulting companies, which are mainly interested in providing long-term partnership-type consulting services as well as in higher profits than those of normal consulting projects - where traditionally the competition is quite hard.

Type C ESCOs are manufacturers, mainly interested in selling their own products and/or other services, e.g. O & M services. Of the two known names, Honeywell has not been active for several years, but ABB has been launching several projects per year. One heat pump manufacturer has entered the market in 2002, and one manufacturer of wet biomass-fired solid fuel boilers has shown some interest.

Type D ESCOs are purely marketing and financing organisations: all engineering and technical project management is sub-contracted. Today, there is only one company that has announced this kind of strategy, but the approach includes some level of partnership with an "all-engineering-in-house" consulting company. However, there are several potential companies in Finland that could adopt this approach, due to the similarities with their other business areas.

5.4 Different market segments

In principle, the potential market for Performance Contracting can be divided into two main segments; the industry sector and the service sector. The service sector is further divided into private and public sectors, and the public sector further into the municipal sector and government sector. In industry, there is a clear division between the energy-intensive process industry and other industry. The SMEs are not really in the scope for Performance Contracting due to generally relatively small project sizes.

The municipal sector consists of some 430 municipalities and some 50 joint municipal authorities that are responsible for (for example) health care or education in the area of several municipalities. The total building stock of public buildings is 24 million m². Government-owned building stock is approx. 5 million m². The private service sector building stock is 50 million m² and industrial building stock amounts to 41 million m².

5.5 Different actors initiating

In 1993, the Ministry of Trade and Industry founded Motiva, the Information Centre for Energy Efficiency, to implement the Government's Energy Conservation Program. Today, Motiva Oy is a state-owned company responsible for activating the market for

energy conservation and renewable energy sources. One of Motiva's tasks has been the development and promotion of EPC in Finland.

Motiva has been closely connected with all development work as well as marketing of the new concept, and actively co-operates with potential ESCO companies as well as with the ESCOs' clients in order to establish a mature market for EPC.

In addition to Motiva's activities, the Finnish ESCOs have now been active in developing their own business plans and concepts further– which fulfils one of Motiva's basic visions concerning the market's self development.

5.6 Different parties financing

Today, Performance Contracts are financed by the ESCOs. The one exception is the Private Energy Market Fund, the source of capital for Inesco Oy, which has several institutional investors. One idea, when the Motiva ESCO Concept was being developed, was to create a market for the contract between the ESCO and the client, so that after the investment phase had been completed and savings verified, ESCOs could get rid of the loans and go for new projects. This is more or less a prerequisite for consulting companies to enter the market.

One of Motiva's basic visions was co-operation between a consultant ESCO and a utility. The first agreement of this kind was signed on 17th October 2001 between Inesco Oy and Kymppivoima Oy, which is an electricity purchase and service company jointly owned by four regional utilities. However, there is no information whether this co-operation has been really utilised or not.

Discussions with the Finnish banks started in the beginning of 2002, but at the end of the year the local capital had not yet activated. This will undoubtedly be a challenge in 2003, and quite critical in order to increase the number of ESCOs in the market.

6 HOW ESCOS OPERATE

6.1 Type of services provided

In addition to the actual Energy Performance Contract, which at least in theory concentrates purely on the implementation of a specified energy-saving measure, the different type of ESCOs (perhaps excluding the type D ESCOs) can and will offer supplementary services. The services vary depending on the ESCO, but at least the following services have been offered:

- Operation and maintenance services
- Consultation on invitation for tenders for electricity purchase (obviously, this does not apply to Type A ESCO)
- Monitoring of the energy use.

Traditionally, Types B and C ESCOs provide a wide range of consulting and engineering services. They have been developing their business concepts for quite a long time, and continue to do so, in order to be competitive in the market place. EPC today is just another service to be provided. The trend will probably be that EPC projects will first be put into separate business units, and later separate ESCO companies will be established. One reason for this is the need to keep the core business separate from the risks related to EPC projects.

Articles from the USA indicate what looks like exactly the opposite trend: the US ESCOs are moving from EPC towards a broader set of provided services, while the Finnish ESCOs are actually moving from the existing broad set of services towards EPC. Whether this is just a question of viewpoint, or a real difference in the market place and market parties is hard to say. But it is very difficult to see how a recently established ESCO in Finland could find and develop the kind of broader services range that would not be already provided by many, or at least some, very skilled and strong other parties.

6.2 How the industry is evolving

Today, the different types of ESCOs probably already represent the selection that will fulfil the needs of Finnish clients. Another question is if operation in the Baltic Countries and Russia will require something different. Natural evolution will include an increase in the number of ESCOs, but this will not take place before the existing ESCOs can develop a more widely known reputation for this still quite new concept in the Finnish market place.

In comparison with mechanical and electrical engineering activities, where the ten largest consulting companies represent about 80 % of the annual market turnover, it is clear that 15 to 20 ESCOs, if operating with adequate capital resources, can do the same in the field of EPC.

7 MAIN ISSUES IN PERFORMANCE CONTRACTING

7.1 Financing

Today, the ESCOs have in principle two options for financing: either the ESCO has the capital available from its own financing sources, or it has to obtain a normal loan and provide the necessary collateral. So far, there have been no contracts where the loan has been arranged by the ESCO, but arranged by the client so that the EPC would just guarantee the repayment. There are doubts as to whether this option would really make a difference, because the ease of the EPC option from the client's point of view would then be somewhat changed.

One interesting example is Inesco Oy, which itself is a light organization for project development and management with a fund connected to it. The Private Energy Market Fund is jointly owned by institutional investors and the Jaakko Pöyry Group, which is

also behind Inesco Oy. The Jaakko Pöyry Group, with its subsidiaries, can provide all the necessary engineering work on projects that Inesco Oy can launch, and the Private Energy Market Fund has adequate capital resources for implementation.

7.2 Contractual/legal aspects

Legislation in Finland is strong enough to provide the ESCOs with a safe field for operation. The legislation itself does not limit the different EPC options, nor does it especially favour any. Performance type of services have already been provided for some time, as outsourcing has been the name of the game – but not so commonly connected to energy issues.

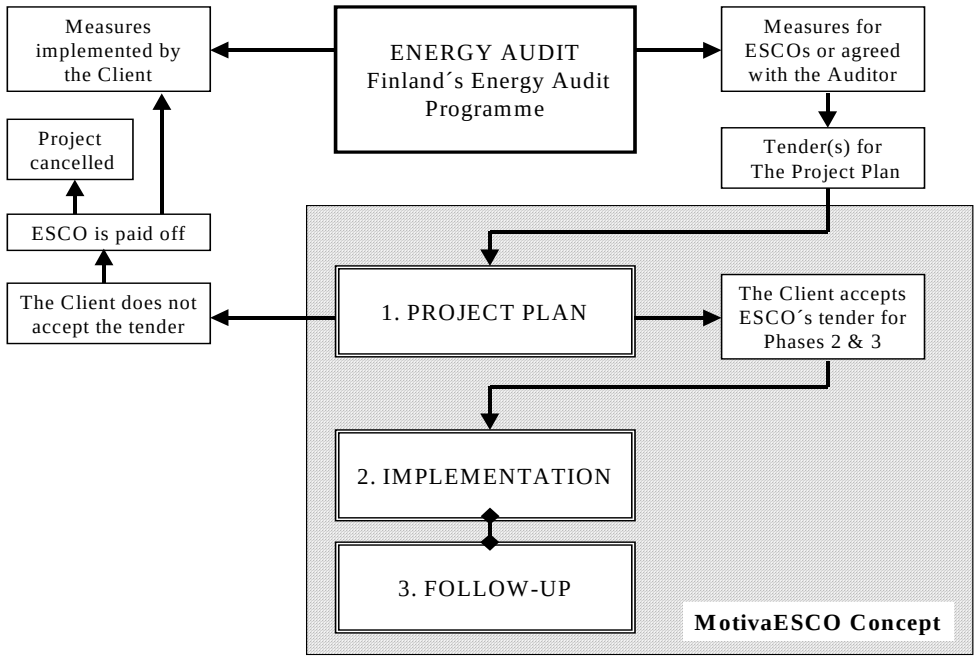
One typical feature in Finland is the strong status of several standard contractual documents that have been applied in all contracts for a few decades. The two important documents are the Finnish General Contract Conditions of Consulting Services (KSE) and the General Conditions for Contracts (YSE). YSE covers the whole construction process, and KSE specifically the consultant's role in it. In addition to these documents, it is very common to use the various standard contract forms which have been published by Building Information Ltd. Some of the documents are also available in English at www.rakennustieto.fi. All these model forms and standard forms are so commonly used in Finland that the EPC must also be in line with them.

7.3 Standard/Model contracts

7.3.1 The Motiva ESCO Concept

Motiva, with Finnish consulting companies and clients, has developed a set of Model Forms of Contract for Performance Contracting. The work was based on a model contract from CAESCO, but the Finnish version includes only some features from the original example. This developed general concept is called the Motiva ESCO Concept. The structure and connections to Finland´s EAP are illustrated in Figure 1.

Figure 1. The Motiva ESCO Concept



The idea of the Motiva ESCO Concept is to show one – but hopefully reasonably transparent – way of applying EPC in the Finnish market place. All ESCOs will in any case have to modify their own concepts, but until today there has not been any guidance available for the company level development process. The Motiva ESCO Concept is divided into three contractual phases:

- The project plan,
- Implementation, *and*
- The contract period (follow-up)

The Motiva ESCO Concept is usually preceded by an energy audit. The energy audits are usually subsided by the Ministry of Trade and Industry (MTI) and implemented according to Motiva's guidelines. This phase of work, where the potential energy-saving measures are investigated on site, is intentionally kept apart from the Motiva ESCO Concept, because none of the options, e.g. with or without a free pre-audit, to implement EPC should be excluded. This is a country-specific feature and closely connected to the strong status of the ongoing Finland Energy Audit Program. The total volumes of the Finland Energy Audit Programme during period 1992-2001 are shown in Table 6.

Table 6. Total volumes of the Finland Energy Audit Programme, 1992-2001

Sector	Decisions	Number of buildings	Building vol., tertiary (Mm3)	Heat & fuels, industry, (TWh/yr)	Electricity industry, (TWh/yr)	MTI's subsidy, ($ million)
Public	418	2 877	48,0			3,73
Private	532	1 150	43,2			2,36
Industry	490	802		58,5	25,8	6,98
Energy	31	78				0,66
Total	**1 471**	**4 907**	**91,2**	**58,5**	**25,8**	**13,73**

After the energy audit has been carried out, the Customer usually implements the no-cost and low-cost energy saving measures, but there is normally a good energy-saving potential in the 2-5 year payback time range, which is likely to be left untouched with the traditional financing mechanisms. The aim of the Motiva ESCO Concept is to offer customers an easy way of implementing these measures.

In the Motiva ESCO Concept, the actual energy performance contract is signed in two steps. The first step includes only the Project Plan, after which both the ESCO and the Customer can evaluate the technical and financial issues before the final decision, which will then launch the actual implementation.

One principle idea with the Motiva ESCO Concept has been that the process starting as an energy audit could advance smoothly into EPC, and the company that carried out the energy audit would continue in the project as an ESCO. In this case, the ESCO has actually collected and documented all the preliminary information during the energy

audit, and cannot put the responsibility or blame for possible incorrect information on others. In this way, the possible EPC will also improve the quality of the energy audits.

If the ESCO´s tender for EPC is based on an energy audit report made by some other company, the Customer would most likely have to assume the responsibility, at least partly, for the authenticity of the preliminary information. But in any case, all seriously interested ESCOs will visit the Customer's premises to verify the information of the energy audit report, which means that there will be extra costs involved. As long as there are only a few parties in the market, it might be difficult for real competition to evolve.

The future development of the Finnish ESCO industry may lead to a situation where the ESCOs consider a concept with free pre-audits better. Free pre-audits have already been used in cases where the potential energy-saving measure has been known in advance and the pre-audit has been needed merely to study its feasibility. A detailed energy audit is not an essential prerequisite for starting an ESCO project, even though the Motiva ESCO Concept often refers to it as a relatively fixed part of an ESCO project.

7.3.2 The Motiva ESCO Appendices – the Model Contract

There are three "contract appendices" available to be used with the General Conditions of Contract:

- ESCO Appendix 1 - The Project Plan,
- ESCO Appendix 2 - Implementation
- ESCO Appendix 3 - The Contract Period.

Additionally, a general ESCO contract agreement has been developed, but it is merely a proposal document. It is advised that everyone undertaking an ESCO project will develop their own contract agreement based on their own requirements and backgrounds. The ESCO Appendix 1 can be used independently, in the same way as a consulting agreement, irrespective of whether the project is taken to the implementation phase or if co-operation is not continued after the Project Plan. The ESCO Appendices 2 and 3 are used as a part of the actual EPC agreement in a project to be implemented, and these two separate contract documents are signed simultaneously.

7.3.3 Phase One: Project Plan

An ESCO project starts with a project planning phase, during which the ESCO verifies the savings and costs that were estimated in the energy audit. The Project Plan provides both the client and the ESCO with all necessary financial and technical information for decision-making on the start-up of the implementation phase.

In principle, the project planning phase is pure consulting work, to which the Finnish General Contract Conditions of Consulting Services apply. In principle, the output of the project planning phase is a Project Plan on 'how to get it done'. The ESCO provides the Customer with a report and a tender for the following implementation and follow-up phases.

The ESCO Appendix 1 emphasizes those specific issues that the Project Plan should at least include, in addition to "normal" pre-design projects, as well as those issues that the ESCO should take into account when developing a Project Plan. The existing circumstances, the base lines, technical connections to other existing systems, and the Customer's requirements for the project, are all clarified. A Project Plan includes calculations of investment costs, savings to be generated and the profitability of the project. It also indicates which operational, maintenance and other obligations concerning the project the Customer has, and how the monitoring of the savings will be done in practice.

The main difference between the ESCO project plan and a standard preliminary survey ordered from a consultancy is the payment. If the Project Plan indicates that the estimated savings are not large enough, or if the ESCO for its own reasons is not willing to make an offer for the project's implementation, the Customer is not obliged to pay the ESCO any compensation for the Project Plan. If the project is implemented, the project planning costs are included in the total project costs.

Thus the Customer does not have to pay for the project planning separately, but the costs are included in the repayments of the follow-up and verification – the Contract Period.

In all other aspects, except for those presented in the ESCO Appendix 1, the Finnish General Contract Conditions of Consulting Services are applied (KSE). If the ESCO Appendix 1 and the General Conditions are contradictory, the ESCO Appendix takes precedence. In any case, it is advisable for possible contradictions always to be clarified and agreed in advance.

7.3.4 Phase Two: Implementation

After the project planning phase, the client and the ESCO sign an implementation contract. The contract is based a tender which is required from the ESCO as an integral part of the submitted Phase One documentation. In this contract, the ESCO agrees to implement and finance the project, and the Customer agrees to repay the project costs through the savings generated by the project. The implementation phase includes all design work, installation, equipment, commissioning and training etc.

The ESCO Appendix 2 enphasises certain issues that are important to an ESCO project and that differ from normal contract work. As the profitability calculations of the project are based on certain preliminary presumptions, the ESCO should, before starting the implementation phase, ensure that the preliminary estimates of the Project Plan are still valid and that the preconditions for the savings project's implementation really exist. The ESCO initiates the implementation phase by developing a detailed schedule and starting a project record in which all the project's costs are documented. The ESCO also provides the Customer with all necessary implementation plans.

The ESCO is responsible for all necessary insurance, such as liability insurance and an installation insurance. The Customer takes care of all other insurance needed, such as insurance against fire, and makes sure that all the insurance policies are valid.

It is advisable that only work that is directly related to energy savings should be included in the ESCO project. But if there is a need for it, the Customer can naturally ask, but not require, the ESCO to take care of other work. Under the terms of the contract, this additional work cannot prolong the Contract Period by more than agreed – normally a few months at the most.

After the project has been completed, a final inspection is done. The ESCO provides the Customer with a financial report on the project. The report is based on the ESCO's book-keeping, and the Customer has the right to inspect it if necessary. If the Customer does not accept the ESCO's final report, a statement from an impartial, outside expert can be called for. If no agreement is reached, the next step is the arbitration proceedings.

The ESCO has the right to cancel the contract if it discovers during the implementation phase that the preliminary estimates used in the profitability calculations of the Project Plan have considerably changed due to actions of or caused by the Customer, such as failure of the Customer to repair or replace equipment that has been broken or failed, and which is essential for the project. In such a case, the Customer is obliged to pay the ESCO the costs incurred so far, including the project planning costs.

As for the items that are not covered by the ESCO Appendix 2, the General Contract Conditions of Contracting apply (YSE and NLM).

7.3.5 Phase Three: Follow-up

After the implementation phase has been completed, follow-up of the savings and the repayment of the investment will start. The project's energy savings are verified and repayment of the investment is started according to the plan. The most suitable verification method is negotiated between the Customer and the ESCO. The three basic alternatives are:

- Calculated savings (nothing will be measured: instead, savings are simply calculate-ed)
- Actual savings, based on a short-term measurement
- Actual savings, based on continuous measurement

The ESCO has the overall responsibility for the follow-up, but the Customer is obliged to provide the ESCO with the necessary information. All follow-up costs are part of the total project costs. The ESCO provides the Customer with regular reports on the savings and unpaid interest, and calculates a Redemption Price at which the Customer can redeem the project at any time.

After the implementation phase has been completed, the verification of the savings is started according to the previously agreed method and criteria. At previously arranged intervals, or on previously arranged dates, the Customer pays the ESCO amounts as agreed, e.g. the fraction of the annual savings due at that payment.

If the Customer refuses to pay the ESCO's invoice, and the disagreement cannot be solved by mutual negotiations, a statement from an impartial, outside expert is called for. If no agreement is reached, the next step is the arbitration proceedings.

The ESCO is responsible for all equipment during the normal guarantee period, after which the Customer assumes the responsibility. The Customer is responsible for the operation and maintenance of the equipment.

The Customer has the right to redeem the project at any time during the contract period for a previously agreed redemption price, while the ESCO has the right to sell the project to a third party, subject to approval by the Customer in advance.

In the event of an operational change of any type, from the Customer's side, which will result in a significant reduction in savings, the ESCO has the right to call off the contract. The Customer must then either continue paying the fixed sum until the project has been paid off as originally agreed, or redeem the contract and pay the ESCO the Redemption Price of the project.

If the "Customer or site" is sold, and the new owner does not want to continue the ESCO contract, the ESCO can call off the contract and the "old Customer" is obliged to redeem it.

When the follow-up period ends, the ESCO and the Customer will make a summary of the project, and all ownership is transferred to the Customer.

7.4 General conditions and legal rules

The strong involvement of general conditions in Finland (e.g. KSE and YSE) has been mentioned earlier.

7.5 Ownership of installed equipment

Property in the installed equipment remains with the ESCO until the end of the Contract Period.

7.6 Guarantees and enforcement

Because it is not the clients, but the ESCOs, that are responsible for the financing, the ESCOs do not give guarantees on the savings in a way that would really pay the client, except possibly in theory if the investment resulted in an increase in the energy costs. But, on the other hand, because the client is not obligated to pay the ESCO more than what the project has actually saved, a guarantee on the savings exists in practice.

Guarantees concerning the technical performance of the project follow the normal procedures, according to which the guarantee period is two years for all equipment and installation work. During this guarantee period, unless otherwise agreed, the ESCO is responsible for everything. The responsibility is delegated, so that subcontractors are responsible for their part of work and for equipment that they have supplied, and manufacturers similarly provide a two-year guarantee period to the subcontractor. After the two-year guarantee period, any faults that are the subject of claims must be deliberate or have been caused by grossly neglected supervision by the responsible party. Even so, financial compensation or repair is not automatic but may require legal actions. This can be started up to ten years after supply, which is an absolute limit for all claims.

7.7 Measurement and verification

Measurements and verification are considered to be a question to be negotiated between the client and the ESCO. The verification itself is important, but if the project size is small, it must be in line with the total cost. The Motiva ESCO Concept presents several options on how to measure and verify - all options have advantages and disadvantages. The main point is that both the client and the ESCO can agree on the principle in advance.

7.8 First year and following years, simplified benchmarking

This is a question of the structure of the EPC and of supplementary services provided or bundled into it. Based on a few examples, the ESCOs will be more interested on a long-term and continuous reduction in energy costs if the ESCO fee is connected to savings that exceed a certain level. But, because there are only a few EPC projects for which information is available, it is difficult to say how the co-operation develops during the follow-up period.

7.9 Different types of services included today and in the future

The two services clearly seen today are O & M services and consulting services on energy purchase. But, as mentioned earlier, the services are closely linked to the ESCO's background – quite a good selection is available if all types of ESCOs are included.

7.10 Other added values: environment, indoor climate, working safety

These aspects are not really analyzed as separate issues. They are interfaces to other interests of the client, and will be taken care of if the client's needs and the ESCO's capabilities match. Taking into account the present stage of the EPC in Finland, they are not the most important features to be promoted or included – definitely not by Motiva.

8 OBSTACLES AND OPPORTUNITIES

One major difference between Finland and other countries with ESCO activities is Finland's Energy Audit Program. Finland has a nine-year history of continuous energy auditing, and the market place for energy audits is very mature today. The development of the Motiva ESCO concept was based on the existing energy audit activities. A traditional ESCO concept, including a free pre-audit, would therefore have meant the introduction of two competing systems. And in any case, because of the significant volume of energy auditing in Finland, most of the potential ESCO projects will be based on an energy audit report. The energy audit report reveals every viable energy saving measure with all financial figures to the Customer, and if any cream-skimming is done, it is done by the Customer – not by the ESCO.

9 GOVERNMENT POLICIES

9.1 Tax incentives

Not provided.

9.2 Other initiatives

In August, the MTI started buying in the EPC concept by subsidising all energy-saving investments using EPC. As a basic subsidy, the MTI has been subsidising energy-saving investments of those companies and municipalities that have signed a Voluntary Agreement on Energy Conservation with the MTI by 10 % since 1997 and by 15 to 20 % since the beginning of 2002. If the ECP concept is used, the subsidy is 20 to 25 %. For those entities outside the VA Scheme, EPC is also subsided but by 15 to 20 %. The lower percentages are applied for projects where savings are mainly heat and fuels and the higher percentages when savings are from electricity.

10 LESSONS LEARNED

One good lesson learned was the fact that an EPC concept is always a country-specific application. It is not only a question of different legislation, but also of national customs concerning consulting and construction projects as well as other traditions on how to do business. Lessons from other countries should be studied and experience collected, but in the end a national format needs to be developed.

Another lesson is that if the EPC is new and not familiar in the market place, the first steps, before the concept has really been accepted, will be very slow. At least in Finland, industry and building owners in the service sector are quite conservative in their actions, and the introduction of new concepts requires good planning and patience. It has now also been realised that if local capital is not activated, the market will never develop into a significant level.

APPENDIX 1

Case study: Metso Paper Ltd

1 General information

Name of case: Metso Paper Ltd, Rautpohja foundry

Contact person: Energy Service Manager Juha Kangasniemi

Type of project: Heat-recovery from process cooling water for preheating of factory ventilation system

Type of Customers: Metal industry

Main services included: Only EPC, no other services except normal guarantee period service and repairs.

2 Process

2.1 Time schedule

The project started in June 1999, and installations were completed in September 1999. Monitoring started in October 1999. Status: ongoing.

3 Financing

All financing provided by the ESCO

4 Contractual/legal aspects

4.1 Type of contract

Repayment is linked to actual savings, but with a formula taking into account the changes in weather and production volumes in comparison with a reference year. Detailed information is not available.

4.2 Tendering procedure

The EPC was negotiated between the ESCO and the client. One previous tender, given by another ESCO a few years earlier had been rejected due to too long a contract period and because the tender was technically based purely on the ESCO´s (manufacturer) own equipment (client's comment)

4.3 Evaluation of tenders/proposals

No information available, but obviously the economical “fairness” of the tender as well as the technical feasibility of the proposal has been evaluated.

4.4 Guarantee and warranty

No special guarantee or warranty to be applied.

4.5 Special security for the fulfilling of warranties

No special security for fulfilling of warranties to be applied.

5 Role of different parties, including ESCO and Energy Agency

The first energy audit, where heat recovery from the cooling system of the furnaces was listed as a potential measure, was carried out in 1995, but there was not enough accurate data to evaluate the profitability of the measure or its technical principles.

In 1997, the ESCO company, Inesco Oy, carried out a detailed energy analysis with a large number of measurements to verify the savings associated with the technical options of implementation. Although the project was well in scope, it took some time before the client was ready to go for the proposed EPC concept, which at that time was quite unknown to Finnish industry. Inesco Oy was playing an important role in convincing the client of the benefits of the EPC option.

Motiva was developing the Motiva ESCO Concept at the time, and was therefore interested in the project as a pilot project.

6 Energy savings and other added values

6.1 Energy saving

Calculated energy savings are 3000 MWh/a, representing 20 % of the total heat use of the foundry building. The next EPC projects are planned to reduce the heat use down to 40 % of the previous level of 15-16.000 MWh/a. Actual savings vary, mainly depending on the weather conditions (warm or cold year, compared with a statistically average climatic year) and production volume (the pre-improvement status being taken as the reference value). Measured savings have been verified to meet the calculated savings, but the numbers are not available due to company policy on publishing information on its production volumes.

6.2 Other effects

One clearly mentioned effect has been the river from which the cooling water was taken and where the excess heat was driven into. There had been a visible problem of wasting heat energy because the river never had an ice cover in the winter but could be seen open and putting a slight mist in the air.

6.3 New and/or more efficient compared to (indicate base level)

The previous system had no heat recovery. The installed system is just a traditional water-to-air heat-recovery system.

6.4 Comparison with traditional or other ways of action

The traditional way of trying to get the investment started would not have worked because the payback time was too long for the company policy.

6.5 Benchmarking/measuring/verification

The level of achieved savings was measured after the heat recovery system was installed and it was possible to verify that the system was working as planned. Due to the nature of the investment – water-to-air heat recovery system – the amount of saved energy can be read from a single heat energy meter. For the first six months, the measured saving was documented monthly and corrected by a formula taking account of factors such as the weather and production volumes. When it became clear that the formula merely returns the numbers to the baseline situation, both the client and the ESCO agreed on fixed payments which will be made until the end of the four-year contract.

7 Lessons learned

One lesson learned was that if the actual savings depend on factors such as weather and production volume, both being factors that cannot be influenced by the ESCO, and it is possible to verify that the installed system is working as planned, a continuous verification process will merely increase the amount a work for both parties.

The other lesson learned was that if the savings depend on the air or water flows or acceptable temperature levels of existing systems and equipment, it is extremely important to verify the situation by on-site measurements and confirm that the suggested new temperature levels can really be used.

In certain type of projects, especially in industrial applications, the temperature differences on which the savings depend may be only a few degrees. A change of one degree does not sound much, but the effect can easily be 10-25 % of output.

8 References to existing brochures/reports

A few articles in Finnish professional magazines.

APPENDIX 2

Case study: Ruoka Saarioinen Ltd

1 General information

Name of case: Ruoka Saarioinen Ltd

Contact person: Production director, Olavi Virtanen

Type of project: Heat pump application; waste heat from the cooling system to the hot water system.

Type of Customers: Food processing industry

Main services included: Only EPC, no other services except normal guarantee period service and repairs.

2 Process

2.1 Time schedule

The project started in 1998 when the site was audited. The EPC contract was signed in spring 1999, and the system was fully operational in summer 2000. Status: ongoing.

3 Financing

Total project cost: USD 370 000. The Finnish Ministry of Trade and Industry subsided the project by 20 % (new technology subsidy). All financing was provided by the ESCO.

4 Contractual/legal aspects

4.1 Type of contract

The output of the system, both recovered heat and increased electricity consumption, was verified after commissioning the equipment, and a fixed periodical payment was agreed on that basis. If a certain level of savings is exceeded, the excess will be divided equally between the client and the ESCO. This simplified monitoring principle enables the ESCO to avoid the risk caused by changes in energy prises or production volumes.

4.2 Tendering procedure

The contract was negotiated between the ESCO and the client.

5 Role of different parties, including ESCO and Energy Agency

The project was launched by the ESCO. Motiva was later involved when the project was completed and a press conference was arranged. The project was finally presented on TV in a main news broadcast.

6 Energy savings and other added values

6.1 Energy saving

Calculated energy savings are 5 800 MWh/a, formerly supplied by fuel oil. The reduction is some 10 % of the total energy use of the site and 20-25 % of the previous fuel oil consumption. The electricity demand of the heat pump is 800 kWh/a. The savings have been quite stabile due to continuous production process.

6.2 Other added values

The environmental impact is a reduction of 1 300 t/a of CO2 (19 %), 9 000 kg/a (19 %) of SO2 (20 %) and 3 600 kg/a (19 %) of NO2 emissions.

6.3 Comparison with traditional or other ways of action

The installed system is the largest heat pump application in Finland so far, and the client would not have taken the risk of piloting the technology at its own risk. Implementation with the EPC was therefore the only way to have the energy conservation measure implemented.

6.4 Benchmarking/measuring/verification

The amount of recovered heat is metered, as is the amount of electricity used by the heat pump. The client has stated that the calculated savings have been met. The rise in the oil price has improved the profitability of the investment.

7 Lessons learned

The lesson learned was that EPC can also be a good way to introduce new technology, which would otherwise be considered too risky.

8 References to existing brochures/reports

One press release.

APPENDIX 3

Case study: Kupittaa Sports Center

1 General information

Name of case: City of Turku, Kupittaa Sports Center

Contact person: Design engineer, Juhani Korte

Type of project: New ventilation units with heat recovery, new control system and new ducts to provide more efficient air distribution

Type of Customers: Municipality

Main services included: EPC and operation and maintenance contract

2 Process

2.1 Time schedule

The sports centre was audited in 1994, but the proposed measures were not implemented due to long payback times. In 1996, the City of Turku and ABB signed a SparTrim agreement, which is ABB's trademark for EPC. The installations were completed during the summer of 1997. The contract is valid until 2004. Status: ongoing.

3 Financing

The total project cost, USD 330 000, was split equally between the ESCO and City of Turku, because part of the investment was intended to improve indoor air conditions and to replace out-of-date and broken equipment.

4 Contractual/legal aspects

4.1 Type of contract

Repayment is based on calculated savings. If the actual savings exceed the calculated savings, the excess is divided between the ESCO and City of Turku in the ratio of 60/40. The change in energy price is not corrected, which means that it will affect the cost savings.

4.2 Tendering procedure

The EPC was negotiated between the ESCO and the client. In 1996, ABB was the only ESCO in Finland.

5 Energy savings and other added values

5.1 Energy saving

Measured energy savings have been approx. 1500 MWh/a, or nearly 60 % of the previous heat use. The calculated cost savings were USD 32,000 per year, and the realised cost savings approx. USD 68,000 per year.

5.2 Other added values

Kupittaa Sports Center was built in 1974. 20 years later, all its systems were in poor condition and, furthermore, the indoor conditions did not meet the requirements of the users. One major problem was the vertical temperature variation. In winter, the indoor temperature was 28 °C at roof level, but only 10 °C at floor level. This problem was solved by a new air distribution system.

5.3 Comparison with traditional or other forms of action

The payback time of the investment was too long for municipal decision makers to allocate capital from the city budget.

5.4 Benchmarking/measuring/verification

The energy consumption is monitored monthly. Periodical payments are based on the actual reduction in energy consumption and paid energy bills.

6 Lessons learned

The City of Turku had nine EPCs in force in 2001. The EPC has been the only option to have the energy saving investments implemented. By the end of 2000, some 80 buildings representing 1.4 million m³ of building volume had been audited and, based on the results, some USD 1 million can be saved in annual energy and water costs. The lesson learned is that if and when an organisation finds the EPC sound and easy, it can adopt the principle really well – but this really requires a few good first attempts.

7 References to existing brochures/reports

Motiva Case Study Booklet

APPENDIX 4

ESCO Contract Part I – The Project Plan

Terminology

Project	Investment project that aims at savings in costs.
ESCO	Company that takes comprehensive responsibility for implementing and financing a project that will lead to a reduction in energy costs
Contract Period	Maximum period of time during which the ESCO receives payments from the Customer
Energy Calculation	Calculation in which the profitability of an energy efficiency project is defined.
Reference Year	Baseline year of which the degree-day figure corresponds to the average regional figure of period of 1961-1990.
Repayment Period	Calculated period of repayment of the investment presented in the Energy Calculation.
Reserve Period	Time between the Contract Period and Repayment Period with the help of which changes in investment costs, generated savings or energy prices can be compensated.

General

1.1 The ESCO prepares a Project Plan for the energy cost savings project before detailed planning and implementation of the project is started.

1.2 The content of the project, compatibility with existing systems and other requirements of the Customer are defined in the Project Plan.

1.3 The Project Plan will give the ESCO and the Customer all necessary information needed for the implementation decision, e.g. information on investments, energy savings and the repayment time of the investment.

Contents of the Project Plan

1.4 The Project Plan includes:

(a) A verbal description of the project,
(b) A description of the present situation, existing equipment and systems and their present condition and operation principles,
(c) Results of the suggested changes and their impact on the present circumstances, equipment and systems, taking also into account needs for storage space, access routes, exterior aspects and other factors that may have an effect on the total cost,
(d) An estimate of the total project costs, including estimated financing costs,
(e) Calculation of annual energy cost savings generated by the project and the length of the Repayment Period,

(f) A proposal for the method of verifying the savings,
(h) A proposal for implementation and time schedule,
(i) An estimate of the Customer's part of the work and costs in the project's implementation,
(j) New operation and maintenance requirements caused by the project's implementation,
(k) A description of the training requirements of the plant's management and other staff,
(l) A life-cycle estimate of the new equipment and its influence on the life-cycle of the existing equipment,
(m) The guarantee period of the new equipment.

1.5 In the Project Plan, the ESCO presents an Energy Calculation which includes energy cost savings to be generated. The calculation is based on the Reference Year and present production volume or other operations on site.

1.6 The Customer accepts the fact that the suggested investment primarily aims at energy cost savings, and does not necessarily improve indoor air quality or production.

The ESCO gives an assurance that the proposed investment does not endanger the indoor air quality, production quality or volume, working conditions, safety at work or any other factors.

Supplementary information and acceptance of the Project Plan

1.7 The Customer evaluates the Project Plan and either accepts it or makes comments on it, but not later than within _____ ( ) days. If the Customer does not comment on the plan during this period, the Project Plan is deemed to have been officially accepted by the Customer.

1.8 The Customer informs the ESCO in writing of any questions concerning the Project Plan.

If the Customer does not accept the content, or the result of the Energy Calculation (paragraph 1.5), the Customer must notify the ESCO in writing, specifying the difference in opinion as clearly as possible.

1.9 If the Customer has submitted questions or requests for supplementary information concerning the Project Plan to the ESCO, the Customer does not have to accept the Project Plan until the ESCO has provided satisfactory answers to these questions or the requested supplementary information.

Additions and reductions to the Project Plan

1.10 The Customer has the right to request additions or reductions to the Project Plan. The ESCO then calculates how the suggested changes affect the investment, the savings and the Contract Period. The Customer compensates the ESCO for the costs of this planning and calculation.

1.11 If the additions are not related to energy savings, they are treated as normal investments and will not be included in the ESCO project.

1.12 The extension of the Contract Period due to the additions or reductions of the measures presented by the Customer, and agreed in accordance with paragraph 1.10, must not exceed _____ ( ) months and the Repayment Period must not exceed _____ ( ) years.

Cancellation of the Project Plan Contract

1.13 If the savings presented in the Project Plan are less than _____ % of the energy cost savings initially estimated in the energy audit, or if the Repayment Period is more than _____ ( ) years, and the Customer does not accept the ESCO's explanation of this contradiction, the Customer has a right unilaterally to cancel the contract.

1.14 If the ESCO discovers, while working on the Project Plan, that the energy cost savings to be generated during the Repayment Period (including possible financial subsidies) are not enough to cover the total project costs, or if the ESCO for any other reason considers itself unable to implement the project, the ESCO has a right unilaterally to cancel the contract. In this case, the ESCO must return all project documentation and other material to the Customer, but is not responsible for any compensation to the Customer e.g. for the working hours involved.

1.15 If the contract is cancelled in accordance with paragraphs 1.13 or 1.14, the Customer is not obliged to pay the ESCO any compensation for the Project Plan or other work related to it.

Compensation for the accepted Project Plan

1.16 If the Project Plan indicates that the energy cost savings and the Repayment Period estimated in the energy audit can be met at least as specified in paragraph 1.13, and if the ESCO is ready to continue to implementation phase, but the Customer is not willing to continue with the process with the ESCO, the Customer shall pay the ESCO the agreed compensation for the Project Plan and a normal consultant fee.

1.17 If the Customer accepts the Tender for an ESCO Contract from the ESCO and signs the Contract, the compensation for the Project Plan is included in the total project costs in accordance with the ESCO Contract.

A Tender for the ESCO Contract

1.18 If the targets set for the savings and profitability can be fulfilled in the Project Plan, and the ESCO has not cancelled the Project Plan Contract in accordance with paragraph 1.14, the ESCO is obliged to submit a tender for the ESCO Contract.

1.19 The tender must include at least the following:

(a) A brief verbal description of the project,
(b) A total cost estimate of the project,
(c) Calculated energy cost savings to be generated by the project, and the data on which the calculations are based,
(d) Repayment Period, amount of the periodical payment and the length of the Reserve Period,
(e) Method and frequency for verification of the savings,

(f) Share of Customer financing for the project,
(g) Implementation schedule.

Other conditions

The Standard Contract Conditions of Consulting Services (KSE) are applied to the Project Plan Contract in all other matters, unless otherwise specified above.

APPENDIX 5

ESCO Contract Part II - Implementation

Terminology

Project	Investment project that aims at energy cost savings.
ESCO	Company that takes comprehensive responsibility for implementing and financing a project that will lead to a reduction in energy costs
Contract Period	Maximum period of time during which the ESCO receives payments from the Customer
Reserve Period	Time between the Contract Period and Repayment Period which provides flexibility for the repayment of the investment in case of increased investment costs or reduced in savings
Redemption Price	Cost at which the Customer can redeem the project from the ESCO any time during the Contract Period.
Implementation Contract	Contract between the ESCO and the Customer, under the terms of which the ESCO agrees to finance and implement, and the Customer agrees on the periodical payments.
Reference Year Energy Consumption	Energy consumption of a reference year with normal outdoor temperatures and normal operation conditions of a plant.

General

2.1 During the implementation phase, the ESCO implements the project described in the Project Plan. Before implementation is started, the ESCO ensures that the preliminary information used in the calculations is correct.

2.2 The Customer is required to assist the ESCO in the implementation of the project according to "common principles for co-operation".

Responsibilities of the ESCO

2.3 During the implementation phase, the ESCO is responsible for

(a) Appointing a person for project co-ordination and supervision
(b) Preparing a detailed project schedule and the follow-up of the costs,
(c) All technical design and planning needed for the investment, all other relevant project documentation and for presenting these documents to the Customer for comments. The ESCO provides the Customer with _____ ( ) copies of the documents described above, and is responsible for any other documentation related to the project,

(d) Arranging all necessary insurance before the work is started, including the company's liability insurance and installation insurance for the full contract value, in order to protect the project and the Customer against liability, damage and losses during implementation. The ESCO provides the Customer with _____ ( ) copies of each insurance contract for approval,

(e) Procuring equipment and hiring subcontractors if needed,

(f) Organizing the work at the plant in such a way that disturbance of the Customer's activities is minimised,

(g) Supervising the work at the construction site and ensuring that the progress of the project and the overall quality of work and materials correspond to the project documentation and any subcontracting agreements,

(h) Supervising the work of all subcontractors to ensure that the work is carried out in accordance with safety and other regulations of the Customer or the ESCO,

(i) Repairing and/or paying compensation for any damage to the plant, if not covered by the insurance

(j) Sending the Customer a written request _____ ( ) working days beforehand if any of the work must be done outside normal working hours

(k) Developing operating and maintenance manuals and follow-up instructions for the project,

(l) Training the responsible project personnel appointed by the Customer, together with other staff if needed,

(m) Carrying out a final inspection together with the Customer, as well as other inspections during the project if needed.

Responsibilities of the Customer

2.4 For the implementation phase, the Customer:

(a) Appoints a project manager for the project,

(b) Authorizes the ESCO to implement the project,

(c) Accepts possible difficulties caused by the implementation of the project, such as:
- offering the ESCO and any subcontractors enough storage space and/or allowing them temporarily to station a trailer (for example) on the premises,
- accepting that the work is done during normal working hours, unless agreed in the contract that certain work phases should be done at some other time,
- accepting possible temporary inconvenience e.g. in the working conditions during the implementation phase,

(d) Provides electricity, compressed air, heat or water needed in the project's implementation, at his own cost unless otherwise agreed,

(f) Is responsible for insurance of the plant, including the project,

(g) Appoints a responsible operation/maintenance person who will closely follow the work of the implementation phase in order to become acquainted with the project.

Acceptance of subcontractors

2.5 The ESCO must request Customer acceptance of all subcontractors to be used during the implementation phase.

Additional work and changes

The Customer can ask the ESCO to carry out an improvement or an addition and add the costs to the total project costs. These changes may not increase the estimated total cost presented in the Project Plan by more than _____ ( ) % and cannot extend the repayment period by more than _____ ( ) months. Additional work or changes do not affect the length of the Reserve Period. The parties must agree on the additional work and changes beforehand in writing.

Economic final report of the project

2.7 After the project has been completed, the ESCO produces a final account based on the bookkeeping and presents it to the Customer. The final account is, in all parts, based on the costs and principles accepted in the Implementation Contract and on written agreements concerning additional work or changes made during the implementation phase.

2.8 If the ESCO or the Customer have been granted subsidies or other financial benefits related to the project, or if equipment procured for the project is sold, the yields generated are deducted from the total project costs.

2.9 The Customer inspects the final account and can comment on it within ___ ( ) days after receiving it. If the Customer does not accept the presented calculations, the Customer is required to present detailed grounds to justify the disagreement.

2.10 After the Final Account Report has been accepted, the monitoring of the savings and the repayment is started from the beginning of the following calendar month.

2.11 If the ESCO and the Customer do not agree on the total project costs within ____ ( ) days, a statement from a commonly agreed third party is called for. If the parties, even after this, do not reach an agreement on the matter within ____ ( ) days, the case shall be submitted to a court of arbitration consisting of three persons. The decision of the court of arbitration must then be accepted by both parties and will not be subject to appeal. The parties share equally the costs of the services of the third party and the court of arbitration.

Cancellation of the Implementation Contract

2.12 In addition to what is written in the General Conditions of Contracts about the right of the parties to cancel an Implementation Contract, the ESCO has the right to cancel the Implementation Contract if it discovers either before implementation is started or during implementation that the preliminary information used in the project's profitability calculations is incorrect due to the Customer's activities or breakage of equipment or systems related to the project, and if the Customer does not repair these defects reported by the ESCO.

2.13 If the ESCO cancels the contract on the grounds as set out in paragraph 2.12, the Customer shall compensate the ESCO for the costs incurred so far, including also the project planning.

Other conditions

Unless otherwise specified above, the General Conditions of Contracts (YSE, NLM) shall be applied to the Implementation Contract in all other matters.

APPENDIX 6

ESCO Contract Part III - Contract Period

Terminology

Project	Investment project that aims at energy cost savings.
ESCO	Company that takes comprehensive responsibility for implementing and financing a project that will lead to a reduction in energy costs.
Implementation Contract	Contract between the ESCO and the Customer, under the terms of which the ESCO agrees to finance and implement, and the Customer agrees on the periodical payments
Contract Period	Maximum period of time during which the ESCO receives payments from the Customer
Reserve Period	Time between the Contract Period and Repayment Period which provides flexibility for repayment of the investment in case of increased investment or reduced savings
Redemption Price	Cost at which the Customer can redeem the project from the ESCO any time during the Contract Period.
Repayment Contract	A contract between the Customer and the ESCO, in which the Customer agrees to repay the ESCO for total project costs through savings generated by the project.
Reference Year Energy Consumption	Energy consumption of a reference year with normal outdoor temperatures and normal operation conditions of a plant.

General

3.1 During the Contract Period the Customer repays the ESCO for the investment, financing and follow-up costs through the energy cost savings generated. The savings are verified as agreed in the Implementation Contract.

3.2 The Customer and the ESCO co-operate closely to ensure the operation, maintenance and functioning of the project as planned, and follow the savings generated by the project.

Responsibilities of the ESCO

3.3 During the contract period, the ESCO

(a) Provides the Customer's staff with necessary information, instructions and training to ensure that the project is managed properly,

(b) Visits the plant regularly to ensure that the given instructions are followed,

(c) Produces a written report to the Customer on any problems observed during visits described in (b),

(d) Produces a report to the Customer as described in paragraph 3.7,

(e) Investigates the causes of any malfunction of the equipment or systems related to the project,

(f) Submits a notice in writing to the Customer if the inspection mentioned in (e) ESCO discovers that savings are not generated due to defects in equipment or due to operation and maintenance against the given instructions,

(g) Carries out a necessary inspection and investigates the causes of the malfunction if the Customer notifies a malfunction in writing, and states that its causes are unclear,

(h) Is responsible for repairs during the guarantee period and operation of the equipment/systems related to the project.

Responsibilities of the Customer

3.4 During the contract period, the Customer:

(a) Appoints a responsible operation/maintenance person for the project and operates and maintains the equipment and systems related to the project regularly in accordance with the written instructions given by the ESCO,

(b) Repairs broken equipment immediately if the equipment is not under guarantee,

(c) Reports to the ESCO, without delay and in writing, any malfunction or breakage of the equipment or systems,

(d) Informs the ESCO promptly of the following facts needed to implement the project during the contract period:

- a need for preventive maintenance,
- changes in energy use,
- results of inspections and tests,

(e) If verification of the savings is based on continuous measurement and normalization (e.g. with degree-days), the Customer provides the ESCO within _____ ( ) working days after the report period with copies of energy invoices and readings on certain previously agreed meters related to the project (unless the ESCO is responsible for reading the meters), as well as any other information that has been agreed to be supplied separately (e.g. production quantities, used capacity etc.) and that may affect verification of the savings,

(f) Repairs or replaces defective equipment as soon as possible after receiving notification as described in paragraph 3.3 (f), and informs the ESCO of the repair date,

(g) Informs the ESCO immediately of events or circumstances that may affect total project costs or savings, or of any other changes that may have an influence on the ESCO's services and responsibilities in accordance with this contract,

(h) Together with the ESCO, ensures that the operational and maintenance personnel and other staff of the Customer co-operate so that the project can be duly implemented,

(i) Contributes to the successful implementation of the project.

Payments by the Customer

3.5 Unless otherwise agreed, the Customer continues to pay for the energy costs directly to the energy suppliers.

3.6 The Customer pays the ESCO against an invoice every month, or at _____ ( ) monthly intervals, a sum that corresponds to the part of the invoicing period of the annual energy cost savings generated from the day of beginning until the project has been totally paid off or until the Contract Period comes to an end, depending on which one takes place first.

3.7 The ESCO provides the Customer with a written follow-up report at ____ ( ) months intervals including the following:

a) Calculated energy cost savings based on what the Customer has paid the ESCO in accordance with paragraph 3.6,

b) Actual energy cost savings and the energy use, if measured,

c) The Project Balance, i.e. the total project costs, the part which is paid off and the unpaid part,

d) The Redemption Price of the project.

3.8 If the Customer does not accept the report, he must notify the ESCO in writing within ____ ( ) days after the receipt of the report described in paragraph 3.7.

3.9 If the calculated savings described in paragraph 3.7 (a) exceed the actual savings described in paragraph 3.7 (b), the ESCO deducts the 'overcharged' savings from the next invoice. If the savings are repeatedly (more than two follow-up periods) less than the calculated savings, the calculation shall be changed to correspond to the actual savings generated.

3.10 If the actual savings exceed the calculated savings, the ESCO invoices the extra savings next time. If the savings are repeatedly (more than two follow-up periods) more than the calculated savings, the calculation shall be changed to correspond to the actual savings generated.

3.11 If the savings are impossible to verify due to

(a) Strike of the Customer's workers,

(b) Vandalism,

(c) Temporary closing-down of the plant,

(d) Interruption in the production or operation,

(e) Faulty operation of equipment or systems or neglect of their maintenance despite the ESCO's instructions, or due to other reasons not under the control of the ESCO, the Customer shall pay the ESCO normally according to the calculation for this period.

3.12 If the total project costs are not paid off by the energy cost savings generated during the Contract Period, the ESCO is responsible for the unpaid part after the Contract Period has come to an end.

Invoicing disputes

3.13 The Customer must inform the ESCO of any dispute concerning the ESCO's invoice within _____ ( ) days after the receipt of the invoice. The Customer and the ESCO shall attempt to resolve the dispute as soon as possible.

3.14 The Customer agrees to continue to pay invoices for _____ ( ) months during the dispute.

3.15 If the ESCO and the Customer cannot resolve the invoicing dispute within _____ ( ) days, a statement from a third party accepted by both parties is called for. If the parties even after this cannot resolve the problem within _____ ( ) days, the case shall be submitted to a court of arbitration consisting of three persons. The decision of the court of arbitration shall be accepted by both parties and is not subject to appeal. The parties shall share equally the costs of the services of the third party and the court of arbitration.

3.16 Any sum of money that the Customer has paid the ESCO without grounds according to paragraph 3.15 shall be deducted from the following invoice/invoices and interest on delayed payments shall be duly calculated for them.

Malfunction or breakage

3.17 The guarantee period is _____ ( ) months. The ESCO is responsible for malfunctions or breakage of the equipment/systems which occur during the guarantee period. The Customer, however, is responsible for the costs of its own staff and for possible indirect consequences of the malfunction or breakage.

3.18 As a basic rule, the Customer is responsible for malfunctions or breakage, which occur after the guarantee period. If the malfunction or breakage is due to a planning or installation mistake by the ESCO or incorrect/inadequate operation instructions, the ESCO shall be responsible for these parts.

The Customer can ask the ESCO to carry out the necessary corrective measures, if the ESCO is willing to do them. The costs for the repair are agreed separately.

Option of redemption

3.19 The Customer has a right to cancel this contract on a due date of any instalments before the Contract Period has expired, by paying a Redemption Price in accordance with the contract. The Redemption Price shall be calculated by using the formula given in the Contract Agreement Appendix by deducting the financing cost from the unpaid part.

3.20 If the Customer wishes to exercise his option as set out in paragraph 3.19, the Customer shall provide the ESCO with a written notice of intent at least _____ ( ) days in advance.

3.21 If the Customer exercises his option as set out in paragraph 3.19 before the receipt of the financial support granted to the project, the ESCO shall assist the Customer in applying for these supports.

3.22 If the Customer exercises the option as set out in paragraph 3.19, the Customer shall be responsible for any taxation or other effects caused by the redemption.

Assignment of the contract to a third party

3.23 The ESCO has a right to sell the Repayment Contract to a third party accepted by the Customer on the original conditions after the ESCO has notified the Customer of the intended sale at least _____ ( ) months in advance. Unless otherwise agreed, all the responsibilities, obligations and rights of the ESCO shall be transferred to the buyer of the contract.

3.24 Assignment of the contract to a third party must not be to the detriment of the Customer in any way, and all the rights, obligations and responsibilities of the Customer shall be transferred in the transaction.

3.25 The Customer's right to exercise the option of redemption in accordance with paragraph 3.17 shall be transferred when the contract is assigned.

Change in use of the plant

3.26 If the functional use of the plant changes considerably and, due to this, the energy cost savings are not generated according to the calculations, the ESCO has a right to cancel the repayment contract within _____ ( ) days after the change, and the Customer must either continue to pay the original calculated payment of the invoicing period until the project has been paid off, or redeem the savings contract from the ESCO by paying the Redemption Price agreed in the contract.

Transfer of the plant to a third party

3.27 If the ownership of the plant is transferred to a third party, and the ESCO chooses not to transfer the Repayment Contract to the new owner, the ESCO has a right to cancel the Repayment Contract within _____ ( ) days, and the Customer must either redeem it from the ESCO by paying the Redemption Price agreed, or continue to pay the original calculated payment of the invoicing period until the project has been paid off.

Change in energy price

3.28 The Energy Calculation shall be revised annually to correspond to any changes in energy prices. If the energy price has changed by more than 10 %, the Energy Calculation shall be revised to correspond to the changed situation. The main principle is that an increase in energy price shortens, and a decrease in energy price prolongs, the Repayment Period. If the decrease in the energy price is due to the ESCO's activity, the calculation will not be changed.

End of contract period

3.29 The contract period comes to an end when

(a) The Customer has paid off the project or
(b) The Customer has redeemed the project during the Contract Period *or*
(c) The Contract Period has temporarily come to an end *or*
(d) The ESCO has cancelled the contract under the terms of paragraphs 2.12, 3.26 or 3.27.

3.30 After the Contract Period has expired, the Customer and the ESCO produce a final summary including at least the following documents:

(a) Summary of the project costs,
(b) Energy cost savings and energy consumption savings generated by the project,
(c) Actual Repayment Period of the project
(d) Estimate of the profitability of the project.

3.31 After the Contract Period has expired, the ESCO shall provide the Customer with all the information (including instructions for use) needed to ensure continued operation of the project according to the plans after the contract period. The Customer shall compensate the ESCO for this as agreed.

3.32 After expiry of the Contract Period, the ESCO shall provide consulting services related to the project for the Customer at a price that is agreed separately.

Transfer of ownership

3.33 Unless otherwise agreed, property in the project shall be transferred to the Customer when the project has been paid off or the Contract Period comes to an end.