

New broad energy efficiency agreement scheme – lessons learnt to make it even better than before

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Abstract

Finland has long experience in the field of energy efficiency agreements (voluntary agreements) in many end-use sectors. The results of the overall evaluation of the previous energy conservation agreement scheme 1997–2007, contracted on an outsourced basis by the responsible Ministry in 2005, encouraged further development of the scheme to make it even better. By 2007, the annual savings (9 TWh/a, approx. 3 million CO₂ tonnes) represented over 2% of the Finland's total energy consumption and about 3.5% of the greenhouse gas emissions (million t CO₂-eq.) in Finland.

According to the evaluation of the agreements, there was strong support for the continuation and continued development of the scheme among the agreement parties. At the same time, the Energy Service Directive (ESD) entered into force and had its own targets and demands, e.g. for monitoring and calculations.

Many features in the old agreement scheme were already successful but, as always, there were also features to improve. To cite an example, the various sizes of organisations are better taken into account in the new scheme. In the agreement sectors belonging to the scope of ESD, the minimum target setting for the companies/communities was also set in accordance with the directive needs. Also, other requirements set in the ESD, e.g. for the energy sector and public sector, are taken into consideration in the energy efficiency agreement scheme

2008–2016. The broad agreement scheme also has an important role in implementing the ESD.

Continuous improvement is now one cornerstone in the new energy efficiency agreement scheme. To be realised, it postulates strong management commitment to secure resources and commitment on all organisational levels, this being one result that rose strongly in the evaluation.

The monitoring system for the new scheme is also under development to conform to today's needs. In the future, the Internet-based monitoring system will serve all parties to the agreement (the Ministry, associations and companies/communities), enabling more feedback data.

Introduction

EVALUATION OF THE ENERGY EFFICIENCY AGREEMENTS 1997–2007

Energy efficiency agreements in 1997–2007 were voluntary framework agreements between branch associations, enterprises or communities on the one hand and the government on the other. By 2007, the annual savings (9 TWh/a, approx. 3 million CO₂ tonnes) represented over 2% of the Finland's total energy consumption and about 3.5% of the greenhouse gas emissions (million t CO₂-eq.) in Finland.

The Ministry of Trade and Industry (since 1 Jan. 2008, the Ministry of Employment and the Economy) commissioned an overall evaluation reflecting the impact of the agreement scheme and its future development in autumn, 2004. The evaluation covered agreements signed in industry, the energy field and the municipal, property and building sectors.

The objective of the evaluation was to quantify the impact and results of agreement activity, and to produce perspectives

and suggestions for the future development of possible new agreement schemes. The evaluation was based on an extensive online survey and personal interviews that include all parties. The idea was to map the views of the companies and communities that have joined the agreement scheme, on topics such as implementation, resourcing, reporting and results of the agreements as well as the view of authorities and associations and other parties involved in the implementation of the agreements.

Companies and communities reported that the most important benefits had been the identification of energy saving potentials, development of their own activities, clarification of energy efficiency targets, and the energy subsidies for audits and investments. Benefits related to organisational image also clearly emerged. Under the umbrella by the agreements, the different actors have also formed networks and consolidated new kinds of common activities that benefit all parties.

Even if there was strong support among agreement signatories for continuation and further development of the agreement scheme, they reported that future expectations of the energy efficiency agreement system are different, and put forward a number of ideas for development that had emerged from the evaluation. The interviews had also brought out the importance of expert functions related to the implementation of the agreement, and a need for increased personal contacts in implementation, reporting and communications.

Based on the overall evaluation of the agreement scheme and feedback received from the organisations, it was decided that the agreements originally terminating in 2005 would be extended by two years, during which time new tools and methods for the new agreements would be developed. The aim was to launch the third generation agreement scheme from the beginning of 2008, as also happened.

BASIS FOR THE NEW AGREEMENTS 2008–2016

Evaluation

In accordance with the evaluation results and the Energy and Climate Strategy 2005, the negotiation process for the new Energy Efficiency Agreements was initiated in 2006. In preparing the new agreements, the results and ideas for further development gleaned from the overall evaluation of the previous agreements were taken into consideration as much as possible. These include, e.g. continuous improvement, the importance of the commitment of the whole organisation, the need in some areas for expert assistance related to the Energy Efficiency Agreement Scheme especially in non-energy-intensive industry, and the need for increased personal contacts in implementation, reporting and communications.

The product development and procurement processes were linked better to improved agreement schemes. By integrating control of energy consumption to companies' management systems, better information was also to be gained for monitoring and the evaluation of results.

Changes in the operational environment

The drafting of the new agreement scheme also took into account changes in the operational environment – some of the companies covered by the old agreement scheme were under emissions trading, whilst on the other hand almost all energy

consumption outside the emissions trading came under the EU Energy Services Directive (ESD, Directive on energy end-use efficiency and energy services), which entered into force in the spring of 2006. Implementation of the Energy Efficiency Agreements and reporting of the results was intended to play an important role in the national implementation of the Energy Services Directive, as well as in attaining and monitoring the national indicative nine per cent energy saving target it sets for the period 2008–2016.

In planning the new agreements, the promotion of innovative activity and how it is linked to Energy Efficiency Agreements were also of special interest. Through the networking of developers of products and services and their users and financiers, the aim is to find innovative solutions and break down the barriers preventing entry into the markets of energy-efficient technology.

Energy Efficiency Agreements 2008–2016

AGREEMENTS ARE COVERING MOST SECTORS

New energy efficiency agreements were negotiated for the period 2008–2016 for various business sectors – the energy-intensive industry (also including energy production), medium-sized industry and the private service sector (including, in the first phase, five Action Plans for industry and two Action Plans for the private service sector: see Figure 1) and energy services. In addition, agreements were negotiated in the municipal sector separately for large and small local authorities as well as for the oil sector. All the above-mentioned agreement sectors are under the responsibility of the Ministry of Employment and the Economy.

Additional Energy Efficiency Agreements currently in force are those for goods transport and logistics, and public transport which are under the responsibility of the Ministry of Transport and Communications. The housing property sector where the responsibility is in the Ministry of Environment has an ongoing Energy Conservation Agreement 2002–2012 which was evaluated in 2008. The negotiations to improve that agreement according to the evaluation results and the ESD needs are starting this year. Totally new agreement for farms in agriculture sector is in the negotiation phase under the governance of the Ministry of Agriculture and Forestry and the target is to initiate the energy efficiency agreement during the ongoing year (2009). The agreement period is planned to be continued till the end of 2016.

New Action Plans are planned for negotiation within the industries agreement during the course of 2009, at least for the car retail sector and building material industries. Those industrial or private service sector companies that do not have their own Action Plans can join a so-called General Action Plan within the industries agreement. There is also the aim to initiate a specific energy efficiency agreement for parishes that have significant building volumes.

The coverage of the previous agreement scheme was already over 60% of Finland's total energy consumption. Compared to the old agreement, the coverage of the energy efficiency agreements will be increasingly extended also to medium-sized operators and energy consumers with regard to the agreement for Industries. The coverage target calculated mainly from the

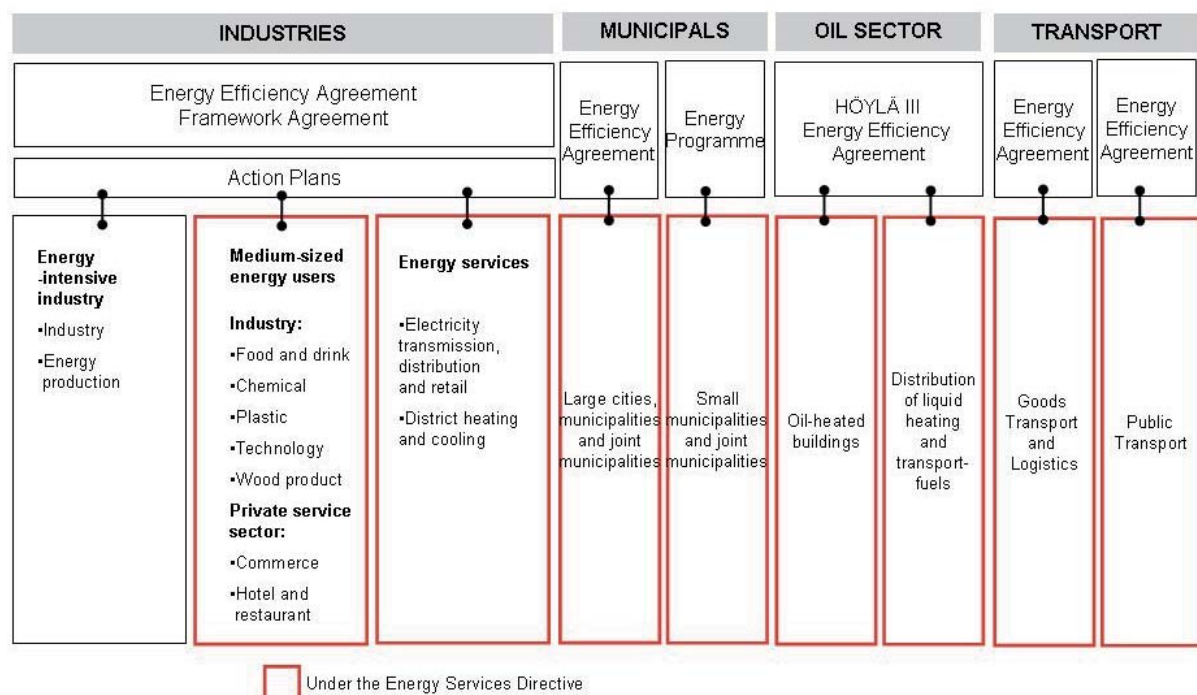


Figure 1. Energy Efficiency Agreement Scheme 2008–2016 sectors, outset of 2009

energy use in that area varies in various sectors between 60% and 80%. In some sectors, the targets are already exceeded, and in many other sectors the coverage targets were already proceeding well at the end of the first year.

One target when planning the new agreements, which also rose in the evaluation, was to take the needs and starting point for various actors better into account. That is why, e.g. energy-intensive industry has its own Action Plan and medium-sized industry its own Action Plans for the varied branches. The same idea also concerns having a specific agreement for large and small actors in the municipal sector.

CORNERSTONES IN THE AGREEMENTS

Continuous improvement

Even the agreements for various sectors (see Figure 1) now vary to some extent, in accordance with the needs for the sector: nevertheless, similar elements also apply for the most part in all agreements.

Continuous improvement of energy efficiency is a vital element of all agreements. How to fulfil this target varies somewhat, e.g. the main obligation for the energy intensive industry is to adopt the “Energy Efficiency System” (EES) within two years of joining the agreements scheme. EES includes the procedure on the implementation of continuous improvement, energy efficiency improvement targets, a plan to improve energy efficiency, procurements, the monitoring of energy consumption, and annual reporting – a systematic approach to energy efficiency.

For the medium-sized energy users in the industry and the actors within other agreement sectors, it is not compulsory to introduce the EES mentioned above, but the companies commit to the same kind of obligations mentioned in their branch action plans and agreements whenever this is economically and

technically possible, taking safety and environmental aspects also into account.

Continuous development of the activity helps energy efficiency to become an integral part of principal managements systems.

Uptake of the latest technology and technical know-how

One important goal of the agreement scheme is to also promote the adoption of the latest energy-efficient techniques and services. Agreement parties are encouraged to build up networks with developers and suppliers of energy-efficient innovations, so that new techniques and services may be demonstrated, tested and disseminated. Such activity also creates a foundation for exporting energy-efficient know-how. It is anticipated that it is possible to obtain higher investment subsidies than usual from the Ministry of Employment and the Economy for the energy efficiency investments utilising the latest technology.

Monitoring and reporting

One essential part of the agreements is annual reporting. A company or community joining the agreement scheme submits an annual report on the previous year’s energy use and any related efficiency measures. For the agreements under the responsibility by the Ministry of Employment and the Economy the information will be collected in a new Internet-based monitoring system.

The monitoring system provides information for the Ministry, the associations, and other organisations that participate in the agreements. The reporting of the results is also a central part of monitoring the achievement of the targets of the EU Energy Services Directive.

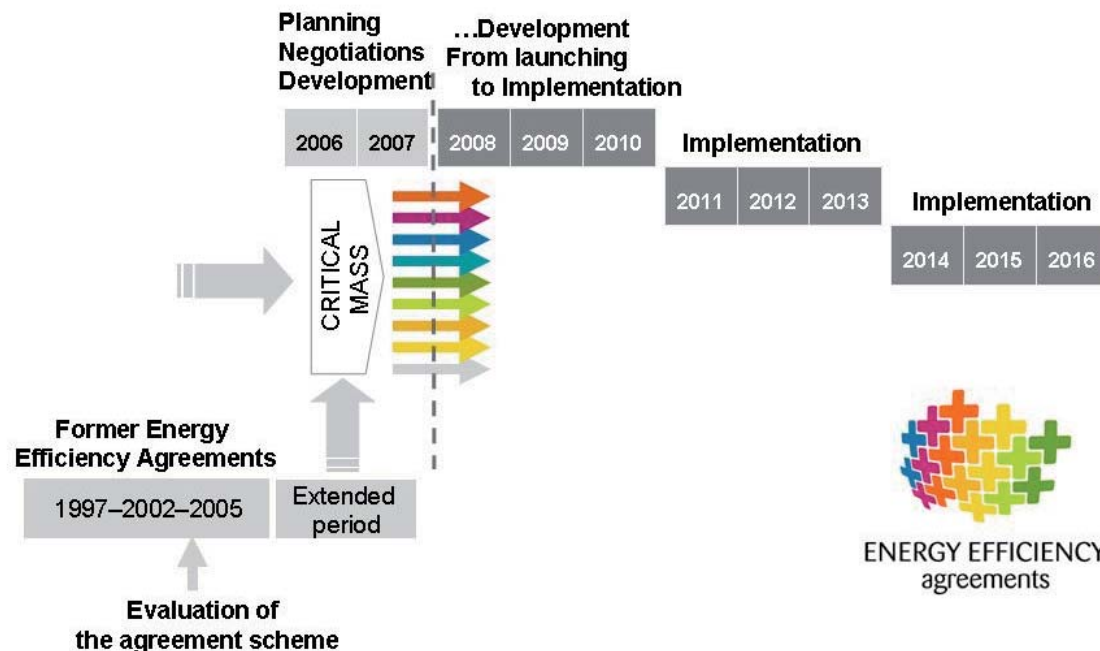


Figure 2. Energy Efficiency Agreements 2008–2016 play a central role in ESD implementation

NEW FEATURES IN THE AGREEMENTS

The agreements naturally have a large number of the features also in use during the previous agreements in 1997–2007, even though many of them are now “fine-tuned” to some extent. For example, product development and procurement processes are linked to agreement schemes more effectively than before, and the monitoring system will also be new.

The totally new features in these agreements are the target setting for the coverage and the energy savings/energy efficiency improvement both in the agreements level and the company/community level. In the agreement sectors which are within the scope of ESD, the targets are set so that they are in line with the national ESD target.

The agreements scheme does not impose considerable penalties. By reference to the previous agreements, it is, however, mentioned that the state subsidy (e.g. energy audit subsidy or investment subsidy for energy efficiency measures) received by the company or community that has itself given or has received a notice of termination of the agreement may be reclaimed. That can be seen as a penalty.

Central tool to implement the ESD

Implementation of the Energy Efficiency Agreements and the reporting of the results are intended to play a central role in the national implementation of the Energy Services Directive and in attaining and monitoring the indicative nine per cent energy-saving target it sets for the period 2008–2016.

AGREEMENTS ARE FLEXIBLE TOOLS COMPARED TO THE REGULATIONS

The agreements in all sectors, except the Action Plan for energy-intensive industry not in the scope of ESD, are negotiated to fulfil the directive obligations and targets, but they are especially emphasised in the agreements for the municipal sector and also

in the Action Plan for the Energy Services, which are tailored to have the features made obligatory for the public and energy sectors.

Agreements are seen as a good and flexible tool to implement the ESD obligation as compared to regulations. For example, in the agreements related to the municipal sector there are more as well as more detailed obligations than what would be possible to legislate. Even so, there is room for a law concerning the public sector (concerning the state’s own actions and the municipalities outside the agreement scheme). Also in the energy sector, the ESD obligations are written into their Action Plan within the Energy Efficiency Agreement in Industries. Moreover, a law is on the way that mainly concerns the ESD obligations for the metering and informative billing of energy consumption.

In the Action Plan for Energy Services, obligations and targets for the companies joined are divided to enhance the efficiency of the customers’ end use of energy and, on the other hand, for the obligations and targets concerning the company’s own energy use. The companies will also report annually about the measures implemented for these both categories.

AGREEMENT SCHEME FOLLOWS THE TIME LINE OF THE ESD REPORTING

The agreement period 2008–2016 and the schedule, e.g. for the progress reporting and the evaluation of the agreements, is intended to take into account the time-line for ESD reporting in three-year intervals. The results of the evaluation of the agreements can, if necessary, be used to prepare the changes applying to the actions related to the end period of the agreements.

Companies’ and communities’ annual reporting to the Internet-based monitoring system for the agreement scheme with regard to the implemented energy efficiency measures proposed, e.g. in the energy audits or energy analyses, is essential

Energy efficiency improvement measures

General Energy consumption Continuous improvement Innovation ideas

Yleinen Energiatiedot Energiakatselmukset ja toimenpiteet Jatkuva parantaminen Innovaatioidut

Johtamisjärjestelmät ja tehostamissuunnitelma Energiankulutuksen seuranta Koulutus ja viestintä Suunnittelu ja hankinnat Logistiikka

Management systems and the action plan Energy consumption monitoring Training and communication Design and procurement Logistics

Management system

<input type="checkbox"/> ISO14001	Status	Certified	
<input type="checkbox"/> EMAS		<input type="checkbox"/>	Is energy efficiency integrated to the management system?
<input type="checkbox"/> ISO9001		<input type="checkbox"/>	Is Energy Efficiency System (EES) in use in the company?
<input type="checkbox"/> Not in use		<input type="checkbox"/>	Is the promotion of the renewables included in the management system?
<input type="checkbox"/> Other, what?		<input type="checkbox"/>	

The site's action plan to improve the energy efficiency

The action plan is completed (month+year)

The plan is updated within the follow up year

The responsibilities for the energy efficiency issues are appointed

Company level

Site level

Figure 3. An example of the reporting window for the site's annual reporting within the Energy Efficiency Agreement for medium-sized industry

when monitoring the attainment of the national energy-saving target of the Energy Services Directive.

Monitoring and reporting highly beneficial

NEW INTERNET-BASED MONITORING SYSTEM

In the previous agreement period 1997–2007, the monitoring system for the agreements under the responsibility of the Ministry of Employment and the Economy was based on an Access database. The annual reporting by the companies and the communities was organised in Excel formats sent by email. The annually reported data from the site level was then transferred electronically to the database from the Excel files returned.

For the new agreements, it was essential to develop the monitoring system so that it would be more flexible and easier to use, also because the number of reporters is expected to grow during the agreement period. The Internet-based system saves resources both in administration and on the companies/communities level, also enabling the generation of different kinds of feedback and summary data from the reported data for various agreement parties, such as companies, ministries and associations. The new Internet-based monitoring system fulfils today's needs and is also more flexible to modifications, if required, during the agreement period.

The data collected in the annual reporting is partly the same monitored already during the previous agreement period. On the other hand, the annual reporting data is now tailored for each agreement and action plan so that the annually collected data consists of those issues where there are targets or obligations set.

On the main level, the data collection in the annual reporting on the company/community level is divided into quite similar categories in all agreements:

- general issues (site name and contact information, name and contact information for the appointed person responsible of the energy efficiency agreement)
- energy consumption data
- energy efficiency improvement measures (the follow-up of the implementation of the implemented measures proposed in the energy audits and other measures which can also be reported)
- continuous improvement (divided in several subcategories such as management systems, etc., see Figure 3)
- innovation ideas
- feedback data (to be mainly developed further during 2009–2010)

In the new monitoring system, it is also possible to fill in the energy efficiency measures continuously during the year. This is a feature that the companies and the communities have been requesting for a long time. In the new system, they can report all measures immediately they have implemented them which will help the reporting. It is also expected that by integrating the control of energy consumption to companies' management systems, better information will also be gained for monitoring and the evaluation of results.

The feedback data is also an area that the companies and the communities have been requesting. In the beginning, there will be produced some limited feedback data concerning the energy consumption trends and the level of the achieved target (Figure 4). In the future, it will be possible to develop the feedback data further in accordance with the agreement parties' needs.

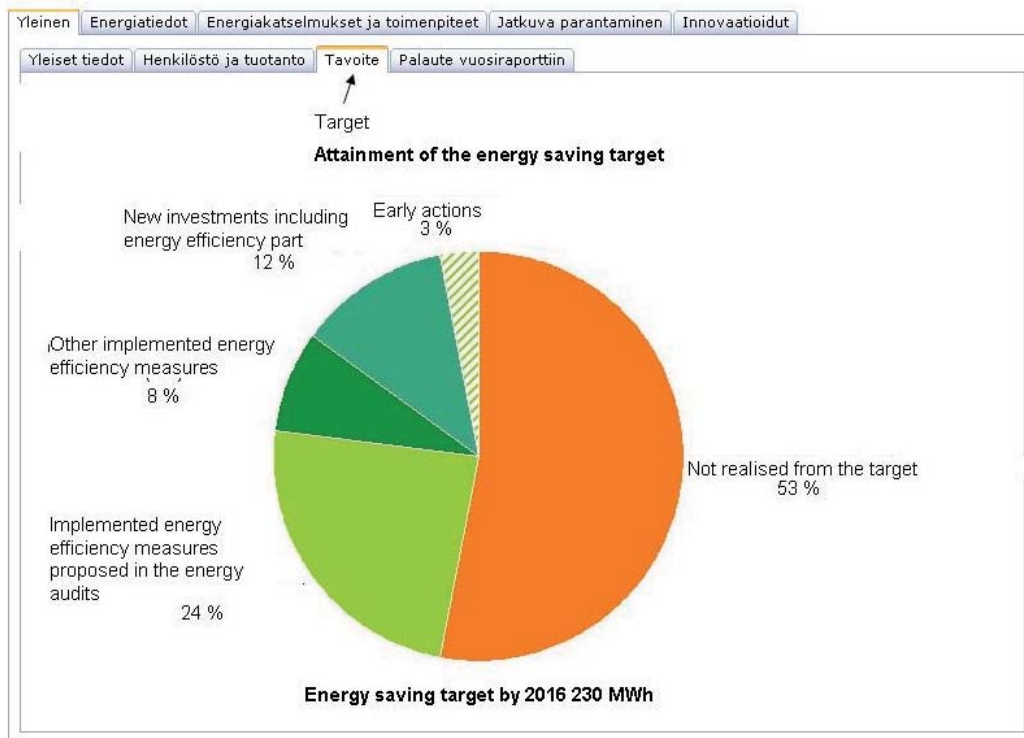


Figure 4. An example of the feedback data calculated from the reported data on site level concerning the level of achieved energy saving target

DEVELOPMENT OF THE NEW MONITORING SYSTEM

The three-year development project 2007–2009 for the new monitoring system specific to the agreements under the responsibility of the Ministry of Employment and the Economy began in autumn 2007, just before the agreements were signed. The development project budget is about 0.4 million Euro. The first reportage will occur in the beginning of 2009 on the year 2008. The possible and also obvious new features to be developed, e.g. according to the feedback from the reporters especially during the first couple of years, will after the first development period need additional resources.

Maintaining the system, data handling and analyses will naturally also need human resources every year. During the previous agreement period the resources for the monitoring and reporting purposes in addition to the other support for the companies and communities was about 2 person years.

Even monitoring and data processing always need resources: these are seen as the only way to determine the impacts of these programmes and, at the same time, they help us to fulfil the ESD needs for bottom-up monitoring and calculating the energy savings. According to the results achieved during the previous agreement period, the reported results may sound to be small in percentage terms, but their scale is impressive and impact remarkable.

Part of the national climate and energy strategies in past and in future

Energy Efficiency Agreements (Voluntary agreements) have been mentioned in all national energy policy and strategy documents since 1997, when the first broad agreement scheme was launched. Similarly, the energy audits, which are closely related

to the implementation of the agreements on the company and community level, have even been mentioned in these documents since 1992. Monitoring of the results for these policy measures has been crucial for the credibility and commitment potential of these two schemes.

Energy Audits and the Energy Efficiency Agreements also have a pivotal position in the new climate and energy strategy for Finland, which the Government approved and submitted to Parliament in November, 2008. Still, due to the ambitious targets in the strategy, new measures shall also be introduced in order to attain the objectives.

In preparing the new agreements, the results and ideas for further development gleaned from the overall evaluation of the previous agreements were taken into consideration as much as possible. The agreements have a large number of the features which were also in use during the previous agreements in 1997–2007, but now “fine-tuned” to some extent. For example, product development and procurement processes are linked to agreement schemes more effectively than before. According to the evaluation results also continuous improvement postulating strong management commitment to secure resources, expert assistance related to the agreements especially in non-energy-intensive industry, and the need for increased personal contacts in implementation, reporting and communications are in particular emphasised in the new agreements.

Totally new features in these agreements are the target setting for the coverage and the energy savings/energy efficiency improvement both in the agreements level and the company/community level. In the agreement sectors which are within the scope of ESD, the targets are set so that they are in line with the national ESD target.

For the new agreements, it was essential to develop a monitoring system that would be more flexible and easier to use. The Internet-based monitoring system fulfils these needs and enables the generation of different kinds of feedback and summary data from the reported data for various agreement parties, such as companies/communities, ministries and associations which was asked for according to the evaluation.

The new Energy Efficiency Agreement scheme is built up to be one effective tool, as it has also been during the previous agreement period, in order to attain the challenging climate and energy objectives set for Finland. With new elements in the broad agreement scheme, we count on the coverage of the agreements in various sectors and the energy efficiency acts being good enough to fulfill the expectations more flexibly than the regulations in these areas. The comprehensive monitoring of the scheme will reveal this in the future. Monitoring of the results achieved is also the way to ensure voluntary agreements to be one tool in the upcoming national energy policies and strategies.

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