Evaluation of the Local Energy Advice Programme in Sweden

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EVALUATION OF THE LOCAL ENERGY ADVICE PROGRAMME IN SWEDEN

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1 Characterization of the instrument

The Local Energy Advice Programme (LEAP) was introduced in 1998. The basic component of the programme is subsidies to municipalities to enable them to employ a Local Energy Adviser (LEA). The task of the LEA is to give objective advice about energy efficiency and renewable energy to households, local companies and local organisations. This advice is supposed to be a complement to energy advice from market actors and the aim is that it should contribute to an increased awareness about energy efficiency and renewable energy. This is then supposed to translate into actual investments by households, companies and organisations. The Swedish Energy Agency (SEA), who is managing the subsidies, also organise other activities to support the work of LEAs. Information material, training and networking are among these activities. The Regional Energy Agencies (REA) have a key role in co-ordinating the activities of LEAs in their region.

1.1 Targets, including relation to end use sector and relation to national Kyoto target

The goals of the LEAP are rather vague. In the decree regulating the LEAP, which contains the only formal goal formulation, it is only stated that municipalities should provide "locally and regionally adapted knowledge about energy use and about the conditions for changing energy use in buildings and houses." (SFS, 1997). In their task of administering and implementing the LEAP, the SEA has developed the following interpretation of the goal of the LEAP: "The goal of supporting municipal energy advice is to, through the municipalities, spread objective knowledge about environmentally friendly energy supply and more efficient energy use to the public and companies. The activity goal is to contribute to a cheap, safe, energy efficient and environmentally friendly energy supply, distribution and use." (Swedish Energy Agency, 2004b, p. 9).

There are no specific goals or targets connected to the LEAP considering for example number of households and other actors that should receive information, level of activity of energy advisers or amount of energy saved due to the information activities.

1.2 Period the policy instrument was active

The LEAP started in 1998. The first period was for five years and ended in 2002. The second period started in 2003 and will end in 2007. It is not known today (November 2005) if the policy instrument will continue after that. This will be decided in the next Energy Political Programme in 2006. This report evaluates the policy instrument between the years 1998 and 2004.

1.3 Actions, Specific technologies and/or energy efficiency measures

Actions

The LEAP consists of the following actions:

- *Subsidies to municipalities for employing an LEA.* Size of subsidies varies depending on the size of the municipality (for details see Ch. 3.1).
- *Support activities to LEAs organised by the SEA.* Production of information material, organisation of courses, organisation of annual conference (for details see Ch. 3.3)..
- *Support activities to LEAs organised by REAs.* Organisation of courses, organisation of network between LEAs (for details see Ch. 3.3).
- *Continuous monitoring and evaluation of the programme.* Annual survey to LEAs and the public about how well local energy advice is working (for details see Ch. 1.12).

Technologies/energy efficiency measures

Local energy advice is mainly given to households living in their own houses. The most common questions are about alternative technologies for heating, such as heat pumps, pellet and solar energy. Other measures that people have questions about are insulation in windows and energy efficient household appliances.

1.4 Target groups

The target groups of the LEAP are those individuals and organisations which are intended to receive local energy advice. In the decree regulating the subsidy the following target groups are mentioned (SFS, 1997):

- Households
- Local companies
- Local organisations

In practice the main target group of the LEAP has been households in detached single-family houses. Local companies and organisations have received comparably less attention in the programme. For this reason this evaluation focuses on local energy advice to households. It is stated that the local energy advice should not be directed towards specific households. This means that the energy advice should be

generally open to the public but that energy advisers should not themselves actively contact individuals or make home visits to people.

1.5 National context

Energy Policy

The LEAP was introduced as part of a wider energy policy programme from 1997. The central goals of the programme were secure supply of energy, internationally competitive prices, cost efficiency, energy efficiency and low environmental impact (SOU, 2003). The programme, which was allocated EUR 1000 million[1] was divided in two parts. EUR 620 million were allocated to policy measures for a long-term sustainable energy system. This consisted of grants to research and to the development and demonstration of new technologies (SOU, 2003). EUR 380 million were allocated to policy measures for the short term, over a five-year period (1998-2002). A central decision in the energy policy programme was that the two reactors in the Barsebäck nuclear power plant would be shut down by 2001 (in practice the second reactor was shut down in May 2005). The short term measures were thus designed to support the replacement of this electricity supply. The policy goals of the short-term programme were to:

- reduce electricity use in domestic heating through increased district heating
- increase the supply of electricity from renewable energy sources (by 1.5 TWh)
- increase knowledge of and stimulate interest in economically and environmentally motivated energy efficiency measures, with specific user groups and the general public (Swedish Government, 2004-12-16)

The bulk of the money went to the conversion from electricity to district heating for heating purposes and to support for increased introduction of renewable energy. Within the short term measures there was a third area with policy measures designed to support an efficient use of energy. This area was allocated EUR 50 million for the five-year period and, apart from support to LEAs, also included information, technology procurement and labelling. (SOU, 2003).

In Sweden, energy policy has traditionally focused on the supply side. Policy measures for a sustainable energy system have thus focused mostly on the development and diffusion of renewable energy technologies, while measures stimulating increased energy efficiency have received less attention, which can be seen in the energy programme from 1997. The LEAP is now part of the Energy Political Programme from 2002, which has similar policy goals. Still, supply side issues gain more attention and resources but energy efficiency is increasingly being regarded as an important policy area by the government and the SEA.

[1] All data on budget and costs has originally been given in Swedish crowns (SEK). For conversion to Euros a currency rate of EUR 1 = SEK 9 has been used.

History of Local Energy Advice

Swedish municipalities have a comparatively strong political autonomy and they have traditionally had an important role in energy issues. In the wake of the oil crisis in the 1970s the government introduced subsidies to municipalities for local advice to house-owners and landlords on issues of energy-saving (Swedish Government, 1996, Ch. 7.4.5). These subsidies existed between 1977 and 1986 and meant that almost all municipalities had some form of advice to house-owners and landlords. In 1986 the subsidies were taken away with the motivation that the municipalities themselves ought to be responsible for these activities and that they were best suited to decide if they were needed or not (Swedish Government, 1996, Ch. 7.4.5). The result was that many municipalities stopped there advice activities and in the mid 1990s only a few municipalities offered local energy advice. The LEAP that was introduced in 1997 does, however, not have so much in common with the previous subsidy scheme. The motivation behind the programme, its organisation as well as the intended target groups differ.

1.6 International context (optional, in case relevant)

Not relevant.

1.7 Market failures to overcome

The main market failure that the LEAP addresses is lack of information about energy efficient solutions and renewable energy technologies among households, small companies and local organisations.

1.8 Organisations, which are responsible for implementation and execution

The policy instrument is implemented entirely by public organisations. Three organisations, on the national, regional and local levels have been involved.

The Swedish Energy Agency

The Swedish Energy Agency (SEA) is a government agency responsible for the carrying out of energy policy. The SEA has been overall responsible for the LEAP. Its main tasks have been to:

- handle applications from municipalities for grants to employ energy advisers
- produce and distribute information material that energy advisers use
- organise courses and workshops in order to increase competence of energy advisers
- organise networking activities
- carry out monitoring and evaluation

Regional Energy Agencies

There are about ten Regional Energy Agencies (REA) in Sweden. Their task is to co-ordinate and support municipalities in energy issues, and specifically to contribute to measures in municipalities that aim at reaching a sustainable energy system. In the LEAP the tasks of the REAs are to:

- co-ordinate the work of local energy advice and create a regional network for the LEAs.
- give support to LEAs and organise education and information activities.

Municipalities

There are 290 municipalities in Sweden and all of them offer local energy advice. The role of the municipalities is to employ LEAs and give support to their work. Because of the relatively loose regulation of the programme municipalities have considerable freedom to choose how ambitious they want to be with the local energy advice.

Local Energy Advisers

The Local Energy Advisers (LEA) are the central actors in the programme. There are about 220 LEAs working in the 290 municipalities (some work for several municipalities). Most of the LEAs are men with a technical education.

1.9 Available budget

During the first five-year period from 1998 to 2002 the total budget for the LEAP was EUR 28 million. The budget only covered subsidies to municipalities of EUR 5.6 million per year (Swedish Government, 1996, Ch. 7.4.5).

For the second five-year period, 2003 to 2007, the total budget was raised to EUR 50 million (Swedish Government, 2001, Ch. 9.3). This means an annual budget of EUR 10 million. Of these, EUR 8.7 million goes to direct subsidies to municipalities each year. There is also an annual budget of EUR 1.3 million, which is used for information and competence raising activities and for supporting the REAs in their co-ordination of local energy advice.

The total budget of the LEAP between 1998 and 2004 is thus EUR 48 million.

1.10 Available information on initial expected effectiveness and cost-efficiency of the instrument

No expectations existed in terms of effectiveness and cost-efficiency.

1.11 Side effects

Not relevant.

1.12 Material

This evaluation is based primarily on the following material:
Existing survey studies. The SEA has carried out annual surveys in order to continuously monitor and evaluate the results of the programme. Two types of surveys have been made. The first one is directed to the LEAs with questions about how the energy advice is organised and carried out, the educational level of LEAs, how LEAs perceive the interest in and effects of the advice, how LEAs perceive the support from the SEA and the REAs. This survey has been carried out five times for the years 1999-2002 and 2004. The other survey is directed to the public with questions about their awareness of and attitudes to LEAs, and about whether they use the services of LEAs. Two surveys have been made for the years 2003 and 2004. In the second survey, questions about whether services of LEAs influenced investment decision, were also included. Another survey has also recently been made on how local energy advice works in the Stockholm region (Energirådgivningen, 2005).The national surveys have been commissioned by the SEA and are thus not independent evaluations of the programme, which should be taken into account when interpreting the results. The results from the surveys to the public should be interpreted with caution since only two surveys exist. Notwithstanding these remarks, the survey results are the only quantitative data about the effects of the programme, and they are considered to provide a fairly good indication of results.

Interviews. Interviews have been carried out with staff at the SEA and REAs. The interviews have primarily focused on identifying success and failure factors in the different steps of the policy theory.

2 Policy theory

2.1 Cause-impact relations, indicators and success and failure factors

The general principle behind the policy theory for the LEAP is straight forward: *Subsidies enable municipalities to employ municipal energy advisers, who give advice to the public on energy efficiency and renewable energy. This advice leads to an increased knowledge among the public, which in turn leads to more measures to increase energy efficiency and the use of renewable energy.*

Even so, there are several steps in the policy theory that have to be achieved successfully in order to reach the final goal of increased energy efficiency and energy saving. In Figure 2, the main steps in the policy theory are presented together with the indicators to measure whether the steps have been successful or not. The most important success and failure factors are also listed. Below follows a short discussion on each of the steps in the policy theory.

1. The main policy tool of the LEAP is subsidies to municipalities so that they can employ Local Energy Advisers (LEA). The Swedish Energy Agency (SEA) administers the subsidies. The size of the subsidy depends on the size of the municipality.
2. To ensure a well-functioning and effective local energy advice it is not enough that municipalities merely use the subsidies to employ LEAs. The municipalities have a key role in creating good working conditions for the LEAs by providing their own financing and supporting the LEAs in other ways.
3. Even though the subsidy is the main tool of the programme, other measures are used in order to increase the quality of local energy advice. Production and distribution of information material, the organisation of training activities and networking are the most important supporting measures used by the SEA. The Regional Energy Agencies (REA) also have an important role in supporting and co-ordinating LEAs that work in the same region. They also act as a link between the SEA and the LEAs.
4. The first step in the process of starting local energy advice is that the target groups (households, local companies, local organisations) have to become aware of the LEA and that there exists something called local energy advice. This can be achieved by active promotion activities. As time goes by local energy advice can also become a service that is widely known among local citizens.

5. The central feature of the programme is the actual advice that is given by LEAs to the target groups. The main target group is individuals living in single family houses, and the main form of advice is telephone calls. The quality and relevance of the advice given by LEAs is of central importance to the success of the programme.
6. The advice from LEAs is intended to lead to an increased knowledge among households and other target groups about energy efficiency measures and renewable energy, which they can use when they make decisions that affect their energy use.
7. The last step in the policy theory is when households and other target groups take the step from increased knowledge to actually carrying out measure and investments that lead to an increased energy efficiency or an increased use of renewable energy. This step is crucial for the success of the programme. Even if all other steps work well the programme would be a failure if this step fails.

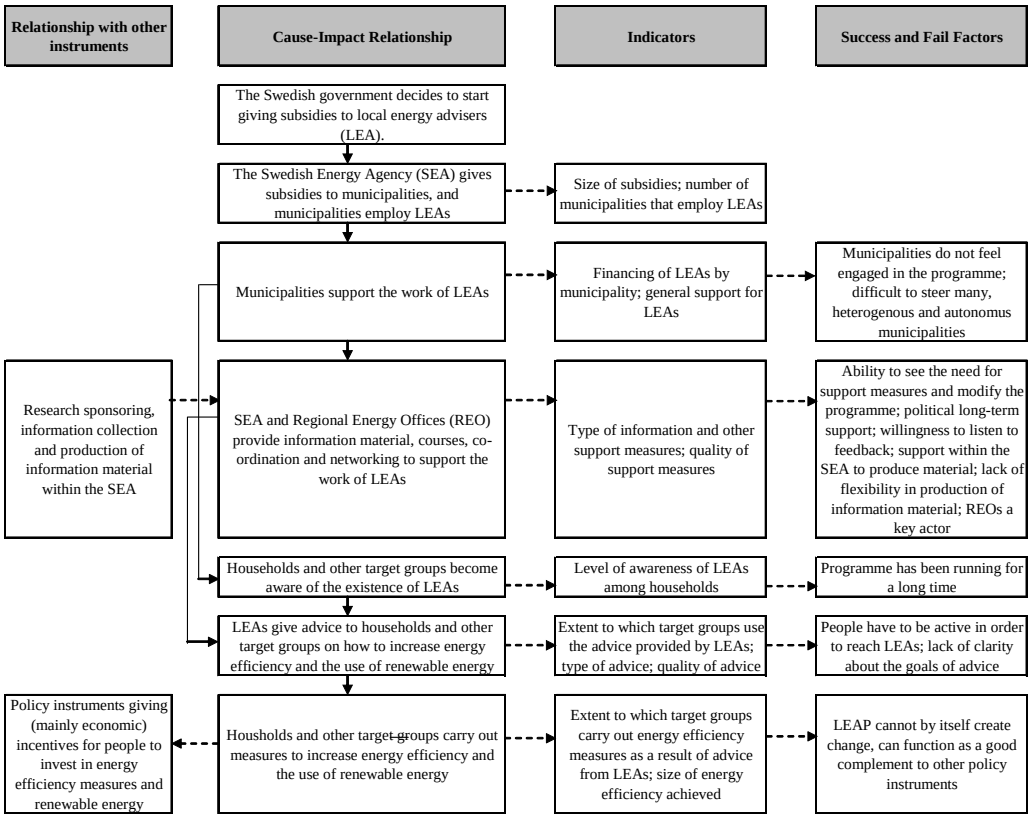

Figure 1 Overall picture of assumed functioning of the Local Energy Advice Programme: cause-impact relations, indicators, success and failure factors and interactions with other instruments

2.2 Interaction with other policies

The LEAP is primarily related to two types of policies/activities:

- *Research and information collection.* The fact that the SEA sponsors research on energy efficiency and renewable energy technologies is important for the possibilities to provide high quality information material to LEAs, which they can use when giving advice to households and other target groups. The staff at the SEA responsible for the LEAP have close contacts with staff at other departments within the SEA. The collection of information and production of information material that is used in the local energy advice, is actually often carried out by departments at the SEA, who are not directly involved in the LEAP.

- *Policy instruments aimed at giving incentives to people to increase energy efficiency and use renewable energy.* An important role of the LEAP is that it functions as a support to other, mainly economic, policy instruments, such as subsidies, taxes, tax rebates and labelling. On its own the LEAP has limited possibilities to change people's behaviour. But it can have an important function when LEAs give information to people about the existence of other policy instruments and assist people in analysing whether investing in more efficient technologies would be beneficial for them. Examples of economic policy instruments directed to households are (i) subsidies for the installation of solar heating, (ii) subsidies for conversion from heating by electricity or oil to bioenergy, solar heating or heat pump and (iii) tax reduction for house owners who install energy efficient windows or bioenergy heating.

3 Evaluation

3.1 Subsidies and employment of LEAs

All municipalities receive an annual grant of EUR 28,000. Depending on the size of the municipality they also receive an extra grant of between EUR 4,000 and 17,000 Euros. In relation to the number of citizens, smaller municipalities receive a more generous grant than larger ones. The grant is dimensioned to cover at least a half time employment of an LEA. The budget allocated to subsidies (EUR 8.7 million per year) is dimensioned so that it covers subsidies to all municipalities in Sweden.

Today (2005), all municipalities in Sweden have an LEA. Most LEAs work in one municipality only, but some smaller municipalities share an LEA. When the subsidies to LEAs started in 1998, there was a rapid increase in the number of municipalities applying for subsidies, and is has not been a problem to convince municipalities to employ LEAs. The size of the subsidies has thus been a strong enough incentive.

3.2 Municipal support to LEAs

Municipalities have a key role in the programme. They are the ones who employ LEAs and provide them with a working environment. The extent to which LEAs can do a good job depends a lot on the engagement of the municipality and on the type of support they get from municipalities.

Municipal support can be measured by the extent to which municipalities contribute to the financing of local energy advise. In general, the municipalities contribute relatively little of their own money to local energy advice. In 2004, 84 % contributed less than EUR 6,000 (the number in 2002 was 71 %) (Swedish Energy Agency, 2005b). This means that the work of the LEAs is heavily dependant on government subsidies. This outcome does not correspond with the expectations of policy makers, which has been to encourage municipalities to invest their own money in municipal energy advice (Lundqvist, 2005-08-18). Low financial commitment of municipalities obviously means that the total resources devoted to local energy advice are lower than they could be. It also creates concerns about the long term commitment of municipalities to local energy advice, if the government subsidy scheme would end.

Municipal financing is closely connected to the question of how much time LEAs devote to local energy advice. The grant from the SEA is designed to cover a half

time post for an LEA. In a survey to LEAs, it was found that 32 % of the LEAs devote 10 hours or less per week to energy advice. 51 % devote a half time post (20 hours /week) (Swedish Energy Agency, 2005b). Only 8 % devote a full-time post (40 hours/week). It should, however, be noted that the full-time posts are more common in the large municipalities, where the workload is also larger.

Municipal support also has to do with more soft issues concerning e.g. the status of local energy advice, the importance it receives from political leaders, the extent to which municipalities market local energy advice to its citizens. It has not been possible to collect quantitative data on these questions but interviews have shown that there seems to be a great variation between municipalities (Lundqvist, 2005-08-18; Claesson, 2005-08-18).

An important observation is that there are very big differences between municipalities, in terms of their own financing of LEAs, the time spent on energy advice by LEAs as well as the general support they give to LEAs. While some municipalities take energy advice very seriously others seem to see the subsidies mainly as a way to get some extra money from the government. Most municipalities probably lie in between, seeing local energy advice as something positive but not being willing or able to engage in it actively.

Success and failure factors

Municipalities are at the same time the greatest asset and the most difficult challenge of the programme. On the one hand, there are a lot of advantages with having LEAs working on the municipal level. It creates a natural link to the local population. Within the municipal administration there is a lot of knowledge about local conditions and networks with local actors, which the LEA can take advantage of. Furthermore, in Sweden there is a strong tradition of municipalities being responsible for carrying out public services to citizens. On the other hand, it is very difficult to steer and monitor a programme that involves 290 heterogeneous municipalities which have different opinions and ambitions and considerable autonomy.

One possible reason for the difficulties of engaging municipalities actively in the LEAP is that the SEA has not succeeded in making municipalities feel that they are the “owners” of the programme (Lundqvist, 2005-08-18). Instead it is viewed by many municipalities as a government programme, were the only role of the municipality is to employ the LEA and give him/her a desk, not to see to it in other ways that the energy advice becomes successful and effective. In general, the municipalities who have a well-working local energy advice are those who themselves see it as something important and useful. These municipalities also tend to have an active policy on energy and environmental issues in general.

Another issue concerns the possibilities for the SEA to put requirements and demands on the municipalities. The way the programme is constructed, these possi-

bilities are imitated. As long as municipalities follow minimum requirements (paying wages to LEA and reporting activities) they get the subsidies. There are no demands that they have to take the programme seriously or actively support the LEA. One advantage of having a lax control system is that it gives municipalities freedom to shape local energy advice as they find it most suitable. It has probably also contributed to the fact that all municipalities have an LEA today. The disadvantage is that local energy advice can become only symbolic in some municipalities. Some argue that it is better to have a more strict control even if this would mean that some municipalities decide not to have local energy advice (Claesson, 2005-08-18).

3.3 Information material, training and networking

Concerning information, training and networking provided by the SEA, there is a striking difference between the first (1998-2002) and second (2003-2007) periods of the programme. In the first period the programme mainly consisted of subsidies to municipalities and there was practically no other support from the SEA to LEAs. LEAs comment that the administrators at the SEA were rather invisible during this period and that they seemed uninterested in the work of LEAs. This was also reflected in the budget of the programme which had no post for information activities. In the second period the programme has been strengthened considerably with more money to subsidies as well as a separate budget for information and training. There was also a reorganisation of the SEA with new personnel responsible for the programme. From 2003 and forward the information and other support activities have been carried out in a much more ambitious way.

The SEA today supports the work of the LEAs in the following ways (Lundqvist, 2005-11-18):

- Information material in the form of brochures about specific technologies or issues (heat pumps, windows, solar panels) which are directed to households and other target groups.
- Courses. SEA offers a basic introductory course for LEAs that started in 2005 as well as courses on specific topics, e.g. specific technologies or communication skills.
- Annual conference where all LEAs meet and discuss topics related to energy advice.

The response from LEAs to the support activities of the SEA are fairly positive. A vast majority of the LEAs find that the information material is important for their work (Swedish Energy Agency, 2005b). The main complaint is that more information material is needed on some topics and that the material is sometimes not updated quickly enough. The LEAs are satisfied with the annual conference, which has increased contacts between LEAs and facilitated the dialogue with the SEA. In the surveys there is no information about perceptions of the courses offered by the

SEA. Interviews with REAs and LEAs indicate that LEAs are satisfied with the courses that exist, but that there is a need for more courses.

The Regional Energy Agencies (REA) have come to have a key role in the programme. Their main tasks have been to offer courses to LEAs and to create a network between LEAs in their region. The work of the REAs is very much appreciated by LEAs (Swedish Energy Agency, 2005b). Especially the networking activities are seen as important since it gives LEAs, who can be quite isolated in their municipalities, the possibility to discuss issues and problems with colleagues that do the same thing. The learning effects between LEAs are strengthened by the fact that they have quite different professional backgrounds and competences. The contacts within the network – and with the REA in general – are often informal and non-hierarchic, which is a difference compared to the contacts with the SEA (Claesson, 2005-08-1; Linné, 2005-11-21).

Success and failure factors

From being one of the weak spots of the programme, information and training activities are now on a good level, even if improvements can be made. Important factors behind this change have been political commitment, a willingness to modify the programme and a willingness to listen to feedback from the LEAs. Even though the first period of the programme was not regarded as successful, politicians were prepared to increase the support for the programme and extend it to including also information and training activities. The programme administrators made major changes in the programme, something which was probably facilitated by the changing of staff in the SEA. Feedback has been institutionalised in the form annual surveys to LEAs, were they can give comments about the support activities of the SEA and REAs, and about what they think is important.

One factor that has helped to ensure that the information material is of good quality is that the staff administrating the programme have been able to use the knowledge and competence of other departments in the SEA (Lundqvist, 2005-08-18). The fact that the SEA sponsors research on energy technologies has meant that new and qualified information has been readily available. This has, however, also meant that there has not been so much flexibility in the production of new information material. It depends not only on the perceived need of LEAs but also on what kind of information that is actually available within the SEA. Another aspect of the lack of flexibility is that the feedback from LEAs is organised by the SEA in a formal procedure. It is less easy for LEAs to have a continuous informal dialogue with the SEA about their need for information and training (Blumenberg, 2005-11-24). In the second period of the programme, lack of financial resources has not been a problem for the production of information material and the organisation of courses. However, lack of time for the staff at the SEA has been a limiting factor, meaning that they have not been able to organise all activities that they would like to (Lundqvist, 2005-08-18).

The existence of REAs has been very important for LEAs, both in terms of support and networking. It should be pointed out that the REAs originally did not have any role in the programme, they were not identified by the policy makers as an important actor (Lundqvist, 2005-08-18). The first REAs were founded in the mid 1990s, as a part of a European programme, and worked with energy issues in general. However, when the LEAP started some REAs began to support local energy advice in municipalities seeing this as an important task for them. The SEA soon realised that the REAs had an important role to play and started to encourage all REAs to support local energy advice as well as giving them financial support to do so (Lundqvist, 2005-08-18). This example shows, first, that not all success factors of a programme can be planned in advance and, second, that it is important that programme administrators – like in this case – take advantage of opportunities that emerge in order to strengthen the programme.

3.4 Competence of LEAs

In 2004, 60 % of the LEAs had a university education, which is an increase compared to 1999 when the figure was 50 % (Swedish Energy Agency, 2005b). The rest of the LEAs have a Swedish "gymnaisum" education (equivalent to sixth form of a grammar school). A clear majority of the LEAs have a technical education. Occupational experiences vary a lot, the most common being within the building sector, health and environment, project leadership and Agenda 21.

In 2004, 71 % of the LEAs answered that they felt the need for more education and training in order to manage the tasks that an LEA has to deal with (Swedish Energy Agency, 2005b). General courses as well as courses on specific topics were requested. These figures suggest that LEAs do not have enough competence to do a good job. However, the question in the survey focused on the need for more education and not on whether the LEA perceived that he/she had sufficient competence to work as an LEA. At the same time, interviews with REAs and LEAs, indicate that many LEAs in general feel that they have enough competence and knowledge to answer the questions posed by the public (Blumenberg, 2005-11-23; Linné, 2005-11-21, Wiklund, 2005-11-21, Lundberg, 2005-11-21). A tentative conclusion is that LEAs have a fairly good level of competence but that more courses and other activities would be needed to make this aspect of the programme successful.

Success and failure factors

The educational level of LEAs has increased as the programme has matured. One explanation for this can be that it is now more attractive to work as an LEA than in the beginning of the programme. Local energy advice has become an established service in many municipalities and the status of the job has increased. Still, however, many LEAs work on a project basis or have other tasks as their main activity. The passing of time also means that LEAs have been working for a longer time and have gained field experience. In Skåne, a region that has been active in local energy

advice, the staff at the REA, described the development as an increased professionalisation of the LEAs and a more serious attitude to local energy advice (Linné, 2005-11-21).

3.5 Awareness of LEAs among target groups

In the surveys to the public, from 2003 and 2004, there were questions about people's awareness of LEAs in their municipality. In 2004, 38 % of the respondents in the survey answered that they know that their municipality offers local energy advice (Swedish Energy Agency, 2005a). This was a small increase compared to the year before when 32 % answered yes (ibid). In 2004, 24 % answered that they would consult the LEA if they wanted advice about the energy use in their home. In 2003 this number was 16 % (Swedish Energy Agency, 2004a). The most common ways to become aware of LEAs were articles/ads in the local newspaper and information by mail. Other channels were information from neighbours/friends and the internet homepage of the municipality.

It is not easy to evaluate whether the numbers above should be seen as a success or a failure. There were no prior expectations or goals about the results and that there are no similar programmes to compare with. However, the staff at the SEA are fairly happy with the results. Especially the response that 15-25 % say they will use the services of LEAs if they need advice is positive (Swedish Energy Agency, 2005a).

Success and failure factors

The most important factor for public awareness of LEAs is that the programme has been going on for a long time. There have not been any big centrally planned information campaigns in the LEAP. The municipalities have themselves decided how and how much to market LEAs to the local public. As with other aspects of the programme it can be assumed that these activities vary a lot between municipalities.

3.6 Advice from LEAs to target groups

The advice from LEAs to the public can be evaluated regarding several different aspects. Here the focus will be on how many people that use the advice, how the advice is given, the content of the advice and the quality and relevance of the advice.

The survey results show that, in 2004, 3 % of the respondents had received personal energy advice from the municipality (Swedish Energy Agency, 2005a). In 2003, the figure was 4 % (Swedish Energy Agency, 2004a). As for the results regarding awareness, it is not easy to determine whether these results should be viewed as positive or negative. However, 3-4 % seems to be a quite low number, especially considering that over one third are aware of LEAs and 15-25 % say they are pre-

pared to use their services[2]. One staff at the SEA express that he "had expected that more people would use the LEA than what is actually the case" (Lundqvist, 2005-08-18).

Telephone advice, where people themselves contact the LEA, is by far the most common form for LEAs to give advice to the public. 42 % of the LEAs use 40 % or more of their time for telephone advice (Swedish Energy Agency, 2005b). Other ways of giving advice is to arrange seminars and meetings, participate in fairs and conferences and to put information on the internet website. The most common topic that people ask questions about is on options for heating in their houses, with questions on specific technologies such as heat pumps, pellet and district heating (Swedish Energy Agency, 2005b). Other common topics are the availability of subsidies, general advice for energy saving and the changing of electricity supplier (ibid).

The advice given by LEAs is intended to be a mix between general information and tailor-made advice for each person calling. They present different options that are available for the household depending on their specific situation and discuss their pros and cons. They do, however, not recommend one specific alternative or even less a supplier or a brand. They can assist with general economic calculations of costs but do not calculate the exact costs of the specific case. The advice is thus aimed to complement and not replace advice from energy companies and other professionals.

No national survey has been made regarding people's perceptions of the quality and relevance of local energy advice. In one region (Stockholm) such a study was, however, made in 2005. 70 people who had been given telephone advice were contacted one month later and were asked to comment, among other things, on the quality of the advice (Energirådgivningen, 2005). 80 % answered that they were very satisfied with the energy advice. Over 80 % answered that they thought that the LEA had good knowledge and that he/she took the question seriously (ibid). Though the study only gives a limited insight into local energy advice in one region of Sweden, it shows that the advice of LEAs can be of good quality and relevant to those who get it.

Success and failure factors

A crucial question is why more people do not use the service of local energy advice even though they know about it and are prepared to use it. One answer could be that only a limited number of people actually have the need for energy advice. Another factor could, however, be that it is not so easy for people to come in contact with

[2] It is not known to what extent there is an overlap between the people asking for advice in the surveys from 2003 and 2004, i.e. whether the same people ask for advice several times. If there would be no overlap the programme would have reached 24-32% (3*8 or 4*8) of the population in its 8 years of existence. However, most probably there is some overlap.

the LEA in order to receive advice. The fact that telephone calls is the most common form of advice means that people have to be active themselves in order to receive advice. There is therefore a risk that people, who would benefit from advice and who would be possible to influence, will not be reached. The SEA has acknowledged this and are encouraging LEAs to work more with other types of activities, such as meetings with community groups and networking with electricians and other professionals that have an influence on household decisions regarding energy investments. (Lundqvist, 2005-08-18).

One thing that can create confusion for LEAs when they give advice is what the aim of the advice should be. LEAs perceive that there are two main aims (Blumenberg, 2005-11-23; Linné, 2005-11-21). The first is to provide objective information to people about which choices are the best for them when considering changes in their energy use. The most important question for people tend to be economy, to find the cheapest option. The second aim is to contribute to a sustainable energy system, thus promoting energy efficiency and renewable alternatives. Often these two aims can go hand in hand (e.g. when energy efficiency measures pay off in an economic sense or when a renewable heating option is the most economic) but it has an important bearing on the type of advice which aim to prioritise. Many LEAs feel that the SEA should be clearer about what should be the guiding star for LEAs (Blumenberg, 2005-11-23; Claesson, 2005-08-18). Should they always promote sustainable options or is the most important task to give objective advice to the public? As it is today it is up to the individual LEAs to decide what is most important, and these priorities differ between LEAs. On the other hand, there is a positive side to the vagueness from the SEA, since it means that LEAs and municipalities themselves can define what they think is most important.

3.7 Energy efficiency measures carried out by target groups

The carrying out of energy efficiency measures is of course a crucial step in the policy theory. Even if all other parts of the programme function perfectly this does not amount to much if no energy efficiency measures are actually carried out. At the same time, this is a step that is very difficult to measure when it comes to a programme like the LEAP. First, the fact that it is a purely informative policy instrument means that it would be difficult to determine which changes in people's investments were actually a result of the advice from LEAs. Second, the LEAP covers 290 municipalities and information to hundreds of thousands of people which would make it very difficult to monitor. Third, there are tight links with other (mainly economic) policy instruments, such as subsidies, taxes and tax relieves, and it would be very difficult to determine how big role the LEAP have in people's decisions compared to other policy instruments.

In the LEAP, no attempts have been made by the SEA to measure the impact of the programme in terms of the size of energy efficiency measures carried out or the amount of energy that has been saved. It could be seen as a weakness of the programme that no such attempts have been made. Even if it would have been hard to get reliable data, it would have been possible to make some estimations of the results of the programme if this type of monitoring had been established at the outset of the programme. The motivations not to do this are that it would have been too costly, that the LEAP should be primarily viewed as a support to other (economic) policy instruments and that there are other important aims of the LEAP apart from increasing energy efficiency and renewable energy (i.e. to offer the service of objective energy advice to the public) (Lundqvist, 2005-08-18). It has not been regarded as feasible to make new original measurements of the net impacts of the programme within the scope of this study.

The closest to data about net impacts of the programme are questions in the 2004 survey to the public about whether they had done purchases or investments in order to save energy. The results show that about one third of the respondents had done or were planning to do such purchases/investments (26 % had done it during the past year while 10 % were planning to do so) (Swedish Energy Agency, 2005a). The results also show that 5 % of all respondents answered that they had been influenced by information from the LEAs in their decision to do or plan purchases/investments to save energy (ibid). According to the authors of the report, an aggregation of the results would mean that, in 2003, about 100,000 households in Sweden have been influenced by LEAs in their decision to save energy (ibid). A crucial weakness with this information is that it does not say anything about the size of the energy savings from the purchases/investments. It could be anything from buying an efficient light bulb to changing the entire heating system of the house. In the survey in the Stockholm region, 11 % of the respondents answered that they had carried out measures while 81 % said they were planning to do so (Energirådgivningen, 2005). The interview was made one month after the telephone advice had been given which explains why so few measure had been actually carried out. It can also be expected that not all of those who said they would carry out measures will actually do so.

When comparing the above results with the results about how many people that have received advice services of LEAs (3 % in 2004) it appears that basically all people who get advice from LEAs are influenced by this advice. If this is true, it would definitely be a high grade for the effectiveness of the advice from LEAs. However, this conclusion should be viewed with care since it comes from bringing together the answers of two different questions[3]. In any case the results indicate that those who actually get advice from LEAs also use this advice actively. The study

[3] Reading it literally would in fact mean that more people are influenced by the advice (5 %) than the people that have actually used advice (3 %). This could be explained by the fact that 6 % answered that they were uncertain whether they had got information or not.

from Stockholm supports these results. Here, 34 % of the respondents answered that the contact with the LEA had a strong influence on their decision, while 41 % said it had influenced to some extent (Energirådgivningen, 2005).

Success and failure factors

Because of the lack of information about the actual outcome of the programme in terms of energy saved, it is not possible here to relate success and failure factors to specific indicators. However, from the interviews some comments can be made about the conditions that are important for this policy instrument to contribute to energy saving measures in households.

First of all it is crucial to realise that local energy advice on its own has very limited possibilities to create changes and make people act to carry out energy efficiency measures. Experience from LEAs as well as earlier studies have clearly shown that people are overwhelmingly motivated by economic considerations when they make decisions about energy use in their houses (Blumenberg, 2005-11-24; Linné, 2005-11-21; Swedish Energy Agency, 2004c). Cheaper options are preferred over more costly ones. Environmental considerations play the most important role only for a minority. For the majority, environmental benefits is a plus and can be decisive only if costs between options are similar. Here, other factors such as comfort, habit and influence from friends and neighbours can also carry weight. Local energy advice can, in this perspective, do very little to change people's attitudes and behaviours in a more environmentally friendly direction.

The above discussion means that there have to be other policy instruments which give incentives to people to carry out energy efficiency measures or invest in renewable energy sources, by making these alternatives economically competitive. Such instruments can be subsidies for energy efficient and renewable technologies, taxes on traditional technologies, grants for carrying out energy saving measures and research and demonstration to bring down cost of new technologies. The principal role of LEAs will then be to provide people with the information that energy efficient technologies are a viable alternative due to the existence of other policy instruments. In other words, LEAs can help do bring down transaction costs for households since they get help in finding information and calculating which options are suitable for them.

From the interviews it is clear that this is exactly the way policy makers have intended that the LEAP should function, as a support to other policy instruments (Lundqvist, 2005-08-18). The information gathered in this evaluation suggests that this is also the way it does function in practice. However, it has not been possible to determine how effective the LEAP has been as a support to other policy instruments.

3.8 Net impact

No monitoring has been made about the impact of the LEA in terms of energy saving. The only information about impacts comes from the survey to households that was conducted in 2004. There it was found that in 2003, around 100,000 households had made, or planned to do, investments in energy saving, and that this decision had been influenced by advice from an LEA (see further Ch. 3.7).

3.9 Effectiveness

The effectiveness of the policy instrument cannot be determined in quantitative terms since there are neither quantitative targets nor any data about net impacts. In qualitative terms some tentative comments can be made about effectiveness. First, the advice reaches primarily those people who are already thinking about making investments since people have to actively call the LEA to get advice. While this means that many people are not reached it can also increase the effectiveness of the instrument since it is more easy to influence people who are already positive to energy efficiency and renewable energy. Second, there is the question of whether those who make investments would have made the same decision or not without advice. Here it is very difficult to give an answer. Third, the effectiveness of the instrument depends a lot on its interaction with economic policy instruments that give households incentives to make investments, As stated earlier, the instrument has functioned as a support to another instruments but its effectiveness in this regard has not been possible to determine.

3.10 Cost efficiency

No data is available to properly determine cost efficiency. In the following sections some comments about cost efficiency are made.

3.10.1 Society

No data available.

3.10.2 Government

The total budget for the LEAP between 1998 and 2004 was EUR 48 million. The average annual budget was thus EUR 8 million. Assuming that in one year 100,000 households are influenced by LEAs to invest in energy efficiency or renewable energy, this means that on an average the cost of influencing one household is (8,000,000/100,000) EUR 80. It should be noted, however, that the assumption of 100,000 households is very uncertain and probably too high, since the information comes from a survey that was made in the later period of the programme, while in the earlier years fewer households were given advice.

3.10.3 Other organisation

Some municipalities have a budget for financing local energy advice that goes beyond the subsidies given by the government and thus incur additional costs. No certain data is available on the size of these additional costs for municipalities but based on the survey to LEAs it can be estimated that for 2004 they were in the range of EUR 0.5-1.3 million (Swedish Energy Agency, 2005a).[4]

3.10.4 End-user

The end-users of the policy instrument are the households who make investments in energy efficiency. No attempts have been made to measure the costs for their investments.

[4] Note that compared to the previous survey for 2002, additional financing by municipalities had decreased.

4 Conclusions

4.1 Net impact, effectiveness and cost efficiency

It is not possible to reach any quantitative conclusions about the success or failure of the programme regarding net impact, effectiveness and cost efficiency, since data on these outcomes do not exist. Furthermore, the programme did not have any targets regarding these aspects.

When it comes to softer and qualitative aspects the results are mixed and it can be debated whether the programme is successful or not. On the positive side the following outcomes can be brought forward:

- Local energy advice has been established in all municipalities in Sweden and some municipalities work very actively with local energy advice and see it as an integrated part of their energy policy.
- The Local Energy Advisers (LEA) are relatively well known to the public.
- LEAs today receive good support from the Swedish Energy Agency and Regional Energy Agencies, in the form of information material, courses and co-ordination. In many regions networks between LEAs have been established which are helpful for individual LEAs.
- Those households who use the service of LEAs are satisfied and seem to be influenced by the advice when they make decisions about investments and about their energy use.
- The LEAP functions well in its role as a complement to other policy tool, such as subsidies, tax reductions and labelling programmes.

On the negative side the following comments can be made:

- There are big differences regarding the commitment of municipalities. The general picture is that municipalities do not give much support to LEAs, neither in financial terms nor in other types of support. While this makes the job of LEAs more difficult it also casts some doubts on the long-term sustainability of local energy advice.
- LEAs feel that they need more education and training in order to be able to carry out the tasks that are required by an LEA.
- Not very many people actually use the service of LEAs.
- The net impacts of the programme are uncertain.

4.2 Success factors

There are many factors which have influenced the outcome of each of the different steps in the policy theory. In these conclusions factors of general importance will be highlighted.

Consistent support from politicians. At the end of the first phase a decision had to be made whether to continue the programme or terminate it. Evaluations showed that concrete results could not be confirmed and there was a clear risk that the programme would end (Lundqvist, 2005-08-18). However, the political reaction was, not only to approve a second phase, but also to increase the budget of the programme so that the level subsidies were increased and, importantly, so that resources were made available for support activities. Such political support to a programme that is not initially successful is rather rare. Though an analysis of the political discussions have been beyond the scope of this study, it seems that politicians have focused on the potentials of the programme and on the things that had been successful (e.g. that a majority of municipalities had LEAs), taking measures to correct those things that had been lacking.

Readiness to make modifications and listen to stakeholders. When the second phase of the programme started, programme managers showed a marked willingness to modify and improve the programme. An important factor for this was probably that new staff had become responsible for the programme, due to reorganisations within the SEA, and that the staff leadership viewed the LEAP as an important programme. The main lesson that had been learnt was that subsidies were not enough, but that other measures were necessary to support the job of LEAs and assure a good quality of the energy advice. Another important change was an increased willingness to listen to, and actively collect, feedback from stakeholders, mainly the LEAs themselves, but also the general public.

Regional energy agencies an important actor at the intermediate level. The REAs have played an important role as a link between the SEA at the central level and individual LEAs in the municipalities. The REAs have given support to LEAs and provided possibilities for networking between LEAs in the same region. As discussed earlier the REAs were not originally intended to have an important role in the programme but staff at the SEA were quick to take advantage of, and develop, the potentials of the REAs.

Support to other policy instruments. A main function of the LEAP, when it comes to promoting energy efficiency, has been as a supporting instrument to economic policy instruments, which aim to give incentives to households to invest in energy efficiency and renewable energy. An important part of the advice given by LEAs thus concern information about available subsidy schemes.

4.3 Fail factors

Programme started without a clear vision and plan. When the LEAP was introduced in 1998, it had not been preceded by much analysis or development work. What existed was the general idea that municipalities should offer energy advice to the public and that the aim of this was to support an increased energy efficiency and use of renewable energy among households and other target groups. The programme basically only consisted of subsidies to municipalities and the idea was that municipalities would take main responsibility for local energy advice.

Low priority of LEAP within the Swedish Energy Agency in the initial phase. In the first phase of the LEAP (1998-2002) the SEA was fairly inactive regarding dialogue with municipalities and support to, and education, for LEAs. An important reason for this was that staff at the SEA did not feel that the LEAP had a high priority since there where no clear visions from politicians. Many LEAs felt that there was no real engagement from the staff at the SEA. From 2003, there has been a marked change in the attitude of the SEA, which can be explained by a changing of staff that are responsible for the programme and the introduction of resources to support activities.

Difficulties to co-ordinate and steer municipalities. One factor that has created complications for the LEAP is that municipalities are the main organisations responsible for its implementation. On the one hand, it is ideal that municipalities are in charge since this facilitates a good local connection. On the other hand, involving 290 municipalities of different size, capacity and motivation brings with it great challenges for management and steering. Though many municipalities are ambitious, the programme has in general not sufficiently managed to convince municipalities to take the level of responsibility that is required. Furthermore, even if a municipality is engaged, the LEA can become quite isolated since no one else in the municipality does the same tasks. However, the shortcomings of municipal support has to some extent been countered be the involvement of REAs in the programme.

Lack of incentives for LEAs to reach many households with advice. The evaluation shows that relatively few people have been reached by the advice given by LEAs. On the whole, LEAs have not been given proper incentives to actively try to reach households and telephone advice has thus been the most common form of advice. This means that people have to be active themselves in order to receive advice, which creates a risk that people, who would benefit from advice and who would be possible to influence, will not be reached. The SEA has acknowledged this problem and are encouraging LEAs to work more with other types of activities, such as meetings with community groups and networking with electricians and other professionals that have an influence on household decisions regarding energy investments.

Recommendations to avoid fail factors

The reason why the LEAP started without a clear vision or plan have not been analysed in this report. In order to make the instrument more effective from the start preparations for its introduction should have been made. Such preparations would have helped making the first five-year phase of the programme more successful.

The analysis shows that it is of vital importance that the staff in charge of program co-ordination is really engaged in the programme and feels that it is important. This can be seen in the marked difference between the two phases of the LEAP. Such an engagement depends a lot on whether the programme is given high priority by politicians.

It is difficult to give good recommendations on the involvement of municipalities in the programme. In the Swedish context, municipalities have played an essential role in the LEAP despite the problems it implies to use them as the main actor for implementation. In countries, like Sweden, with a tradition of municipalities being responsible for public services it is natural to locate energy advice within the municipal administration. In countries with a more centralised system, it might be preferable to have another organisational setup. However, the advantages of organising advice as close to households as possible should be acknowledged.

Another question regards whether to use a public or private model for energy advice. In Sweden a public model was chosen. An important reason for this choice was the aim to provide impartial advice to citizens as a complement to the advice given by professionals. A great advantage with the public model used in Sweden is that the administrative network already exists, which guarantees that all parts of the country are covered. The use of a public model, however, has the risks that it becomes bureaucratic. Furthermore, the public agencies may have limited incentives to give priority to energy advice, as the lack of engagement in many municipalities in the Swedish case shows. Clear incentives and targets at the local level would be one way to increase the effectiveness of a public model. This could be complemented with penalties and premiums to municipalities that do not meet targets and to those that surpass targets.

4.4 Monitoring and evaluation

The SEA has carried out annual surveys, to LEAs as well as to the public, in order to continuously monitor and evaluate the results of the programme (see Ch 1.12). Through the surveys, data on a number of “soft” issues has been collected.

Data from surveys to LEAs:

Organisation of the work of the LEA; municipal expenditure on LEA; evaluation of support from SEA and REAs; type of information activities; type of questions

asked by the public; estimation of effects of energy advice; educational background of energy advisers.
Data from surveys to the public:
Public awareness of LEAs; public perception of the importance of LEA; extent to which people use of the services of LEAs; information channels for the public about the existence of LEAs; share of population that has made investments in energy efficiency or renewable energy; level of importance of advice from LEAs for making investments.

The carrying out of surveys has meant that there exists quite good information in order to make an evaluation of all steps in the policy theory except for the last one about net impact. The programme has not included any attempts to monitor the net impacts in terms of energy saved. Information does exist regarding the budget of the programme. However, the lack of data on net impact means that an evaluation of cost effectiveness has not been possible to carry out. Furthermore, targets on the impacts of the programme as well as an estimation of the extent of free riders are lacking

It can be discussed whether or not it is a weakness of the programme that data is lacking to calculate net impact and cost effectiveness. On the one hand, it is obviously much more difficult to evaluate the programme when such hard data does not exist. On the other hand, it can be argued that it would be very difficult to arrive at reliable results in this kind of soft programme and that monitoring measures would be too costly to be motivated (Lundqvist, 2005-08-18). Furthermore, the programme is mainly perceived as a support to other policy tools, which makes it pointless to try to single out the impacts of the LEAP. Instead, monitoring has focused on other outcomes such as awareness, attitudes and use of LEAs among the public and information from LEAs about their work. For policy tools that are so wide and include mainly information, a careful initial analysis should always be made about the needs for, and possibilities of, monitoring of results. If the decision is made to monitor data on net impact and cost effectiveness, this should be made an integrated part of the programme from the start. For example, the surveys to the public could include questions asking what type of energy efficiency measures households implemented and to what extent advice from LEAs actually changed their investment decision.

4.5 Summary: Learning experiences

The results of this report show that when implementing a local energy advice programme policy makers should consider the following points:

- **Make sufficient preparations for the introduction of the policy instrument.** This means to have a clear vision of the aims of the programme. This could include specific targets about what should be achieved. It also implies careful considerations about the organisational setup and the role of key actors.
- **Establish a programme management that is truly engaged to the idea of local energy advice**. Such engagement partly depends on the priority the policy instrument is given at the political level.
- **Consider on what organisational level energy advice should be located**. The advantage of organising energy advice as locally as possible (in the Swedish case at the municipal level) is that that energy advisers will be closer to the target groups, i.e. households and small companies. The disadvantage is that the programme becomes more difficult to co-ordinate and steer.
- **Acknowledge the importance of an intermediate level actor**. If energy advice is organised very locally there is a risk of a gap between central programme management and the individual energy advisers. In this case it is important to have an actor at the regional level that can function as a link between local and central level and that can offer support to local energy advisers.
- **Consider whether to use a public or private model for energy advice**. The pros and cons of a public or private model should be carefully considered, based on the specific situation in the country where the programme is going to be implemented.
- **Adequate support activities to energy advisers is vital**. It is not enough just to employ local energy advisers. In order to secure good quality advice it is of key importance that energy advisers receive support in the form of training courses, networking and information material.
- **Co-ordinate the energy advice programme with other policy instruments**. On its own the contribution of energy advice to household investment in energy efficiency is fairly limited. However, in combination with policy tools that give economic incentives for change, awareness raising and information can be of vital importance.
- **Continuously monitor and evaluate "soft" data concerning the functioning of the energy advice programme**. Continuous monitoring makes it possible to follow and evaluate the development of the programme and to make changes if something is not working.
- **Consider whether or not to monitor data on net impact and cost effectiveness**. While such data is highly recommendable in order to make a proper evaluation of the instrument, it might not be motivated, or possible,

to monitor these aspects of an energy advice programme. If the decision is made to monitor this data it should be made an integrated part of the programme from the start.

- **Consider to include incentives for the local energy advisers**. By including incentives/targets for the Local Energy Advisers (maybe including penalties and premiums of not achieving or surpassing the targets) could increase the impact and effectiveness of the programme.

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