Caritasverband Frankfurt e.V.

ifeu –Institut für Energie- und Umweltforschung Heidelberg GmbH

Institute for Energy and Environmental Research Heidelberg

# Guidelines: Introducing Advisory Services on How to Save Energy For Low-income Households

## Final Report

**On behalf of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Hans Böckler Foundation**

**Heidelberg / Frankfurt am Main, August 2010**

Translated for:

ACHIEVE

Supported by INTELLIGENT ENERGY EUROPE

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**Heidelberg /Frankfurt am Main, August 2010**

# Guidelines:

# Introducing Advisory Services on How to Save Energy For Households on Low Income

This guideline was developed to transfer the concept of the Cariteam Energiesparservice Frankfurt to other cities in Germany. Many ideas and descriptions will be applicable to the conditions in other countries, some will have to be adjusted.

The guideline has been translated in July 2011 for the ACHIEVE project:

**ACHIEVE – Actions towards low income households to improve energy efficiency through visits and energy diagnosis** (04/2011 – 04/2014), funded by the programme Intelligent Energy Europe. www.achieve-project.eu

Chapter 11 has been updated in this translation because of changes in the German social law in 2011.


# 1 Introduction

In the course of the past years, the costs for power and heating have continuously increased. This affects especially households on low income which have to get by with *ALG II [German unemployment benefit paid after the first 12-18 months of unemployment]* or income support, or other groups of persons with a very low income or a small pension. For these persons, the annual power bill or the utilities statement including the heating costs can mean additional payments they can never cope with. The best way to reduce energy costs is to save energy by using it efficiently. This does not, however, mean to deny oneself any conveniences, but to save energy where it is not really needed, for instance, by switching off devices that run unnecessarily on stand-by or by using efficient electric devices.

The majority of households with low income are tenants in multiple dwelling units. They mostly have only a small investment budget available. Purchasing new, energy-efficient household devices or even renovating the whole building in order to reduce the heating energy consumption is normally beyond their own possibilities. The potential that lies in simple change of habits and smaller investments, such as energy saving lamps, is unknown. Moreover, there is little incentive for persons who get ALG II or income support to save heating energy as these costs, as a part of the associated housing costs (as well as water, waste deposal, etc.), are covered by the local authorities.

Households on low income often don't get in touch with existing energy consulting as offered, e.g. by consumer advice centres, municipal utilities, local administrations (e.g. environment agency), or regional energy and climate protection agencies. But these offers do not include an energy counsellor visiting the relevant house. The recommendations are also mostly combined with investments.[1] But a target-group-specific, direct appeal to these households is necessary in order to support them in saving energy and, thus, to explore the existing saving potential for social and climate change policy reasons. This is where the project idea of Cariteam Energy Saving Service Frankfurt/Main wants to start: Households on low income are, within an employment promotion project, advised on-site by former long-term unemployed people on how to save water and energy, on an equal footing at that.

These guidelines shall describe the concept of Cariteam Energy Saving Service and the procedure of introducing and implementing the project step by step. You can find a copious amount of practical aids, as there are checklists and templates, as well as further information in the annex.

[1] Apart from that, there are charged on-site offers for estate owners by freelancing energy counsellors or engineering firms, e.g., as a part of the government-sponsored building energy consulting in the local community. Moreover, the consumer advice centre in North Rhine-Westphalia and others offer charged on-site advice in certain cases (very high power consumption, mould, etc.)

## 1.1 The Project Idea: Cariteam Energy Saving Service

Cariteam Energy Saving Service has already been developed by the end of 2005 as a special approach to show households on low-income how to save energy and to also support them in implementing this advice. It based on a concept by the City of Frankfurt energy department, how households can save energy and water with simple means. The concept was developed (further) together with the Caritas association Frankfurt into an innovative employment promotion project in the course of which long-term unemployed people make a qualification as so-called “service adviser for energy and water saving techniques”. They make an appointment with the low-income households and check their energy and water consumption on site. There, they ascertain the saving potentials that can be implemented by simple measures. During the second visit, the counsellor will install energy saving devices such as energy saving lamps, switchable multiple sockets, water saving shower heads, etc. for free. Participants are prepared for their tasks in the households by the project leader who is an educated energy counsellor. A (new) cooperation of the Frankfurt Caritas Association, the Frankfurt City Social Department and the Rhine-Main-Jobcentre made it possible to implement this sustainable approach.

The project idea of Cariteam Energy Saving Service combines different objectives from social policy, labour market policy, climate protection policy and (environmental) education:

- Reducing energy costs in low-income households (esp. power costs)
- Climate protection by saving energy and reducing $CO_2$ emissions
- Promotion of purposeful occupation aimed at re-entering the employment market
- Learning effects in the households receiving advice as to what options for action they have (e.g. by changing their habits)

Cariteam Energy Saving Service has been comprehensively evaluated in 2009. [2] It turned out that the project also covers a further positive aspect:

- Reducing the energy costs for the City of Frankfurt (by saving water and heating energy costs)

This means that the project does not only lead to additional costs for the municipalities. The City of Frankfurt/Main which participates in financing the project also benefits from the achieved savings which makes sponsoring the project even more than viable for the city.

You will find the evaluation’s results summarized in the annex. In addition to that, the results are given at relevant places directly in the guidelines.

[2] IFEU /ISOE 2009: Evaluation des Cariteam-Energiesparservice in Frankfurt am Main. [Evaluation of Cariteam Energy Saving Service in Frankfurt/Main]. The final report can be downloaded from www.bmu.de/energieeffizienz/downloads/doc/44455.php.

## 1.2 The Project Idea Spreads

First, the project idea of the Frankfurt Cariteam Energy Saving Service was copied by the Düsseldorf Caritas Association. In Düsseldorf, the “EnergieSparService” [Energy Saving Service] was embedded in the City Climate Protection Programme. Meanwhile, there are similar objectives and approaches in many more German cities and regions in order to support low-income households in saving energy.

### The Energy Saving Check Compain

The concept Cariteam Energy Saving Service is being offered within the energy saving check campain at about 70 locations in Germany (as of April 2010). The energy saving check is sponsored by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety within its climate protection campaign. What is new here is the collaboration of Caritas and other welfare associations with the eaD (German Federal Association of Energy and Climate Protection Agencies).

In the federal project, many tasks are undertaken by a central office, as there is the purchase of energy saving devices or the compiling of a database for the savings calculations. In opposition to Cariteam Energy Saving Service, the technical schooling of the counsellors is mostly done by external trainers from energy agencies.

For further information see: www.stromspar-check.de

# 2 Procedures to Introduce a Project

## 2.1 Who should be Sending Out the Offer?

In the introduction of offers for energy saving advice for low-income households, welfare associations or other non-profit organisations from the social sector have proved successful. They can reach low-income households best as they are already known by other support offers such as advisory service for debtors and social stores, and have the target group's confidence. In addition to that, caritative senders see a possible cost reducing for the households as their primary objective. The evaluation of the Frankfurt Energy Saving Service showed that the most essential point of making use of the Energy Saving Service was reducing power costs. Climate protection was a positive side effect rather than the sole motivation to act.

We have experienced in Frankfurt and Düsseldorf that contacting the Caritas Energy Saving Service often opens a door to other Caritas support offers as the service counsellors can give information about them.

## 2.2 Hints for Municipalities

If the project is run by a municipality, people who get support from public funds often have reservations when in the course of an energy saving offer their dwellings shall be entered and checked. The fear of possible controls may lead to acceptance problems. You may face similar reservations when, for instance, job centres or social welfare authorities occur with their logos on information materials (e.g. flyers) in a central position as supporters of the offer. Many kinds of public support are attached to certain frame conditions, and the Energy Saving Service, in order to make a proper ascertainment, asks for personal data (number of persons living in the household, size of dwelling etc.) that are also the assessment basis for public support. Above of that, the service counsellors get an insight in personal living conditions.[3] Cooperating with a repository from the welfare or consumer protection sector may reduce these reservations.

The energy saving project must necessarily guarantee data privacy. It must be totally clear for the households that all acquired data is needed solely for the project and won't be under any condition whatsoever given to the social welfare authorities or the ARGEs [German type of job centre that is also responsible for granting ALG II].[4]

[3] Are there any other people living at this address, but not registered there? Is the flatmate in fact the partner? From the household's point of view, these are facts that could be (supposedly) checked when the place is being visited. Even if this is not the case, such reservations have to be considered.

[4] Beneficiaries of ALG II or social benefits need be explained that the data acquired in the course of the project may not be given to other authorities. This is understandable as even banks are under §60 section 2 SGB II /ULD 2007/ due to disclose any information about the beneficiary's account balances or hidden valuables to the ARGEs when there is a suspicion of abuse of social benefits.

## 2.3 The Offer's Target Group

In the scope of the Cariteam Energy Saving Service project, low-income households may benefit from the offer when they belong to these groups:

Recipients **of ALG II or social benefits** (help with living, basic assurance at old age or when earning capacity is reduced). These households directly benefit from reducing power costs, where from reduced water and heating costs (by saving warm water) it is the municipality as the carrier of the ALG II recipients' living costs which has the benefits. This argument may make co-financing the project attractive for the municipalities. When an ALG II recipient finds a job, he has the benefits of all savings himself.[5]

**Owners of a "Sozialpass"** [literally: "social passport" providing certain benefits for the owner], (e.g. the "Frankfurt-Pass"). Local social passports exist in many German cities for persons with a very low income or a small rent. The income limit is normally hardly higher than what you get on social benefits. These people benefit from all saved costs (power, water, heating) themselves.

In the course of the "Energy Saving Check" campaign, also **housing benefit recipients** can benefit from the offer.[6] These people, too, fully benefit from the saved energy and water costs.

If you plan to give advice to **people who live in an institution** (assisted living, care facility), too, you should find out who will benefit from the reduced costs, i.e. who covers the costs for power, heating and water.

Note that as a principle, as many low-income households as possible should be able to receive an uncharged energy saving advisory offer. A conflict of objectives may arise with the organisations which fund the project: Municipalities have a special interest in ALG II and social benefits recipients as the municipalities benefit directly from reduced water and heating costs. Yet, other low-income households should not be excluded.

Evaluating the Frankfurt Cariteam Energy Saving Service made it clear that ALG II and social benefits recipients made 85 % of all households that received advice in Frankfurt (65 % of which were ALG II recipients, 13 % received basic assurance at old age, and 7% other social benefits as, e.g. "Hilfe zum Lebensunterhalt" [German type of income support]. A big part of the households that received advice were single households (41 %), 18 % were single parent households, 27 % two person households with children and 13 % two person households without children.

[5] According tot he assessment of /IAB 2009/, the rate that remains for the ALG II recipients after 3 years is about 45%.

[6] It is possible that low-income households have both legitimation (housing benefit notice and social passport).

# 3 Funding the Project

## 3.1 The ARGEs /Jobcenters as Funders

One precondition for implementing the project idea is to win over the local ARGE/jobcentre. The ARGEs fund the employment promotion measure and distribute participants. But it is a difficult task to convince the ARGEs.

You can find a list of supporting arguments to win over the ARGE/jobcentre in Annex 2.

Before the organisation that is responsible for the employment promotion measure puts forward a motion to fund the project, type and duration of the employment promotion as well as requirements that need be met by the participants must be sorted out with the ARGE.

ARGEs Do Approve the Project

The projects in Düsseldorf and Kaiserslautern which are based on the Cariteam Energy Saving Service concept are considered a sensible approach that is well-suited for basic objective of employment promotion, by the local ARGEs. In interviews, they put special positive stress on the participants' high motivation for the project which encourages commitment to regular participation.[7] There are also quite high expectations towards the chances of placing the project participants on the first market subsequently, especially because of the possible improvement of their communicative skills.

It has been highlighted that by employing relatively simple means, ALG II or social benefits recipients have a financial advantage themselves and that the municipalities profit from the saved heating energy. Climate protection has been listed as a reason for supporting this project. Reducing costs and climate protection are "matters that affect us all". In Düsseldorf, the City Environment co-funding the project (in order to reduce $CO_2$-emissions) has also been listed. In summary, the project is perceived as an innovative approach with many positive effects on general politics. /IFEU 2009a/

[7] This is also proved by a rather low failure rate of 17% in Frankfurt/Main (as of 5/2009).

### 3.1.1 Type of Employment Promotion Measure

Measures creating occupation, many of which are, in the legal scope of SGB II, "Arbeitsgelegenheiten" [job opportunities, short AGH] are a first step towards introducing participants of a measure to the labour market. AGHs are often employed with people with multiple problems. The primary objective is to create or maintain employability and to stabilize the relevant person's social situation. As a rule, to quickly integrate participants of an AGH in the primary labour market is unlikely. /BA 2009/

Participants in the energy saving projects have, so far, been financed mostly via AGHs with plus an additional cost reimbursement (MAE, so-called "One-Euro-Jobs"). These employments are normally limited to duration of six to twelve months.

It is helpful if at least some participants, e.g. supported by an employment grant according to §16e, can remain in the project for a longer time and assume more responsible positions. Moreover, under §16e, the failure rate is usually lower than in MAE-jobs. §16e jobs are, however, in terms of funding, significantly more cost-intensive for the project consortium as the participants get a normal pay and the consortium has to absorb a part of the salaries (e.g. for §16e jobs, 25 % of the gross pay).

You can find a synopsis of the different forms of employment promotion in Annex 1.

A first evaluation of the participant structures in the Power Saving Check campaign led to these results (as of September 2009):

- Most of the participants (69 %) were employed under an AGH with additional cost reimbursement ("One-Euro-Job"), 14 % under a job incentive according to §16e SGB II, 15 % under an AGH with a fix salary and 2% under further measures of labour market policy.
- The highest failure rate of 29 % rate occurred in AGH with additional cost reimbursement ("One-Euro-Job"). In job incentives according to §16e and in AGHs with fix salary, it is significantly lower with 5 % or 4 %, respectively.
- The total rate of placement on the labour market is 24 %. 18 % were placed in jobs of the primary labour market, 2 % were placed in an employment of the secondary labour market, 2 % went into further education and another 2 % started freelancing.

/DCV, eaD 2010/

### 3.1.2 Declaration of Non-objection

Chambers of Industry and Commerce as well as Chambers of Crafts often demand a written declaration saying that an employment promotion measure will not push aside similar offers on the primary labour market. An energy saving advisory service offer for low-income households such as Cariteam Energy Saving Service fulfils these criteria, especially because people with low-income usually are tenants while comprehensive, charged energy advisory service offers regarding building and heating technologies address estate owners. Other charged advisory service offers such as the consumer protection centre's energy consulting don't take place on-site but in the consumer centre's office. Our consulting also focuses on simple means to save power. Thus, the project does not concur with professional (building) energy advisory services. The evaluation of the Frankfurt Energy Saving Service showed that none of the households that received advice had ever made use of another energy advisory service before.

You will find a list of existing German energy advisory service offers in Annex 1.

You can find a list of supporting arguments in a security clearance in Annex 2.

## 3.2 Costs of the Measure

The costs of the projects are combined of different elements, such as manpower costs for guiding and instructing the participants as well as for the participants themselves. Apart from the usual material costs as there is rent and office equipment, project-specific fees arise for schooling the participants (when schooling can't be done on own account), the purchase of gauges and tools and the energy saving devices for the households as well as transport costs for the inspections of the households.

The expenses are balanced with certain receipts. These consist of the ARGEs' grants for the participants according to the type of measure under which they are employed, and the project consortium's own means. Differences (e.g. for manpower costs, transport cost or financing the energy saving devices) have to be covered by third-party funding.

The subsequent Table 1 and Table 2 show the cost items once again:

Table 1: Summary of costs using as an example an energy saving project with 12 participants (costs given per year)

| **Expenses manpower costs** | |
|---|---|
| Technical instructor / educational support | 100 %, recommended rate 1:10 to 1:12 (technical instructor (75 %) + social education worker (25 %) : participants) |
| Levy for management and administration | ca. 5-10 % per full time position |
| For AGH/MAE participants | €/h x number of participants x working hours/year<br>For instance: 1,50 € /hour x 12 participants x 12months x120 |
| For §16e participants | Gross salary, e.g. 1600 € |
| Fee for technical schooling, security instruction by an electrical skilled person (EuP)[8]; communication training | Technical instruction only if not covered by technical instructor[9] , ca. 50 hrs, ca. 40-50 € /h; EuP training ca. 3-4 hrs. |
| **Expenses material costs** | |
| Rent, associated costs, cleaning costs | |
| Insurances | Often already covered by the project consortium/association. Check! |
| Workstation equipment | 1 desk + chair + bookshelf per 2 or 3 participants |
| Computer, telephone | One computer per workstation, printer, telephone, internet access |
| Office material | For administration, project organisation |
| Schooling material | Xerocopies, worksheets, literature, job application material |
| Toolbox | See inventory list in chapter 5.4, 1 box per 2 person team, ca. 200 € per box. |
| Gauges | Recommended: 2 good current testers exact short term measuring (ca. 50 € each) + additionally ca. 2-3 convenient gauges for long term measuring (ca. 10 € each) |
| Advertising/PR | Flyer, prospects, information stand, ca. 1.500 € |
| Other costs | Overhead for unpredictable expenses, ca. 500 - 1.000 € |
| Transport to household costs | May be covered by transport to work costs (short range transport/season ticket), when private car is used: 0.2 €/km |
| Energy saving devices | 70 € per household, when major amount is bought, conditions are better (ca. 50 €/household), calculate[10] 3 service visits per participant and month , 12 participants x 12 months = 432 service visits x 50 € = 21.600 € |

[8] EuP schooling may not be executed by persons who don't at least own a „Gesellenbrief" [German apprenticeship diploma] as an electrician.

[9] It may turn out cheaper to hire a technical instructor with the relevant qualifications in the project than to have externals perform the schooling in energy technics.

[10] 3 service visits per participant and month equal 12 household visits per person and month with first and second visit in a two person team.

| **Receipts** | |
|---|---|
| Third party funds ARGE for AGH-MAE | Salary (ca. 1,50 €/h x 12 participants x 12 months x 120 hours) + fix rate per participant[11] and, if applicable, additional transport costs for the participant |
| Third party funds ARGE for §16e-jobs | Up to 75 % of the gross salary and, if applicable, a qualification grant of up to 200 € per participant and month |
| Project consortium's own funding (essential for applications) | E.g. manpower cost shares, association waiving share in costs, imputed rents |
| Further third party funds | Municipality, electric company, other companies, funding programmes (e.g. ESF funds). |

Table 2: Project funding in Frankfurt/Main in 2007 (14 participants) as an example:

| | **2007** |
|---|---|
| **Receipts** | |
| Jobcentre-fix rate for AGHs | 52.700 € |
| Jobcentre-additional cost reimbursement (item in transit) | 30.000 € |
| Grant from City Social Department | 42.700 € |
| Further grants | 15.000 € |
| Further receipts (prize money, donations) | 14.300 € |
| **Total (excluding items in transit)** | **124.700 €** |
| **Expenses** | |
| Manpower costs instructor | 52.300 € |
| Material costs | 45.400 € |
| Apportionment of administration costs | 26.800 € |
| Jobcentre additional cost reimbursement (item in transit) | 30.000 € |
| **Total (excluding items in transit)** | **124.500 €** |

[11] The jobcenters monthly fix rates for AGH MAE differ (e.g. Kaiserslautern 330 €, Frankfurt/Main 360€, Düsseldorf 680€, as of 2009). Also, not all jobcenters cover the participants' transport costs to the job site.

## 3.3 Recruiting More Cooperation Partners for Co-Funding

The (long-term) funding of the project guarantees its successful implementation. This is why a financial involvement of local actors such as the municipality or the local energy supplier should be a target. Depending on the counterpart, the project and the experience made thereof should be communicated with different accentuation.

- Social department: Cost reduction for low-income households (by saved power costs) and the municipality (by saved water and heating costs) in view of the fact that energy costs are exploding.
- Energy / environment authorities (as there is the City Environment Department): Hint to climate protection and $CO_2$ saving potentials
- Municipal utilities: Reduction of energy debts and non-payment risks, better image through social engagement.

Apart from that, there are many more possible cooperation partners and sponsors who could support an energy saving service or Power Saving Check with different ambitions (social engagement, PR and better image for the own company).

- Local or regional energy suppliers/municipal utilities
- Producer/retailer of power or water saving devices
- Transport companies
- Banks
- Foundations
- European Social Fund
- Other funding programmes
- Other companies

Arguing Support

The evaluation of the Frankfurt Energy Saving Service showed that per household that received advice an average of 422 kWh power (90 €), 18 m³ water (67 €) and 345 kWh (17 €) heating energy can be saved annually. In a long-term view (over the lifetime of the energy saving devices), this amounts to about two metric tons of saved $CO_2$ per household that received advice. The low-income households benefit from the saved power costs, the municipalities get the biggest share of the saved water and heating energy costs.

## 3.4 Regional Differences Influencing the Project Funding

These aspects may influence possible and/or necessary third party project funding:

- Different water prices and, thus, cost saving potentials in the municipalities
- Different interest in the municipalities in saving water costs
- Structural differences as regards unemployment, people with migrational background, municipality's financial situation (e.g. spending freeze), etc.
- Possible employment promotion (e.g. special offers in structurally weak regions, amount of fix rates)
- Higher transport costs/car needed in rural regions

When you communicate saving potentials to possible municipal cooperation partners in order to achieve a co-funding of the project, you should pay respect to the fact that **energy and water prices vary** strongly from one region to another. In Frankfurt/Main, the water prices of 3.77 €/m$^3$ are close to the German average of 3.89 €/m$^3$. In municipalities with high fresh and waste water prices, the cost saving potentials increase, in regions with low water prices, they decrease accordingly. In Baden-Württemberg, for instance, the difference between the regional prices becomes clear, as the lowest price there is 1.82 €/m$^3$, and the highest 8.20 €/m$^3$. /Ba-Wü 2008/

Some **municipalities may show little interest in saving water costs** for oversized infrastructure. This is mainly the case in some Eastern German regions that suffer from a migrational drain, where (further) saved water would make it necessary to flush the public sewerage and, thus, lead to additional costs.

A possible cost reduction for the municipalities is (in addition to the water saving devices that have been installed in the households) also dependent from the share **of ALG II and social support recipients** (85 % in Frankfurt/Main), who are the planned target group for the project. This is again dependent from the requirements they have to meet to be allowed to join the project and also from where the project can be advertised. If other low-income groups are entitled to the advisory service, too, the saved costs for the municipality decrease accordingly.

Eventually, the amount of additionally needed funding varies according **to what type of employment promotion** the ARGEs offer. Although the law is the same in all of Germany, the ARGEs have certain liberties in how to enforce it. For instance, the amount of the fixed rates for additional cost reimbursement ("One-Euro-Jobs") varies strongly. Moreover, there are special funding programmes in structurally weak regions that may enable long-term employments, too (as did, e.g., the "Kommunal-Kombi" programme). In **rural areas**, households often can't be reached by **public transport**. If a car needs to be used to reach the households for a service visit, not only the project costs rise, but also the requirements that the participants have to meet are higher (driving licence) and there is more organisational effort.

# 4 Embedding and Cross-Linking the Project – Recommendations

While the project needs a thorough content-related preparation, the organisational embedding by agreements and cross-linking with possible partners in practice is at least as essential. This is true not only as regards the project's funding, but also its common acceptance and the cooperation in public relations (e.g. alternative references or common campaigns). The questions with the most import are here:

- Are there possible links and synergies in the area of operations?
- How can cooperation happen (and any concurrence be avoided)?

Institutions with similar interests (environment/climate protection, energy saving, supporting low-income households etc.) include:

- City Authorities: Social department, housing department, etc.
- City Authorities: Environment department, climate protection department, etc.
- ARGEs/Jobcentres
- (Social) advisory service offers from any welfare organisations / Caritas
- City quarter management offices
- Tenants' association
- Professional energy advisory service companies (e.g. Energy advisory service by the local consumer protection office, local energy/climate protection agency, etc.)
- Environment protection associations (e.g. BUND)
- Energy suppliers

Cross-linking with local targets and programmes for climate protection

Many German cities have proposed themselves targets to reduce their $CO_2$ emissions and are, e.g. a member of the "Climate Alliance" www.klimabuendnis.org, the ICLEI www.iclei.org, or have, on the initiative of the EU, undertaken to reduce their $CO_2$ emissions by 20 % in a European Mayors Covenant www.eumayors.eu.

Meanwhile, many cities also have installed local climate protection concepts or programmes in order to synchronise all climate protection efforts that are planned in the city or region. Here you may find connecting factors (cross-linking, common public relations, perhaps even support for your project funding) for an energy saving advisor service for low-income households. Responsible for local climate protection concepts is usually the City Environment Department. The Düsseldorf Energy Saving Service, for instance, is embedded in the municipal climate protection programme, and the position of the technical instructor is (partially) funded by the City as well as an additional refrigerator discount programme for low-income households.

# 5 Preparing the Project

These steps have to be done before the project can start, as soon as the project funding is clear:

- Job advertisement and selection of staff for the project management and the participants' instructor
- Selection of participants for the employment promotion measure (in cooperation with the ARGEs)
- If necessary, renting and equipping suitable rooms.
- Purchasing gauges, tools and other devices
- Organising public transport tickets or, if necessary, car transport for local appointments.

The next steps have more specific content:

- Selecting and purchasing energy saving devices
- Schooling the participants (communication training, energy-technical schooling, etc.)
- Preparing the public relations and the formation of a network in order to communicate the offer (see chapter 6.1)

Note: Cooperation and networking in the region and advertising to the households should not happen after the preparing measures have taken place, but at the same time. Otherwise, there will be a time gap between the schooling of the participants and the first service visits.

## 5.1 Staffing the Project

This is the staffing your project needs:

- Project manager
- Technical instructor
- Social-pedagogical support

It is not necessary that each area is covered by a (full time) employee. It is possible, depending on the staff's qualification, to combine tasks or to assign tasks to freelancers who are paid by the hour.

The ratio staff towards participants should be about 1:10 to 1:12.

The preparation of the participants for their tasks in the project (computer and communications training, energy-technical instruction, etc.) may be done by the technical instructors themselves or, additionally, by external trainers with a special education. Required are knowledge/qualifications in energy consulting, architecture, electrical, heating or building engineering (German diploma, master certificate/state certificate respectively) or a similar qualification, if possible with an instructor qualification or similar pedagogical-didactical experiences.

For the energy-technical schooling, it may turn out cheaper to hire a technical instructor with the relevant qualifications in the project than to have externals perform the schooling in energy engineering.

This makes sense also because of the possible continuous support for the participants in the project (supervisor, control of the participant's work, schooling new participants, etc.) from the technical and organisational point of view and was well approved of in the Frankfurt and Düsseldorf Energy Saving Projects.

You may find sample job ads for a project manager and a technical instructor in Annex 2.

## 5.2 Office Equipment

- Desks and chairs
- Computers for the participants, printer, if possible, a copy machine
- Telephone to make service visit appointments
- Storage facilities for the energy saving devices, preferably lockable

## 5.3 Further Equipment

- Bags/boxes for service visits (tools, energy saving devices)
- Business/ID cards for the participants (so they can prove they work for the project on service visits)
- Public transport tickets for the participants
- if necessary, a car (especially in rural regions)

## 5.4 Gauges and Tools

These gauges and tools are needed during an energy saving service visit at a household:

- Ammeters
- Flow cup or a measuring jug and a stop watch
- Thermometer to take the fridge temperature (and the room temperature, if necessary)
- Pipe wrench or suitable key to adjust the tap nozzle
- Extension cord/plug strip (if a socket is hard to reach)
- Torch
- Calculator
- Scissors (to open wrappings)

Apart from this, you need for a service visit:

- Participant's ID card
- Clipboard, data sheet, pen
- Bag/box (to transport the material)

When you buy the gauges and tools, keep in mind that the participants usually are in a team of two persons when they make a service visit. Not each participant needs a gauge of his own.

If the power consumption of cooling device is to be measured, two or three simple measuring devices for long-term measuring (two or three days) per team should be purchased. These remain in the households and will be picked up on the second service visit.

You can find a checklist for what should be in the participants' bags/boxes for a service visit in Annex 1.

Hints for the purchase of the gauges you can find in Annex 2.

## 5.5 Energy Saving Devices

These energy and water saving devices have proved useful:

- Energy saving light bulbs in different wattages and shapes
- Switchable multiple sockets
- Timer switches for smaller hot-water boilers[12]
- Water saving shower heads
- Aerator taps
- Stopper-weights for the toilet flush.
- Fridge thermometer

You can find a list of the devices the Frankfurt/Main Cariteam Energy Saving Service used to install in Annex 2.

Table 3: Average of installed energy saving devices per household by the Frankfurt/Main Cariteam Energy Saving Service /IFEU, ISOE 2009/

| **Device** | **Amount per household (2 persons)** |
|---|---|
| Energy saving light bulbs | 7,6 |
| Switchable multiple sockets | 0,9 |
| Water saving shower heads | 0,7 |
| Tap aerators | 1,4 |
| Water stopper for the toilet flush | 0,1 |
| Timer switches for hot-water boilers | 0,04 * |

* Any fifth household with electric water heating, respectively

Mind, when purchasing, to buy devices of good quality with a long expected life span. Especially the energy saving light bulbs should be brand articles with a long life span (at least 8000 hours) and a convenient warm and white light colour (2.500 to 2.700 Kelvin) as they shall be installed in the living area.

It has also turned out to be useful to have in store, apart from simple switchable multiple sockets, also switchable power strips and multiple power strips with a separate foot switch (in case the switch might not be reached easily, e.g. when the person getting advice is mobility-impaired.

It also makes sense to have some additional shower hoses in store, as older shower hoses tend to break when the shower head is being exchanged. Also, the hoses' sealing washers may need to be exchanged.

Mind: Installing the water saving devices leads to a considerable reduction of water costs and also reduces energy consumption (especially with water saving shower heads tap aerators) as less warm water is consumed.

[12] There are also thermo stop switches which make warm water on demand and switch off the boiler afterwards. But they are way more expensive.

Who Saves Money Using Which Energy Saving Devices?

ALG II and social support recipients pay power costs from their standard rate. Saving power with energy saving lamps, switchable multiple sockets and timer switches pays off for the low-income households. As housing and heating costs (including associated housing costs such as water costs) are covered by the ARGEs or social welfare authorities, respectively. So it is the municipalities who benefit most from the water saved by water saving shower heads, aerator taps and toilet flush stopping weights.

Most households (70 to 80 %) make warm water using the central heating or, e.g. gas boilers. Here, reduced water costs may be an additional argument for the municipalities to support the project financially.

About 20-30 % of the households make warm water with electric boilers or instantaneous water heaters. If so, the households receiving advice can additionally reduce their power consumption and, thus, their power costs when they install water saving shower heads and aerator taps.

Table 4: Exemplary calculation of annual savings when energy saving devices have been installed

| **Device (price*)** | **Estimate** | **Saved Water **** (in a 2 person household) | **Saved power ***** | **Saved heating energy (if water is not heated electrically) ****** |
|---|---|---|---|---|
| Energy saving light bulb (ca. 5 €) | Exchange 60 W for 11 W, burns 3h a day | -- | 54 kWh (11 €) | -- |
| Multiple socket (ca. 5 €) | TV consumes 12 W on standby (22h a day) | -- | 96 kWh (20 €) | -- |
| Timer switch (ca. 10 €) | Limits the heating time to a few hours a day | -- | ca. 200 kWh (42 €) | -- |
| Water saving shower head (ca. 16 €) or flow restrictor (ca. 8 €) | 2 pers. household, taking a shower 5x a week for 6 min each, reduces flow by 4 l/min. | 13 m³ (50 €) | Estimate: ca. 2/3 warm water | |
| | | | 225 kWh (53 €) | 225 kWh (20 €) |
| Aerator tap (ca. 6 €) | Flow 7l/min before, 5 l/min after, flows for 4 min/day. | 6 m³ (23 €) | Acceptance: about 1/3 hot water | |
| | | | 58 kWh (12 €) | 58 kWh (5 €) |
| Stop-flush weight (ca. 8 €) | Limits wasted water | 9 m² (36 €) | -- | -- |

* Retailer prices, can be considerably cheaper when buying larger amounts

** For an average water price (fresh and waste water) of 4 €/m³

*** For an average power price of 0.21 €/kWh

**** For an average heating energy price of 0.08 €/kWh

## 5.6 Selecting the Participants

In opposition to other employment measures, the project aims at more „vigorous“ participants and at people of more than 30 years of age. Also older participants (who may be supported by a ”Perspektive 50plus“ programme) suit well for a position in the Energy Saving Service.

In order to get an easier access to the relevant households, it is desirable that also women and people with a migrational background (e.g. Russian, Turkish) join in the project. Experience shows that women also cheer up the working atmosphere. With participants with a migrational background in your team, you can take advantage of their networks and reach households you might otherwise not reach due to language or cultural barriers.

The participants should meet these requirements:

- No prior punishments, no entries in their criminal records
- Preferably no addiction problems
- Good manners, should be well-spoken
- Being able to write and calculate
- Minimal computer skills
- Preferably experienced in the service/communication business or in crafts

Experience shows that the contents in this project are a special motivation for the participants as they can support other low-income households and pass on their own knowledge and experiences.

Between 2007 and 2010, a total of 80 persons participated in the Frankfurt/Main Energy Saving Service. Participant structure:

| **Social demography:** | | **Vocational background:** | |
|---|---|---|---|
| - 50 years of age and older: | 44 % | - Graduated engineer: | 6 % |
| - Migrational background: | 31 % | - Crafts – electric sector: | 11 % |
| - 20% female, 80% male | | - Crafts – other: | 14 % |
| **Graduation:** | | - IT programmer /technician: | 5 % |
| - Hauptschule (O-level): | 21 % | - Sales: | 13 % |
| - Realschule(between O and A): | 41 % | - Office: | 5 % |
| - (Fach)Abitur (A-level): | 28 % | - Educational/Teacher: | 5 % |
| - No graduation / not acknowledged: | 10 % | - Other: | 6 % |
| | | - None/not acknowledged: | 34 % |

/Own evaluation by CV Frankfurt e.V./

## 5.7 Schooling the Participants

Schooling the participants in order to prepare them for their tasks within the project may be done by the technical instructors themselves, or depending on contents and their relevant education, by external specialists/referents. They should have pedagogic and didactic skills in addition to their technical background so as to meet the participants' level and impart technical knowledge in a proper way. Even when external referents are employed, the technical instructors should know the schooling's contents and be able to continuously support the participants in their work.

The participants should be schooled in

- Communication skills, customer treatment
- Computer handling (esp. Excel)
- Security standards
- How to save energy and water in a household
- Job application practice (as is due under §16 d SGB II for AGHs)

### 5.7.1 Communication Training, Customer Treatment

In the course of communication training, the participants need to be prepared especially for the situation of giving advice in the households. Above of that, the skills may be of use when the participants are employed to support the advertisement of the advisory service (presenting the project in meetings, information stands etc.) Learning contents include: /Source: CV Düsseldorf/

- Customer-friendly demeanour
- Verbal and non-verbal communication
- The functionality of small talk, exercising spontaneous and creative talk
- Selective perception and the first impression
- Deliberate use of language and active listening, basic rhetoric skills
- Constructive feedback and feedback rules
- Exercising language (positive and customer-friendly wording)
- Describing and simulating standard situations
- Personal plan to observe and improve own communication demeanour
- Special situation: visiting customer's home
- Presenting the project: Things that need attention

You can find schooling papers for communication training in Annex 2.

### 5.7.2 Computer Training

The participants have to work with the computer especially in order to enter and evaluate acquired data. As the data shall be evaluated with an analysis tool based on Excel, Excel schooling should at least include

- Data input
- Basic commands
- Setting up a document and formatting cells
- Simple calculations for data evaluation
- Handling of different worksheets
- Saving and filing data

If necessary, further schoolings in text editing software (Word) and presentation software (PowerPoint) in order to present the project in the course of PR work are appropriate.

### 5.7.3 Security Training

**Qualification as "electrical skilled person" (EuP)**

In order to guarantee occupational safety when electricity is handled (which includes changing light bulbs or installing timer switches), the trade association demands a minimum of basic knowledge. EuP schooling may not be executed by persons who don't at least own a "Gesellenbrief" [German apprenticeship diploma] as an electrician. You may ask, for instance, facility management staff of the inpatient facilities of one of the supporting welfare associations or cooperating local companies to execute the schooling.

Helpful information (including security standards) is offered, e.g. by the "Berufsgenossenschaft Handel und Warendistribution" (BGHW, German Association of Trades and Goods Distribution) on its website
www.bge.de/asp/dms.asp?url=/bge/m37/m37.htm (in German)

**Security briefing for the handling of ladders**

For insurance matters there must be a briefing on the safe handling of ladders that may be used when changing a light bulb in the households. The briefing gives instructions to the most critical points, as there are choosing suitable ladders or when there's a threat of slipping or falling. The security briefing can be done by any person who learned the ropes on his or her own accord. You'll get copious information from the trade associations which they give away for free to their members.

### 5.7.4 Schooling in Energy and Water Saving

Apart from the preparing trainings, the participants get a substantial schooling in the possibilities of saving energy and water in everyday life. The schooling is supposed to be very practice-oriented and should integrate the participants' prior knowledge. The essential point is that there should be a stress on simple, effective tricks to do in the (tenants') households rather than teaching complicated technical background knowledge. Train these simple measures in combination with easy saving calculations. These are the skills that need to be trained:

- Procedures of the energy saving service
- Understanding accounts of power, water, and heating costs; being able to judge whether the consumption is low, average or high in order to recognise saving potentials; knowing power, water (including waste water) and heating energy prices
- Saving power: Lighting/energy saving light bulbs, standby functions/switchable power strips, electric water boiling/timer switches and thermo stop switches, saving power with the refrigerator/thermometer to measure the cooling temperature, further essential electric devices within the household
- Saving water: Saving water and energy when heating water/water saving shower heads and aerator taps; different kinds of heating water (instantaneous water heater and warm water boiler); saving cold water/flush stopper weights
- Saving heating energy: heating and airing correctly; avoiding mould
- Data acquisition in the household, measuring power and water consumption, asking for user habits
- Evaluating the saving effects with an analysis too (e.g. Excel), simple calculations with electricity (Watt, kWh) and water (litres, $m^3$), consumption and cost savings, payback periods of energy and water saving devices, typical saving potentials, selecting and installing the proper energy saving device, when should a certain device not be installed?
- Recognising wrong usage and giving individual energy saving advice.

The participants practice the data acquisition and consumption measures in their own and their friends' and acquaintances' households first. Then they will have their first service visits in company of the technical instructor. Only when they've gained enough practical experience they may, together with a more experienced participant, counsel strange households.

Hint: It has turned out useful to discuss the participants' experiences during a fix (weekly) meeting. Here, examples from the households that are receiving advice can be discussed and technical questions can be answered. At the same time, new participants get additional qualification. As the participants often meet poverty and social problems in the households, they can talk about these experiences, too, and also have a chance to provide for support for the relevant households.

A model schooling concept can be found in Annex 2.

# 6 Implementing the Energy Saving Service

When the organisational work is done, the energy saving service is implemented according to this pattern:

1. Addressing and winning over the households by PR work
2. Making an appointment by telephone (includes acquiring primary data)
3. First service visit in the household: Data acquisition (account data, equipment, usage habits, power and water consumption)
4. Data evaluation (with an Excel tool or a database), selection of energy saving devices, making a household report
5. Second service visit: discussing the household report, device installation, further energy saving advice

The following chapters will point out the exact procedure. These points are especially vital for the implementation:

- The participants are integrated in addressing the households and PR work.
- The participants usually work in teams of two persons and visit the households by twos. This has the advantage that the participants can help each other and more experienced and better-spoken participants can support their fellow workers.

## 6.1 Addressing the Households/PR Work

It is an essential part of a successful project implementation to address low-income households on a regular basis. Although the offer is free, experience shows that the energy saving service needs continuous advertisement in order to maintain a constant request for it. The participants are integrated in the PR work, too. Information meetings and stands as well as displaying posters and handing out flyers in places that are regularly visited by the target group (ALG II or social support recipients) or other persons with a low income (e.g. owners of social passport), as there are:

- ARGEs/jobcentres
- Social welfare office
- Social welfare and second-hand shops, notice boards
- Social advisory service centres (family advisory service, debtor advisory service) by welfare associations or consumer protection offices, tenants' advisory service office
- Public utility company service counter, energy provider
- Other employment promotion programmes, integration and language courses for people with a migrational background
- City quarter management offices

The local press may also help spreading the offer in local papers, gazettes or free advertising magazines.

Buzz marketing has a great import on the project's acceptance. The Frankfurt Cariteam Energy Saving Service experienced that about a third of the household that were given advice became aware of the offer via personal recommendation by friends and acquaintances, job centre employees or (former) participants. It is often necessary to explain that the offer is, in fact, free, that the energy saving device are installed for free and that here is no "catch".

**Cooperation with Jobcentres and Social Welfare Authorities**

It is immensely important to cooperate with the ARGEs/jobcentres and the social welfare authorities in order to spread the offer. Hence it makes sense that households with energy debts that apply for a loan get a hint to the Energy Saving Service. Here, the impression that the Energy Saving Service is a one of the jobcentre's mandatory instruments must by all means be avoided –using the Energy Saving Service has to remain voluntary.

**Addressing Households with a Migrational Background**

Participants with a migrational background turned out to be of great use to the project as they promote the offer directly amongst their fellow countrymen. So, new target groups become accessible, especially when the energy saving advice can be given in the relevant mother tongue. It is also helpful when participants can translate information material into other language (e.g. Russian, Turkish).

**Designing the Material**

The material, as there are posters and flyers, should be designed with respect to these points:

- Low-income households are attracted to making use of an energy saving service in order to reduce energy costs. The central message should focus on that point.
- It should be totally clear that the offer is free with the added benefit of free energy saving devices (a coupon might work well here)
- Welfare associations have turned out to be attractive senders of this offer. The offer appears even more trustworthy when their logo appears in a central position (together with the ones of possibly other sponsors).
- The text should be short and simple. Explanatory pictures of the energy saving devices often are helpful, too.

You can find a sample flyer for an energy saving service in Annex 1.

## 6.2 Making an appointment

The first service visit is normally appointed via telephone. It already includes the request for some information on the household that are taken down on the register sheet. You ask for:

- Name
- Address (may combined with necessary directions such as “entrance at the back”)
- Telephone number
- Number of persons living in the household
- Size of the dwelling place (m²), number of rooms
- How is the person calling entitled to the service? (e.g. ALG II recipient, owner of social passport)

The households are requested to keep these documents at hand for the service visit:

- Notice of support grant (e.g. ALG II, social support)
- Power bill, account of heating and water charges (or accounting of service charges, respectively)

From the information on the apartment size and the address, you can calculate how much time the service visit will take altogether (access route, duration of survey). A template for appointing and coordinating service visits can be found in Annex 2.

Note: The second service visit for the device installation should take place within a narrow time frame after the first visit and be made by the same participants as the first one.

## 6.3 First Service Visit: Data Acquisition

Service visits are normally made by teams of two persons. Depending on experience and communication skills, the participants can support each other. Security aspects matter here, too.

A checklist regarding the service visit procedures can be found in Annex 1.

### Introduction and Re-Checking Personal Data

When the service team has arrived at the household, the advisors introduce themselves and explain the further procedure. There has been positive feedback in the evaluation /IFEU, ISOE 2009/ that the advisors took of their shoes when they entered the place. The advisors take down all information on the register sheet. The information that has already been acquired during registration is controlled and, if necessary, corrected. The advisors also check the proof of entitlement to the free energy saving advisory service.

#### Consumption Data Acquisition

The advisors take down how much electricity, water, and heating energy was needed according to the last accounts of charge. The power supplier normally issues a separate account for each apartment, water and heating energy is, for apartments with central heating, accounted by the landlord via the service charges. There are exceptions when the place is heated with oil or gas floor heating, electric heating or district heating. We had to experience that although the households had been asked to keep their papers at hand, not all of them could show us their relevant accounts.

Especially the water and heating cost accounts are often “at the department” that covers the housing and heating costs and the households never bothered to make a copy for their own records. If all consumption data are at hand, they can provide for a first estimate, in comparison to average data from other households of the same size, of what saving potentials are to be expected.

Hint: If there is no consumption data at hand, at least the power consumption can be estimated according to the power supplier’s monthly instalments. This instalment consists of a monthly fix rate and the consumption (kWh) x electricity price per kWh. The supplier’s website informs on fix rate and electricity price.

You can find comparison values for power, water, and heating energy consumption of different-sized households in Annex 1.

## Acquiring Additional Information in Order to Evaluate the Consumption

Besides mere consumption data, additional information, that is needed to assess the charged energy and water costs, is taken down. As for the power consumption, it is necessary to know if the warm water is heated electrically (which is the case in 20-30 % of the households) and if the stove runs with electricity or gas. As for the water and heating costs, it is important to know if there is a water meter and a heat cost measuring device so as to calculate the costs according to the actual consumption (and not per allocation to apartment size and number of persons). Energy and water saving measures become the more attractive when the actual consumption is accounted and the household directly benefits from any savings.

## Finding Out Which Equipment is Installed and How it is Used

Now, the biggest power-consuming devices in the household are listed and the advisor asks for how many hours the devices are being used in the course of the day. Especially electric devices that generate cold (refrigerator, freezer) or warmth (radiators, aquarium heating) and are constantly running, consume a lot of power.

Consumption measuring is taken from devices that promise saving potentials, e.g. when they have a stand-by function. Older cooling devices (refrigerator, freezer) cannot be measured immediately as they cool only in intervals (when the device “hums”). Here a 24-hours-measuring is necessary. Taking the temperature of the refrigerator’s inside may be very effective, as many refrigerators are set too cold and, thus, waste unnecessarily much power. (Treacherous sign: the butter is not in the refrigerator.)

The water flow at the taps and in the shower is measured with a flow jug. The advisor also asks for the household’s water using habits, e.g. how often and how long its members shower. This must be multiplied with the number of persons living in the household.

The devices and how they are used are listed for each room and taken down in the register sheet.

You can find a rough synopsis of the data acquire in table 5.

A checklist for the most important household devices that need power or water can be found in Annex 1.

Hint 1: Many refrigerators in fitted kitchens don't have an accessible plug, so the power consumption cannot be measured. You can find the device number on the type label inside the refrigerator. Click on "Kühlgerätecheck" on www.co2online.de to find out the device's consumption rate.

Hint 2: The power consumption of bigger household devices (washing machine, dishwasher, refrigerator etc.) can be assessed in comparison with efficient devices of similar size, e.g. on www.ecotopten.de or on the list of efficient household devices (see brochure recommendations in annex).

Hint 3: Ask for "hidden" electric devices that are only temporarily used or are not visible at a first glance for other reasons (e.g. a fan heater that is used in winter, bread maker,...). These devices often cause high power costs.

Hint 4: Electric water heating (with a boiler or an instantaneous water heater) induces high power costs. Here, the saving potential is very often considerable by installing timer switches (boiler) and water saving devices. After installing water saving shower heads and tap aerators, check if the devices still work properly. Water saving devices may not be used in combination with pressureless boilers.

Tipp 5: Most people never bothered how long a certain lamp in their apartment is burning each day, or how many minutes they need to take a shower. This information should always be critically checked on plausibility. Pay attention to the fact that duration of use may vary seasonally. If necessary, discuss with the household members if their data can be correct.

Table 5: Synopsis of data to be acquired in a household on saving potentials

| **Type of device** | **Consumption** | **Usage** | **Saving potential** |
|---|---|---|---|
| Lighting (Ceiling lamps, wall lamps, table lamps) | Typo of light bulb (glow lamp, halogen lamp), number of lamps, wattage | Question: How often and how long are the lamps on each day? | Replacement by energy saving lamp |
| Electronic entertainment devices (TV, computer, printer, PlayStation, etc.) | Measuring power consumption when switched on, when on stand-by, if necessary when apparently switched off (but the plug still being in the socket) | Question: How long do you use the devices each day? How long are they on stand-by? | Installing a switchable power strip, individual tips on usage (e.g. to switch on the computer's energy saving mode) |
| Refrigerator, freezer | Measuring the refrigerator temperature (7-10℃ is sufficient), long-term measuring of power consumption (at least 24 hrs) when device is older | Check: Are the sealings okay, is the device not positioned next to the stove, not exposed to direct solar radiation? | Adjusting the cooling temperature to 7-10℃, moving the device to a cooler place. |
| Further major household devices (washing machine, tumble dryer) | | Question: How often do you use the device a day? Which programme setting/temperature? | Individual tips on usage (e.g. use washing machine's economy mode, reduce drying temperature) |
| Further power consuming devices (fan heaters, air conditioning, aquarium heating) | Indentifying the devices and measuring their power consumption | Question: How often and how long do you use these devices a day? | Individual tips on usage |
| (Warm) water consumption (taps, shower, toilet) | Measuring the water flow per minute in shower and taps, checking if toilet flush as an economy switch | Question: How often and how long do you shower (standard value 5-6 min, 5 times a week) How long does water flow from the taps each day? | Water saving power heads, flow restrictors/aerator taps, stopper weights in the toilet flush, adjust water flow in toilet flush |
| If water is heated electrically | Check if thermo stop switches can be installed on smaller boilers | Which level is set? | If possible, installing a timer switch, set instantaneous water heater to a lower level |
| Heating habits (radiators and windows) | Check: Thermostat temperature setting/ airing habits. Is there furniture standing in front of the radiators? If necessary, check room temperature and humidity | Question: How do you air your rooms (inrush airing/windows constantly tipped)? Do you lower the temperature when you leave the place? | Tips on correct airing and adjusting the room temperature. When there are technical problems or mould, refer to consumer protection office or the City Housing Office |

### Saving Potentials of Changing Personal Habits

When you discover power, water and/or heating energy saving potentials already during the data acquisition, give hints on efficient usage instantly. Crucial points here are:

**Cooling devices**

- Is the cooling temperature set too low in the refrigerator?
- Are all seals intact? Is the freezer iced up?
- Is the cooling device positioned next to the stove or exposed to direct solar radiation?

**Washing machine**

- Which temperature is set for washing?
- Does the household use economy modes?
- Do they always fully load the machine?

**Electric water heating**

- Can the warm water boiler/instantaneous water heater be set to a lower level?
- Can warm water boilers be switched off at times? (Does this match the household's living habits?)

**Heating and Airing**

Hints on saving heating energy by heating efficiently are mainly relevant during the heating period from October to early May. These questions help recognising heating energy saving potentials:

- Are windows tipped constantly?
- Are radiators covered by furniture, curtains or the like?
- Is the temperature being turned down in the evenings and when the rooms are not being used?
- Are there problems with mould? (May be incurred by wrong airing habits.)
- Are additional fan heaters, electric radiators or the like used in winter (high power consumption)?

Arguing hints:

Although heating costs that are saved by changed habits or reduced warm water consumption are not a benefit for ALG II or social support recipients themselves but for the municipality, they profit from the saved costs instantly when they find a job. Besides, correct heating and airing avoids mould.

A list with recommended habit changes in order to save energy and water you can find in Annex 1.

## 6.4 Data Evaluation

The next step is to evaluate the data acquired in the household.

When a long-term measuring of the refrigerator power consumption has been performed, you request the consumption data after a couple of days by phone. The gauge is picked up on the second visit.

Data are evaluated with, e.g., an Excel-tool. Enter the acquired data are in the analysis programme in order to assess the ascertained energy and water consumption. Is the power and water consumption very high or high, considerable saving potentials are to be expected.

Use the device types and the acquired usage data in order to project the household's power and water consumption. If the result significantly differs from the actual power and water consumption according to the accounted data, then it is likely that there are "hidden" consumers in the household or that the information on times of use need to be revised.

"Hidden" power consumers that are not visible during the data acquisition and that you should ask for, are:

- another cooling device in a storage room/basement (e.g. freezer)
- devices that are used at times only: fans or air conditions (used in summer); fan heaters, electric radiators or heating blankets (used in winter)
- Airing tools in the bathroom, kitchen hoods
- Flat iron, toaster etc. (when used often)
- Aquarium heater and pump
- Waterbed

Subsequently, use the analysis program in order to determine saving potentials and the efficiency of possible energy saving devices. Choose suitable energy saving devices by the result, enter data and, if necessary, further saving advice into the analysis tool. These hints appear in the evaluation report for the household that is eventually printed out and comprises the essential results that are going to be presented on site.

You can find an exemplary household report with an additional device list in Annex 1. The Excel analysis tool is listed in Annex 2.

Example: Database

The nationwide Energy Saving Check uses a specially developed database. The advantage here is that all results can be evaluated centrally. But individual readjustments when entering and evaluating the data are not possible and the steps of calculation remain invisible.

## 6.5 The Second Service Visit: Installing the Energy Saving Devices and Giving Saving Advice

The second service visit should be made as shortly after the first one as possible. If you can, send the same advisors as at the first service visitors. In preparation of the visit, print out the household report and collect the necessary energy saving devices.

On site, explain the results using the report as a help. Point out how much the household can save when the devices, that you are going to install, are used. Install the devices subsequently and explain peculiarities that may occur when they are used. Evaluation of the Frankfurt Energy Saving Service showed that energy saving devices worth an average of 70 € per household should be installed. Each household that received advice got an average of about eight energy saving light bulbs, one switchable multiple socket, one water saving shower head and one or two aerator taps. Timer switches for the warm water boiler needed to be installed only in any fifth household that heated water electrically. (See also table 3).

Then, the members of the household get further individual advice on how to reduce their energy and water costs according to the energy saving potential that have been recognised at the first service visit. As there are adjusting the cooling temperature in the refrigerator (if it is below 7℃), moving the refrige rator to a cooler place (not next to the stove or in front of a sunny window, etc.); or washing at lower temperatures (60℃ instead of 90℃, 30℃ instead of 60℃).

It is not always helpful to advise purchasing new, more efficient devices that low-income households in most cases cannot afford. It does, however, make sense to point out to use existing devices that consume a lot of power less frequently (e.g. 300 W uplights). Using a device list in addition to the household report, you can explain further energy saving potentials. This makes implementing your advice more attractive. If necessary, hand out information material or brochures on energy saving.

At the end of the service visit, the customers confirm the receipt of the energy saving devices. If a device for measuring the power consumption of cooling devices has been installed at the first visit, it is picked up again.

You can find a list with recommended habit changes in order to save energy and water in Annex 1. Annex 1 also comprises a list with brochure tips (including suppliers) and interesting web links.

Hint: A good overview for the interested layman is offered in the brochure “Strom effizient nutzen” supplied by the Hesse Ministry of Economies (2005) Download from www.energieland.hessen.de/Dokumente/Informationen/Strom_effizient_nutzen.pdf.

# 7 Documentation and Assessing Your Success

The Cariteam Energy Saving Service project was evaluated comprehensively in 2009. This meant to subsequently request the households that received advice for their contentment in order to ascertain possible improvement potentials and also to calculate the saving effects from the installed saving devices, and to ascertain further saving effects from followed advice on the change of user habits.

You can download the evaluation from www.bmu.de/energieeffizienz/downloads/doc/44455.php. Attached to the evaluation, there is the question sheet that was used to personally interview the total of 118 households. The method that was used to calculate the saving effects is described in the report.

If you want to make a similar evaluation, you have to mind these points:

Identify an objective that is pursued with the evaluation:

- Control of success / ascertainment of saving effects? (Calculation, interviewing the households on usage of devices installed, implementation of hints on habit changes)
- Ascertainment of household contentment / improvement potentials (interviewing the households)
- Further objectives?

In ascertaining the **household contentment**, an anonymous feedback to the actors is needed in order to avoid “socially desired” answers (people want to please the interviewer). This can be done via a question sheet to be sent back anonymously (no sending address!) or via an interview that is performed by a neutral third party who guarantees data protection. We recommend the interview by a third party as question sheets promise a low response rate (i.e. the question sheets will not be sent back). There is also a risk that only people who were content send back their sheets (statistical bias effects).

To **calculate saving effects**, it is essential to know that there is not a saving effect for only one year but that there are measures that have effects over many years (investment appraisal). You can assume these life spans for energy saving devices: Energy saving lamps six years, switchable power strips seven years, water saving devices ten years.

A simple **evaluation of power savings** can, e.g., be done by taking down the meter readings after the service visits before installing the energy saving devices and, again, after two or three months. Project the figures for the entire year and you get the actual savings in comparison to the former consumption.

An interview on the **implementation of recommended habit changes** should not be done immediately after the service visits, but at least three months (better six months) afterwards. This is to only way to make sure that routine has changed permanently.

A measuring of the saving effects after a longer period (e.g. one year) is difficult for several reasons. As not all power bills in a city are made at the same time (“rolling” accounting system, by street or quarter in most cases), you would have to make sure that for all households that are to evaluate, in fact twelve months have passed between the energy consulting and the next accounting. If the energy saving devices have been installed, for instance, in June, and the next accounting is done already in September, the bill includes only three months of “saved energy time” and the saving effect on the annual accounting is accordingly low. This problem can be solved by taking down the meter readings when the energy saving device is installed. During evaluation, the new readings can be taken down and the difference can be projected for an entire year.

You also have to additionally ask the households if new device have been purchased after the service visits (e.g. tumble dryer), if the number of persons living in the household has changed and, thus, more energy is consumed, or if other reasons could have effects on the power consumption (e.g. absence over the course of the day due to a new job, more frequent use of the washing machine after the birth of a child, use of a heating blanket due to illness, …).

These guidelines offer further information: ”ifeu-Institut für Energie- und Umweltforschung (2007): Leitfaden zur Evaluation von Stromsparberatungen zur Ermittlung der Kosten-Nutzen-Effekte“ Can be downloaded from: www.ifeu.org/energie/pdf/Leitfaden_Evaluation_E-Beratung.pdf (in German)

# 8 Success Factors and Impediments

These points are **success factors** for implementing the project:

- Free give-aways of energy saving devices
- Installing comprehensive, high-quality and long-lasting energy and water saving products improves the cost-benefit-ratio. Don't stint on quantity or quality here. In Frankfurt/Main, the energy saving articles made less than 15 % of the total project costs, including manpower and other material costs.
- Integration of water saving devices (especially water saving shower heads) leads to a high reduction of water costs and additional energy savings in water heating (mostly heating energy savings). This is a vital argument to win over the ARGEs and municipalities to fund the project. Installing high-quality water saving devices improves the project acceptance in the households (added value from function and improved looks).
- Social welfare association as project consortium and sender of the offer ("benefit of trust").
- Good cooperation with the local ARGEs in funding and also assignment of participants with a suitable qualification and/or good communicative skills
- Good contacts and networking with many local actors (essential for project acceptance, funding, PR work, further co-operations)
- Co-ordination and co-operation with local professional suppliers of energy consulting services, e.g. energy consulting by the consumer assistance office
- Point out the win-win for all parties involved. The project consortium funds the project for different objectives (employment promotion, cost reduction for households and municipalities, climate protection, educative reasons).
- Start PR work as soon as the project starts. Continuously, also personally address targeted low-income households via already established channels (as there are social welfare advisory offices, food banks, and job centres); address households on the premises of (energy) cost reductions with easily understandable material.
- Integrate older participants, women and people with a migrational background in the service teams.
- Give individual, easily implementable energy saving advice with no or little capital expenditure (recommending to purchase new household devices often fail because low-income households cannot afford them, even though the purchase would make sense economically).
- The saving potentials are explained in a personal conversation. The advisory service happens "at eye level" and is done by former long-term unemployed persons who know the households' situation
- First and second service visit take place within a short time frame and are made by the same service team, as far as this is possible.

The exit criteria for your project implementation may vary strongly from region to region. These **impediments** may complicate your project or even render it impossible:

- The jobcentre opposes the project.
- Difficulties in the (additional) project funding (e.g. when the municipality is on budget freeze, or the case fix rates are very low)
- The jobcentre appears as a participating institution on the information material (this may lead to acceptance problems from ALG II and social support recipients who fear an examination of their households).
- Low water prices, municipalities therefore not being interested in reduced water costs (especially in Eastern Germany)
- Far distances in rural regions with little public transport (needs a car and participants with a driving licence)
- Small share of low-income households in the region, low unemployment rate (leads to possible sponsors having little interest in funding such a project)

# 9 Integrating the Participants in the Labour Market

## 9.1 First Experiences

The Energy Saving Check first evaluated their success in integrating their participants in the labour market after about a year with support of the Frankfurt Caritas Association. Of a total of 746 participants between December 2008 and late August 2009, 163 participants left the employment promotion measure prematurely for different reasons. This rate is relatively low in comparison to other employment promotion measures. 29 % of the participants from AGHs with additional cost reimbursement ("One-Euro-Job") cancelled the measure prematurely, this rate is significantly lower when participants were hired under §16e SGB II or as AGH with a fix payment.

The rate of participants who finished their measure within the Energy Saving Check and could be integrated in the labour market subsequently is 24 %. About 18 % could be placed in a primary labour market job so far. We could place them in very different positions, including some singular positions on the energy saving advisory service sector (energy agency, energy management, instructor at the Energy Saving Check or related sectors (facility manager, crafts). Apart from that, 2 % of the power saving advisors found a position on the secondary labour market, 2 % went into further educational training, and 2 % started a freelancing job.

**Results from interviews with former participants of the Frankfurt Energy Saving Service:**

In order to ascertain the contentment with the qualification measure and its impact on the professional re-orientation and the re-integration in the labour market, /ISOE 2010, not published/ comprehensively interviewed six former participants who worked for Cariteam Energy Saving Service in 2007 and 2008.

All participants stated that the qualification was, in hindsight, of great import for their personal and professional development. They highlighted the fact that the qualification measure gave new professional perspectives also to participants who were 50 years of age or older. The salient point, here, was the change in self-perception and the improved motivation rather than the technical qualification. In comparison to other AGHs with additional cost reimbursement, the interviewed persons understood the Energy Saving Service as a sensible occupation rich in variety, as they were able to help low-income households and do something for climate protection at the same time. The singular persons each named different tasks that they considered especially interesting and appealing (consulting, Excel training and using the analysis tool, PR work for the project, etc.).

The energy saving service made it possible to get in contact with people in a similar situation. Exchanging knowledge and experience within a team, getting in contact with the households receiving advice and public appearance as to recruit new consulting customers were experienced a positive challenge. Successfully mastering these challenges gave the participants back their trust in their own powers and skills and strengthened their self-esteem. Especially the service visits in the households were assessed as very important for further personal and professional development. They allowed the participants to improve their social skills, and the positive feedback from the households that received advice gave them a feeling of being needed.

From most interviewed persons' point of view, the Energy Saving Service led to an improvement of their professional perspectives. Nearly all interviewed persons successfully got back into professional life after the qualification measure ended. Their professional positions differ strongly, but most of them are directly or indirectly related to Cariteam Energy Saving Service. Three of the interviewed persons absolved a further qualification by the Chamber of Crafts as a building energy advisor and are currently working as a freelancing building energy advisor, an employed indoor advisor or as a chimney sweep with an additional energy advisory qualification. Another participant works as a technical instructor for the Energy Saving Check. The other two interviewed persons assumed jobs that have no relation to energy advisory service.

# 10 Further Developing the Energy Saving Service

## 10.1 An Additional Subsidised Refrigerator Programme

In some German cities, the Energy Saving Service offer (or the Energy Saving Check, see chapter 1.2) is complemented by a municipal subsidised refrigerator programme. Cooling and freezing devices are amongst the largest power consumers in tenants' households. The nominal basic rate[13] of 359 € (as of March 2010) comprises a monthly amount of 1.65 € for the purchase of new cooling and freezing devices. This would make a single household save money for 15 to 20 years until it could afford a new efficiency class A++ cooling device.[14] ALG II or social support recipients are hardly able to invest in efficient larger household devices. In practice, they often use old devices or, when it becomes necessary, buy second hand devices. This leads to high power consumption and, thus, to high oncost. A subsidy programme for economical cooling devices that would cover a significant share of the acquisition costs could lower the investment impediments of purchasing efficient cooling devices.

Attention needs to be paid to the fact that financial gratuities by ARGEs and social welfare authorities often are regarded as an income. The amounts of exemption are, due to the ARGEs' and social welfare authorities scope of discretion, not ruled out coherently. The BMAS (German Ministry of Labour and Social Affairs) recommends an amount of exemption of about half the nominal basic rate which is presently 178 € for a single household. This could cover about half of the acquisition costs for a smaller, efficient new refrigerator of about 400 €.

The City of Düsseldorf offers low-income households a subsidised refrigerator programm in combination with the Energy Saving Service by Caritas or Renatec [German clerical welfare organisations]. This can be made use of by all recipients of ALG II, social support, basic security, owners of the "Düssel-Pass" [Düsseldorf social passport] or housing benefits recipients. For the purchase of a new refrigerator in combination with scrapping an old one, a scrappage allowance of 100 € is paid. Additionally, households get support and hints for the purchase. The old refrigerator will be picked up by the Caritas organisation and properly disposed of. Making use of the refrigerator allowance presupposes that the need of a new device has been ascertained, that the old device is at least seven years old and consumes too much power. The device's power consumption is measured in the course of the Power Saving Service project. To do this, on the first service visit (data acquisition), a measuring device is installed in order to perform a 24 hrs measuring. The households report the consumption figures to the project, if possible, by phone, so the results can be taken into the household report. The measuring device is picked up at the second service visit.

[13] Basic rate of a single household. A household of two adult persons gets, e.g., two times 90 % of the basic rate.

[14] For an overview on efficient cooling devices see www.ecotopten.de.

If the refrigerator plug is not accessible (as it often is the case in fitted kitchens), the device power consumption is estimated according to several factors (age, condition, etc.). The project also uses the cooling device check on www.co2online.de (click “Kühlcheck”) that enables to find out the average power consumption of many different refrigerator types. The refrigerator allowance is advertised by a symbolic coupon that is handed out during the first service visit. The subsidised efficiency class is required to be at least A+ (instead of A++). A form sheet documents the purchase of the new and the scrappage of the old device. The allowance is paid, when the new cooling device was bought and the old one was scrapped.

You can find the procedures of how the subsidised refrigerator programme was implemented in Düsseldorf in Annex 1.

## 10.2 Charged Energy Advisory Service and Outsourcings

It has been taken into consideration time and again if it is possible to offer the Energy Saving Service also to other target groups as a charged service offer. If you do, you have to take these things into account:

- Charged service offers in the course of an employment promotion programme are hardly possible with MAE jobs (“One Euro Jobs”). Preconditions for the assignment of MAE forces are additionality and a common public interest in the tasks. It could, however, be possible on the basis of §16e jobs or job perspectives.
- When projects are sponsored by the government, the sponsoring comes with certain conditions (for instance regarding the target group) that have to be adhered to. A charged advisory service offer would not be possible in the scope of the Energy Saving Check campaign that is funded by the Federal Environment Ministry.
- Experience has shown that households are usually not willing to pay for advisory services. This is proved by, among others, the evaluation of the on-site power saving consulting of the Heidelberg KliBa energy agency. Of a total of 10.000 coupons that offered a power saving consulting worth 200 € for only 20 €, only 50 consultings were eventually requested. And that although he consulting took place on-site by professional energy advisors and the coupons were sent together with the municipal utilities bills. /IFEU 2007/

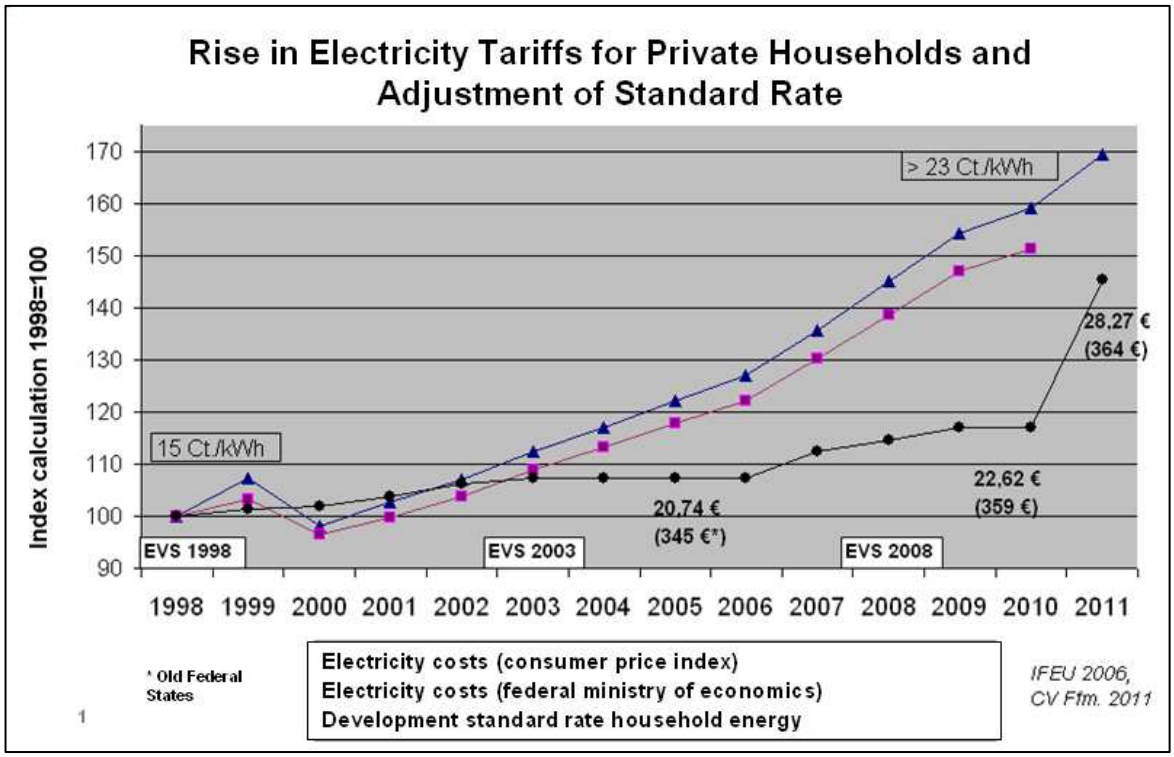
The Frankfurt Caritas Association together with the Frankfurt City Energy Department pursues a different approach. Here, Cariteam Energy Saving Service employees under §16e and former participants who absolved an additional qualification as an energy advisor by the Chamber of Crafts, offer the Energy Saving Service to other households, too. Certain Frankfurt households are entitled to get this service for free, when they reduced their power consumption in comparison to the previous year by more than 10 % and in addition to that, are willing to act as contact persons for other households. The costs for this “service” are covered by the City of Frankfurt. For further information, see www.frankfurt-spart-strom.de.

# 11 Subsidised Energy Cost for ALG II / Social Support Recipients – Why are Energy Saving Advisory Services so Vital?

## 11.1 Power: Basic Rate Share Is Not Sufficient

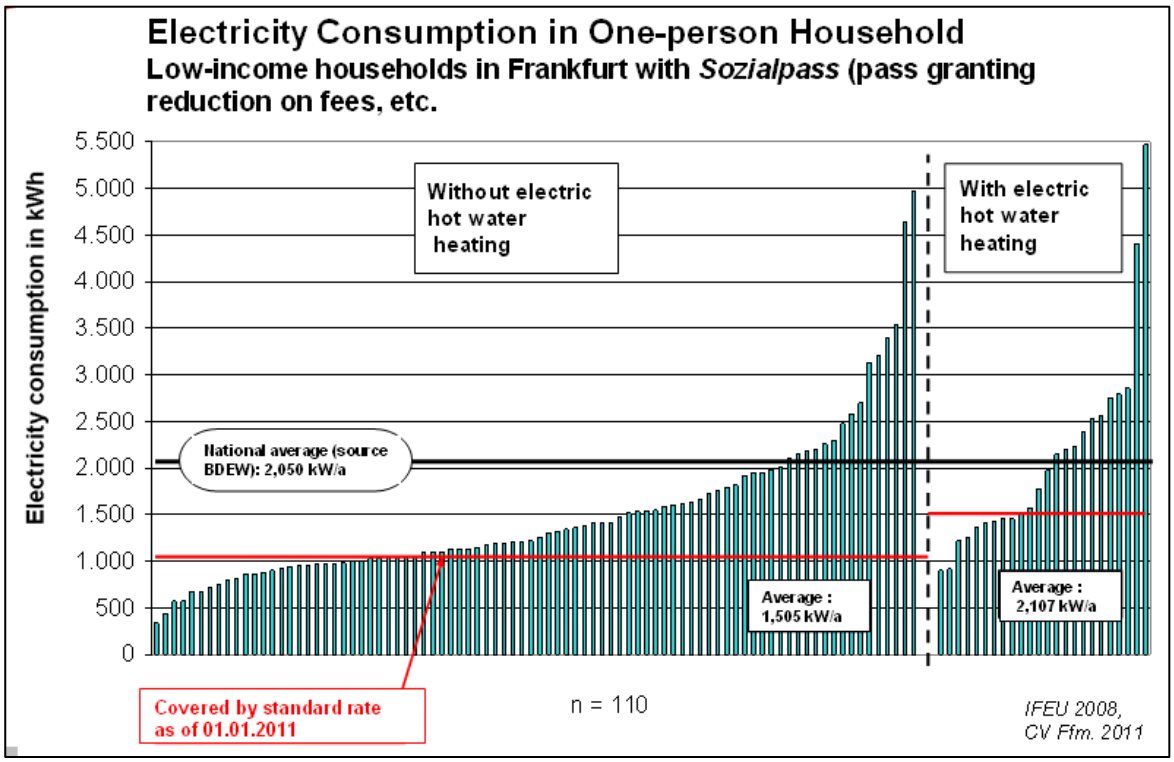
The costs for household energy that normally means electric power (excluding heating power), are included in the basic rate people get who are persistently unemployed or get social welfare. The power prices have risen considerably over the past years, but the basic rate has not been adjusted accordingly. This can also be seen in Figure 1. The basic rate for a single household, presently 364 € per month (2011) includes the amount of 28.27 € for electricity (e.g. for lightening, cooking, fridge and washing machine). Most households (70 to 80 %) have their water heated by central heating. In this case, people get a supplement about 8 € per month. There is a deduction when the household uses gas for cooking instead of electricity.

Figure 1: Power price rise and basic rate development /IFEU et al. 2006, as amended of 2011/




These amounts are sufficient for only about 1,100 kWh power a year (or 1,500 kWh if water is heated electrically). Even people who use extremely little power can hardly achieve that. The German average power consumption of a single household 2,050 kWh a year /BDEW 2011/. But low-income households do not need less power just because they have less money to spend. All the opposite, in most cases they use old cooling devices with high power consumption because they cannot afford new, more efficient ones. Moreover, households need rather more power for lighting and cooking when their members are at home most of the day. However, power consumption may vary strongly from household to household, as Figure 2 shows.

Figure 2: Evaluation of power consumption of low-income households /IFEU 2009b, amended 2011/




## 11.2 Who Profits from Water Saving Measures?

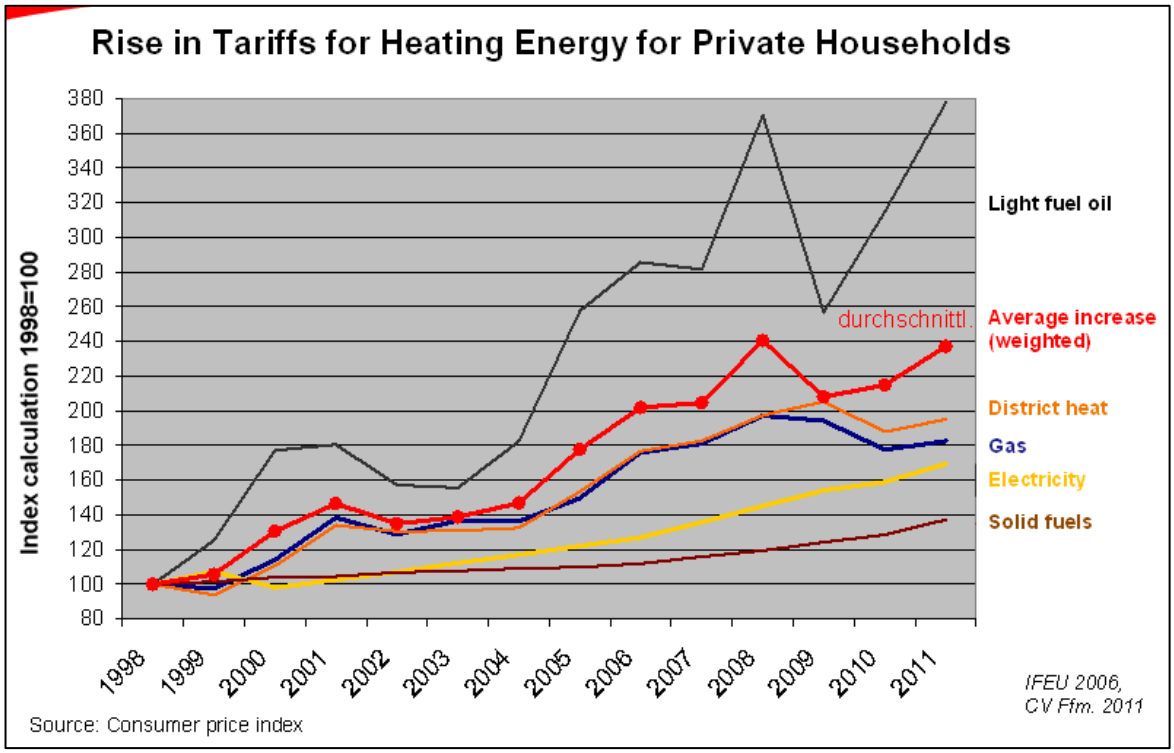
Water costs, as a part of the associated housing costs, are covered by the municipalities, and so are heating costs (see chapter 11.3). Saving water thus leads to high cost reductions because water is expensive in Germany. The average costs for one cubic meter of water, including waster water, are about 4 €. Water saving measures not only induce water savings, but also save energy that is used to heat water.

If permanently unemployed people (ALG II recipient), however, find a new job, they themselves profit from costs savings in water and heating.

## 11.3 Heating: Municipalities Cost Burdens Increase

Housing and heating costs for ALG II and social support recipients are covered by the municipality to their full extent as long as it is “appropriate”. This is ruled out in the social security code (SGB), for ALG II recipients in SGB II §22 (1), for social support recipients in SGB XII §29 (3). In practice, the heating cost share that is covered by the authorities is often litigious, as there is no exact definition of what is meant by “appropriate”. Besides, the case workers at the authorities or in the jobcentres often can’t assess this “appropriateness” from the heating cost bills, especially not in times of rising energy costs.

Figure 3: Development of heating energy prices /IFEU et al. 2006, as amended in 2011/




According to the heating cost act, in multiple family housings, between 50 % and 70 % of the costs for heating and water heating must be charged according to consumption. But there are still households that are not charged according to consumption but per square metres, as there are no suitable meters.[15]

The rising heating costs, however, are a burden for the public budgets, especially those of the municipalities. Just within the time span from 1998 to 2008, the heating energy prices rose by more than 200%. About a quarter of the housing and heating costs are refunded by the Federal Budget. The cities and municipalities have a great interest in restricting the costs by saving heating energy. For the households themselves, however, saving heating energy and water is not very attractive. The municipalities have tried to regulate this by limiting the cost coverage, but this is illegal and led to many formal complaints and social court cases.

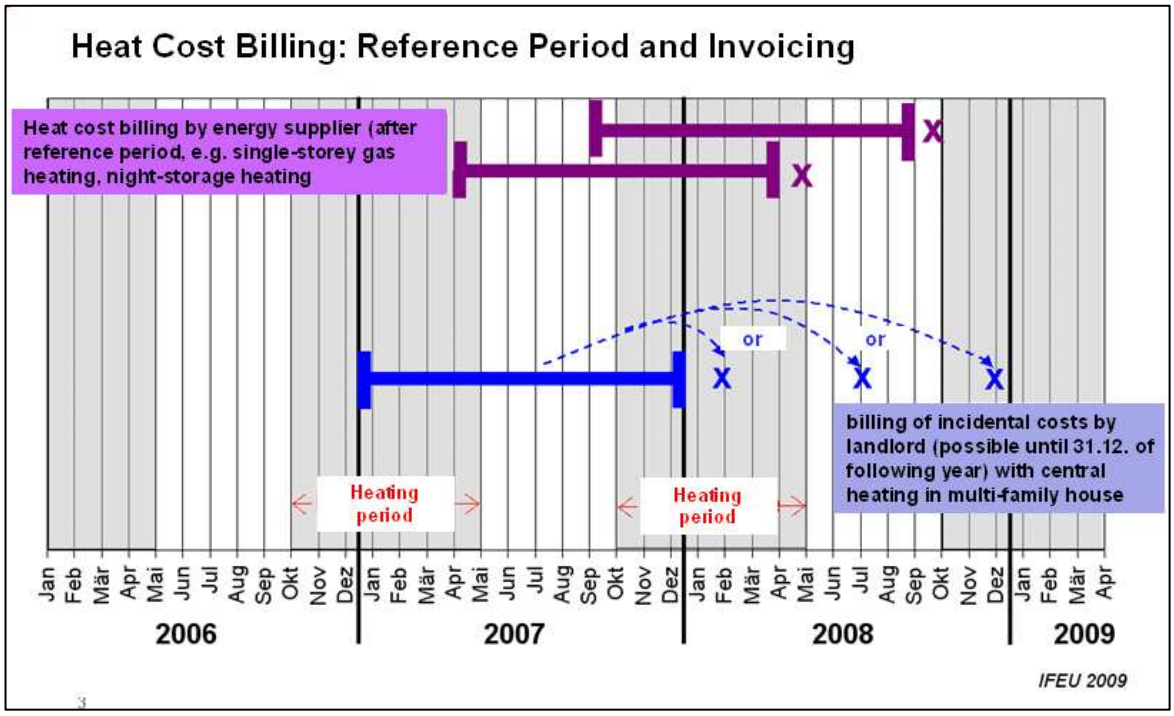
[15] Cf. HeizkostenVO [German Heating Cost Act] §7 and §8. Even though §4 does rule out a duty to document the consumption of heating energy and warm water, but §11 allows some exceptions under certain conditions.

The Federal Social court, in a decision dating June 2009[16], introduced a kind of “minimal limit of investigation” that uses the German average heating cost table as a standard.[17] If there are any, also local heating cost tables shall be taken into account. Only when a household’s heating costs exceed the highest category, benefit recipients must prove, why their heating energy consumption is increased and that they didn’t cause the high consumption, e.g. by uneconomic heating habits, themselves. Possible reasons are a bad building isolation, the site of the apartment within the building (e.g. in the basement), a strong rise of prices (e.g. oil) or a long, cold winter.

If households strive to save energy, the next problem that occurs is the fact that this often becomes visible in the billing but with a long delay. If heating costs are charged with the associated costs, the associated housing costs account need not be available until end of the following year. So, two years may from when the tenant starts to save energy until accounting. (See Figure 4).

If, for instance, economical heating was begun in spring 2007, the effort may not become visible until the associated cost accounting will be available at end of year 2008 (and not with the associated cost accounting for 2006, which may not be available until end of year 2007).

Figure 4: Delays in heating cost accounting




[16] BSG B 14 AS 36/08 from 02.06.2009.

[17] See www.mieterbund.de or www.heizspiegel.de.

# 12 Your Partners for Further Information

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(in German)

# 13 Abbreviations

| | |
|---|---|
| ALG II | Arbeitslosengeld II – unemployment benefit II |
| AGH | Arbeitsgelegenheit – employment opportunity |
| ARGE | Arbeitsgemeinschaft von Agentur für Arbeit und Kommune, auch Jobcenter genannt – workteam of employment agency and municipal council, also called Jobcenter |
| BA | Bundesagentur für Arbeit – Federal Employment Agency |
| BMU | Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit – Federal Ministry for Environment, Nature Preservation and Rector Safety |
| BUND | Bund für Umwelt und Naturschutz Deutschland e.V. – association for environmental and nature protection |
| CV | Caritasverband association |
| $CO_2$ | Carbon dioxide |
| DCV | Deutscher Caritasverband – German Caritas association |
| eaD | Bundesverband der Energie- und Klimaschutzagenturen Deutschlands – federal association of energy and climate protection agencies |
| ESF | Europäischer Sozialfonds für Deutschland – European social fund for Germany |
| EVU | Energieversorgungsunternehmen – energy supply company |
| IDA | Katholische Bundesarbeitsgemeinschaft Integration durch Arbeit im Deutschen Caritasverband e.V. - Catholic federal workteam for integration through work in the German Caritas association |
| KliBA | Klimaschutz- und Energie- Beratungsagentur Heidelberg-Nachbargemeinden gGmbH – Consulting agency for climate protecion and energy in Heidelberg and surroundings |
| MAE | Mehraufwandsentschädigung – compensation for additional costs |
| SAENA | Sächsische Energieagentur GmbH – Saxon energy agency |
| SGB II | Sozialgesetzbuch II (inkl. Regelungen zu ALG II + Beschäftigungsförderung) – Social code II (incl. regulations on ALG II and employment promotion |
| SGB XII | Sozialgesetzbuch XII (inkl. Regelungen zum Bereich Sozialhilfe) – Social Code XII (incl. regulations on the area of social assistance) |
| ÖPNV | Öffentlicher Personennahverkehr – local public passenger transport |
| UBA | Umweltbundesamt – Federal Environmental Agency |
| VZ | Verbraucherzentrale – Consumer Centre |
| vzbv | Verbraucherzentrale Bundesverband e.V. – Federal Association of Consumer Centres |

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/ULD 2007/

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/VZ NRW 2003/

Verbraucherzentrale Nordrhein-Westfalen: 99 Wege zum Strom sparen.

# 15 Annex 1

**Enclosure 1:** **Overview of Offers for Energy Advisory Service in Private Households**

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Annex 2 can be obtained on request from Caritasverband Frankfurt e.V.
(see Chapter 12, Your Partners)

## Enclosure 1: Overview of Offers for Energy Advisory Service in Private Households

| Supplier | Type of Offer | Costs | Target Grout | Contact |
|---|---|---|---|---|
| **Consumer protection office's Energy Advisory Service** [1)] | Energy consulting at the consumer protection office or other places (by appointment) | Fee: 5 € for people with low income | For tenants and estate owners | Find nearest consulting office on www.verbraucherzentrale-energieberatung.de. |
| **Local municipality's department of environment** | Energy consulting as a part of environment protection advisory service, normally at the town hall. | Usually uncharged | For tenants and estate owners | Ask for your contact at the town hall. |
| **Regional energy agencies**[2)] | Many energy agencies offer also energy consulting for citizens, usually at the energy agency's office or at scheduled times at the regional town hall (by appointment).<br>(Offer doesn't exist in all regions). | Usually uncharged (if the Federal State or the municipality sponsor the consulting) | For tenants and estate owners | (Partially) organised by the eaD [German federal association of energy and climate protection agencies] www.energieagenturen.de<br>You may inquire with the Umweltamt to find an energy agency nearby |
| **Environment protection organisations (e.g. BUND)** | Differs vastly, depending on the organisation's staffing, consulting as a part of environment protection consulting at the relevant organisation's office | Usually uncharged | For tenants and estate owners | Find your nearest contact partner on www.bund.net/bundnet/ueber_uns/bundgruppen/. |
| **Freelancing energy advisors** | On-site energy consulting (at the relevant building), especially on necessary renovation measures, comprehensive data acquisition and reporting | Some 100 € (possibly sponsored by Federal funding schemes) | For estate owners | Find your nearest regional contact in the energy consultants list on www.bafa.de/bafa/de/energie/energiesparberatung/index.html. |
| **Specialised trade** (no independent consulting) | Product-oriented advice at the shop | Uncharged | For tenants and estate owners | At the shop |
| **Crafts/Chimney sweep** (no independent consulting) [3)] | e.g. in the course of energy checks sponsored by the relevant Federal State or by the Deutsche Bundesstiftung Umwelt [German Federal Fund for the Environment] | Depending on Federal State | For estate owners | To be asked, e.g., at the Federal State's energy agency (see www.energieagenturen.de) |
| **Municipal utilities/energy provider** (no independent consulting)[3)] | Energy consulting offers differ vastly (from comprehensive information offer at the municipal utilities', rent-a-tool service etc., to non-existent). Consulting not always independent. | Usually uncharged | For tenants and estate owners | Ask for offers and contact partners at your local municipal utilities. |

1) There are, in addition to that, further energy consulting offers in some cities: www.vz-nrw.de/UNIQ123426518129742/link197984A.html
2) Apart from regional energy agencies, there are also energy agencies that are subject to the relevant Federal State (totally or partially funded by the Federal State); these usually don't offer consulting for private consumers. As an alternative, there is the Deutsche Energieagentur (dena) [German Energy Agency] that offer their service all over Germany and host a central hotline: www.dena.de. Most of the energy agencies form a network within the federal association Bundesverband für Energie- and Klimaschutz (eaD). They don't offer even service due to the differing types of sponsorship and funding.
3) Consulting is not independent from product and provider.

**Enclosure 2: Types of publically funded employment (excerpt, no claim to completness**

| Type | Funding | Duration and coverage | Premises | Sundry |
|---|---|---|---|---|
| 1a) Job opportunity with **additional cost reimbursement** under §16d SGB II *„One Euro Job"* /BA 2007a/, /IAB 2006/ | Participants get an allowance (usually 1 or 2 €). Does not affect ongoing benefits (e.g., ALG II, no employment due to social assurances, varying case fix rates.) | Usually six months, iterations possible, usually 15 to 30 hrs a week. | | Employment must be additional and not-for-profit (precise job description is compulsory) |
| 1 b) Job opportunity with **fix salary** under §16d SGB II /BA 2007a/, /IAB 2006/ | Participants get locally customary salary instead of ALG II. Funding covers the project consortiums cost (No legal rules on amount of funding, is at the ARGE's discretion). Temporarily limited contract with social insurances (Health insurance and pension scheme). | Usually 6 to 9 months, limitation to a maximum of 12 months recommended by the BA [German Federal Employment Agency], usually 30 to 40 hrs a week | Chances on long-term employment on the first labour market | More flexible work assignments possible. |
| 2) **Employment grant** ("JobPerspektive" funding scheme) Under §16e SGB II (as of 2009, prior to that, §16a), *"16e job"* | Participants get locally customary salary instead of ALG II. Employer gets a grant of up to 75% of the gross salary, a fix rate in addition to further costs of up to 200 € a month for further qualification is possible. Temporarily limited contract with social insurances (Health insurance and pension scheme). | Up to 24 months, under certain conditions, a long-term funding is possible. Normally full time, minimum is half time. | Long-term unemployed with at least 2 placement obstacles | Offer exists since Oct 01, 2007. |
| 3.) Federal **Kommunal-Kombi** programme *„Kommunal-Kombi"* /BVA 2009/ | Participants get locally customary salary instead of ALG II.. Project consortium gets 50% of gross salary refunded by the public purse, plus up to 200 € social insurance costs refunding by European Social Funds (ESF). (If participants are 50 years of age or older, top-ups from the ESF means possible). Temporarily limited contract with social insurances for the participants, | Up to 3 years, Usually 30 hrs a week | Long-term unemployed people, unemployed for at least 2 years, ALG II recipient for at least 1 year. | Only in certain regions with an extraordinary high unemployment rate, can be requested only until 31 Dec 2009. |

| | | | | |
|---|---|---|---|---|
| 4.) Federal programme **"Perspektive 50plus** – Employment promotion agreements for older people in the regions"<br>*/BMAS 2010/* | The programme is based on a regional approach, allowing the employment promotion agreements to react to regional peculiarities when choosing an integration strategy. | | | |
| ...50plus – wage insurance (combined wage scheme) | Supports older persons when they accept a lower-paid occupation in compensating the net salary and the pension scheme costs. | 2 years | Persons unemployed or threatened by unemployment of 50 years of age or older. | |
| ... 50plus – Integration grant | Employers may get a grant of 30% to 50% to the salary, when they employ people of 50 years of age or older for at least a year. Grant may be increased (to up to 70%) when the employed person is mentally or physically impaired. | Maximum of 3 years.<br><br>Longer terms possible. | Participant is 50 to 64 years of age, unemployed for at least six months. | Grant is reduced by 10% a year after the first year of funding. |
| 5.) **Pilot scheme Citizen's Work** (only in selected cities, so far)<br>*/BA Sachsen-Anhalt et al 2009/* | Objective: Activating all human resources while offering non-commercial, social-insured employment at the same time.<br>Salary depending on qualification requirements for the job, for instance an average of 710 € in Saxony-Anhalt and Thuringia, 1,050 € in Bavaria. The pilot scheme is funded from "16e"-means as well as partially by the municipalities and project consortia. | 30 hrs a week, (part-time in order to allow for an accompanying qualification) | People who won't have a chance of finding a job on the first labour market although the general economical situation is good | In process of planning |

It is at the relevant ARGE's or jobcentre's discretion to decide for which type of funding they apply.

**Enclosure 3: Flyer of the Frankfurt/Main Energy Saving Service**



**You need more money? Save energy!**

- Free energy saving consulting
- Free starter pack (with energy and water saving products) worth up to EUR 70
- Savings: up to EUR 100 per year

Voucher for Free Energy Consulting Free Starter Pack

**Save power per touch of a button**

**Save power by exchange**

**Save water with system**

## Enclosure 4: Checklist Bag/Box Content

**General:**

- Client's address, directions
- Energy advisor's ID card
- Data sheet, clipboard and pen
- If necessary, copy of privacy policy
- List of immediate help offers
- Scissors (to open wrappings)

**Tools**

- 3 ammeters (1 or 2 simple meters for long-term measuring of cooling device's power consumption, and 1 to measure other devices)
- Flow cup (alternative, measure jug and stop watch)
- Thermometer
- Yardstick, measuring tape
- Torch
- Calculator
- Screwdriver
- Extension cord/plug strip (if a socket is hard to reach)
- Pipe wrench or suitable key to adjust the tap nozzle

**Information material**

- Average power consumption data list
- Power saving Information brochures
- "Power Saving Check" flyers for further dissemination

**Energy saving devices for demonstration purposes**

- Several energy saving light bulbs
- Tap aerators
- Water saving shower head
- Timer switch / thermo stop switch
- Switchable multiple socket

**For the second service visit**

- Household report
- Energy saving devices to be installed

**Enclosure 5: Checklist: Procedure of the Energy Saving Service**

| | |
|---|---|
| **Preparation** | |
| Making an appointment | Make an appointment with the client. Ask him to keep his energy accountings at hand for the visit. |
| Approach | Organise the approach to the client, print a sketch providing directions |
| Material | Check the bag/box for completeness (use checklist) |
| **First service visit** | |
| Introduction | Introduce yourselves (present your ID cards, hand over a business card) |
| Information on the project | Inform the client on the project and the consulting procedures |
| Client data | Acquire/correct client data |
| Consumption accountings | Recording of consumption, evaluation, explanation and estimate of power/water bill compared to other households |
| Supplementary details | Is hot water heated by electric means? Is there a gas stove?<br>Have heating pumps been included in the power consumption (for one- or two-family homes)?<br>Is water consumption being measured (by water metres)?<br>Is the consumption of heating energy being measured (by devices attached to the heaters)? |
| Stock-check lighting | Light bulbs and watt values are entered in the report sheet, inquiry for the useful lifetime of the respective lights in made, for lights used longer than 0.5 h/day it is determined together with the customer and according to the list “Immediate Aid” which type of energy saving lights shall be installed. A note is made in the report sheet. |
| Recording standby | Losses caused by standby and pseudo-off are determined and measured, inquiries for the standby times made, and all details are entered in the report sheet. |
| Measurement refrigeration devices | The fridge temperature is measured. In old fridges, power measuring devices are installed for the fridge and the freezer for measurements over several days. |
| Measurement water | The water flow through taps and shower is measured, toilet cisterns are checked, notes are made about need for action, and materials are added to the list. |

| | |
|---|---|
| Heating behaviour | Particularly during the heating season: How do the people heat and ventilate? Are hopper windows constantly open? Are heaters blocked by furniture? Is there a mould issue? |
| Behaviour advice | If saving opportunities for power & heating consumption are found already during data collection advice is given on the spot for more efficient usage. |

| **Data Evaluation** | |
|---|---|
| Fridge measuring | If possible, the customer shall be asked to provide the measuring details over the phone. |
| Analysis program | The collected details are entered into the analysis program. First, the energy and water consumption details are classified. The cost efficiency of optional energy saving products is determined, suitable products are selected and entered into the program. Further saving advice is added. |
| Review | The evaluations and selected energy saving products are reviewed by the supervisor. |
| Review report | The review report is printed. |
| Appointment | The second service visit is arranged. |
| Immediate aid | The energy saving products for the second visit will be made available. |

| **Second service visit** (as soon as possible after the first one) | |
|---|---|
| Presentation of results | The results of the analysis are explained. |
| Installation of the energy saving devices | The energy saving products are installed (lights, water saving devices, power strips, timer switches, etc.) and instructions given how to use them. |
| Confirmation of receipt of the devices | The consultants make sure they receive a receipt for the devices installed and consultation provided. |
| Further saving advice | If necessary, further saving advice is provided. For example, would it make sense to buy a new fridge A++? |
| Information material | In case of interest, information material on efficient dealing with power and heat is left behind. |
| Feedback | The customer is asked to provide his assessment of the consultation and his grade of satisfaction. |
| Fridge measuring | The measuring device for measuring of refrigeration devices is taken away again. |

## Enclosure 6: Comparative Values for Energy and Water Consumption

Table 6: Comparative values for power consumption in private households /Consumer advice centre NRW 2003/

| Number of persons per household | Power consumption without electrical hot water generation (kWh per year) | Power consumption with electrical hot water generation (kWh per year) | Assess-ment |
|---|---|---|---|
| 1 person | Less than 800 | Less than 1500 | Very good |
| | 800 – 1200 | 1500 – 1900 | Good |
| | 1200 – 1600 | 1900 – 2300 | High |
| | More than 1600 | More than 2300 | Very high |
| 2 persons | Less than 1500 | Less than 2600 | Very good |
| | 1500 – 2200 | 2600 – 3300 | Good |
| | 2200 – 2900 | 3300 – 4000 | High |
| | More than 2900 | More than 4000 | Very high |
| 3 persons | Less than 2200 | Less than 3700 | Very good |
| | 2200 – 3000 | 3700 – 4500 | Good |
| | 3000 – 3800 | 4500 – 5300 | High |
| | More than 3800 | More than 5300 | Very high |
| 4 persons | Less than 2700 | Less than 4600 | Very good |
| | 2700 – 3600 | 4600 – 5500 | Good |
| | 3600 – 4500 | 5500 – 6400 | High |
| | More than 4500 | More than 6400 | Very high |
| 5 persons | Less than 3200 | Less than 5500 | Very good |
| | 3200 – 4100 | 5500 – 6400 | Good |
| | 4100 – 5000 | 6400 – 7300 | High |
| | More than 5000 | More than 7300 | Very high |

Table 7: Comparative values for water consumption in private households /Federal Bureau of Statistics 2009/

| Number of persons per household | Average water consumption ($m^3$ per year) |
|---|---|
| 1 person | 40 |
| 2 persons | 80 |
| 3 persons | 120 |
| 4 persons | 160 |
| 5 persons | 200 |

According to information provided by the Federal Bureau of Statistics, the average water consumption per person is 127 l/day, i.e. about 40$m^3$ per year

Table 8: Comparative values for heating energy consumption in private households /www.heizspiegel.de/

Heating oil

| **Floor area (2) in $m^2$** | **Consumption kWh per $m^2$/year (comparative values for settlement year 2008)** | | | |
|---|---|---|---|---|
| | Good | Medium * | Increased * | Too high |
| 100-250 | < 103 | 103-164 | 165-236 | > 236 |
| 251-500 | < 95 | 95-154 | 155-223 | > 223 |
| 501-1,000 | < 86 | 86-144 | 145-210 | > 210 |
| > 1,000 | < 82 | 82-138 | 139-202 | > 202 |

Natural gas

| | Good | Medium * | Increased * | Too high |
|---|---|---|---|---|
| 100-250 | < 94 | 94-158 | 159-220 | > 220 |
| 251-500 | < 88 | 88-149 | 150-210 | > 210 |
| 501-1,000 | < 82 | 82-140 | 141-200 | > 200 |
| > 1,000 | < 78 | 78-135 | 136-194 | > 194 |

District heating

| | Good | Medium * | Increased * | Too high |
|---|---|---|---|---|
| 100-250 | < 76 | 76-128 | 129-188 | > 188 |
| 251-500 | < 73 | 73-123 | 124-183 | > 183 |
| 501-1,000 | < 69 | 69-118 | 119-177 | > 177 |
| > 1,000 | < 67 | 67-115 | 116-174 | > 174 |

Heating oil

| **Floor area (2) in $m^2$** | **Costs in € per $m^2$/year (comparative values for settlement year 2008)** | | | |
|---|---|---|---|---|
| | Good | Medium * | Increased * | Too high |
| 100-250 | < 9.9 | 9.9-14.3 | 14.31-19.4 | > 19.4 |
| 251-500 | < 9.2 | 9.2-13.5 | 13.51-18.3 | > 18.3 |
| 501-1,000 | < 8.4 | 8.4-12.6 | 12.61-17.1 | > 17.1 |
| > 1,000 | < 8.0 | 8.0-12.0 | 12.01-16.4 | > 16.4 |

Natural gas

| | Good | Medium * | Increased * | Too high |
|---|---|---|---|---|
| 100-250 | < 8.7 | 8.7-13.1 | 13.11-17.2 | > 17.2 |
| 251-500 | < 8.1 | 8.1-12.3 | 12.31-16.2 | > 16.2 |
| 501-1,000 | < 7.4 | 7.4-11.4 | 11.41-15.2 | > 15.2 |
| > 1,000 | < 7.1 | 7.1-10.9 | 10.91-14.6 | > 14.6 |

District heating

| | Good | Medium * | Increased * | Too high |
|---|---|---|---|---|
| 100-250 | < 8.9 | 8.9-13.3 | 13.31-17.6 | > 17.6 |
| 251-500 | < 8.4 | 8.4-12.7 | 12.71-17.0 | > 17.0 |
| 501-1,000 | < 7.9 | 7.9-12.0 | 12.01-16.3 | > 16.3 |
| > 1,000 | < 7.6 | 7.6-11.7 | 11.71-15.9 | > 15.9 |

* The building has a potential to save costs by energetic modernisation. Request a free expert opinion on heating efficiency.

**Enclosure 7: Checklist of the Most Important Power and Water/Consuming Devices in Households**

**Corridor**

- o Lamps
- o Telephone (system), answering machines

**Kitchen**

- o Lamps
- o Refrigerator
- o Freezer
- o Stove
- o Microwave
- o Washing machine
- o Tumble dryer
- o Dishwasher
- o Electric kettle
- o Sink tap
- o Electric water heater
- o Instantaneous water heater
- o Kitchen hood
- o Toaster
- o Bread baking machine
- o Coffee machine
- o Radio

**Bathroom**

- o Lamps
- o Electric water heater
- o Tankless water heater
- o Ventilation system
- o Sink tap
- o Shower
- o Flushing cistern
- o Hairdryer

**Living room**

- o Lamps
- o Transformer for halogen lamps
- o TV
- o DVD player
- o Video rack
- o Satellite receiver, set-top boxes
- o Video game consoles
- o Aquarium heating / pump
- o Computer
- o Printer
- o Monitor
- o WiFi Router
- o Scanner
- o Fax machine
- o Stereo rack

**Bedrooms**

- o Lamps
- o Clock radio
- o TV
- o Water bed

**Side rooms / basement**

- o (Supplementary) refrigerator
- o Freezer
- o Circulation pump (gas floor heating)
- o Washing machine
- o Tumble dryer

**Other devices**

- o Radiators
- o Fan heater
- o Air conditioning
- o Fan
- o Flat iron
- o Vacuum cleaner
- o Heating blanket
- o _____

## Enclosure 8: List of Conduct Recommendations

Source: Caritasverband Frankfurt e.V., supplemented by Caritasverband Düsseldorf e.V.

### Lighting

Exchange your light bulbs, spotlights and tubes for suitable energy saving lamps.

Switch light on only where it is momentarily needed. Frequent switching on and off will neither affect the life span of a traditional light bulb nor that of an energy saving lamp.

Note: Energy saving lamps may contain a low amount of mercury. Dispose of old energy saving lamps at the recycling depot.

If an energy saving lamps breaks, don't touch the fragments! Collect them with a moist rag or, best, cling foil, then put them in a plastic bag that can be sealed air-tight or in a glass jug with a screw cap. Air your room for at least 20 to 30 minutes!
Dispose of fragments at your local recycling depot.

### Electric Devices

Many electric devices – from your computer to your HiFi rack – are permanently switched on without need. Switching off the stand-by mode using a switchable multiple socket will reduce your power consumption considerably.

Is your TV on without anybody watching? You can save a lot of energy when you switch it off. A radio supplying background music needs way less energy.

If you buy a new device, take care for a low energy consumption.

### Refrigerator

Optimal storing temperature is +6°C. You save betwe en 30% and 50% in comparison to lower temperatures.

It should not be necessary to remind you of de-icing your refrigerator on a regular basis and that you should fill it systematically.
Refrigerators should not be positioned next to the stove, neither should they be exposed to direct sunlight.
Old refrigerators with badly closing doors are amongst the biggest power consumers.

Never put warm food into the refrigerator, wait until it's cool!

Cheese, ready-cooked dishes and smoked meat should be stored in the upper fridge shelves, dairy products and eggs one shelf deeper.

Easily perishable groceries such as fish, meat or processed meat and sausages should be stored at the bottom on the glass shelf which is the coldest place. Butter or beverages that need but slight cooling are to be stored in the doors where the temperature is higher.

**Freezers**

Freezers are best positioned in an unheated, well airable room, the basement, for instance. There must be enough space at the backside to let the air circulate.

Regular de-icing saves power for the energy consumption increases by 6 % with every millimetre of ice coating.

Leaky door seals should be replaced immediately as otherwise, the energy consumption increases considerably.

**Cooking and baking**

Pot's or pan's bottom diameter should match the cook plate and be even to provide for an optimal energy yield.

Cover your pots with well-covering lids. This saves 75 % of the power you need if you don't use a lid. Glass lids need not be opened every so often.

To boil potatoes, vegetables or many other dishes, a cup of water will do perfectly when you use a well-covering lid. This saves time and energy. Use electric kettles and egg boilers.

If possible, do not pre-heat the oven.

For smaller portions, a "mini-oven" is more economic than the big oven. Reduce temperature to 190℃ if you have a convector oven. Don't use the pyrolysis mode for cleaning, water and detergent will do.

Switch off heat before time and make use of the residual heat for cooking and baking.

Pressure cookers save up to 30 % of time and energy!

**Washing and Drying**

Switch on washing machine only if it's properly filled and skip prewash programme. Also exploit your tumble dryer's capacity, which is usually the same as the washing machine's capacity.

30℃ to 40℃ will do for coloureds, wash'n'wear and slightly soiled laundry. Try washing at 20℃ using a modern detergent! Washing at 30℃ will save 70% of the energy that a washing cycle at 60℃ will consume.

Only strongly soiled laundry may at times be washed at 60℃. Boiling your laundry at 95℃ is hygienically unnecessary and is obsolete!

If you rub out stains immediately, pre-treat strongly soiled spots with suitable detergents, or soak strongly soiled laundry before you wash it, you can skip the prewash programme.

Laundry that you put into the tumble dryer should have been spun at least 1,200 rounds. This shortens the drying time and, again, saves energy!

You don't have to use the "dry cotton" mode if you want to iron your laundry afterwards.

Tumble dryers need a lot of energy. Dry your laundry on the line whenever possible (e.g., on the balcony or in the drying room).

**Saving Water**

Never let water flow unnecessarily. While soaping yourself in the shower or your hands when you wash them, or while you brush your teeth – turn off the water!

A dripping tap wastes up to 5,000 l water per year. Broken valves and seals should, thus, be replaced immediately.

Don't switch your hot water tank to higher than you need it – otherwise the unnecessarily hot water needs to be cooled back down.

Taking a shower is the better choice. You need up to ten times more water for a hot bath than for a short but sufficient shower. Logically, the energy consumption increases by a corresponding degree.

The pilot light of your instantaneous gas heater should be extinguished when you leave for a longer time (e.g., vacation).

An increasing amount of toilet flushes have an economy button of flush stop, and you should make use of it. Older types require a certain experience in the handling, but even for them, 3 to 6 litres instead of the preset 12 will well do.

In areas with hard water, adjust your heating's and water heater's temperature lower, i.e. to 55℃, so chalk coatings and boiler scale won't e ven precipitate. This saves energy and extends your devices' life span!

**Correct Heating**

Don't heat a room more than necessary! Each additional centigrade rises your energy consumption by 6%. These room temperatures are recommended:

| | |
|---|---|
| Study | 20 ℃ |
| Child's bedroom | 20 ℃ |
| Bedroom | 16º18 ℃ |
| Bathroom | 20º22 ℃ at times of use |
| Living room | 20℃ |
| Kitchen | 18º20 ℃ |

At night or at times of absence, lower the temperature to 16℃.

When there is no central temperature regulation, consider installing programmable thermostats.

Take care that radiators can transfer their heat to the surrounding without any obstacles: Furniture and curtains in front of the radiators cause a local accumulation. Remove radiator coverings.

**Correct Ventilation**

During the heating period, ventilate rooms with fully opened windows several times a day for 5 to 10 minutes. Don't tip your windows permanently!

Switch thermostat valve or room thermostat to freezing protection before airing.

Correct airing does not only save energy, but also avoids the forming of moulds.

## Enclosure 9: Household Report and Supplementary List of Devices

Cariteam-Energiesparservice, Franziusstr. 6a, 60314 Frankfurt am Main

Roses Flower
Botanicalstreet 9

33333 Vegetable City

cariteam
Energiesparservice
Qualifizierungsprojekt
Tel. : 069-254927-36
Fax.: 069-254927-39

Frankfurt/Main, 25.08.2011

**Final report of Energy Saving Check 24.08.2011**

Dear Ms Flower,

We have analysed your household consumption and the result is a saving potential of approximately **610 Euro.**

To profit from these yearly savings, it is necessary to invest approximately **255 Euro**

Please find in the following overview your current consumption, saving potentials and necessary changes/measures.

**General data**

| | |
|---|---|
| Object type | flat |
| Floor space in m² | 44 |
| Number of persons | 3 |
| Adviser | Mr Technical, Ms Power |

**Current consumption**

| Yearly consumption | electricity | | water | | heating | |
|---|---|---|---|---|---|---|
| | kWh | EUR | m³ | EUR | kWh | EUR |
| Total | 4300 | 1030,00 | 120 | 320,00 | 8000 | 720,00 |
| Per person | 1433 | - | 40 | - | - | - |
| Per m² | - | - | - | - | 182 | - |
| Assessment (encl) | high | | average | | high | |

**Saving potentials**

| Yearly savings | electricity | | water | | water heating | |
|---|---|---|---|---|---|---|
| | kWh | EUR | m³ | EUR | kWh | EUR |
| Saving potential | 1243 | 298,50 | 35 | 148,50 | 666 | 160,00 |
| in % | 29% | 29% | 29% | 46% | 8% | 22% |
| Investment costs | 230,00 | | 22,00 | | - | |
| Amortisation (months) | 9 | | 2 | | - | |

**Measures**

| No | Measure/necessary changes | yearly savings | | | Investment | Amortisation |
|---|---|---|---|---|---|---|
| | | kWh | m³ | EUR | EUR | months |
| 1 | replace with CFL | 384,50 | | 92,50 | 35,00 | 5 |
| 2 | replace halogen lamps | 240,00 | | 57,50 | 25,00 | 5 |
| 3 | use power strip(s) | 73,00 | | 17,50 | 5,00 | 3 |
| 4 | install electric boiler thermo stop | 180,00 | | 43,00 | 15,00 | 4 |
| 5 | replace small refrigerator without freezing compartm | 365,00 | | 87,50 | 150,00 | 21 |
| 6 | Water stop | | 7,50 | 30,00 | 8,00 | 3 |
| 7 | Flow limiter | | 19,50 | 78,00 | 8,00 | 1 |
| 8 | bathroom-tap aerator 6l/min | | 8,00 | 40,50 | 6,00 | 2 |

| $CO_2$ saving | kg |
|---|---|
| Savings in electricity | 856 |
| Savings in water heating with electricity | 459 |
| Water savings | 22 |
| Total | 1337 |

| Additional remarks/tips |
|---|
| |
| |
| |
| |
| |
| |

Thank you for your cooperation. Please do not hesitate to contact us if you have any questions.

**Please keep your future annual bills for electricity, water and heating to be able to check how much you have saved.**

Yours sincerely

*Name*

**Encl:** consumption charateristics, reference source verification

Please note that this energy saving check has been done by members of an employment enhancement project of Caritas. It is part of the participants' qualification, it has no expert value and excludes any liability.

# Savings check - electricity, heating, water

| General data | | | | Title: | Ms |
|---|---|---|---|---|---|
| First name: | Roses | Name: | Flower | | |
| Street + No: | Botanicalstreet 9 | | | | |
| Postal code: | 33333 | City: | Vegetable City | | |

| | |
|---|---|
| Date of visit: | 24.08.2011 |
| Collected on: | 25.08.2011 |

| Adviser: | Mr Technical, Ms Power | Customer ID: | 0 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|

Object type: [ ] 1-2 Family house [x] Flat

Number of persons in household: 3 person(s) Heatable living space: 44 m²

| | | |
|---|---|---|
| Price (ca.) per kWh electricity | 0,24 | EURO / kWh incl. VAT |
| Price (ca.) per kWh gas/oil | 0,09 | EURO / kWh incl. VAT. |
| Price (ca.) per cbm water | 4,00 | EURO / cbm incl. VAT and sewerage |
| Period of use per year | 336 | days |

**Annual consumption heating energy** (from previous year)

| Fuel | conversion factor | consumption | kWh | result heating energy | 182 | |
|---|---|---|---|---|---|---|
| Electricity kWh | | | | | | |
| Fuel oil, (1 l = 10 kWh) | | | 0,00 | assessment: | kWh/m²a | |
| Natural gas, (1 m³ = 10 kWh) | 10 | 800,00 | 8000,00 | very good | 10 - 80 | |
| proportion heating / district heating k | | | | good | 80 - 120 | |
| Liquid gas, (1 kg = 12.8 kWh) | | | 0,00 | could be improved | 120 - 160 | |
| Wood, (1 m³ = 1,800 kWh) | | | 0,00 | high | 160 - 200 | x |
| | | Summe: | 8000,00 | very high | more than 200 | |
| | | costs heating energy Euro | 720,00 | | | |

**Annual consumption electricity** kWh/a

| | | | result electricity consumption | 4300 | |
|---|---|---|---|---|---|
| Electricity consumption | kWh/a | 4300,00 | | | |
| Costs/electricity | Euro | 1120,00 | | | |
| Incl. basic costs | Euro | 90,00 | assessment: | kWh/m²a | |
| Actual costs | Euro | 1030,00 | economical | bis 3400 | |
| Gas stove available? | n | | good | 3401 - 4200 | |
| Incl.electricity for heating pump? | n | | high | 4201 - 4900 | x |
| Incl. electric warm water heating? | j | | very high | über 4900 | |

**Annual consumption drinking water**

| | | result water consumption | 40 | |
|---|---|---|---|---|
| | | assessment: | m³/P | |
| Water consumption m³ | 120,00 | very economical | <25 | |
| | | economical | 25-35 | |
| | | average | 36-45 | x |
| Water costs € | 320 | high | 46-55 | |
| | | very high | >55 | |

## 1. Possible savings in (electric) lightening

| room | other | Watt before | Watt after | saving | No | | hrs/day | | =possible savings | |
|---|---|---|---|---|---|---|---|---|---|---|
| bedroom | | 60 | 11 | 49 | 2 | | 2,00 | | 66 | kWh/a |
| living room | | 100 | 15 | 85 | 1 | | 5,00 | | 143 | kWh/a |
| kitchen | | 40 | 9 | 31 | 3 | | 3,00 | | 94 | kWh/a |
| hallway/corridor | | 60 | 11 | 49 | 1 | | 5,00 | | 82 | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| | | | | | | | | | | kWh/a |
| * calculation basis 330 days of usage/year LB = light bulb, CFL = energy-saving light bulb | | | | | | | | Total | 384,72 | kWh/a |

| | | number | | €/lamp | | | |
|---|---|---|---|---|---|---|---|
| investment costs | energy-saving light bulb | 7 | x | 5 | | Total | 35,00 | € |

## 2. Possible savings with halogen uplight with 300 W lamps

| | | | hrs/day | | kWh/a | Possible savings | |
|---|---|---|---|---|---|---|---|
| Replacement standard lamp with CFL, e.g. 2 x 23 Watt | 1 | x | 3,00 | x | 80 | 240 | kWh/a |
| | number | | €/lamp | | | | |
| investment costs lamps | 1 | | 25,00 | | | 25,00 | € |

## 3. Possible savings in standby consumption

| Standby consumption | | Standby hrs/day | x | performance value/Watt | x | number | x | days/year | = | Possible savings | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| computer | | 20 | | 5,00 | | 1 | | 365 | = | 36,50 | kWh/a |
| computer monitor | | 20 | | 5,00 | | 1 | | 365 | = | 36,50 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | | 0,00 | kWh/a |
| | | | | | | | | | Total | 73,00 | kWh/a |

| | | number | €/power strip | | | |
|---|---|---|---|---|---|---|
| investment costs | power strip | 1 | 5,00 | | 5,00 | € |

## 4. Possible savings in electric warm water heating

| | | | | number of devices | | | possible savings kWh/year | |
|---|---|---|---|---|---|---|---|---|
| 5-10 litres electric boiler, standby = 160 kWh/year | | x | | 1 | | = | 180,00 | thermo stop |
| 5-10 litres electric boiler, standby = 90 kWh/year | | x | | | | = | 0,00 | clock timer |

If necessary put boiler / flow-type heater on low temperature or level (40 - 45 °C).

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| investment costs | thermo stop | number | 1 | x | 15 | € | = | 15 | € |
| investment costs | clock timer | number | 0 | x | 5 | € | = | 0 | € |

## 5. Possible savings in cooling devices

| Energy consumption of economic devices (label A/A+) | metered value (24h) | | difference kWh/day | | kWh/a | investment |
|---|---|---|---|---|---|---|
| Small refrigerator up to 150 litres without freezing compartment 0,3 kWh/d | 1,30 | - | 1,00 | - | 365,00 | 150,00 |
| Small refrigerator up to 150 litres with (*/**) compartment 0,35 kWh/day | | - | 0,00 | - | 0,00 | |
| Refrigerator up to 300 litres without freezing compartment 0,45 kWh/day | | - | 0,00 | - | 0,00 | |
| Refrigerator up to 300 litres with (*/**) compartment 0,6 kWh/day | | - | 0,00 | - | 0,00 | |
| Fridge freezer up to 300 litres 0,65 kWh/day | | - | 0,00 | - | 0,00 | |
| Chest freezer up to 200 litres 0,4 kWh/day | | - | 0,00 | - | 0,00 | |
| Freezer up to 200 litres 0,5 kWh/day | | - | 0,00 | - | 0,00 | |
| | | Total | 1,00 | | 365,00 | |
| investment costs new acquisition | | | | | | 150,00 |

## 6. Possible saving in dishwasher

| | | | use/month | | number | possible savings | |
|---|---|---|---|---|---|---|---|
| warm water supply, savings 0,50 kWh/Nutzung | 0,50 | x | | x | 1 | 0,00 | kWh/a |
| investment costs warm water supply | | | | | | 0,00 | € |

* Only with devices without heat recovery. Warm water supply only if no more than 5 litres cold water go through before warm water flows. Do use heat-resitant inflow tube.

## 7. Possible savings in washing machine/tumble dryer

| electricity kWh/use | | | consumption economical device | | | saving kWh/use | | per month | year | | kWh/a | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Washing machine | | kWh - | 1 | kWh/use - | | 0 | x | | x 12 | - | 0 | |
| condenser tumble dryer | | kWh - | 2,4 | kWh/use - | | 0 | x | | x 12 | - | 0 | |
| investment costs | new acquisition washing machine | | | | | | | | | ca. | 0,00 | € |
| investment costs | new acquisition condenser tumble dryer | | | | | | | | | ca. | 0,00 | € |

| Summary of results of technical electricity saving potentials | | | | | | |
|---|---|---|---|---|---|---|
| | Stromeinsparung | | | | Kosteneinsparung | |
| Lightening | 384,72 | kWh/a | | | 92,33 | €/year |
| Halogen uplights | 240,00 | kWh/a | | | 57,60 | €/year |
| Standby | 73,00 | kWh/a | | | 17,52 | €/year |
| Electr. boiler - thermo stop | 180,00 | kWh/a | | | 43,20 | €/year |
| Electr. boiler - clock timer | 0,00 | kWh/a | | | | €/year |
| Cooling devices | 365,00 | kWh/a | | | 87,60 | €/year |
| Dishwasher - 0,5kWh | 0,00 | kWh/a | | | | €/year |
| Washing machine | 0,00 | kWh/a | Cent/kWh | | | €/year |
| condenser tumble dryer | 0,00 | kWh/a | Cent/kWh | | | €/year |
| Summe | 1242,72 | kWh/a | 0,24 | - | 298,25 | €/year |

| | investment costs € | | | | | savings €/a | | months | amortisation |
|---|---|---|---|---|---|---|---|---|---|
| Energy-saving light bulbs | 35,00 | € | x 12 | : | | 92,33 | = | 5 | |
| Replacement halogen uplight | 25,00 | € | x 12 | : | | 57,60 | = | 5 | |
| Power strips | 5,00 | € | x 12 | : | | 17,52 | = | 3 | |
| Electr. boiler - thermo stop | 15,00 | € | x 12 | : | | 43,20 | = | 4 | |
| Electr. boiler -clock timer | 0,00 | € | x 12 | : | | | = | | |
| Refrigerator | 150,00 | € | x 12 | : | | 87,60 | = | 21 | 2 years |
| Warm water supply dishwasher | 0,00 | € | x 12 | : | | | = | | |
| Washing machine | 0,00 | € | x 12 | : | | | = | | |
| condenser tumble dryer | 0,00 | € | x 12 | : | | | = | | |
| Total | 230,00 | € | | | €/a | 298,25 | = | 9 | 1 years |

## 8. Possible savings in water consumption

### Possible savings with washing machine

| Consumption > 100 l/usage time | | consumption economical device | | | savings l/usage time | | uses time/month | | m³ | | Investmet costs | | number | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | l/use - | 50 | l/use - | | 0 | x | | x 12 | 0,0 | | 500,00 € | | | |

### Possible savings in WC

| Water stop | | assumed saving per usage | | uses per day | | per year | | | Investmet costs | | total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | number | 4,5 | l/usage | 5 | - | 6 | m³ - | 30,24 € | 8,00 € | | 8,00 | € |

### Possible savings at shower

| Flow limiter | | assumed savings per year | | number of persons | | per year | | | Investmet costs | | total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | number * | 6,5 | l/usage * | 3 | - | 19,50 | m³ - | 78,00 € | 8,00 € | | 8,00 | € |
| Adj. shower head | | ured value | shower head l/min. | min. per day | | savings per year | | | | | | |
| | number * | | l/min 8 * | | - | 0,0 | m³ - | 0,00 € | 15,00 € | | 0,00 | € |
| Shower stop | | assumed savings per year | | number persons | | per year | | | | | | |
| | number * | 2 | m³ * | 3 | - | 0,00 | m³ - | 0,00 € | 8,00 € | | 0,00 | € |

### Possible savings at tap

| Which tap? | room | measured value | | consumption l/min | | number x min. per day | | | | savings/year in m³ | in € | Investment costs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tap aerator 6l/min | bathroom | 14 | l/min | 6 | * | 1 | Min | 3 | - | 8,1 | 40,32 € | € | 6,00 |
| | | | l/min | | * | | Min | | - | | | € | |
| | | | l/min | | * | | Min | | - | | | € | |
| | | | l/min | | * | | Min | | - | | | € | |
| | | | l/min | | * | | Min | | - | | | € | |

### Summary of results of the technischen water saving potentials

| Savings in water heating | | | | | | | |
|---|---|---|---|---|---|---|---|
| Shower | 585,00 | kWh/year | | | 30 | kWh/m³ | |
| Tap/faucet | 80,64 | kWh/year | €/kWh | | water heating with | | electricity |
| Total | 665,64 | kWh/year | 0,24 | - | 159,75 | € per year | |

| Water savings | | | cost savings | | cost savings water heating | | Investment | | amortisation in months |
|---|---|---|---|---|---|---|---|---|---|
| Washing machine | 0,00 | m³/year | 0,00 | €/year | | | 0,00 | € | |
| WC | 7,56 | m³/year | 30,24 | €/year | | | 8,00 | € | 3 |
| Shower | 19,50 | m³/year | 78,00 | €/year | 140,40 € | | 8,00 | € | 1 |
| Tap/faucet | 8,06 | m³/year | 40,32 | €/year | 19,35 € | | 6,00 | € | 2 |
| Summe | 35,12 | m³/year | 148,56 | €/year | 159,75 € | | 22,00 | € | 2 |

| 9. Savings in $CO_2$ emission | kWh/m³ | | kg/kWh/m³ | | |
|---|---|---|---|---|---|
| Savings in electricity | 1242,72 | x | 0,69 | = | 856,23 kg |
| Savings in water heating with electricity | 665,64 | x | 0,69 | = | 458,83 kg |
| | 0,00 | x | 0,25 | = | 0,00 kg |
| | 0,00 | x | 0,31 | = | 0,00 kg |
| | 0,00 | x | 0,30 | = | 0,00 kg |
| Water savings | 35,12 | x | 0,62 | = | 21,85 kg |
| | | | | Total | 1336,71 kg |

| Summary of results cost savings | | | | Investment | | | Investment | |
|---|---|---|---|---|---|---|---|---|
| Investment | 298,25 | € | | 230,00 | € | | 9 | months |
| water | 148,56 | € | | 22,00 | € | | 2 | months |
| water heating | 159,75 | € | | | | | | |
| Total | 606,57 | € | Total | 252,00 | € | | 5 | months |

## Electricity consumption Data COLLECTION current status

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | price for electricity (gross): | 0,24 | EUR/kWh | | own consumption: | |
| | | Absence in weeks per year: | 5 | | | | |

| No | Device/function | room | Performance of device in W | Time of usage per week in hrs | Consumption per use in kWh | Number of uses per month | Consumption per day in kWh | Consumption per year in kWh |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 x LB 60 W E27 | bedroom | 120 | 14,0 | | | | 79,0 |
| 2 | 1 x LB 100 W E27 | living room | 100 | 35,0 | | | | 164,5 |
| 3 | 3 x LB 40 W E14 Reflektor | kitchen | 120 | 35,0 | | | | 197,4 |
| 4 | 1 x LB 60 W E27 | hallway/corridor | 60 | 35,0 | | | | 98,7 |
| 5 | halogen uplight with 300 W | living room | 300 | 21,0 | | | | 296,1 |
| 6 | computer standby | living room | 5 | 140,0 | | | | 32,9 |
| 7 | computer monitor standby | living room | 5 | 140,0 | | | | 32,9 |
| 8 | small refrigerator | kitchen | | | | | 1,300 | 474,5 |
| 9 | electric boiler 5 litres | kitchen | | | 2,500 | 30,0 | | 819,8 |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| 21 | | | | | | | | |
| 22 | | | | | | | | |
| 23 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Sum: | 2.195,8 kWh |
| | | | | | | | | |
| | | Electricity consumption in kWh | | Emission factor kg/kWh | | kg/year | | |
| | $CO_2$ emission | 2.195,8 | x | 0,7 | = | 1451,4 | | |

| Table 1: Water consumption current status | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Price per cbm: | 3,70 | EUR/m³ | | own consumption: | | EUR/m³ | |
| | | Absence in weeks per year: | 4 | | | | | | |
| No. | Device/function | Room | Flow per min. in litres | Min. per day | Litres per use | Number of uses per week | | Consumption per year in m³ | Costs per year in EUR |
| 1 | WC without water stop | WC | | | 15,0 | 70 | | 50,4 | 186,48 |
| 2 | shower | bathroom | 14 | 3,0 | 42,0 | 9 | | 18,1 | 66,97 |
| 3 | tap aerator | bathroom | 14 | 3,0 | 42,0 | 7 | | 14,1 | 52,17 |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
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| 9 | | | | | | | | | |
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| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | Sum: | 82,6 | 305,62 € |
| | | Water consumption in m³ | | Emission factor kg/m³ | | kg/year | | | |
| | $CO_2$ emission | 82,6 | x | 50 | = | 4130,0 | | | |

## Enclosure 10: Further Information Material

**Strom effizient nutzen** – Brochure by the Hessian Ministry for the Environment, Energy, Agriculture and Consumer Protection (2005); download and order at www.energieland.hessen.de (consumer service)

**99 Wege Strom zu sparen** – Brochure by the Consumer Assistance Office North Rhine-Westphalia (Feb. 2009): Download at www.vz-nrw.de/UNIQ126873636612681/link513321A.html

**Besonders sparsame Haushaltsgeräte** – Brochure by the Hessian Ministry for the Environment, Energy, Agriculture, and Consumer Protection (Sept. 2009); download and order at www.energieland.hessen.de (consumer service)

**Zählerkarte zur Kontrolle des Stromverbrauchs** – Template by the Consumer Assistance Office North Rhine-Westphalia. Download at www.vz-nrw.de/mediabig/17892A.rtf

**Akıllı davran – Masraftan tasarruf et - Clever sein – Energie sparen** – Turkish brochure by the North Rhine-Westphalian Energy Agency (2004):

www.energieagentur.nrw.de/_infopool/page.asp?InfoID=2687&find=clever sein

**Energie sparen im Haushalt** – Brochure by the Federal Environment Agency (Feb. 2008), also avaible in Turkish: www.umweltbundesamt.de/uba-infomedien/mysql_medien.php?anfrage=Kennummer

&Suchwort=188

**Energiesparen als Mieter** – Brochure by the consumer protection offices (2008). Download and order at www.verbraucherzentrale-energieberatung.de/web/brosch-mieter.html?&no_cache=1

**Richtig Heizen and Lüften** – Brochure by the consumer protection offices (2008). Download and order at www.verbraucherzentrale-energieberatung.de/web/brosch-heizenlueften.html

**Feuchtigkeit and Schimmelpilz –** Brochure by the consumer protection offices (2008). Download and order at www.verbraucherzentrale-energieberatung.de/web/brosch-schimmel.html?&no_cache=1

**Licht and Heizung bleiben an - auch bei wenig Geld** - Anne Alex; order for 4.50 € at www.anne-allex.de/index.php?id=publikationen

Book recommendation: Stiftung Warentest [leading German consumer safety group]: **Das Energiesparbuch** (2009), 12,90 €; see www.test.de/themen/umwelt-energie/

**Helpful link list:**

www.ea-nrw.de/haushalt/energiecheck/

Household power consumption check to fill in online by the Consumer Assistance Office North Rhine-Westphalia

www.co2online.de: Several online guidebooks, e.g. a cooling device check to ascertain power consumption

www.heizspiegel.de Standard values of heating energy consumption

www.umweltbundesamt.de/energie/sparen.htm

The Federal Environment Agency's website informing on how to save energy in a household

www.stromeffizienz.de A website by the German Energy Agency informing on how to save power in a household

www.stromspar-check.de

The Federal Power Saving Check Programme's website addressing low-income households

## Enclosure 11: Templates for the Düsseldorf Subsidised Refrigerator Programme

### Request form for the Düsseldorf Refrigerator Scrapping Premium

Bitte an den Falzmarken falten und im Fensterbriefumschlag zurücksenden an

An die
Landeshauptstadt Düsseldorf
Umweltamt
19/01 – Abwrackprämie Kühlschränke
Brinckmannstraße 7
40225 Düsseldorf

# Antrag

**auf Zuwendungen der Stadt Düsseldorf für das Abwracken eines Kühlschrankes**

**Antragstellerin/Antragsteller**

| Familienname, Vorname | Telefon tagsüber |
|---|---|
| | |

Anschrift (Straße, Haus-Nr., Postleitzahl, Ort)

**Förderhöhe und Fördergegenstand**

| Förderhöhe in EUR | Fördergegenstand |
|---|---|
| 100,00 | Sachgemäße Entsorgung des alten Kühlschranks. Kauf eines neuen Kühlschranks. Energieeffizienz mind. A+ |

**Dem Antrag ist beizufügen** (bitte ankreuzen wenn beigefügt)

| | Stempel und Unterschrift |
|---|---|
| ☐ Energieberatung durch Beraterin/Berater der Caritas oder von renatec hat statt gefunden. | |
| ☐ Sachgemäße Entsorgung des Altgerätes erfolgt. | Stempel und Unterschrift |
| ☐ Einen neuen Kühlschrank erworben und in Betrieb genommen. | Stempel und Unterschrift |
| ☐ Eine Kopie der Kaufquittung liegt dem Antrag bei. | |

**Zahlung der Zuwendung auf das Konto**

Kontoinhaberin/Kontoinhaber

| Kreditinstitut (vollständige Bezeichnung) | Bankleitzahl | Konto |
|---|---|---|
| | | |

**Erklärung**

Hiermit versichere ich, dass meine oben gemachten Angaben der Wahrheit entsprechen.

| Datum | Ort | Unterschrift Antragstellerin/Antragsteller | Unterschrift Caritas oder renatec |
|---|---|---|---|
| | | | |

Drucken Eingaben löschen

19/1/6.3 – 01/2009

Please fold where indicated and return in a window envelope

To:

Landeshauptstadt ...

# Application

**For Allowances of the City of Düsseldorf for the Scrapping of a Refrigerator**

**Applicant**

Surname, given name Phone day-time

Address (street, house no., post cod, city)

**Amount and purpose of the allowance**

| Amount of allowance in EUR | Purpose of allowance |
|---|---|
| 100.00 | Appropriate disposal of an old refrigerator, purchase of a new refrigerator with energy efficiency at least A+ |

**Enclose to the application (please tick off enclosed)**

| | |
|---|---|
| O Energy consultation with a Caritas or renatec energy advisor has been provided. | Stamp and signature |
| O Appropriate disposal of the old device has been performed. | Stamp and signature |
| O A new refrigerator has been purchased and put into operation. | Stamp and signature |
| O A copy of the purchase receipt is enclosed to this application. | |

**Payment of the allowance to the bank account**

Account holder

Name of bank Bank code Account number

**Declaration**

Herewith I declare that the information I have given above is true.

Date Place Signature of applicant Signature of Caritas or renatec representative

Print Delete entry

Symbolic Voucher for a Refrigerator Exchange from Düsseldorf


**Climate Protection in Düsseldorf Environmental Office**

**State Capital Düsseldorf**

# Voucher

**For an energy saving premium for the exchange of an old refrigerator for an energy saving one***

## Voucher valued at

*See overleaf for further information about the eligibility requirements.

## Enclosure 12: Short Version of Evaluations of the Frankfurt/Main Cariteam Energy Saving Service

Source: ifeu-Institut für Energie- and Umweltforschung /ISOE-Institut für sozial-ökologische Forschung 2009, The full evaluation report can be downloaded from www.bmu.de/energieeffizienz/downloads/44455.php

### *Introduction*

Predecessor and idea generator for the energy saving check was the Frankfurt/Main "Cariteam-Energiesparservice" project. In this energy saving service, the Frankfurt/Main Caritas association, since end of year 2005, provides for a qualification as a "service advisor in energy and water saving technologies" for long-term unemployed people. At the same time, low-income households get a free energy and water saving consulting in the course of which the immediate installation of energy saving light bulbs, switchable multiple sockets, water saving shower heads and other energy or water saving devices takes place. The project is an employment promotion measure in cooperation with the Rhine-Main jobcentre. Further sponsors are the Frankfurt City Social Security Department and the Social and Youth Welfare Office, as well as the Mainova energy supplier.

Cariteam Energy Saving Service is an integrative concept that combines political objectives on the labour, economies, social welfare and climate protection sector. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety therefore promotes its dissemination in further German cities.

### *Evaluation Procedure*

Cariteam Energy Saving Service has been evaluated in 2009 by the IFEU and the ISOE for its success and its achieved saving effects. In the course of this evaluation, data from 218 households that received advice were assessed and an additional 118 households were asked for their experiences with the Energy Saving Service. Universe were the about 400 households that made use of the Energy Saving Service in 2007 and 2008.

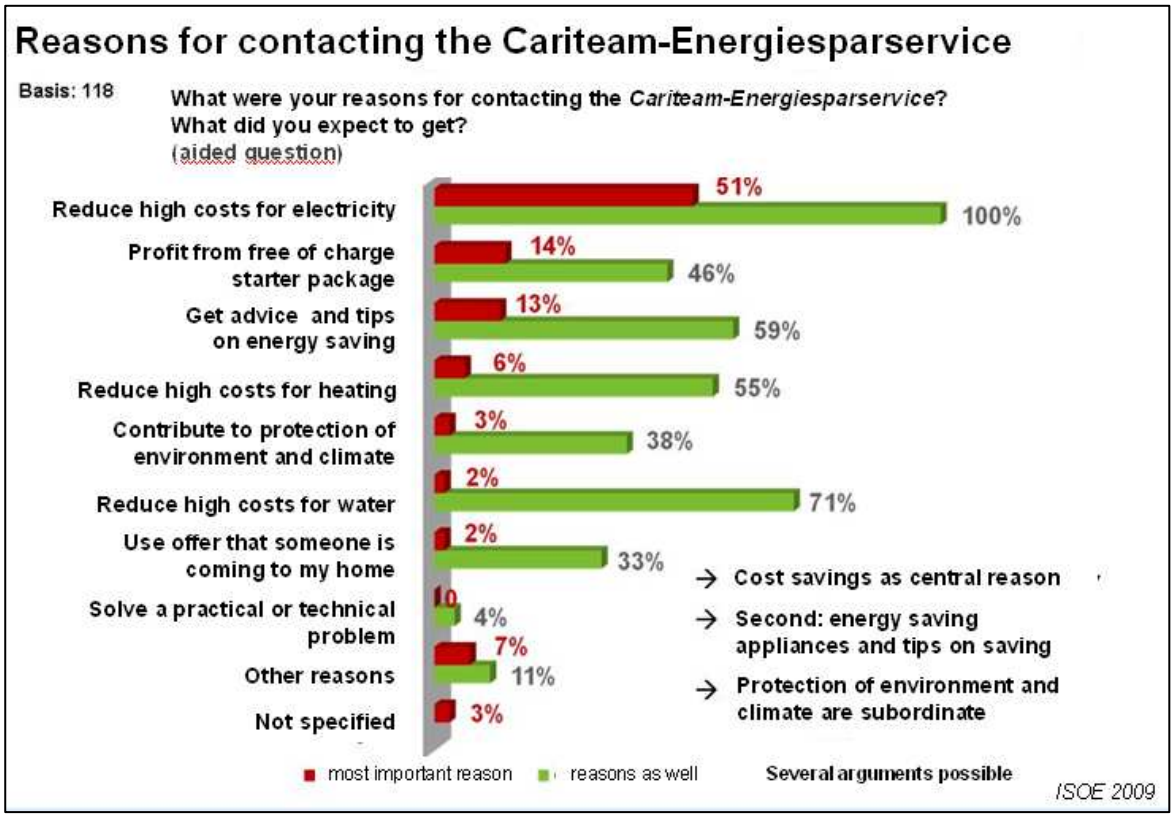
The saving effects were calculated based on the saving devices installed and conduct recommendations implemented. The following aspects were taken into account:

- (Average) period of time that the households receive social support as regards the share of saved (water and heating) costs for the municipalities. This was necessary as the saving devices induce long-term savings.
- In multiple family housings, only a certain share of all heating energy is accounted according to consumption (50% to 70%). The rest of the savings are beneficiary to all tenants living in the building.
- The (future) price development of power, heating energy and water based on the past ten year's development.

### *Motivations for Using the Energy Saving Service and Way of Information*

Most vital reason for making used of Cariteam Energy Saving Service was a need to reduce power costs. This is understandable as 85% of the people who asked Cariteam Energy Saving Service have no income other than state transfers such as ALG II, basic insurance at old age, or social support. Heating and water costs for these households are covered by the municipalities. Matters of environment and climate protection play only a subordinate role in using the offer.

Figure 1: Reasons for contacting Cariteam Energiesparservice




Asked for how they came to know the Energy Saving Service, about a third of the persons who received advice declared recommendations from friends and acquaintances, fellow workers, jobcentre employees or from (former) project participants in the Energy Saving Project the most important source of information. Further places of information that were named were the social welfare office, social advisory service offices and social stores.

Next to none of the interviewed households had made use of an energy consulting beforehand (as it is offered, e.g., by the municipal utilities, the Consumer Assistance Office or the City of Frankfurt). Roughly 40% of all interviewed persons had singular energy saving light bulbs or switchable multiple sockets in use before they asked for the Energy Saving Service.

Scantly 60% of the interviewed persons who received advice were women. Also, a third of them had a migrational background. It stroke us that good and very good education occurred at a higher than average rate among the interviewed persons who made use of the offer.

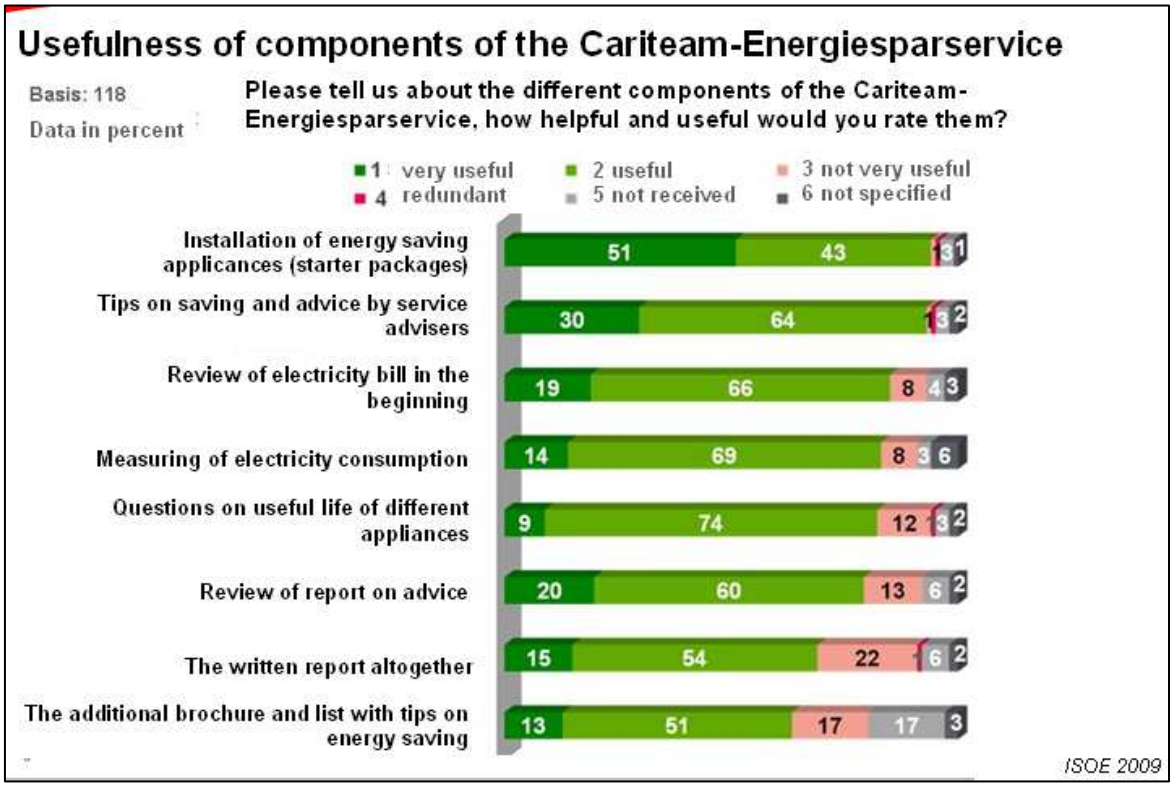
### *Assessing the Offer*

Most households interviewed were very content altogether with the Energy Saving Service and gave it the school grades “very good” (37%) and “good” (53%).

They assessed especially useful the uncharged provision with and installation of saving devices which low-income households often cannot afford themselves. But the saving advice and recommendations by the advisors, the discussion of the power bill and the measuring of the power consumption were assessed helpful.

A little less positive they thought was the use of the printed service report and the supplementary brochure or list with standardised saving hints. But still two thirds of the interviewed persons thought these products were very useful or useful.

Figure 2: Usefulness of the Elements of the Cariteam Energy Saving Service



### *Assessment of the Service Advisors*

The advisors, who were previously long-term unemployed, were positively assessed as to be friendly throughout; so was their competence, their professionalism, and the way they answered specific questions.

When asked what they liked especially about Cariteam Energy Saving Service, many interviewed persons spontaneously stressed the advisors' kindness and efficiency. Out of the many, we would like to quote some exemplary statements:

"The advisors' kindness"

"The warm and kind advice "

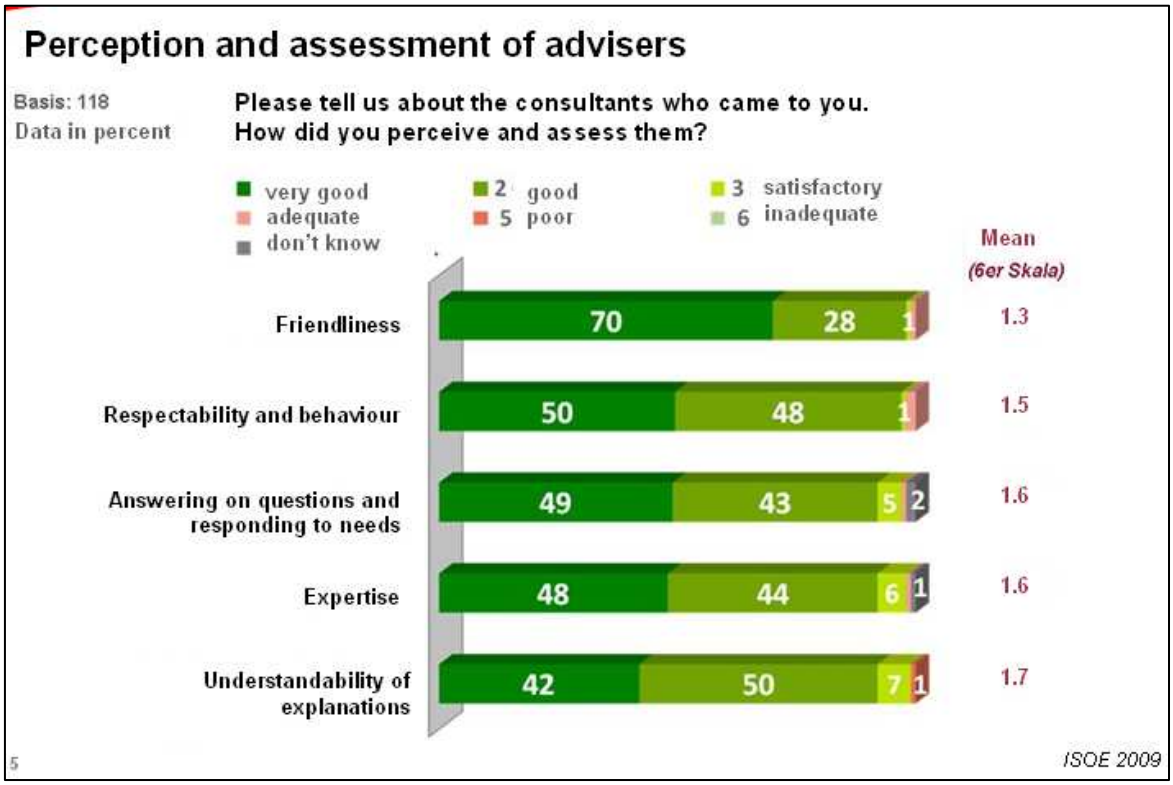
"The personal advice was attentive both personally and professionally "

"The caring conduct, not at all swanky"

"The advisors' competence and seriousness "

Obviously, the target group felt themselves well understood by the Cariteam advisors who, by their own background find an approach to the people asking advice and are accepted by them. The energy saving advisory service offer was not perceived as control but as a welcome support.

Figure 3: Perception and assessment oft advisers

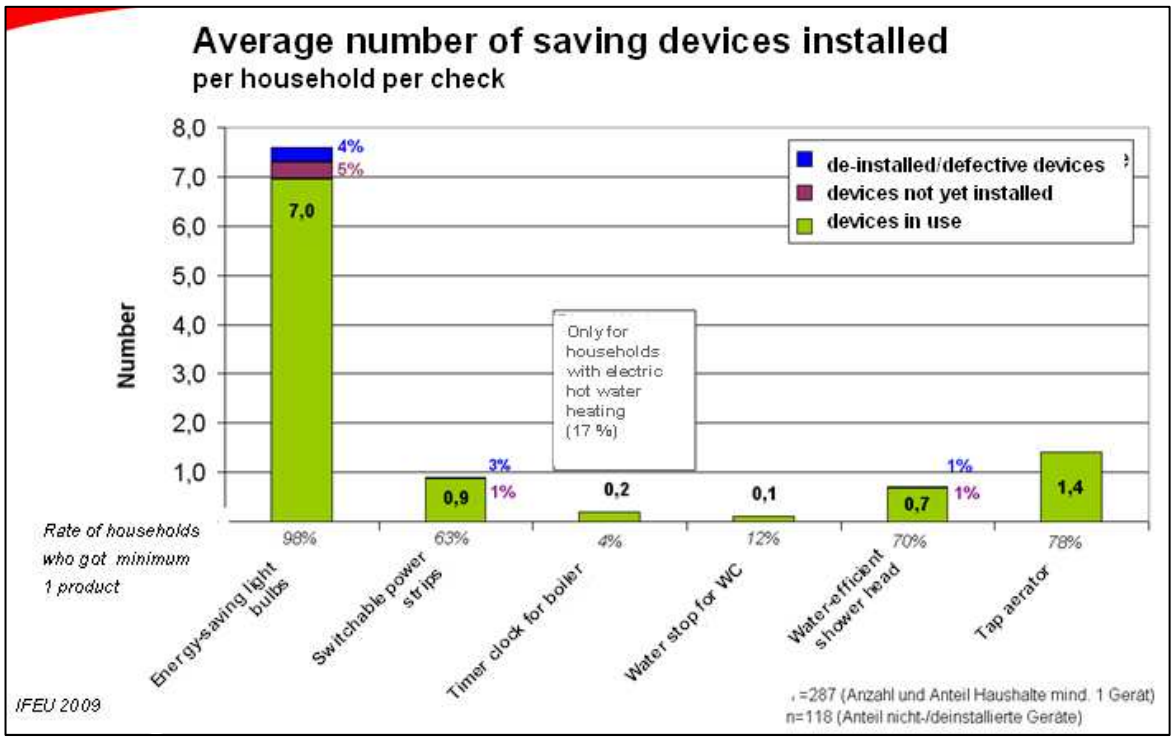


### *Energy Saving Devices Installed and Behaviour Recommendations*

The project gave away about eight energy saving light bulbs, one switchable multiple socket, one or two aerator taps and scantly one water saving power head per household. Timer switches for electric water heaters were hardly given away. Roughly every fifth household heats water electrically instead of using central heating.

The average values refer to households of two persons. Households with more persons received respectively more saving devices.

Figure 4: Average number of saving devices installed




A share of the interviewed persons said the Energy Saving Service gave them recommendations as how to save power and that they also implemented them. Any second household switches off his switchable sockets since the energy consulting in order to avoid waste of power by stand-by modes, 42% of the interviewed persons set their refrigerator to a higher temperature, 32% less often use lamps that need a lot of power, and any forth person uses their computer's energy saving mode or switches it off more frequently.

Also the recommendations as how to employ heating energy more frugally were partially adhered to. 31% of the interviewed persons stated that they air their rooms more efficiently and don't leave their windows tipped so often. A quarter of the interviewed persons care to turn down the heating at night, when they are absent, or in rooms that are not used. 6%, after all, removed furniture or curtains that covered their radiators.

Figure 5: Implementation of tips on saving electricity

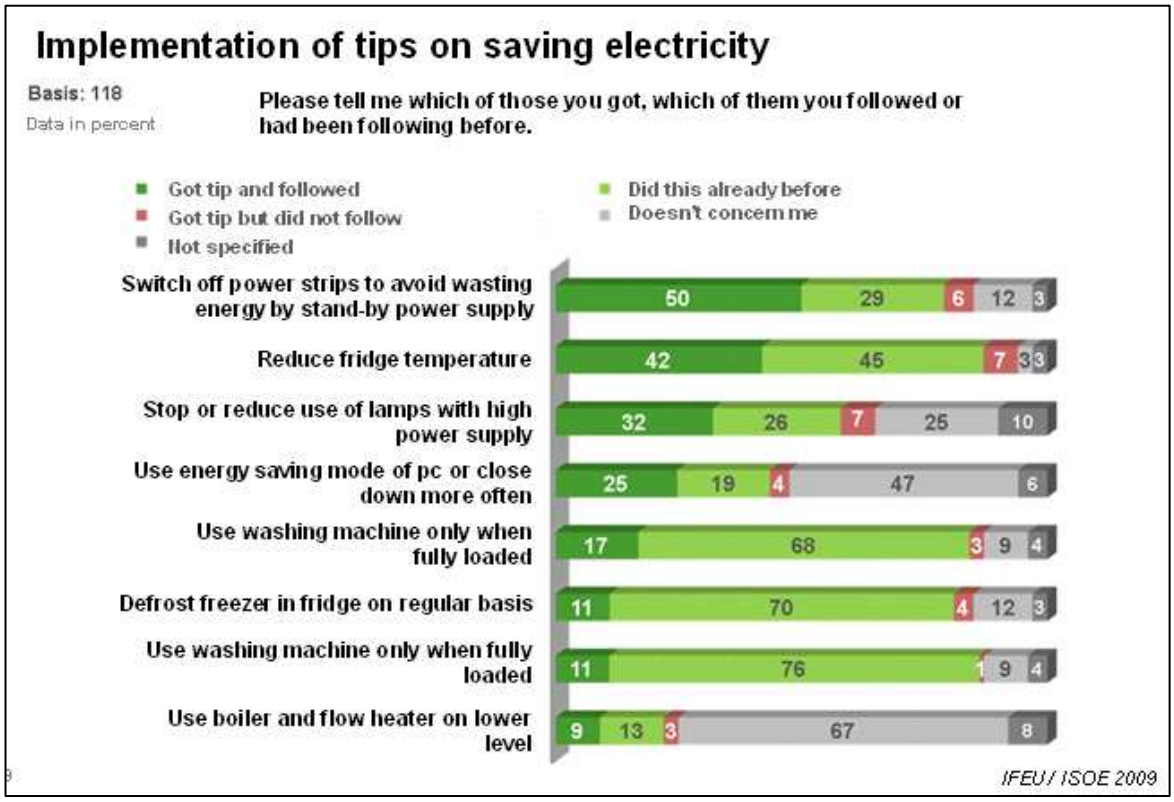
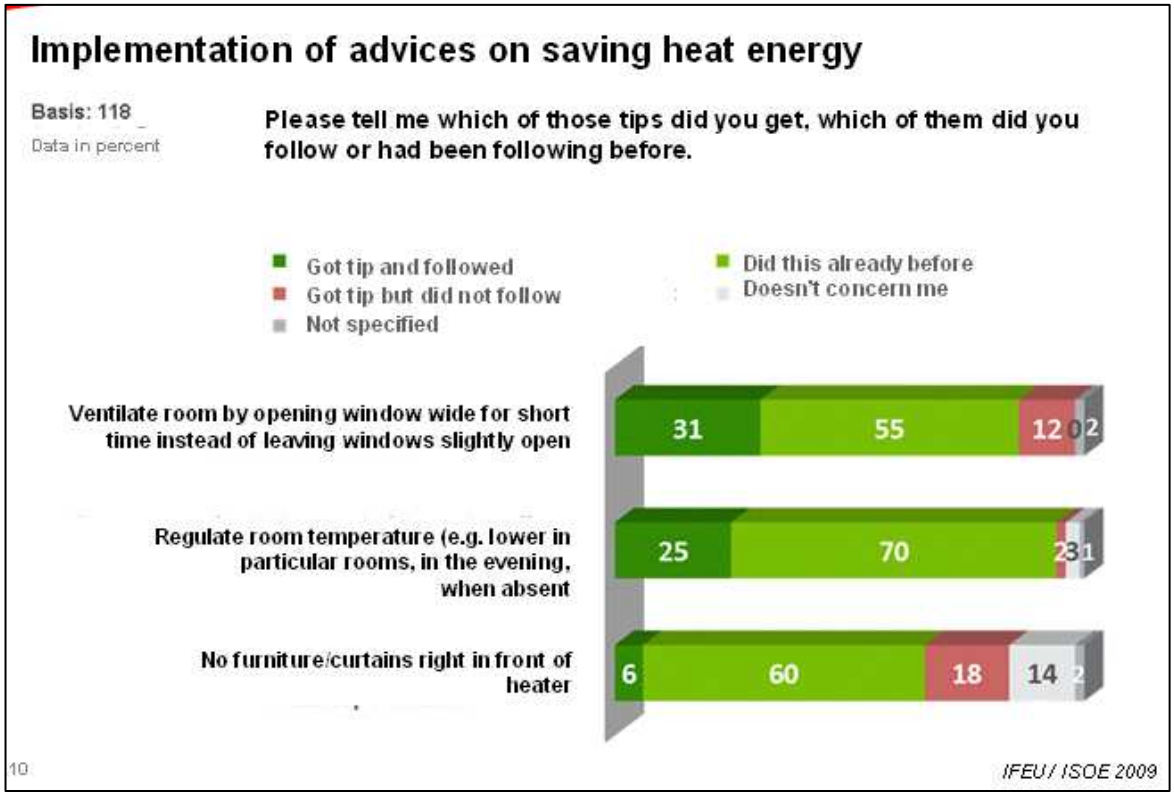



Figure 6: Implementation of advices on saving heat energy



### *Annual Savings for the Households and the City of Frankfurt/Main*

Because of the saving devices installed, per household and year an average of 422 kWh, i.e., 16% of the power consumption can be saved. This makes a power cost saving of 90 € per year. In households that heat water electrically, the savings are even higher in most cases.

In addition to that, the average household which made use of the energy consulting, annually saves 345 kWh of heating energy (4%) and about 18 m³ of water.
This lowers the associated housing costs for households receiving ALG II and social support by 84 € per year, which the City of Frankfurt need not pay. In total, a household that received energy consulting reduces its energy and water costs by annually 174 €.

Figure 7: Average savings in electricity per household due to installed saving devices and behaviour changes

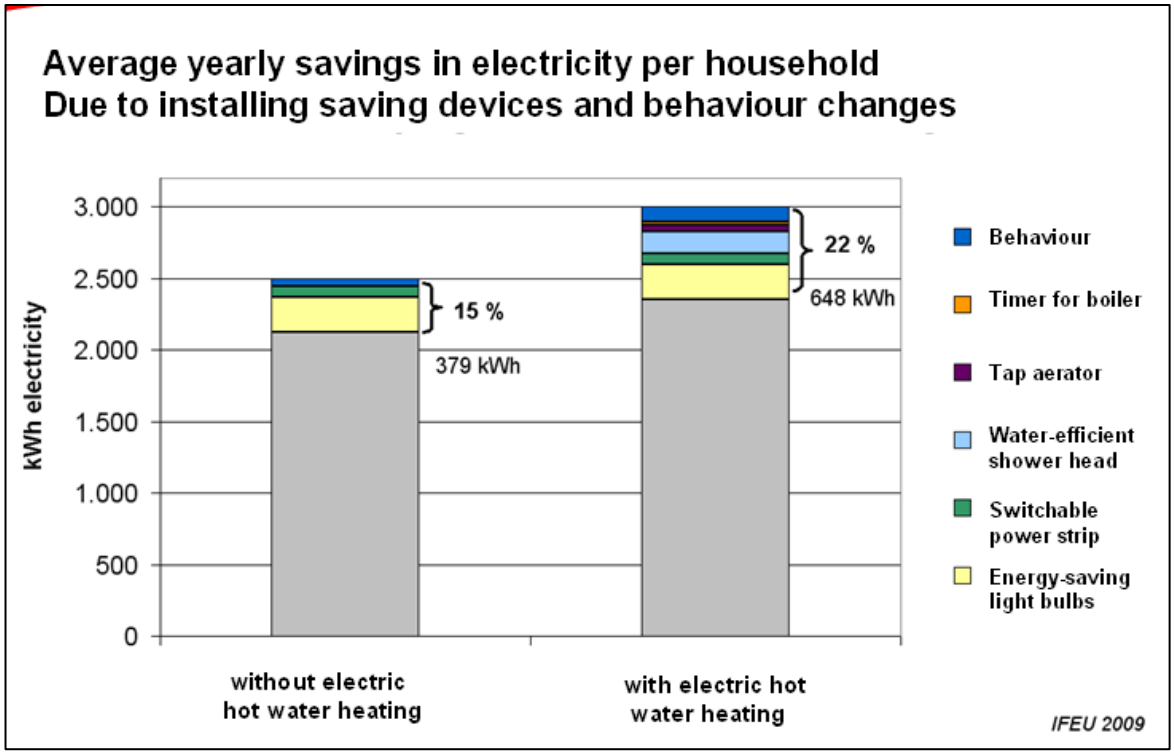


Figure 8: Average yearly savings in water per household due to installing saving davices

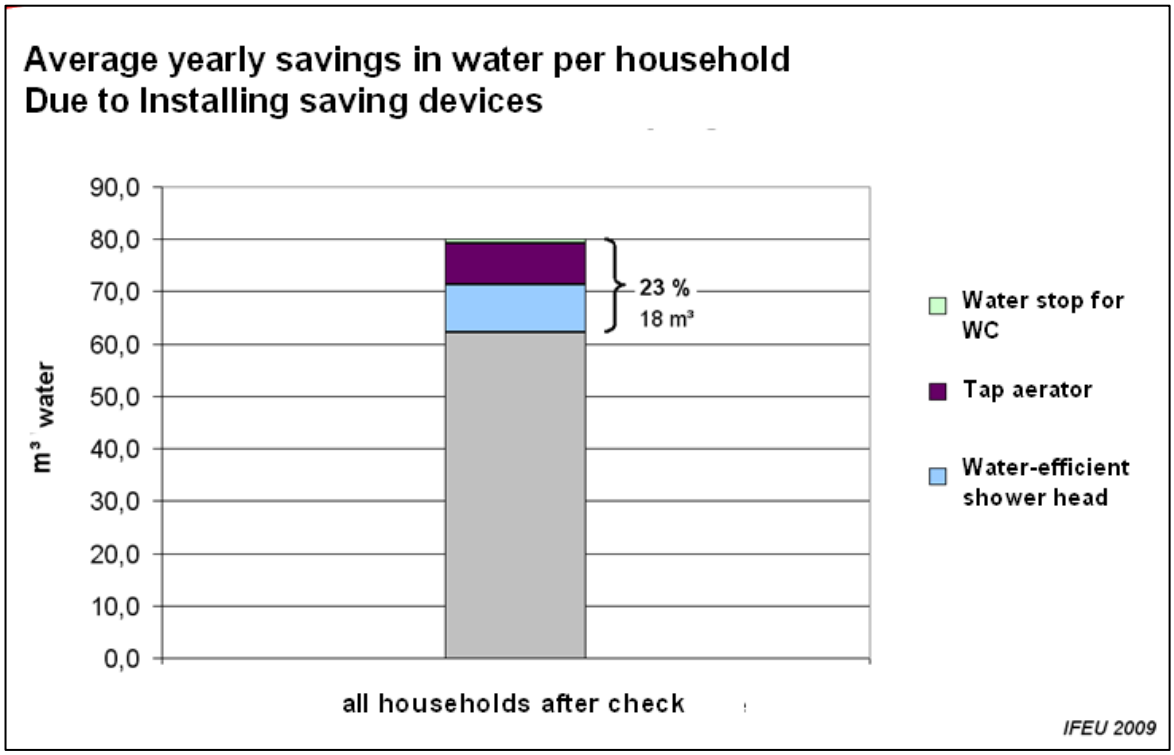
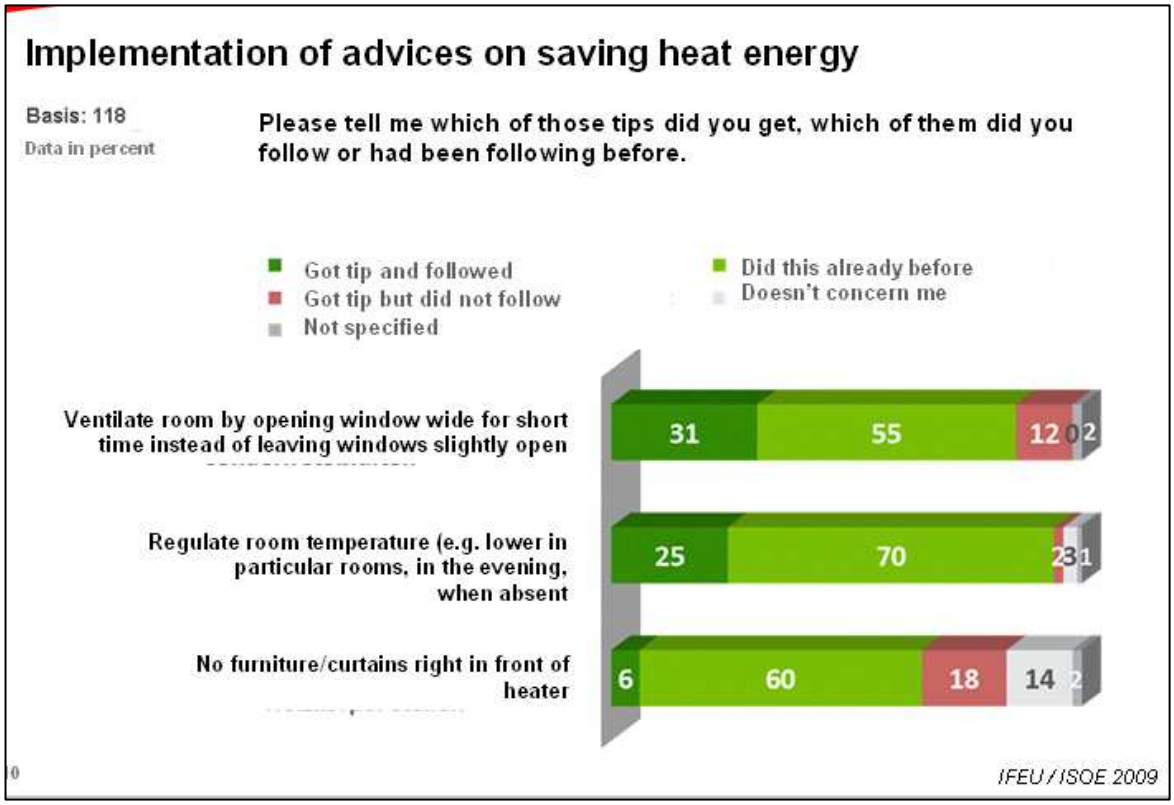



Figure 9: Average annual heating energy saving per household by installed saving de vices and changes of behaviour



### *Long-term Saving Effects*

Taking into account the different devices' life spans, more than 1,300 € per energy consulting are saved, 536 € of which go on power costs, 780 € on water and heating costs. Life spans of six years (energy saving light bulbs) up to ten years (water saving devices) have been assumed. Saving effects from implementing conduct recommendations such as efficient airing have been taken into account for two years only. At the same time, per given energy consulting, 2 metric tons of carbon dioxide ($CO_2$) are saved in the long run.

The Frankfurt/Main Cariteam Energy Saving Service project costs in the two evaluated years were about 262,000 €. If you consider these project costs an investment in the future, the energy and water costs that are saved in the long term are a double payback of 526,000 €.

Also the City of Frankfurt which sponsored the project over the two relevant years with a total of 97,000 € benefits from the reduced water and heating costs. The City grant, in the course of ten years at max, is refunded by savings of about 113,000 €.

In these calculations, the average period of time that a person receives public benefits was taken into account. If people who received advice find a new job, they benefit from all energy and water cost savings themselves.

If future energy price rises based on the average development since 1998 are taken into calculation, the City of Frankfurt saves about 125,000 € which is 30 % more than what it had originally invested. Within the past ten years, the heating energy prices on average rose by 14 % per year, the power prices by annually 4%. If the Energy Saving Service, that had to face some initial difficulties in 2007 (100 consultations), can continue its success from 2008 (exceeding 300 consultations), the City of Frankfurt can achieve 100 % more saved costs in the future.

The Federal purse benefits from the energy cost savings, too, as it reimburses a quarter of the ALG II recipients' housing and heating costs to the municipalities. By the 400 energy consultations that were performed in 2007 and 2008, Germany saves about 30,000 € in the long run.

At the same time, each employment of the Cariteam advisors relieves the environment of two metric tons of $CO_2$. In total, the 400 energy saving consulting saved more than 800 metric tons of $CO_2$. Climate protection in this project is a "positive side effect", so to speak.

Apart from climate protection and cost savings for low-income households, the municipalities and the Federal purse, the project fulfils further tasks, such as sensible employment promotion as well as educational effects on the households that received advice. It therefore makes with regards to social, ecological and economic sustainability.

Figure 10: Costs on the project and savings (cost-benefit-ratio)

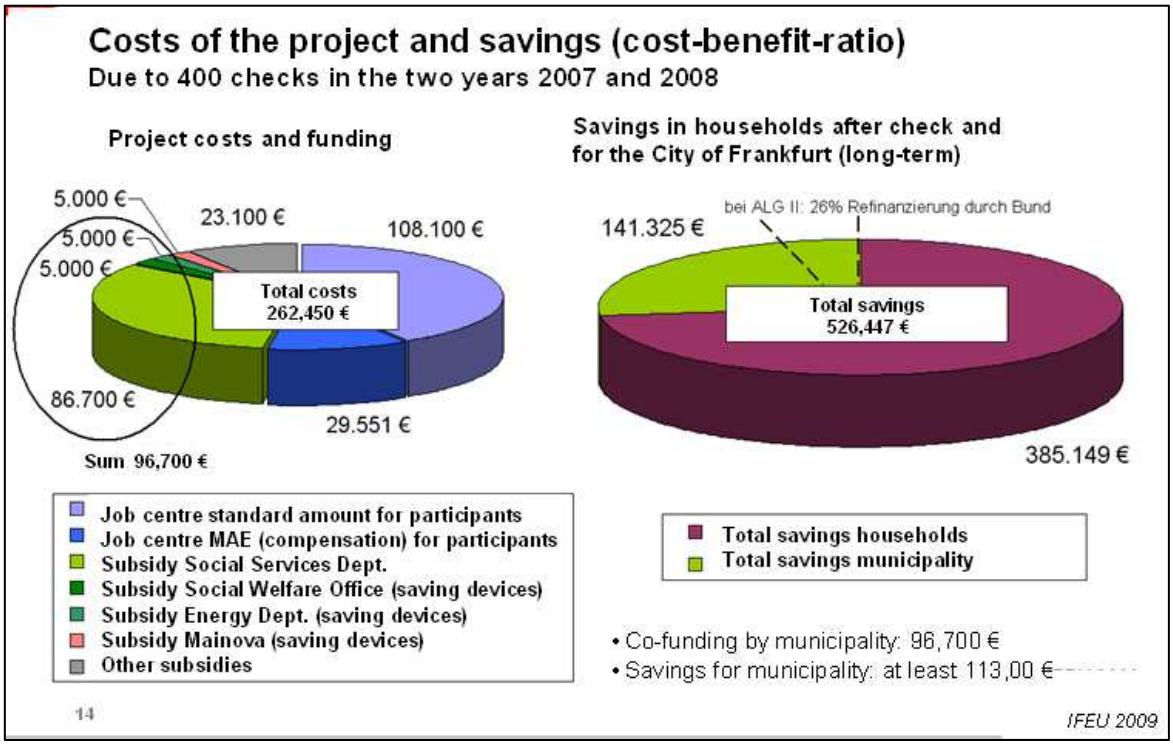



Figure 11: Long term cost savings in the City of Frankfurt due to the Cariteam Energiesparservice (in two years

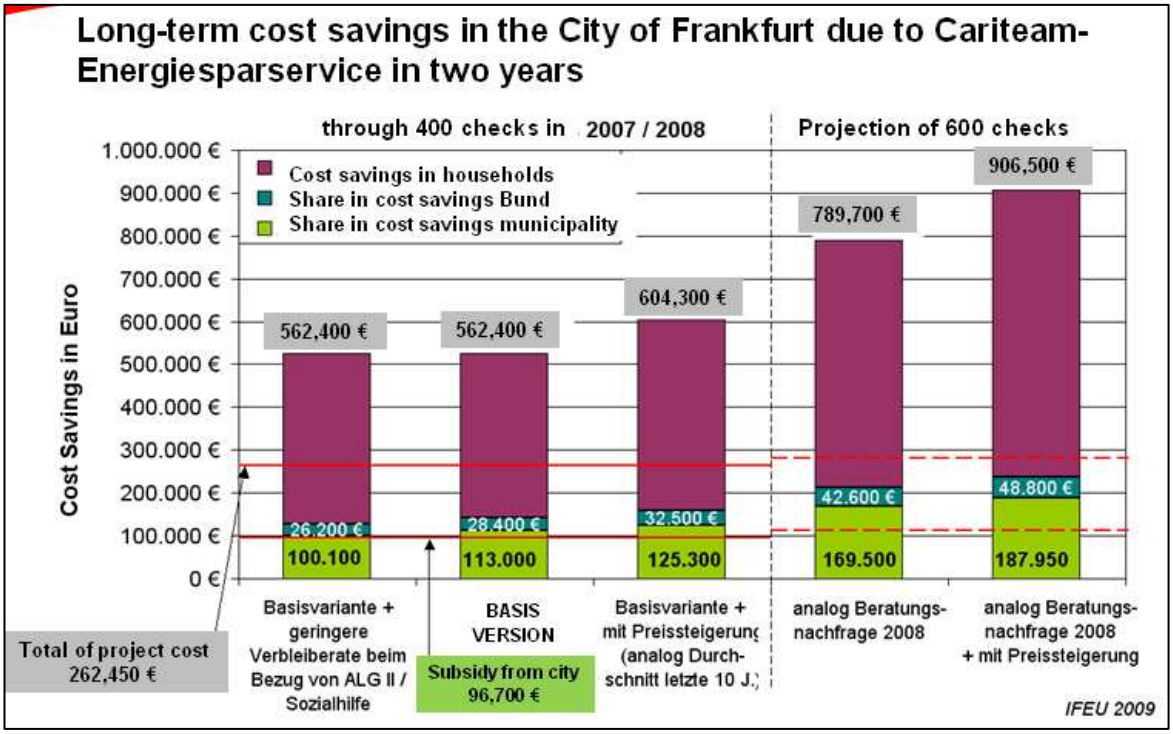


Figure 12: Savings in $CO_2$ due to saving measures

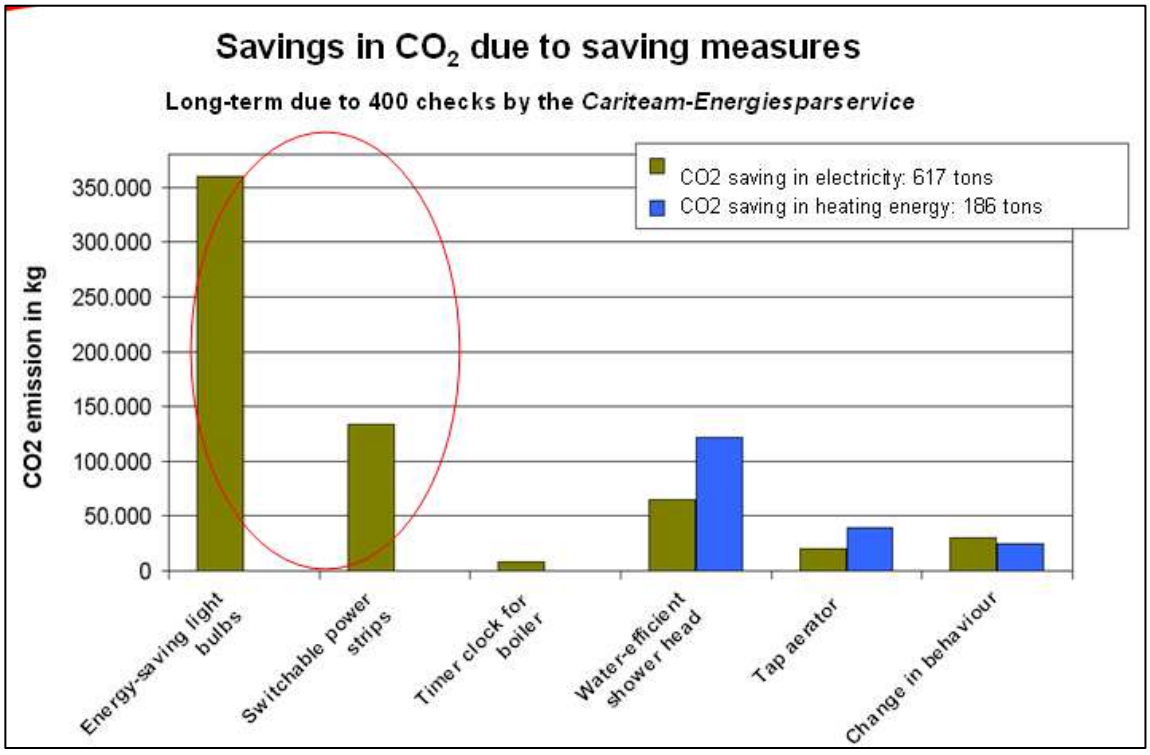



Figure 13: Cost savings due to energy and water saving measures