

Integration of RES in Energy Audits in Finland

Summary

During the period of 1996-2001 1 537 energy audits were reported to been made in Finland. So far an energy audit has been identifying and scaling the cost effective energy and water saving opportunities, but not considered the opportunities to use RES in energy production. The objective of this project was to define the guidelines for auditors to make a preliminary RES feasibility study and to realise a pilot training for the auditors. 20 auditors from 16 companies have got the training and they will test the given guidelines in 5-8 pilot audits before end of the year 2002. The Ministry of Trade and Industry funds the project.

BACKGROUND

Introduction

In Finland's Climate Strategy 4 milj. tons of CO₂ emissions should be reduced by increasing the use of RES. A considerable amount of fossil fuels (about 12 TWh) is used in the small heat boilers (1-15 MW) especially in the industrial sector. Energy audit, where the cost effective energy and water saving opportunities are identified and scaled, is a suitable tool to examine the applicability of RES in energy production as well.

Location

The project is realised in Finland. Auditors are trained and audits made all over the country.

Objectives

The aim of the project is that in the future energy audits will give an opinion about the profitability of converting the energy source from a fossil fuel or electricity to RES. In the first stage only wood energy (chips and pellets) and heat pumps are included to the audit. Other RES (solar heat and biogas) will be added to the audits in further stages.

Duration

The Integration project started in September 2001 and the first stage will be finished in March 2003, when the guidelines for RES examinations will be include to the general energy audit rules. But the development of energy audit tool is a continuous work as well as the marketing and realisation of energy audits and training of auditors.

Partners

Ministry on Trade and Industry, Helsinki, Finland

Mikkeli Polytechnic, YTI - Research Centre, Mikkeli, Finland

Solpros Oy, Helsinki, Finland
North Karelia Polytechnic, Joensuu, Finland
Ins. tsto Olof Granlund Oy, Helsinki, Finland
Jyväskylä Science Park, Jyväskylä, Finland

Technologies and/or methodologies used

Preliminary studies were made to identify the most profitable renewable energy technologies to be included in the energy audit in this first stage. Technical and economic potential were estimated for wood energy, heat pumps, solar heat and biogas. Wood energy and heat pumps were chosen because of the greatest potential and best competitiveness from the commercial point of view.

Total costs and contribution from external sources of funding.

Total costs of the project will be app. 100 K Euro.

RESULTS

The main results will be achieved in the coming years, when targeted number of energy audits conducted yearly is 200-400 and auditors trained is 50.

In the project so far 20 auditors have been trained. Two pilot energy audits have been realized and the other of them will lead to an investment of 2MW wood boiler, which will cost app. 1 million euros. A new company has been established to make the investment and produce the heat. This business will give extra income for about 10 farmers. The former fuel was heavy fuel oil, thus this conversion will reduce the CO₂ -emissions by 1500 tons/a.

LESSONS LEARNED

Positive aspects of project implementation

Because the project is still underway, the lessons to be learned will mostly come in the future. The main notion is, that this project is something that has already been expected on the field and the auditors had a very positive attitude to the subject.

Problems encountered and how (if) overcome

So far no major, or even minor problems can be reported. If there will be problems, they will appear in the future, when these new guidelines are really taken in to practice.

REPEATABILITY

The project can easily be repeated in a country, which has a similar energy audit training and authorization system as in Finland. Especially the content of the training could be repeated in any country, where wood energy is a significant RES and where there is a lack of knowledge of RES technologies among the energy professionals.

PARTICIPANTS

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