
Household Energy Savings

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Abstract: For savings on heating or cooling, our approach is based on temperature measurements in the household, and we have defined saving factors that estimate the potential savings as a fraction of the observed energy consumption. The approach considers local climate data, to make the saving advices more relevant to the visited households. We have found energy savings of 1000 – 8200 kilowatt-hours per household, depending on the local climate, or 5 – 20% savings per household. The first 5% result from inexpensive behaviour related changes, while larger savings result from improvements to the building envelope.

Keywords: end-use efficiency; individual action; local actions; energy performance; energy use; home energy check

INTRODUCTION

Households can find many saving advices on the World Wide Web, and an energy adviser can straightforwardly compose a list of saving advices that are relevant to a given household. One example of an advice is, 'Keep the indoor temperature low during the heating season'. It is not straightforward, however, to quantify the advices, such that the household will know how much energy and money the advice saves.

The European directive for energy efficiency, which aims at 20% energy efficiency by 2020, defines *energy savings* as, 'an amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure' (Council of the European Union and European Parliament 2012). An energy advice should thus be accompanied by at least an estimate of the savings in order to be able to check the effect against the 20% target. Energy savings in households are congruent with the EU policies and regulations for energy efficiency (European Commission 2010a, b, c; 2012a, b), and the pursuit of energy savings is a business opportunity for energy agencies, among others.

Many *folk wisdom* advices arise from experience and common sense. For example, 'turn your heating system down', 'remember to turn off lights and appliances when not in use', 'set your washing machine to wash at 30°C' or 'wash