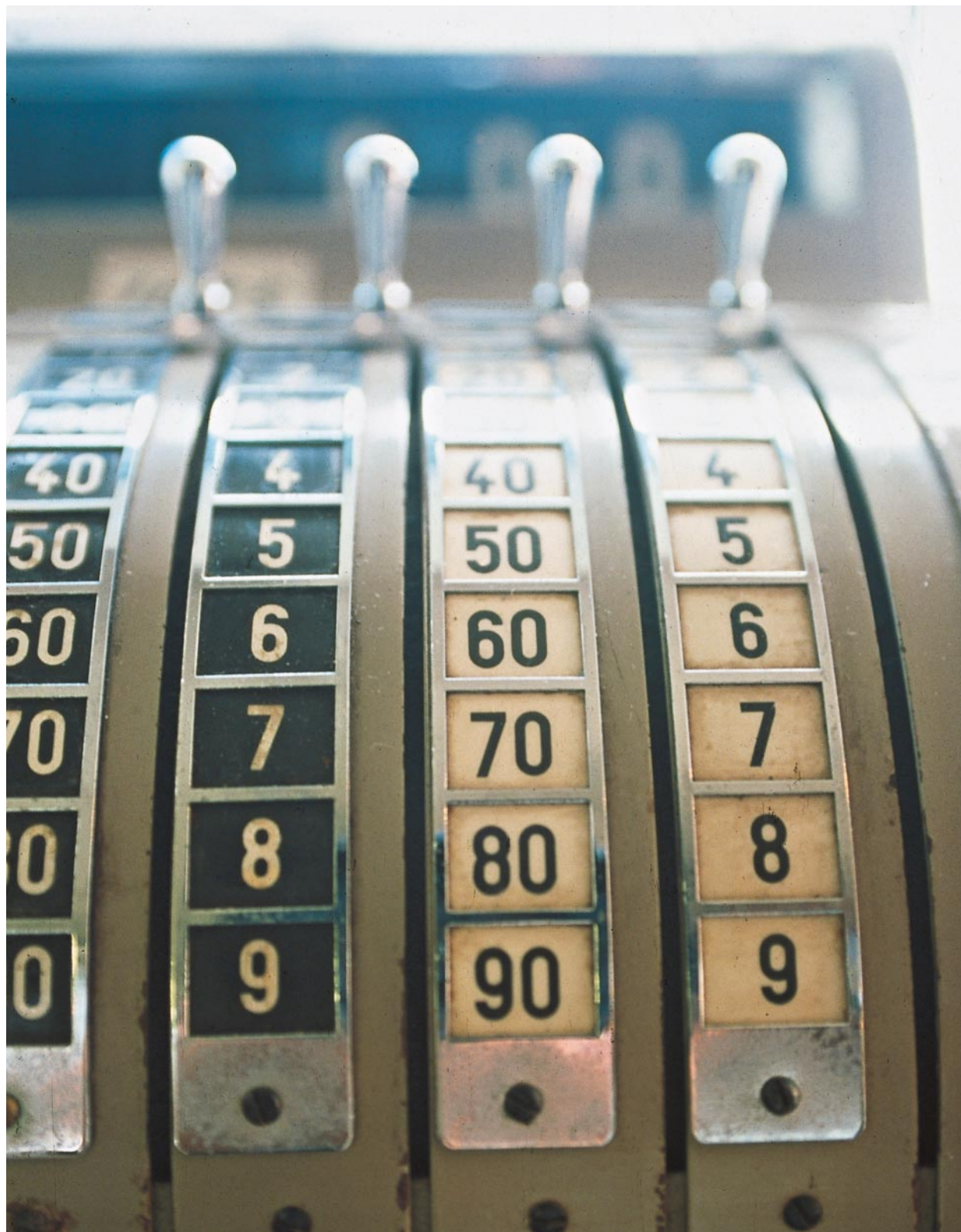


Harnessing the Power of the Public Purse

Final report from the European PROST study on energy efficiency in the public sector



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This report is based on the PROST study carried out under the auspices of the European Commission's SAVE programme

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All PROST Country Studies are found in a separate electronic appendix volume found on the PROST cd. The full PROST report will also be available in electronic format on www.eceee.org/library_links (see procurement).

Acronyms and abbreviations

AC	Air conditioner
Ademe	The French Agency for Environment and Energy Management
EC	European Commission
EEB	Energy efficiency budget
EEMU	Energy efficiency management unit
EPC	Energy performance contracting
ESCO	Energy service company
ESPC	Energy-savings performance contracting
GEEA	Group for Energy Efficient Appliances (co-operation between some European energy agencies)
HVAC	Heating, ventilation and cooling
ICLEI	International Council for Local Environmental Initiatives
IEC	International Electrotechnical Commission
LCC	Life-cycle cost
MEPS	Minimum energy performance standards
MPS	Minimum performance standards
MS	Member State
Novem	The Netherlands Agency for Energy and the Environment
NPV	Net present value
O&M	Operations and maintenance
PA	Public administration
PICO	Public internal performance contracting
PPS	PROST Purchase Specifications
ROI	Return on investment(s)
STEM	Swedish Energy Agency
SHGC	Solar heat gain coefficient
TOE	Tonnes of oil equivalent
TPF	Third party financing
VFM	Value for money

Acknowledgements, description of project team and responsibilities

Acknowledgements and sponsors

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Project team

The following partners participated in the PROST project:

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Other experts employed by the project group:

Eje Sandberg, ESAN Energi; *Gösta Westring*, legal adviser, Sweden

Responsibilities and authorship

The PROST study is a result of the truly collective effort by the entire project team. Various parts have specific authors, but all partners have been involved in commenting, suggesting and co-authoring the different chapters. Nevertheless, particular responsibilities were assigned as follows.

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Main report

Chapters 1-7 (Part I), which summarises findings from the Country studies, was compiled by *Ylva Blume* with assistance from *Nils Borg*, *Andrew Pindar* (who drafted a number of sections including the summary of the buildings-related chapters) and *Stefan Thomas*.

Chapter 8 was originally written as separate policy proposals by individual members or the project team. The proposals were compiled and edited by *Nils Borg* with support from *Stefan Thomas*.

Chapter 9 was written by *Andrew Pindar* with input from *Herbert Ritter*, *Wolfgang Irrek* and *Stefan Thomas*.

Chapter 10 was written by *Herbert Ritter*.

Chapter 11 was written by *Andrew Pindar*, who also produced the corresponding appendices 2-6. *Stefan Thomas* provided inputs both for Chapter 11 and its appendices.

Chapter 12 was written by *Heidrun Faninger-Lund* and *Peter Lund*, with assistance from *Adam Gula* and *Arkadiusz Figórski*.

In Chapter 13, *Andrew Pindar* gathered the information on Internet resources.

Appendices

Appendix 1 (a legal memorandum on environmental concerns in public procurement) was written by *Gösta Westring*, legal adviser and procurement specialist.

Appendices 2-6 were written and produced by *Andrew Pindar*.

Appendix 7 was translated from German by *Stefan Thomas*.

Appendix 8 was written by *Christian Radtke*, Wuppertal Institut für Klima Umwelt Energie.

Executive summary

Harnessing the power of the public purse

How can procurement and building energy management in the European public sector be directed towards buying energy efficient products and making public buildings consume less energy? This is the main question answered by the PROST report.

The PROST study was conducted by a seven-country team under the auspices of the European Commission's SAVE programme from early 2001 until the end of 2002. The study team identified barriers and opportunities for public sector energy efficiency. It reports on good examples and describes a set of tools that can be used by public administrations without any particular national or EU policy decision, but it also proposes important policies for the European Union and the Member States. Without such policies, European public administrations will fall short of capturing the full potential of energy and financial savings, and associated greenhouse gas reductions.

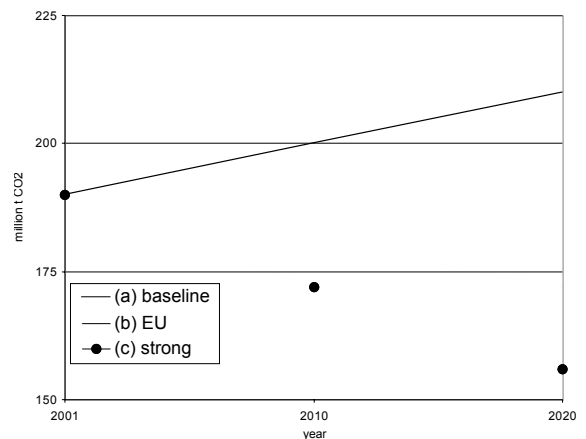
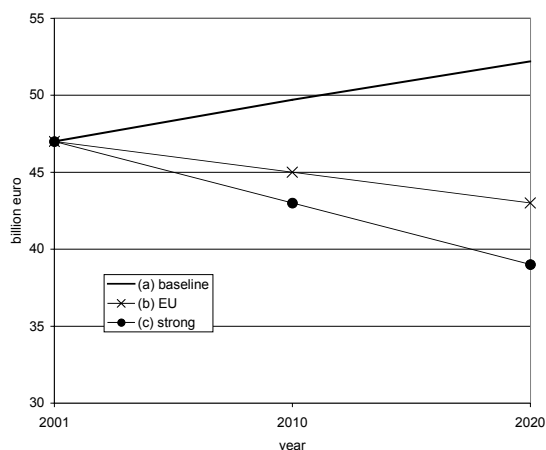
The report argues in favour of "harnessing the power of the public purse". By doing so, it emphasises that energy efficiency in the public sector goes far beyond energy savings and climate protection. It is sometimes argued that energy efficiency is a luxury for the public sector. However, the opposite is true: energy efficiency is a strategy to deal with scarce public funds while at the same time addressing serious energy and climate

challenges. The question is thus whether the public sector can afford *not* to capture the savings.

The gains to be made are substantial. With additional annual investments in energy efficiency as small as 80 million Euro, energy savings in the public sector worth up to 12 billion Euro per year could be achieved in EU's current Member States (EU-15). Similar gains are possible in the Candidate Countries covered by PROST.

The savings estimates are based on the major opportunities for public sector energy efficiency identified in the PROST study. The public sector typically represents 5-10% of the whole energy use in EU Member States, and its annual energy bill is 47 billion Euro. Public procurement in the EU is growing. Today it is in excess of 200 billion Euro or about 3% of total GDP. Public administrations are thus important market actors in energy issues. This is true for purchased energy, but even more so for the procurement of products, systems and services that influence the use of this energy.

The report outlines a number of policy scenarios for the public sector in the EU to demonstrate how their purchasing and energy management practices could influence energy efficiency. PROST quantifies the potential for energy and cost savings and the greenhouse gas (GHG) reductions that are linked to these savings. To the knowledge of the study team, this is the first time such an analysis has been carried out for the European public sector.



Reduced CO₂ emissions and fiscal savings from public sector energy efficiency in EU-15, compared to the baseline. Whereas the baseline (a) assumes a 0.5% annual improvement in energy efficiency, the EU-case (b) illustrates the outcome from implementing measures already proposed by the EU (a 1.5% annual efficiency improvement). The "strong" scenario (c), illustrates the outcome of a programme for energy efficiency in the public sector, with annual efficiency improvements of 2%. Additional investments of only 80 million Euro can generate savings in the order of 12 billion Euro.

Compared to a “business as usual” scenario, the results of the analysis indicate that public administrations in EU Member States can save up to 20% of their energy use (heat and electricity) by 2020, if a stronger emphasis is placed on energy efficiency aspects in procurement, investment, and energy management routines. The related GHG reductions are in the same order or magnitude, and it is clear that active strategies for energy efficiency in the public sector could contribute significantly to the task of Europe meeting its commitments within the Kyoto protocol (see figures).

Looking beyond the public sector

Perhaps the most important effect of systematic and co-ordinated energy efficiency efforts in the public sector is the possibility of a much larger impact on the market as a whole. Arguably, the market volume of the European public sector is fragmented. But given a common direction, manifested in common practices, energy efficiency targets and purchase specifications applied throughout Europe, suppliers would start to regard all public entities in Europe as part of one virtual entity and adapt to that market. To reach economy of scale, it will be profitable to sell the same efficient products to private companies and consumers as well.

Office equipment is an example of the business potential that could be triggered by energy-efficient public purchasing. The PROST Country studies indicate that around 13% of the electricity savings in the public sector could come from more energy-efficient personal computers and screens alone. This represents public purchasing of more than 12 million personal computers over 20 years, or 600 000 on an annual basis. Valuing a personal computer for 1 650 Euro each, the total value would be 1 billion Euro per year. Thus, if the public sector would purchase products and services with more energy efficiency features, its purchasing power would certainly influence the product range of any supplier wishing to satisfy this demand.

How can we get there? Part 1 of the PROST report actually concludes that the public sector gradually is learning to ask for efficient solutions, but that the efforts are scattered and seldom co-ordinated. The PROST study covered public administrations on various levels in 10 EU Member States, 4 Candidate Countries and 4 other nations. The study identified a number of barriers to broad-scale implementation of energy efficiency in public administrations. None of these barriers are of a truly legal nature: In fact, one of the most hindering factors is the *misconception* that explicit energy efficiency requirements in public procurement would not be allowed. In fact, it *is* allowed, and energy efficient public procurement is practiced by a number of entities who face no legal problems in doing so. The real barriers are related to the absence of clear policies and targets, unclear information, insufficient knowledge, split incentives, lack of motivation and lack of financial and staff resources. These are barriers we can overcome by

policy decisions, information, training and development of common methods. It is also necessary to make funds available through a number of financing vehicles; all of them will have positive net benefits on the public sector's finances.

Good examples

The PROST study identified a number of excellent examples from central, regional, and local governments. Among these is the City of Pori in Finland, which has based its “green” purchase decisions on life-cycle cost principles and lists of efficient products for more than ten years. In France, the City of Montpellier has an energy management department, which keeps track of the city's 5 000 or so energy bills and acts to lower them. In Germany, a large number of cities have energy efficiency management units that are saving tax payer's money through a number of innovative ways to organise activities and investments based on low life-cycle costs. The energy manager of the City of Modena in Italy provides a splendid example of how to undertake effective energy management by unifying investment and management budgets. In Sweden, the City of Sundsvall undertook a large-scale procurement to replace 17 000 street lighting luminaires with more efficient ones within a year. In Sundsvall, the city council made a special provision to finance this, knowing that that the life-cycle cost based approach would bring the money back in a few year's time. Finally, and importantly, the UK government has set an annual 1-percent reduction target of CO₂ emissions that applies to all agencies and departments of the central government. The UK government also requires that all government agencies base their purchase decisions on “Value for Money”, rather than low first costs.

The US Federal Energy Management Program (FEMP) provides an excellent example for Europe, both in its way to address the complexity of product purchasing for a multitude of products and agencies with different needs, as well as in its focus on buildings and integration with other Federal programmes such as Energy Star. By emphasizing Energy Star and FEMP criteria as a common basis for energy-efficient purchasing, the US has already seen some evidence of market response from manufacturers and suppliers. A projection of several scenarios for energy-efficient purchasing by federal and non-federal government agencies showed energy cost savings of US\$1 billion/year in the “most likely” case, based on 18 TWh/year plus 2 million GJ of annual fuel savings. Of this total, 80% of the savings are attributable to state and local purchasing.

Policies and tools

The PROST report describes a number of policy actions and tools needed to harness the power of the public purse. The proposals are made with full regard to the subsidiarity principle. Certain policy tools are relevant

Summary of important focus areas of an EU Directive on energy efficiency in the public sector

The Directive would have to recognise:

- that public administrations are relevant and responsible actors in achieving EU targets for a more sustainable and efficient economy and society
- the importance of structural changes to consider the requests of an integrated product policy
- the importance of principles that allow more sustainable consumption patterns while aiming for “Value for Money”
- that energy efficiency in the public sector is a valuable strategy in achieving EU targets such as the obligations under the Kyoto Protocol
- the need for European policy targets in terms of energy and greenhouse gases in relation to improved public sector energy efficiency

The Directive should oblige:

- the European Commission to assume responsibility for a European Co-ordination Board for Energy Efficiency in the Public Sector
- EU institutions to integrate energy efficiency considerations in their daily expenses and activities
- EU institutions to establish energy-efficient procurement information desks in order to make procurement information available to all their internal purchasers of appliances and cars
- EU institutions to establish energy efficiency management units and carefully consider all relevant instruments that help make building-related measures as energy efficient as possible
- EU institutions to create one or more PICO and/or TPF/EPC (third-party financing/energy-performance contracting) schemes for improving the energy efficiency of their building stock

The Directive should further call upon Member States to ensure that:

- they set themselves quantitative targets for additional energy savings for their central government institutions, and promote the setting of similar targets by the lower levels of state (regional, local governments)
- public administrations in their countries integrate energy efficiency considerations in their daily expenses and activities
- buying agencies in their countries provide information that helps PAs to make informed choices on energy efficient products
- national public sector energy efficiency information centres are established and given sufficient resources to provide information, and to develop common EU-wide specifications, methods and procedures for integrating energy efficiency in public procurement and buildings management
- the national public sector energy efficiency information centres co-operate with each other
- public administrations establish energy-efficient procurement information desks in order to make procurement information available to all their internal purchasers of appliances and cars
- public administrations above a threshold energy consumption (e.g., 1 000 MTOE/year) operate energy efficiency management units (EEMU:s), and that smaller administrations get access to similar services
- EEMU:s are charged with the responsibility to make refurbished and new buildings respect minimum performance standards, and document the savings
- there are explicit requirements to introduce cost effective measures to improve energy efficiency service contracts (for public administrations that outsource responsibilities)

The Directive should further call upon Member States to promote:

- the creation of energy efficiency budgets in all levels of public administrations in their country. It should at least recommend MS central government and the EU institutions to dedicate part (%) of their normal building/maintenance budget to energy efficiency investments
- the use of third-party financing and energy performance contracting (TPF/EPC) in public administrations in order to overcome existing barriers to energy efficiency in public buildings
- the use of the public internal contracting (PICO) concept in public administrations
- shared savings schemes, which give an incentive to individuals, teams or organisational units to implement energy efficient improvements
- that public administrations link the reform of public administration with actions, incentives, and instruments to improve energy efficiency

for individual Member States and public administrations, and the study team calls upon governments and public administrations to implement these policies, even in the absence of action at the EU level. Other policy proposals would clearly benefit from co-ordination at the EU level. Where this is the case, the report considers how these policies may be introduced into an EU Directive on energy efficiency in the public sector.

In particular, EU-wide co-ordination is important to secure the development of common specifications and methods, but also to ensure that the synergies of the various policies and tools are maximised. The box found in this executive summary as well as in Chapter 8, outlines possible elements of an EU Directive.

The report not only points at the importance of common purchase specifications and guidelines. A large share of the project was devoted to actually mapping, analysing and proposing such common energy efficiency purchase specifications and life-cycle cost methods for “stand-alone” products as well as for buildings. On a principal level, the report discusses when to use energy efficiency purchase specifications and when life-cycle cost methods are applicable. In the area of products and appliances, concrete proposals for EU-wide specifications were developed for IT equipment, cold and wet appliances, street lighting and traffic lights, and cars. In the buildings area, purchase specifications are defined for 13 types of building components.

The report also provides an in-depth discussion on building minimum performance standards, and discusses how and why various target levels can be applied in public administrations, in light of the European Directive 2002/91/EC on the Energy Performance of Buildings. Energy performance standards and purchase specifications are complementary: Purchase specifications make it very easy to identify efficient products and components, whereas building standards (whether target or mandatory) give skilled designers and energy managers freedom to develop energy-efficient systems and buildings as long as the specified levels are met.

It is important to note that the policy tools shall be seen as a package, where each tool addresses different barriers and hence creates synergy effects with the other tools. The following is a very short overview of the policy toolkit offered by the PROST study:

Setting policy targets An EU Directive must define clear policy targets for Member States. These are quantitative targets for additional energy savings in each Member State’s central administration, but also a requirement for Member states to promote that all public administrations set up similar targets.

Creating a European structure based on national programmes National programmes in each Member State should be established and co-ordinated by *national public sector energy efficiency information centres*. These centres will most likely be existing structures, which are given a clear mission and sufficient resources to carry out their work. A *European Co-ordination Board for Energy Efficiency in the Public Sector* shall be

established to co-ordinate the work on a European level, and the national information centres are the natural contact points in each Member State. This European structure shall be responsible for developing and updating common, EU-wide *energy efficiency purchase criteria and life-cycle cost methods for products and buildings*. The national information centres shall also work in close co-operation with the *central buying agencies* in the country.

Structures and actions within public administrations Within public administrations, the function of *energy efficient procurement information desks* must be secured. In the area of buildings, *energy efficiency management units* (EEMU:s) shall be established. These have a host of policy tools at their disposal: *Energy efficiency budgets, third-party financing and energy performance contracting, public internal performance contracting (PICO), sharing savings*, as well as the opportunity to *bring energy efficiency to outsourcing*. The report also takes a closer look at the possible *links between energy efficiency and public administration reform*.

Leading the way

Everyone has a responsibility for implementing energy efficiency in the public sector: The European Union and its institutions, Member States and Candidate Countries, individual public administrations on all levels, and employees working in all these institutions. The role of the EU institutions deserves to be highlighted. No other energy and environment policy area offers such an obvious opportunity to provide leadership by example than this one. Any Directive asking Member States to ensure that the public sector becomes energy efficient, should also spell out mandatory requirements and actions for the European Union’s own institutions.