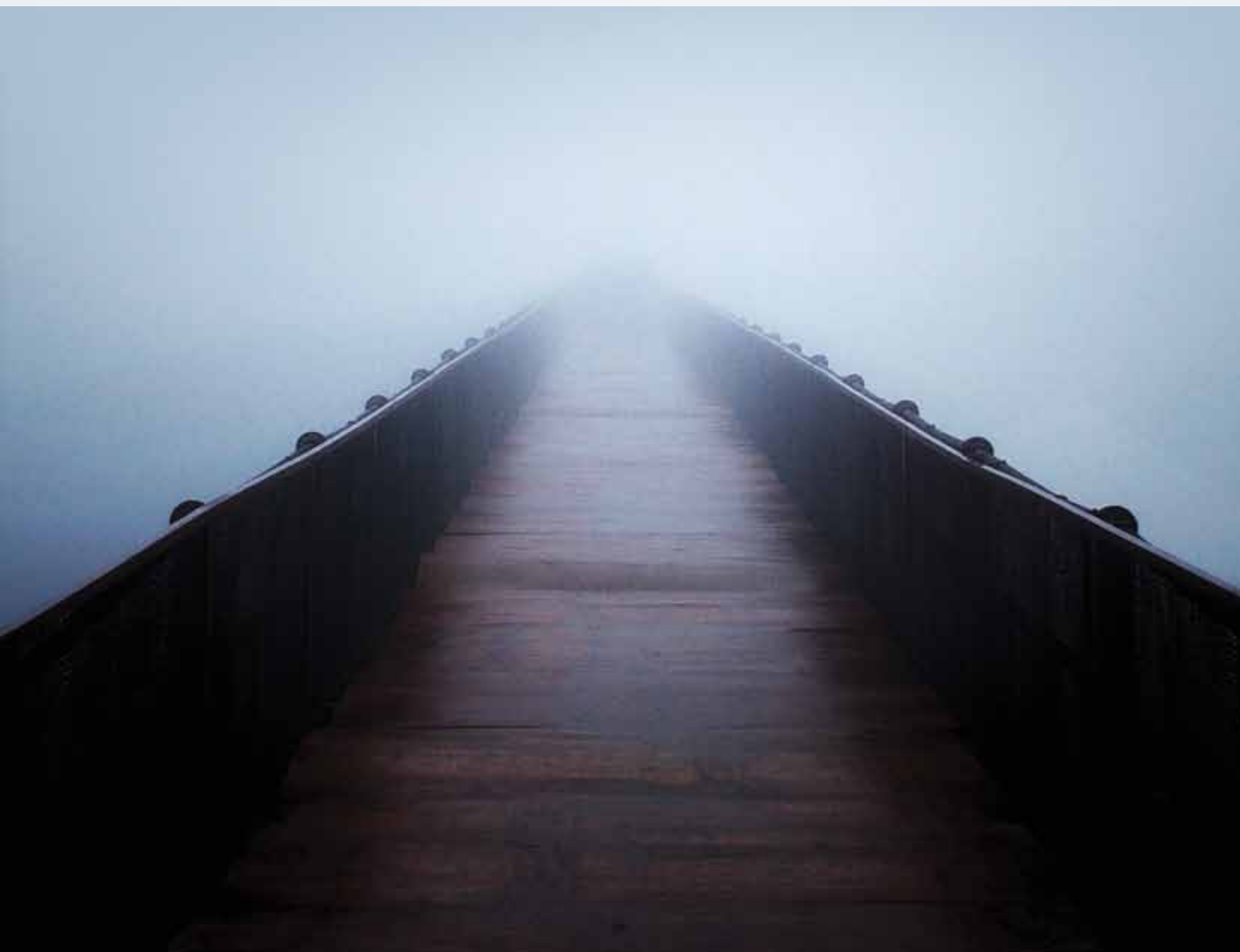




Energy Efficiency and Savings: Clearing the fog

**Everything you always wanted to know but
were afraid to ask about Europe's First Energy Source**



March 2011

A publication by Climate Action Network Europe, with input by Stefan Scheuer and Matthieu Ballu of Stefan Scheuer Consulting
www.stefanscheuer.eu

For queries regarding this paper please contact:

Erica Hope

erica@caneurope.org

Tel. +32 (0)2 894 46 71

[Climate Action Network–Europe](http://ClimateActionNetwork-Europe)

[Rue d'Edimbourg 26, 1050 Brussels, Belgium](http://Rue_d'Edimbourg_26_1050_Brussels_Belgium)

www.climnet.org

Energy Efficiency and Savings: Clearing the fog

Everything you always wanted to know but
were afraid to ask about Europe's First Energy Source

CONTENTS

Foreword	5
Glossary	6
Questions and myths	8
1. What are energy efficiency and energy savings?	8
2. Will energy consumption automatically fall as a result of higher efficiency?	10
3. What is the EU's 20% energy efficiency target – and how can we measure it?	11
4. Won't lowering energy use harm Europe's prosperity?	13
5. Are we on track to meet the 20% target?	15
6. Why is a binding target so important? Isn't it measures, not targets, which will deliver energy savings?	16
7. Aren't energy savings a matter for Member States, rather than the EU?	19
8. Why bother promoting energy efficiency? If it's so great, surely it will happen anyway?	20
9. Why should any politician care about something as unsexy as energy savings?	22

INTRODUCTION

“Energy efficiency has been an element of Europe’s energy programme for over 30 years. But over this period we have failed to make any major structural changes. The 20% target for efficiency is a major source of concern.”

Speech by Energy Commissioner Oettinger at the stakeholder conference on preparation of energy strategy 2011–2020, Brussels, 30 September 2010

Much lip service has been paid to energy efficiency and energy savings in political and policy discourse, particularly in relation to climate and energy goals. No speech, presentation or policy paper in the field would be considered complete without a reference to how important they are. The European Commission’s Roadmap to a Low Carbon Economy relies heavily on energy savings to put Europe on the right trajectory to meet its commitment of making 80–95% greenhouse gas emission reductions by 2050¹.

However there remains a large gap between the purported enthusiasm for energy efficiency and savings as a concept, and the conviction needed to make it happen on the ground. At current rates of progress, Europe is worryingly far off course to meet its target to cut primary energy use by 20% by 2020².

There are many explanations for this slow progress. But one factor which definitely doesn’t help is the haziness and confusion which tends to surround energy efficiency and savings as a policy area. As you will see from quotes scattered through this booklet, this lack of clarity is frequently exacerbated by the very decision-makers who should be leading the charge towards lower EU energy consumption.

2011 will be an important year for EU policy on energy efficiency and savings, with vital new legislative proposals set to follow publication of the long-awaited Energy Efficiency Plan (EEP). Focus on the topic is stronger than ever, with growing realization of the central place optimization of our energy use has in putting Europe on course to become a resource efficient, low carbon economy.

This brochure aims to demystify energy efficiency and energy savings as policy area, and to dispel some of the most common myths and misunderstandings that often impede discussions about it. In so doing, we hope that it may assist the effort to finally put in place a comprehensive, fully-functioning framework for reducing our energy use.

¹ COM(2011) 112/4: Commission Communication on ‘A Roadmap for Moving to a Low Carbon Economy in 2050, March 2011

² Compared to business as usual projections for primary energy consumption in 2020. See section 3

GLOSSARY

Important terminology and definitions

ENERGY EFFICIENCY

Describes the ratio between an output and an input of energy unit. The output considered here can be as broad as GDP and as specific as the light from an electric lamp. Thus, an energy efficient lightbulb can be described as one which converts the maximum amount of energy into light rather than heat. An energy efficient economy is one which gets as many energy services as possible out of the primary energy put in. The 2006 Energy Services Directive adopts a very broad definition of efficiency which includes behavioural aspects³, e.g. switching transport modes or reducing commuting distances. This implies efficiency can be improved either by technological measures or by behavioural changes.

ENERGY INTENSITY

Describes the amount of energy used for a given economic output. The energy intensity per GDP point is a commonly used indicator to compare national economies. For example China set itself an energy intensity reduction target of 20% for 2006-2010, and new targets will be set for the next five-year plans. In 2006, China's energy intensity was 1046toe/M€ (respectively 169 and 267 for the EU27 and USA)⁴.

ENERGY SAVINGS

The ESD defines this as the avoided use of energy due to efficiency improvement measures. This means that the energy saving is expressed in a saving volume which is independent from the baseline development. The EU's 20% energy savings target is defined differently, however – against a fixed baseline. This means it is the same as a cap on energy use by 2020 and thus does not need to result only from efficiency improvement measures – structural changes could also contribute.

PRIMARY ENERGY

Energy before conversion, like crude oil, coal or uranium.

FINAL ENERGY

The energy consumed by end-users, like households or industries. The conversion rates from primary to final energy vary according to the source and use. While it takes 1.4 units of crude oil for one of car fuel, the difference between primary and final is much larger for other sources like electricity and uranium. On the other hand, wind and solar electricity is considered to be 100% efficient – there are no wasted units of primary energy. Final energy can be translated into primary energy using either real or EU fixed average conversion factors (two to 2.5 for electricity and 1.2 for heat).

ENERGY SERVICE

The physical benefits or utility derived from using energy – for example heating homes, mobility, running computers.

EFFORT SHARING

Describes the approach of sharing the effort to reach a common objective, as under the Greenhouse Gas Emission Reduction or Renewable Energy Directives. Note that in the past the term "burden sharing" was used. But due to the recognition of the many benefits and opportunities created by those policies, effort sharing is now considered a more appropriate term. In principle the effort can be shared between Member States as well as between sectors or even companies. There are many possible ways of deciding the shares based on economic, natural and social criteria – including applying a flat rate for all.

³ Directive 2006/32/EC on end-use efficiency and energy services, Art.3(c)

⁴ Source: Eurostat



QUESTIONS AND MYTHS

1. WHAT ARE ENERGY EFFICIENCY AND ENERGY SAVINGS?

“The Commissioner has very clearly and accurately expressed how complicated it is just to describe the concept of energy efficiency; what is it, actually?”

Herbert Reul MEP, Strasbourg, 14 December 2010

Reducing energy use – energy savings – is the simplest and cheapest way to reduce our greenhouse gas emissions. At the same time, it will save billions for consumers and public budgets, create skilled jobs, improve security of energy supply and improve European companies' competitiveness.

We can cut our energy use by either reducing our volume of economic activity, or by improving the efficiency of that activity – that is to say, using less energy to get the same useful output. In other words, by eliminating waste and avoiding unnecessary uses of energy.

This can often be achieved by improving the technical efficiency of products or processes – for example, by developing power stations or washing machines that deliver more electricity or washing for the amount of energy used. We can also achieve it through behavioural or structural changes, like switching off lights in empty rooms, or improved spatial planning which reduces commuter distances. These changes don't mean reduced living standards, but they reduce our consumption of electricity or transport fuel.

There are many ways we can cut energy waste right across the chain of energy supply and use, throughout all economic activities and our daily lives, and across all fuel types. For example:

- ➔ A company can avoid wasting energy by using more efficient appliances or transport, by reducing the heating and cooling demand of its premises, or by optimising its operational processes. Manufacturing industry can save energy by increasing the efficiency of its processes.
- ➔ Private consumers can save energy by insulating their homes, using more efficient products, or travelling more efficiently – reducing commuting distances or buying more efficient vehicles, for example.
- ➔ Governments and public authorities can save energy by increasing the efficiency of their own buildings and companies, by procuring more efficient products and services, and by helping private consumers and companies to increase the efficiency of their energy use. This can take various forms (see Box).

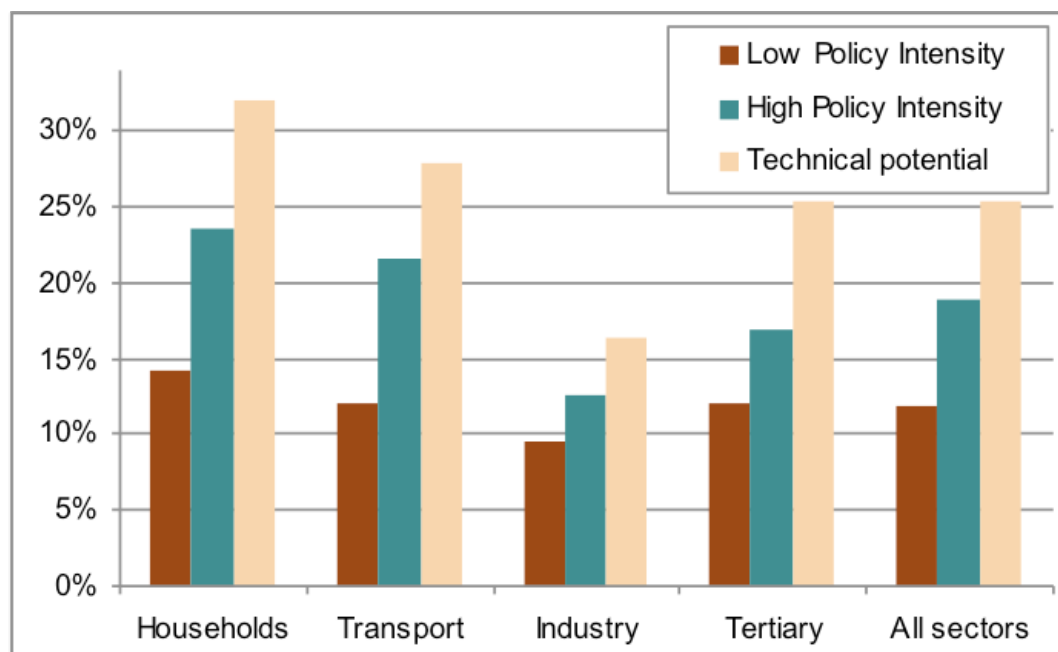
Policy instruments to promote Energy savings

Governments can help promote greater efficiency through better regulations, incentives and by planning out public spaces and transport systems more carefully.

- Market mechanisms and standards to encourage the most efficient transformation of primary energy into usable form (like electricity, heat, transport fuel), and its transmission and distribution to end users;
- Minimum efficiency requirements for products, processes, buildings and vehicles, and labelling schemes to direct consumers to the most efficient models;
- Financial incentives, including loans and grants for efficiency investments, bonus/malus schemes for cars and appliances and progressive pricing of energy use;
- Developing an energy savings market, by means of schemes, regulations and power sector obligations which encourage energy service companies to provide services leading to energy savings by their customers (for example, advice, energy audits, equipment supply);
- Targets for particular sectors to achieve a certain level of efficiency, or voluntary agreements between companies;
- Awareness-raising and information, e.g. public campaigns, training programmes for builders, installers and public officers.

Residential energy use and the tertiary and transport sectors are together responsible for more than two thirds of final energy use in the EU. According to recent estimates, these sectors could cost effectively save 21% of the energy they use by 2020⁵. The industry sector has slightly lower potential for savings because increasing energy costs have already driven them to make more improvements than other sectors.

The following graph, taken from the impact assessment of the EEP, breaks down the energy savings potential by sector of the 27 countries in the EU by 2020⁶.



⁵ Fraunhofer ISI et al, Study on Energy Savings Potentials, 2009

⁶ SEC(2011) 277 final: Commission Impact Assessment of the EEP, March 2011

2. WILL ENERGY CONSUMPTION AUTOMATICALLY FALL AS A RESULT OF HIGHER EFFICIENCY?

The short answer is no: increasing our energy efficiency does not guarantee that our absolute level of energy use will fall. If consumption and production grow faster than efficiency increases, energy use will still rise – albeit at a slower rate than it would have done without the efficiency improvements. And indeed, the evolution of our economic activities, guided by the search for growth, automatically leads to new uses of energy – bigger cars, bigger screens, more flights.

Perversely, it can also be the case that efficiency measures themselves result in new uses of energy, as money saved thanks to measures in one area is spent on different activities that use energy. For example, a household might use money saved from making its heating system more energy efficient to buy a new TV or go on holiday. A company might invest money saved on energy bills to increase marketing and production – leading to an increase in energy demand. Or a person might simply drive his or her car more because it appears to be cheaper to run (due to higher fuel efficiency).

This argument is often used to belittle the effectiveness of energy efficiency policies. Critics may ask, "What is the point of increasing energy efficiency, if it leads to new uses of energy?"

However, recent studies have shown that households in OECD countries "re-spend" just 10–30% of the total energy savings they make⁷. Potential rebound effects may therefore reduce the pure engineering impact of efficiency policies, but they certainly do not mean they are worthless.

At the same time, merely making products and processes more technically efficient is unlikely to be enough to offset the increased energy demands of growth-driven economic choices. Energy efficiency is a necessary tool, but it won't guarantee sustained reductions in energy use and greenhouse gas emissions. Achieving these requires a broad approach, explicitly focused on absolute energy savings, which goes beyond pure technical improvement and includes behavioural change, consumer awareness and the development of a market for energy services.

⁷ Les effets rebond des mesures d'efficacité énergétique: comment les atténuer? in Ademe Et vous, 5 May 2010

3. WHAT IS THE EU'S 20% ENERGY EFFICIENCY TARGET – AND HOW CAN WE MEASURE IT?

Despite frequent ambiguous references by politicians, the EU's 20% "energy efficiency" target is actually an energy savings target: i.e. a target for an absolute reduction in Europe's energy use. This is a clear measurement, progress towards which can be readily tracked through official statistics like Eurostat. Although many stakeholders have repeatedly called for it to be made legally binding, to date the target remains only indicative.

In 2005, the Commission paper "Doing More with Less"⁹ proposed that the EU could cost-effectively reduce its primary energy consumption⁸ by 20% compared to energy use projections for 2020. Following this, the 20% target was set in 2007 against a fixed baseline¹⁰. This baseline was the projection for energy use for 2020 presented by the European Commission, which was close to 2,000 Mtoe¹¹.

20% energy savings is therefore to be understood as a pre-defined maximum of 1,600 Mtoe of primary energy to be consumed in Europe in the year 2020. This is 14% less than we consumed in 2005 – and means we need to find ways to avoid the use of around 400¹² Mtoe. (See figures on the next page)

When European Heads of State adopted the energy savings target in 2007, they also committed the EU to reduce greenhouse gas emissions by 20%¹³ compared to 1990 levels. They also pledged to ensure that at least 20% of the EU's final energy consumption would come from renewable sources by 2020. Following this commitment, the greenhouse gas emission and renewable targets were made legally binding, but not the energy savings target. This means that responsibility to achieve it, and accountability in case of failing to do so are not defined.

The European Parliament, along with many other policy-makers and stakeholders, has repeatedly called for the EU energy savings target to be made binding¹⁴ – so as to ensure that governments take on the necessary commitments, allocate resources and devise measures which will ensure the savings are delivered. However, thus far these calls remain unanswered, with the Member States continuing to insist that they neither want nor need binding targets¹⁵.

"Binding targets? But compared to what?"

Paul Magnette, Energy Minister of Belgium, press conference following the Transport, Telecommunications and Energy Council, Brussels, 3 December 2010

⁸ Primary energy is the raw material used to produce usable energy, like coal, uranium or crude oil. Its use can be lowered by reducing losses in conversion, transmission or end use.

⁹ Green Paper on Energy or Doing More with Less, COM(2005) 265

¹⁰ 7224/1/07 REV 1: Presidency Conclusions of the European Council of 8/9 March 2007. This target was reconfirmed by the June 2010 European Council (17/6/2010 Nr: EUCO 13/10)

¹¹ Million Tons of Oil Equivalents

¹² The official European Commission figure is 368 Mtoe, as non-energy uses of primary energy materials (e.g. oil used for plastics manufacture) are excluded.

¹³ The European Commission is currently assessing the possibility of increasing the greenhouse gas target. A move to a reduction target of at least 30% has been openly supported by several Member States and many stakeholders, including CAN-Europe.

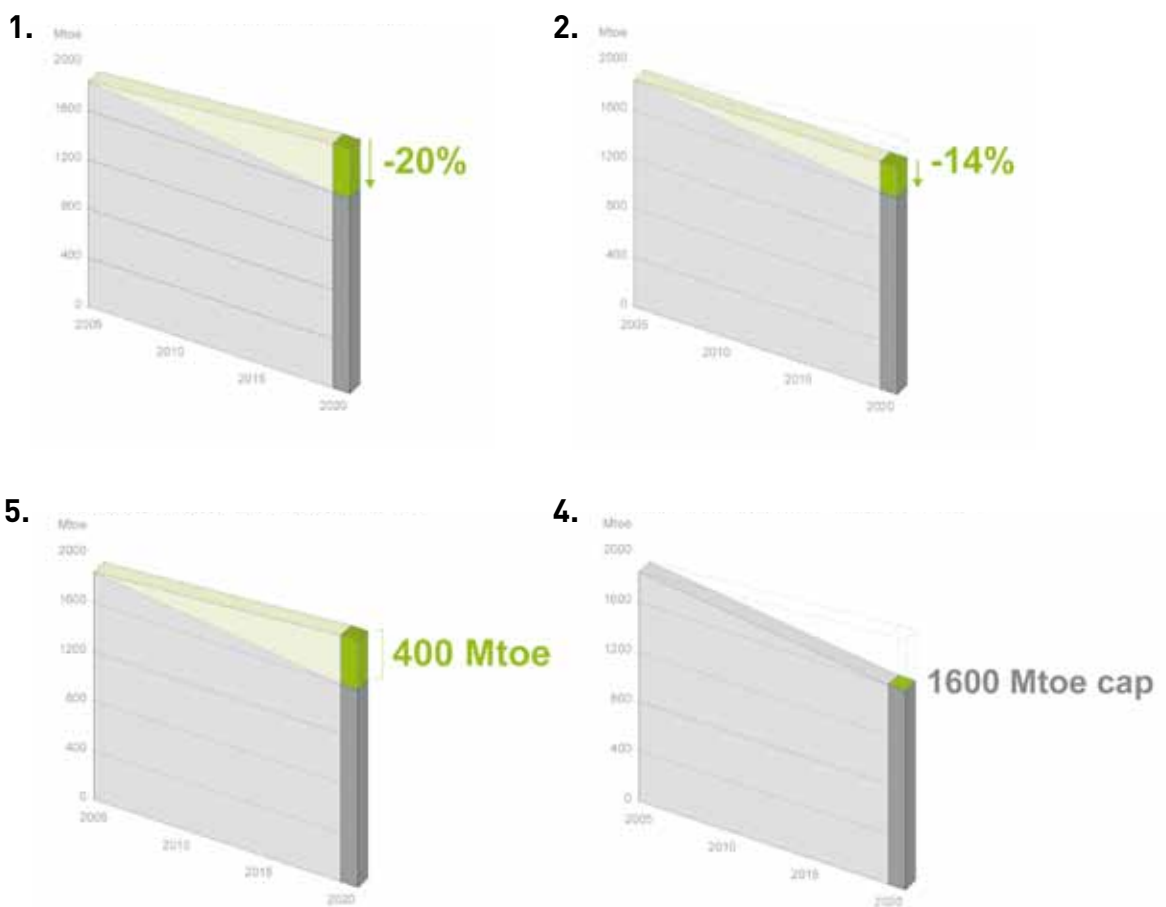
¹⁴ European Parliament Report on the Revision of the Energy Efficiency Action Plan (2010/2107(INI)), 15 December 2010

¹⁵ Conclusions of the Transport, Telecommunications and Energy Council, 28 February 2011

One of the most common arguments against making the energy savings target binding goes as follows: "You can't measure what hasn't been used. And what can't be measured can't be managed, let alone subject to legal commitments."

It is true that we need specific methodologies to estimate the energy savings that a given measure or policy may deliver. But if the EU's headline target is correctly understood as the simple measure that it is, it's clear that progress towards it can be monitored by comparing the EU's primary energy consumption at any given point – data already collected by official bodies – to the fixed baseline of business as usual projections.

Four ways to express the 20% Energy Savings Target



1. 20% reduction compared to energy use projections for 2020
2. Absolute reduction compared to a fixed baseline (2005 energy use)
3. 400 Mtoe reduction compared to energy use projections for 2020
4. Pre-defined maximum ("cap") of energy use for 2020

4. WON'T LOWERING ENERGY USE HARM EUROPE'S PROSPERITY?

“To increase energy efficiency is good; but to reduce energy consumption is dangerous, and threatens our economic growth.”

Alejo Vidal-Quadras MEP, Brussels, 30 September 2010

No - in fact, the reverse is true. Europe is currently faced with high levels of structural unemployment, growing dependency on imported energy, and loss of competitiveness as other countries produce cheaper and better. We have a shrinking workforce that must shoulder increasing health and pension bills, and rising costs of environmental damage. Far from adding to these burdens, energy savings represent a set of win-win solutions - and are integral to the new model for smart, sustainable and inclusive growth of our prosperity and wellbeing.

The need for a well-qualified workforce to refurbish houses or install better appliances means new, skilled, long-term, local jobs. The Commission has estimated that around 2 million new jobs could be created by measures that would save 20% of energy¹⁶. In Hungary, a study by the Central European University showed that a large-scale deep retrofit programme for buildings could create up to 130,000 new jobs¹⁷.

Such national retrofit programmes would also have significant benefits for consumers, increasing comfort levels in better-insulated homes and lowering energy bills. It is estimated that between 50 million and 125 million people in Europe live in fuel poverty¹⁸ - meaning that they are unable to keep their home adequately warm at an affordable cost. In 2008, 18% of UK households were considered to be fuel poor. This figure has risen steadily since 2004 because of increasing energy prices¹⁹.

Meanwhile, Europe currently imports more than half of its energy. According to the reference scenario used by the European Commission to project developments in key economic parameters, this import dependency could reach 62% by 2020. If the EU target of cutting EU energy use by 20% by 2020 was met and directly translated into reduced fossil fuel imports, this figure would decrease to 45%²⁰.

And at a time when other parts of the world are starting to produce better goods increasingly cheaply - and when oil prices are high and rising - it is in the interests of Europe's industries to reduce costs where they can. Most energy savings options identified by audits are cost-effective, meaning that companies will save money on their energy bills by installing the recommended measures, over and above the cost of the initial investment.

At the same time, energy efficiency itself offers a whole array of business opportunities. High prices mean that products' energy consumption is becoming an increasingly important issue for consumers. In some sectors, such as white goods and electric motors, European producers have taken the opportunity to develop top-of-the-range efficient products. However, the EU must act fast to avoid falling behind other major producer countries. It must increase demand for efficient products and saving services at home, and promote sustainable, low-energy lifestyles. This will improve the market for new products and services, and their performance as exports.

¹⁶ COM(2011) 109/4: European Commission Energy Efficiency Plan, March 2011

¹⁷ Employment benefits of large-scale energy-efficient building renovations in Hungary, 3CSEP/CEU, August 2010

¹⁸ Tackling Fuel Poverty in Europe, European Fuel Poverty and Energy Efficiency Project, ADEME/IEE, September 2009

¹⁹ The UK definition of fuel poverty is spending 10% or more of household income on essential energy services (UK Department of Energy and Climate Change)

²⁰ Energy Savings 2020, Ecofys/Fraunhofer, September 2010

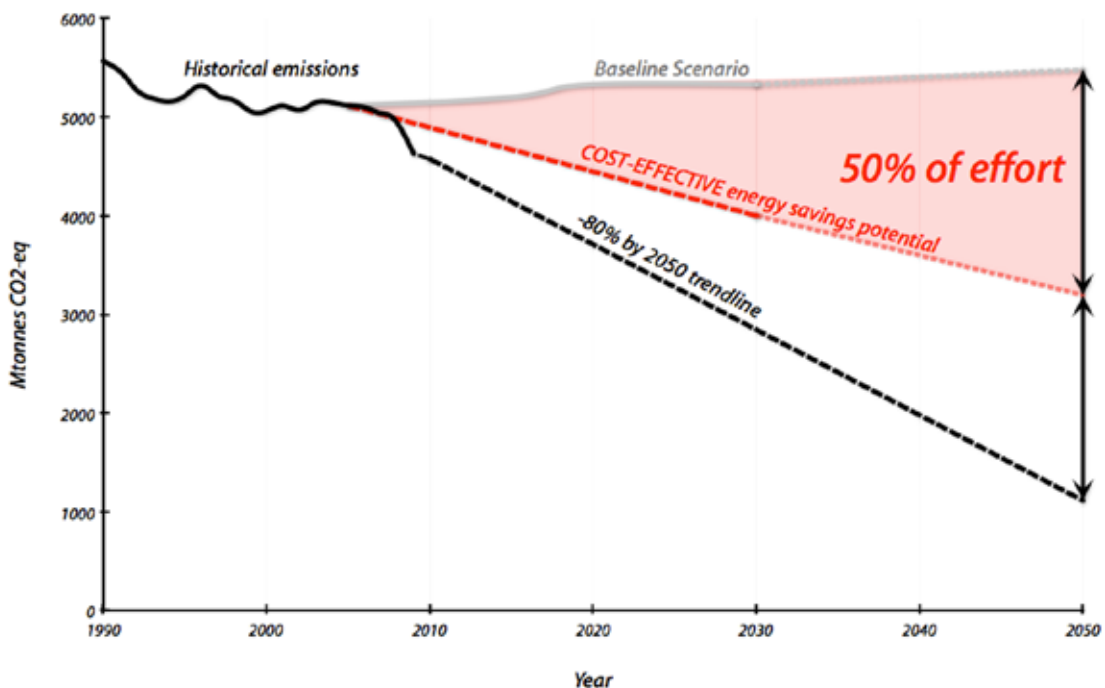
Energy savings and climate protection

The ultimate threat to the European and global economies' competitiveness is our unstable climate, caused by high and increasing greenhouse gas emissions. Europe has committed to reducing its greenhouse gas emissions by 80–95% by 2050, as its fair share of the global reductions needed to have a realistic chance of preventing a major climate catastrophe. Four fifths of the EU's greenhouse gas emissions are related to energy production (for example, oil refining and the generation of electricity and heat) and use. This means that full force energy savings are integral to achieving these hefty emission reductions in an affordable and sustainable way; indeed it is estimated that they can achieve half of the emissions reductions needed to reach an 80% cut by 2050 (see figure).

Every missed opportunity to invest adequately in energy efficiency will have long-lasting consequences. For example, if a house is built or

renovated to sub-standard efficiency level, energy wastage will be potentially locked in for several decades. Between now and 2050 there are only two more investment cycles for many industrial and energy supply installations – so it is vital that maximum use is made of each one to put the highest efficiency standards possible in place.

It is sometimes said that the EU's greenhouse gas emissions targets mean separate measures on energy savings are unnecessary. However, because the greenhouse gas emission targets can be met by several other options (such as renewables or offsets), we cannot rely on them alone to induce maximum energy savings. Indeed, it is clear that energy savings measures tend not to be the abatement options of first resort. There are many barriers in the way of harvesting these so-called 'low-hanging fruit'; which can only be overcome with targeted policies and programmes. This will remain the case even if we move to a higher greenhouse gas emissions reduction target.



Cost-effective energy savings measures show the potential to achieve a significant part of both the 2020 and 2050 climate targets of the EU.

Source: Energy Savings 2020, Ecofys/Fraunhofer, September 2010

5. ARE WE ON TRACK TO MEET THE 20% TARGET?

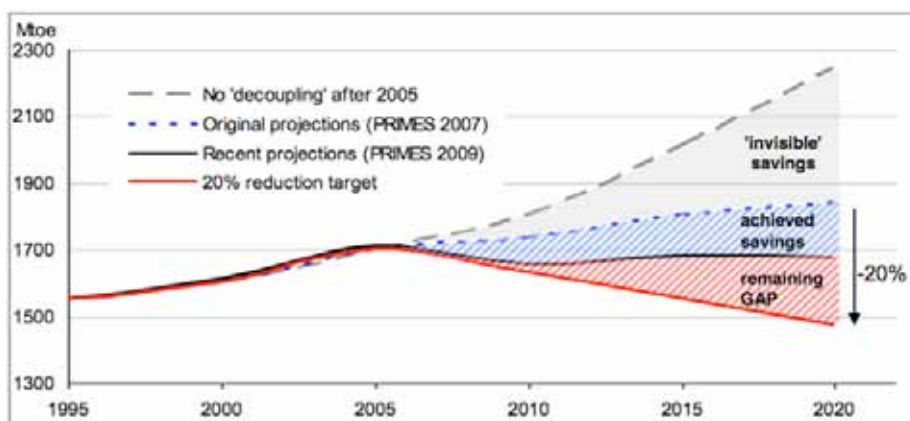
Far from it, unfortunately. In Energy Commissioner Guenther Oettinger's words:

"If the 20% target for renewables is well on track, the objective set for energy efficiency is far from being achieved."

Commissioner Oettinger, conference in Brussels, 30 September 2010

Numerous Commission documents and a multi-stakeholder study published in September 2010 found that the EU's 20% target is very likely to be missed by half²¹. In fact, the European Commission's new Energy Efficiency Plan (March 2011) finds that the reduction in energy consumption by 2020 will only be 164 Mtoe instead of the 368 Mtoe that the 20% target represents – about a 9% saving instead of 20%. These figures take into account both savings achieved as a result of the economic crisis, and the explicit policies the EU and Member States have put in place to try to lower energy use.

This graph²² illustrates the development and projection of the EU's primary energy use until 2020. "Invisible savings" refers to the ongoing improvements in efficiency of products and processes, without which the constant growth-driven trend to more and bigger uses of energy would be even higher.



Failing to meet the 20% target would represent a real loss for Europe on numerous fronts. (See box)

The benefits of achieving 20% savings

The EU is currently on a path towards achieving only around half of the 20% energy savings target, according to a recent study by Ecofys and Fraunhofer. Closing the gap to achieve the full 20% would:

- Reduce energy bills by €78 billion per year;
- Create 2 million new quality jobs;

- Avoid the need to build new electricity generation capacity equivalent to 160 coal-fired power plants;
- Increase security and reliability of energy supply by reducing import dependency by up to 20%;
- Improve Europe's global competitiveness, by stimulating research and development and reducing energy costs.

²¹ Energy Savings 2020, Ecofys/Fraunhofer, September 2010

²² SEC(2011) 277 final: Commission Impact Assessment of the EEP, March 2011

6. WHY IS A BINDING TARGET SO IMPORTANT? ISN'T IT MEASURES, NOT TARGETS, WHICH WILL DELIVER ENERGY SAVINGS?

“The question is not simply whether it would help to make the 20% target compulsory. It is rather what we mean with 20% savings, where can it best be achieved, which tools are needed at EU level and to what extent can we achieve more.”

Commissioner Oettinger, stakeholder conference in Brussels, 30 September 2010

In a nutshell, a binding target is needed because non-binding targets stand little chance of being met – as the European Commission itself admits. A target is not by itself a golden solution: dedicated measures do need to be taken to improve energy efficiency and use. However, many stakeholders argue that the focus and drive of a binding target are needed to ensure the right measures are put in place and effectively implemented.

As we have seen, despite having a raft of energy savings policies in place (see box), the EU is on track to achieve only half of its 20% target. The situation would be even worse if it weren't for the reduction in economic activity caused by the recession. In fact, the impact of the policies themselves is estimated to be about only one third of what is needed to meet the target²³ and we see similar poor results on the financial side. Alongside its legislation, the EU is pouring billions of Euros of European funds into energy savings projects. Yet according to independent studies only a fraction of this money is actually being spent on projects, and the monitoring of results is weak²⁴.

EU Energy Efficiency Legislation

EU legislation directly addressing the energy efficiency of buildings, transport, appliances and car manufacturers affects around 90% of the energy use in the EU²⁵ – by setting minimum performance and process standards, as well as national enforcement and reporting obligations. In the buildings sector, the Energy Performance of Buildings Directive requires the setting of energy performance standards and certificates, and sets out objectives for moving towards zero energy buildings.

Domestic and industrial appliances are covered by the Eco-design and Energy Labelling Direc-

tives, which aim to drive the market towards more efficient products.

In the transport sector, regulations target CO₂ emissions of cars and vans and the labelling of tyres.

The Energy Services Directive has a broader scope. It requires the setting of national savings targets and Action Plans, and aims to create a market for the selling of energy services.

In the electricity generation and industry sectors, efficiency is indirectly promoted by the Emissions Trading Scheme, the Directive on Renewable Energy Sources, and the new Directive on Industrial Emissions.

²³ Energy Savings 2020, Ecofys / Fraunhofer, September 2020

²⁴ CEE Bankwatch

²⁵ idem note 24

There are two problems which currently prevent EU energy savings policies from delivering effectively:

- ➔ Commitment and accountability of the authorities in charge: mixed responsibilities in the existing patchwork of legislation often lead to low ambition and weak enforcement;
- ➔ Coherence and complementarity of legislation: the lack of a solid framework for the different EU laws creates gaps and overlaps, which in turn lead to lower ambition or uncertainty on the market.

Legally binding targets for energy savings offer the right complement to the existing policy framework to solve these problems. On the one hand, they would imply commitment and accountability, and serve as a hard benchmark for assessing progress in implementation. The need to deliver may in turn stimulate a greater level of ambition in fleshing out the EU framework, a greater allocation of human and financial resources to energy savings, and a properly thought-through mobilisation and allocation of responsibility among the widely-dispersed efficiency actors.

Prioritising energy savings in this way would also help ensure a more strategic, coherent approach to energy policy as a whole. Due to gaps in legislation and the lack of a comprehensive approach, at present some activities are not covered by any energy efficiency legislation at all²⁶. Indeed as things stand, even governments' renewables and efficiency departments are not properly coordinated²⁷.

The other big advantage of targets is to provide long-term regulatory certainty to drive public and private investments. The example of renewable energy demonstrates this. The certainty provided by the binding target encouraged, for example, the establishment of feed-in tariffs to reassure large and small investors, and progress on renewable energy increased markedly once the formerly indicative target was made binding.

The European Commission proposes to build the EU's energy infrastructure for 2020²⁸ based on the assumption that renewable and greenhouse gas emission reduction targets will be achieved, while the energy savings target will be missed by half. Asked why it makes such different assumptions for different targets, the Commission explained that current measures are insufficient to achieve the three targets (EU Baseline Scenario 2009) – but that it assumes that the binding targets will nevertheless be achieved (EU Reference Scenario 2009)²⁹.

This is perhaps the ultimate confirmation of the role that legal obligation plays in creating trust that the measures needed to achieve the target will be taken³⁰. While binding targets thus create a favourable planning environment by sending strong political signals, non-binding targets can do the opposite and become self-defeating.

²⁶ Electricity end uses in EU Emissions Trading System (ETS) installations are not covered by the Energy Services Directive. But as they are not part of the industrial process itself, neither are they under ETS obligations. As a consequence, a cement plant operator will receive legislative incentives to improve the efficiency of its production, but none to improve the energy performance of the heating and cooling or lighting in its facilities, although it does not necessarily have any better expertise about this than a private person or household.

²⁷ EU energy demand and savings. A comparison of forecasts and ambitions, Stefan Scheuer, 14 December 2010

²⁸ Impact Assessment accompanying the European Commission Communication "Energy infrastructure priorities for 2020 and beyond – A Blueprint for an integrated European energy network", November 2010

²⁹ Answer P-9136/10EN to Written Question P-9136/2010 by Fiona Hall MEP, November 2010

³⁰ Based on this argument of investor certainty, the European Private Equity and Venture Capital Association (EVCA) produced a paper in November 2010 calling for a binding EU energy saving targets (Bringing the Chasm, EVCA November 2010)

Heating and cooling in buildings

Heating and cooling in buildings accounts for more than one quarter of all energy use in Europe. Using best performing technologies already on the market could reduce this by 80%.

The EU has three laws in place to address this energy use. The Energy Performance of Buildings Directive requires Member States to put processes in place to improve the overall energy performance of buildings; the Eco-design Directive establishes minimum energy efficiency requirements for products including heating and cooling equipment; and the Energy Labelling Directive helps consumers choose the best products.

However, these directives lack targets, deadlines and solid monitoring. Measurable objec-

tives are necessary to guide their implementation and ensure authorities are committed to and responsible for achieving energy savings.

Without mandatory targets, authorities' ambition is constantly being dragged down according to individual interests, with huge potential savings lost along the way. A case in point is the draft standards for boilers and waters, which are due for adoption during 2011 under the Eco-design Directive. Authorities' ambition to put the standards into force is currently very weak. Without the compulsion to achieve a given quantity of energy savings in their home country, it seems unlikely that the Member States who are responsible (together with the European Parliament) for agreeing the legislation will push for stronger standards.



7. AREN'T ENERGY SAVINGS A MATTER FOR MEMBER STATES, RATHER THAN THE EU?

“Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the European Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level³¹.”

Oponents of a binding target have used the subsidiarity argument to protest against yet another EU intervention. But the situation they defend – measures without a real target – is in fact the very opposite of the subsidiarity principle.

The principle says that decisions should be taken as closely as possible to citizens and that the EU should only act if the policy objective cannot be achieved by Member States themselves. This means that the EU should first set targets for Member States and then take measures which are needed to achieve the target and cannot be done reasonably well by Member States themselves.

The implementation of energy efficiency measures involves a variety of actors, and is in large part about small-scale measures. The most relevant levels to set the rules and manage financial support are usually the regional and local level.

The EU should not try to further regulate at this micro-economic level, but rather add a target on top of this policy architecture in order to complement it and drive it upwards.

The example of buildings efficiency

There is huge potential for saving energy in the EU's buildings sector. Well-insulated walls and roofs, double or triple glazed windows and better performing and well-fitted heating systems can dramatically reduce a building's energy use. However, we are currently very far from realising this potential. Better regulatory intervention is needed to make sure these improvements happen despite the various barriers (for example, high upfront costs, poor information and awareness of what can be done, and the fact that building owners have little financial incentive to invest in measures which will benefit only their tenants). The question is, what form should this regulatory intervention take?

Each country has a building code setting minimum efficiency standards and conditions for re-

urbishment. Given the variety of geographical and climatic conditions in Europe, and the different living conditions and architectural characteristics of its countries, we cannot reasonably expect to apply one model everywhere. This rules out the possibility of a common EU building code which directly sets standards; the level of complexity needed to embrace all situations would be virtually infinite and lead to unworkable legal uncertainty.

At the same time, we do need to ensure that all European building codes are made as ambitious as possible. Harmonised guidelines can help, but there is no guarantee they will be followed.

This is where the notion of an EU target comes in. A target would spur on countries' ambition, while leaving them leeway to design their own schemes and measures.

³¹ Article 5.3 of the Treaty establishing the European Union

8. WHY BOTHER PROMOTING ENERGY EFFICIENCY? IF IT'S SO GREAT, SURELY IT WILL HAPPEN ANYWAY?

Unfortunately, old habits die hard – particularly when making smarter choices means swimming against the tide. Much as we might hope lower energy bills and greater comfort would encourage energy users to be proactively interested in making changes that will lead to energy savings, evidence shows that we cannot automatically expect market demand to deliver this.

One key reason for this is the price of energy, which doesn't reflect its real cost for society. Neither is the price differentiated between 'necessary' and 'luxury' use. This means that while a significant part of the household budget for low-income families may be taken up by energy bills, the proportion is much lower for richer households, making them less compelled to reduce their – much higher – energy use. The same often applies to companies: energy costs are not a high enough proportion of their spending to motivate serious attention to efficiencies.

Although most energy saving investments do lead to financial savings – often within a very short time – the upfront costs remain a significant barrier for many home owners, businesses and public authorities. Energy users who decide to buy some new equipment or to refurbish their house will often base their choice on initial price rather than looking at the whole life cycle. Information programmes and financial incentives like loans or grants are being put in place throughout Europe, but so far these are not reaching enough people. The huge range of situations and actors, and the impossibility of applying a one-size-fits-all solution, means that designing such programmes does indeed represent a challenge.

Measure	Typical payback time (years)
Replacement of old boiler with efficient condensing boiler ³²	6
Switch from mix of lightbulbs to compact florescent lighbulbs only ³³	2-3
Cavity wall insulation ³⁴	2
Install a room thermostat and turn it down by one degree ³⁵	1

The problem becomes even more complicated when the user of a product pays the energy bill but doesn't own the house. This means there is no direct incentive for the owner to put energy saving measures in place.

Price barriers are not the only challenge. Consumers, companies and local authorities are often unaware of the energy efficiency measures available to them, and may be put off by the perceived hassle of undertaking them. They may also find it difficult to identify the most efficient products or services even if they are looking for them. At present, making the "right" choices generally puts far too much burden on consumers to research, seek out and compare.

³²Energy savings in practice: potential and delivery of EU Eco-design measures. Cool products for a cool planet, December 2010

³³ibid

³⁴Source: UK Energy Saving Trust

³⁵ibid

As it stands, the existing legal framework is still not stringent and coherent enough to drive forward the markets, reward the purchase of energy efficient goods and services, give targets to public actors, or to have a real impact on energy prices.

The example of domestic appliances

A study released in December 2010 by environmental NGOs³⁶ showed that consumers can both reduce energy use, and save money overall by buying the most efficient products on the market. This goes against the usual assumption that the greenest products are too costly. However, the study indicated that the EU Eco-design Directive, which sets minimum energy efficiency

requirements for products, is far too weak to effectively drive the market of these greenest products.

Concrete political direction is needed to drive the correct functioning of the market. The ambition of national and EU legislation and funding schemes simply has to be stepped up in order to trigger the massive investment needed, boost the uptake of energy efficient products, as well as to dramatically increase renovation rates of buildings.



³⁶Energy savings in practice : potential and delivery of EU Eco-design measures. Cool products for a cool planet, December 2010

9. WHY SHOULD ANY POLITICIAN CARE ABOUT SOMETHING AS UNSEXY AS ENERGY SAVINGS?

To thoughtful politicians, the attractions of energy savings should be obvious. Energy savings generate jobs and contribute to social objectives: warmer and more comfortable homes, reduced energy bills and fuel poverty, and better health³⁷. Achieving the EU's 20% energy savings target could generate an amount of negawatts – unused energy that can be used for other purposes – equivalent to 15 giant pipelines of the same order as the € billion Nabucco project³⁸, and unaffected by geopolitical pressures. And shorter payback times mean that investing the same amount in energy saving measures as we have in renewable energy in recent times could save twice as many greenhouse gas emissions³⁹.

There are also no real losers; not even energy companies, whom you might think would suffer from reduced sales. In liberalised markets, profits come more from attracting and retaining a loyal customer base than from increasing the volume of energy sold per customer. Offering consumers an attractive package of variable tariffs, smart metering and energy efficiency improvements – which will save them money – is one of the best ways to achieve this. Meanwhile the energy services field offers a potential new source of tax revenues and profits that could alleviate governmental concern about lower revenues from energy sales⁴⁰. If you add in reduced bills for health, environmental damage and energy imports, the move to energy savings looks very favourable.

“Energy efficiency is like motherhood and apple pie – everybody likes it!”

Marie Donnelly, Commission Director in charge of Energy Efficiency,
at the launch of the Energy Savings 2020 study, September 2010

At the same time, it cannot be denied that energy savings is a challenging policy area. Take buildings: there are more than 200 million dwellings in the European Union, and millions more public and office buildings. The millions of owners, tenants, companies and public authorities may all have different circumstances, motivations and financial means. Appropriately trained professionals such as energy auditors, architects, builders and installers are at present in short supply. Addressing all of this requires a well thought-through policy mix of aggregation, incentive, information and obligation – and then effective implementation, far downstream.

Thus the opportunities are diffuse, the barriers are diverse, and there are no silver bullets: tapping the EU's large potential means finding tailored, financed solutions for the building, transport, industry, energy supply and appliance sectors. Yet this is precisely why policy-makers must now give energy efficiency and savings their focused attention. Technologies and practices to overcome the barriers already exist. The time has now come to find the right ambitious, effective framework that will see them rolled out across the EU.

Energy savings may not be as glamorous or spectacular as new power stations or pipelines. But to the policy-makers who manage to establish that right policy framework, the potential rewards in terms of money, jobs, energy security, greenhouse gas emission reductions – and indeed of reputation – are enormous.

³⁷ For every €1 invested in energy efficiency in buildings, €0.42 is saved in health expenses (Cecodhas contribution to Copenhagen UN conference, 2009)

³⁸ European Parliament report on the Revision of the Energy Efficiency Action Plan (INI/2010/2107), December 2010

³⁹ Source: Fraunhofer ISI

⁴⁰ In Poland, the Ministry of Finance required the Ministry of Economics to demonstrate that the tax revenues from implementing the new Energy Efficiency Act would at least compensate the lost revenues from reduced energy sales (private interview, November 2010)



PHOTO CREDITS

Cover photo © flickr.com/eduardomineo

Page 4 © flickr.com/h.koppdelaney

Page 7 © flickr.com/ swisscan

Page 14 © flickr.com/Lawrence Berkeley National Laboratory

Page 18 © flickr.com/WebAdvantage.net

Page 21 © flickr.com/Hello Simon Swatman

Page 23 © flickr.com/Diogo Martins

This publication is realised with the support of:

- the European Union
- the European Climate Foundation

About Us

Climate Action Network Europe (CAN-E)

is recognised as Europe's leading network working on climate and energy issues. With 129 members in 25 European countries, CAN-E unites to work to prevent dangerous climate change and promote sustainable energy and environment policy in Europe.

The Climate Action Network (CAN)

is a worldwide network of over 365 non-governmental organisations (NGOs) working to promote government, private sector and individual action to limit human-induced climate change to ecologically sustainable levels. CAN is based on trust, openness and democracy.

CAN's vision

is of a world striving actively to achieving the protection of the global climate in a way which promotes equity and social justice between peoples, sustainable development of all communities, and protects the global environment. CAN unites to work towards this vision.

CAN's mission

is to support and empower civil society organisations to influence the design and development of an effective global strategy to reduce greenhouse gas emissions and ensure its implementation at international, national and local level in promoting equity and sustainable development.

Climate Action Network–Europe

Rue d'Edimbourg 26, 1050 Brussels, Belgium

www.caneurope.org