
TAPPING EUROPE'S EFFICIENCY RESERVOIR

by the European Climate Foundation and the Regulatory Assistance Project,
based on their jointly commissioned study:

“ENERGY SAVINGS 2020:
How to triple the impact
of energy savings policies in Europe”



Context

Europe's recovery from a financial and economic crisis represents an opportunity to kick-start an economic transformation towards a prosperous low-carbon future. As we search for a return to economic stability, increased competitiveness and sustainable long-term growth, there is compelling evidence that improving energy efficiency to achieve the European Union's (EU) 20% energy savings target by 2020 is a **smart strategic option**. Energy efficiency is not only the lowest-cost means of reducing carbon emissions in the economy, but also:

- Is widely distributed, with savings opportunities in every Member State and economic sector;
- Directly reduces energy costs to households and businesses across the economy, thereby reducing energy poverty and strengthening global competitiveness of EU businesses;
- Has the potential to create wide-scale business opportunities and significant numbers of new, local and permanent jobs
- Improves power system reliability and security of supply while reducing energy import dependency;
- Avoids the need to build a large fraction of otherwise-required power generation, transmission and delivery infrastructure; and
- Contributes to the achievement of EU's renewable energy and greenhouse gas emissions reduction targets.

The evidence today, reinforced by the Energy Savings 2020 study by Ecofys and Fraunhofer ISI,¹ points to a massive potential and urgency for improving energy efficiency in Europe.

The EU has to triple efforts to meet its 20% energy saving target by 2020

According to the Energy Savings 2020 report, the EU will miss its 20% energy savings target by around half.² This gap represents lost savings of around €78 billion annually for EU consumers, money that governments can't afford to 'leave on the table', especially in light of the high levels of sovereign and private debt. We can still close the energy savings gap and capture these monetary savings, but it will require the EU and its Member States to be much more ambitious about their energy efficiency and energy savings policies and investments. Taking into account the economic recession and policies adopted since the 2006 Energy Efficiency Action Plan (EEAP), meeting the 20% energy savings target in 2020 will still require a three-fold increase in policy impact.

¹ Ecofys and Fraunhofer ISI (2010), *Energy Savings 2020: How to triple the impact of energy saving policies in Europe*, Commissioned by the European Climate Foundation and the Regulatory Assistance Project, 15 September 2010. Full report and complementary documents available on www.energysavings2020.eu

² This gap equates to an energy savings gap of 208 million tonnes of oil equivalent (Mtoe).

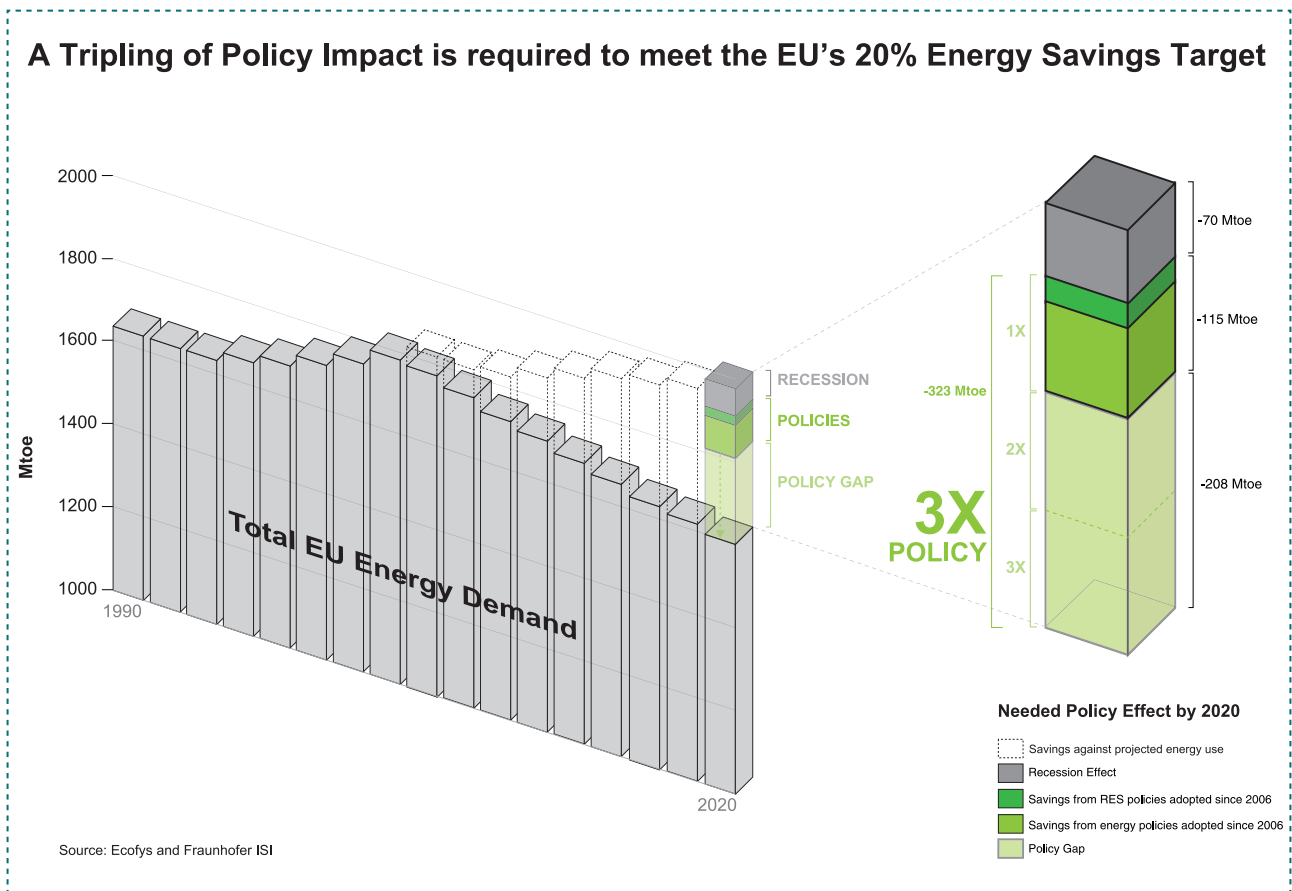


Figure 1 – EU energy demand comparing baseline projections with the 20% energy savings target. Even taking into account the impact of the recession and new policies (since the adoption of the 2006 EEAP), meeting the 20% energy savings target by 2020 will still require a three-fold increase in policy impact.

Closing the energy savings gap is feasible, but time is of essence

The study demonstrates that closing the gap is still feasible, despite the slow progress in recent years. The energy savings gap can be closed almost entirely with current technology, by adopting readily available cost-effective measures to improve the efficiency of

buildings, to accelerate the shift to higher efficiency in appliances, equipment and vehicles, and to reduce the energy intensity of industrial processes. The study estimates that **end-use savings can close nearly 80% of the energy savings gap**. The rest of the gap can be closed with power generation efficiency improvements, primarily but not exclusively by fully implementing the 20% renewable energy target.³

³ This is because the Eurostat primary energy calculation method where renewables (wind, hydro, solar) are assumed to have a 100% conversion efficiency. An increase of renewables in the energy mix, therefore, results in primary energy savings.

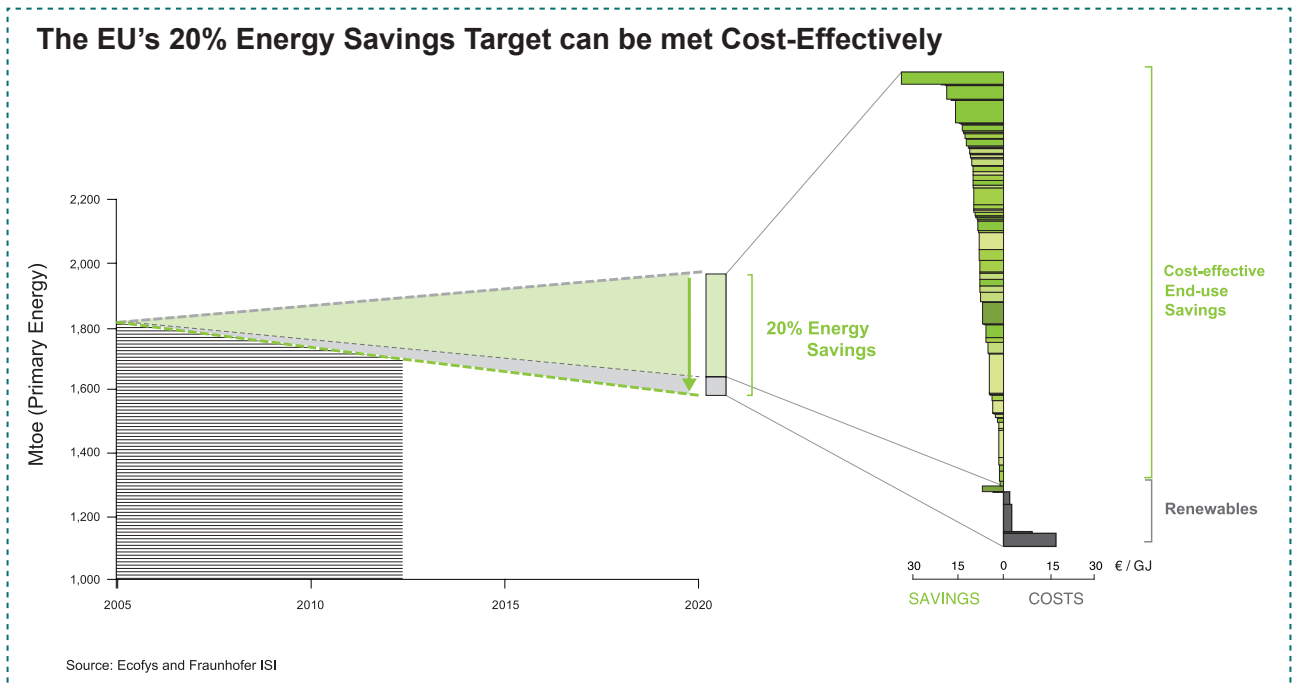


Figure 2 – EU energy demand in the baseline and the potential of cost-effective end-use energy savings to meet the 20% energy savings target. The remaining energy savings gap is filled by fully implementing the 20% renewable energy target.

However, immediate action by the EU is needed to meet the target on time. The next 12 months represent a narrow window of opportunity to establish firm commitment and accountability. The execution of the ‘Europe 2020’ strategy will require that national energy savings targets ensure sufficient resource prioritisation, ambition in scope and the adoption of a comprehensive package of tailored energy efficiency policies, measures and incentives. At the EU level, the development of an Energy Action Plan 2011-2020 and the review of the Energy Efficiency Action Plan should outline the policy framework and legislative steps to secure the 20% energy savings target.

- Significantly **reduce energy import dependency** and the cost of fossil fuel imports;
- **Create new, local and permanent jobs.** The European Commission estimated in 2005 that one million new jobs could be created via energy efficiency measures.⁴ For example, a recent study reveals that significantly stepping up the pace and extent of energy efficiency renovation programmes for buildings in Hungary alone could create up to 131,000 net new jobs by 2020⁵;
- Help Europe and its businesses to lead the global race for innovative and sustainable solutions and products; and
- Establish the foundation for a renewable and low-carbon energy infrastructure capable of reducing greenhouse gas (GHG) emissions 80-95% by 2050 at the lowest cost to EU consumers.

Achieving the target is a prerequisite for a sustainable economic recovery and the transition towards a low-carbon Europe

Closing the EU’s energy savings gap by 2020 would:

- **Reduce energy bills by €78 billion annually** and avoid the need to build new power generation capacity equivalent to 160 coal-fired power plants (500 megawatts each);

4 COM (2005) 265 final, Green Paper on Energy Efficiency or Doing More With Less, 22 June 2006.

5 Diana Urge-Vorsatz et al. (2010), *Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Hungary*, European Climate Foundation, 4 June 2010.

Energy Savings are Essential for the Decarbonisation of the European Economy

Energy savings have the potential to cover half of the EU's 80% emission reduction target for 2050
Achieving the EU's 20% energy savings target by 2020 is capturing that potential

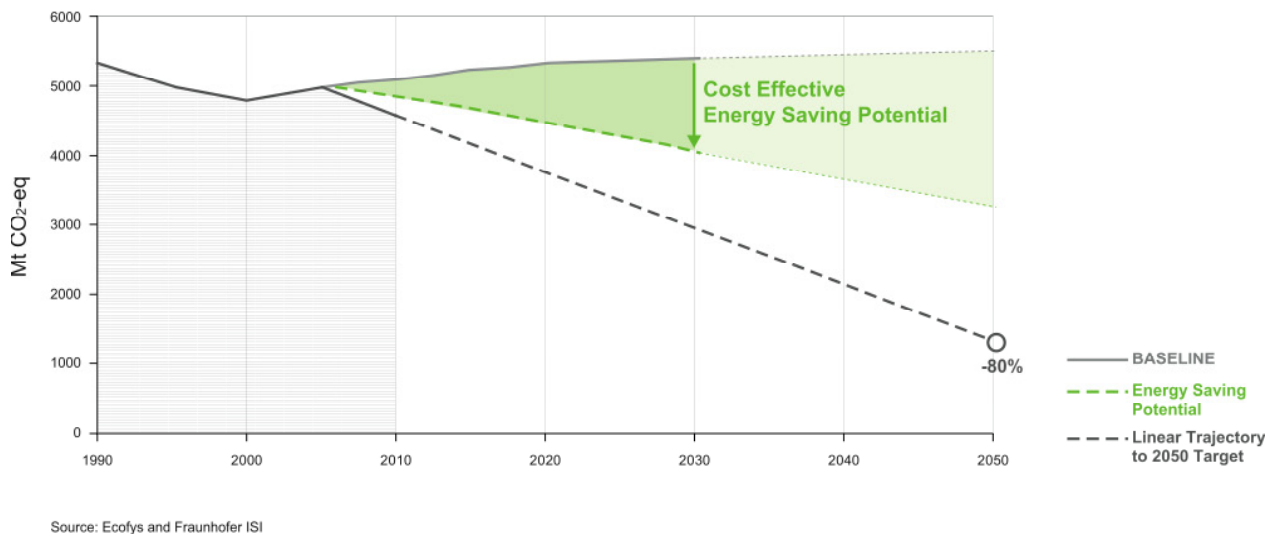


Figure 3 – Greenhouse gas emissions in the EU27: monitoring, baseline and linear trajectory towards the 2050 ambition of reducing emissions beyond -80% by compared to 1990. The green wedge illustrates the GHG impact of the cost-effective energy savings potential identified in the Energy Savings 2020 study.

The Energy Savings 2020 report reinforces the findings of the Roadmap 2050 Project⁶ that, in every scenario, delivering cost-effective end-use energy efficiency at a large scale is critical to Europe's ability to build and operate the low-carbon electric power system. In order to deliver on its full potential, energy efficiency needs to be recognised, financed and delivered on the basis that **efficiency is in reality a low-cost, zero-carbon power system resource.**

With proper support, energy efficiency resources would allow Europe's utilities to cost-effectively retire or avoid building more than 440 coal-fired power plants (500 megawatts each) by 2050. The Roadmap 2050 analysis shows that by avoiding more expensive generation and transmission needs, energy efficiency measures can also reduce the cost of the transition to a decarbonised power sector by up to 30% under a scenario with 80% renewables. If ambitious energy efficiency measures are put in place now, energy bills in Europe can start to fall as early as 2015.

Large-scale energy efficiency must, therefore, remain one of the highest priorities for policy makers.

Delivering Large-Scale Energy Efficiency – What is Required?

Obviously, there are challenges to face and obstacles to overcome, especially in making sure that the requisite level of investment in cost-effective energy efficiency is actually delivered. A concerted effort at the EU and Member State levels will be needed to tap both public and private sources of capital for this purpose, and to take other steps needed to remove market barriers that inhibit full deployment of this valuable resource.⁷

⁶ European Climate Foundation (2010), *Roadmap 2050: a practical guide to a prosperous, low-carbon Europe*, full report and complementary documents available at www.roadmap2050.eu

⁷ Consumers often lack the information needed to make energy efficiency investments, or are unsure whether they will own a building long enough to personally recover the cost of improvements, even when they are highly cost-effective over the life of a building. Consumer response is often blocked because there are 'split incentives'—for example, between contractors and future owners, or between owners and tenants. Energy bills are often an overlooked fraction of overall expenditures and access to investment capital is too difficult and expensive.

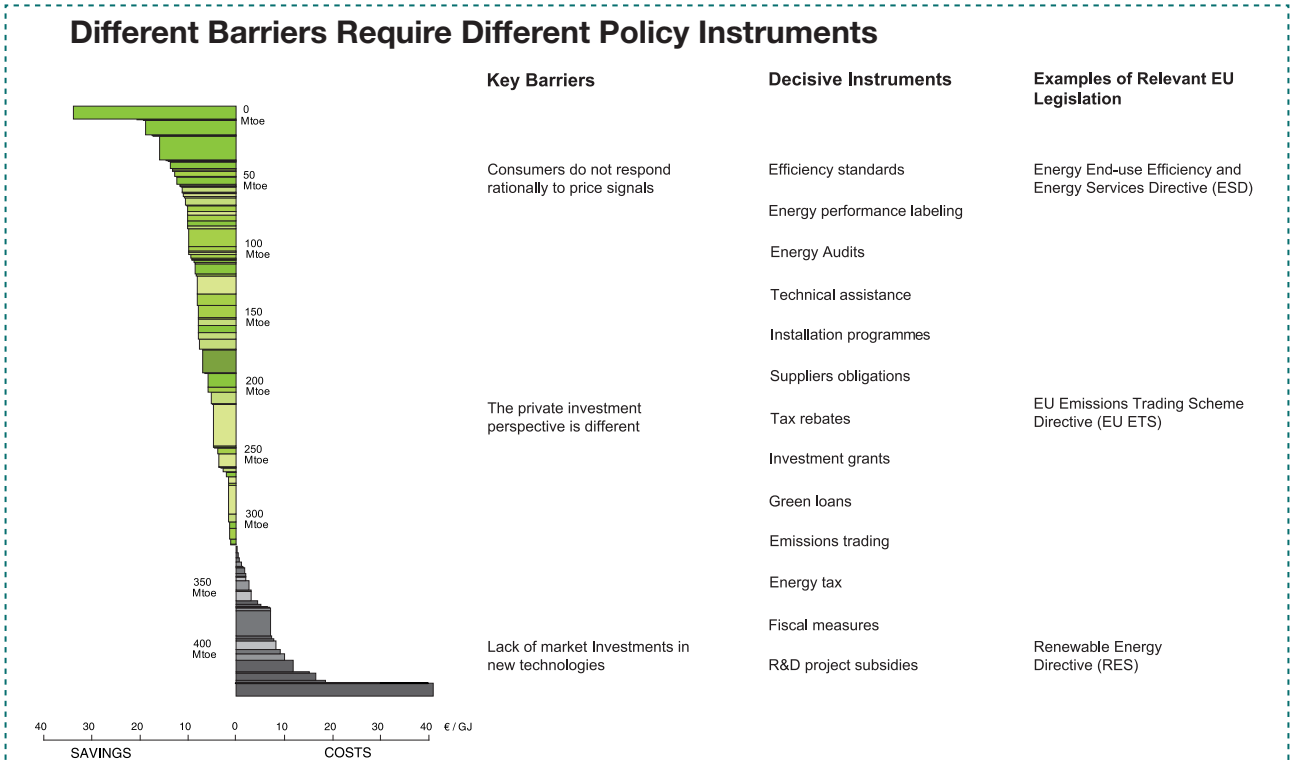


Figure 4 – EU 2020 Marginal Abatement Cost Curve for Energy Savings with a list of key barriers for different segments of the cost curve (on the left) and decisive policy instruments to address them (on the right). A policy mix is required to address the full energy savings potential.

Establishing a price for carbon, as in the case of the EU-ETS or through energy taxes in general, is a useful policy instrument, but will be insufficient to overcome these barriers at the level or scale required to close the energy savings gap.⁸ Therefore, in addition to strengthening those price signals, the ambition and coherence of implementing energy efficiency policies and programmes to remove these market barriers must be stepped up.

Setting a binding energy savings target would be an important step towards establishing the required impetus, as they have in the past for other high priority policy areas, including renewable energy or air quality. In addition, a broad range of approaches will need to be deployed. There are many good examples to draw upon. For example, Member States can establish an aggressive mandatory annual target to retrofit buildings with deep efficiency improvements. They can use the review of market arrangements to ensure that energy efficiency investments can compete on a level playing field with power generation investments, for example, in the valuation of power system capacity. They can adopt more stringent building codes; provide technical assistance to industries; and create new business models for utilities and other energy suppliers that reward success in helping customers to save energy.⁹

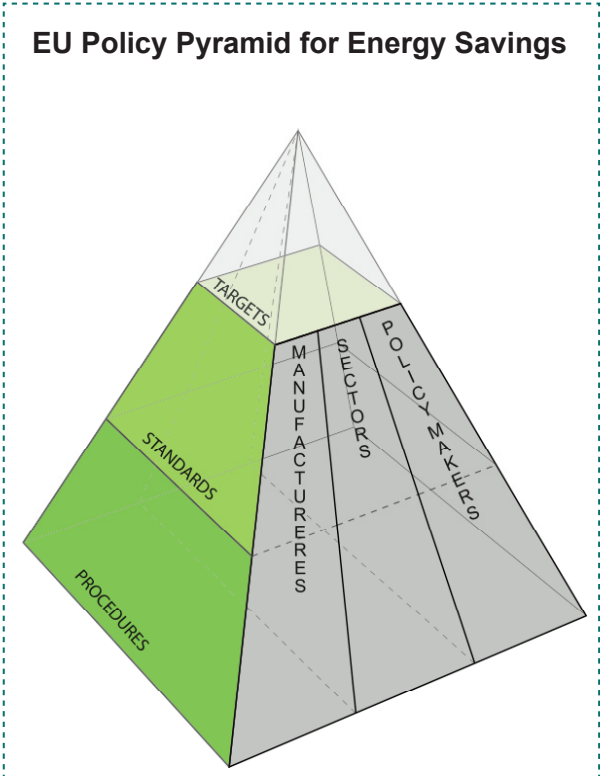


Figure 5 - Policy pyramid for energy efficiency. While some procedures and standards are in place, a target that would address all the relevant actors is missing.

⁸ For further discussion on the ETS and role of complementary policies, see *Carbon Caps and Complementary Policies: Clean Energy Policies can Lower Compliance Costs and Strengthen the European Carbon Trading System*, Regulatory Assistance Project, Draft June 2010.

⁹ For a more detailed description of examples, see *Sampling of International Best Practices on Achieving Large-Scale Energy Efficiency*, Regulatory Assistance Project, Draft July 2010.

Design recommendations for closing the gap

According to the Energy Savings 2020 report, setting an energy savings targets for ‘end-use sectors’ at the Member State level is the most feasible target design option. Together with achieving the renewable energy targets and ensuring continuous energy efficiency improvements in power plants and large industry, they could ensure closing the savings gap. For example, the Energy End-use Efficiency and Energy Services Directive (ESD) could be revised to ensure that national frameworks and programmes are designed around and evaluated against measurable and comparable targets that adequately contribute to achieving the EU’s 20% energy savings objective by 2020. Under the current ESD scope, this option would address about 72% of the economy wide cost-effective energy savings potential, reaching 79% if that scope were extended to ETS-covered facilities’ electricity consumption.¹⁰ Complementary policies, like carbon revenue recycling for end use efficiency measures and improving functioning of the EU ETS, have to ensure that the power sector fully contributes to realising the end-use savings potential.

Realising energy efficiency improvements and energy savings at the consumer level—in households, service and transport sectors—requires **national efforts complemented by EU-wide product and process standards**. According to the report, such national efforts are best specified in terms of absolute and adjusted final energy use. This allows for measuring energy use rather than estimating the savings in a comparable and robust way, making monitoring and assessment of progress towards the EU’s 20% target more transparent.¹¹ Because national efforts would target consumers, and be measured at the consumer level, national electricity savings should be adjusted by a weighing factor.¹² A constant weighing factor would ensure that fuel, district heat and electricity savings are weighted the same

across Member States, which would provide EU-wide comparability for end-use energy savings.¹³

Setting targets at the Member State level would support and improve the national implementation of EU building, product, labelling and procurement requirements. More effective implementation of these Directives would also increase the share of renewables in the energy mix, helping Member States and the EU as a whole to meet their renewable energy targets. In addition, national level targets would allow Member States full flexibility in identifying the optimal and appropriate set of measures to implement energy efficiency consistent with other national goals. These may include improving industrial competitiveness, reducing fuel poverty in housing, advancing manufacturing of high-efficiency products or supporting employment in construction trades and energy services.

Conclusion

Closing the 2020 savings gap in Europe will require a strategic and concerted effort by policymakers to recognise explicitly that energy efficiency represents a **low-cost and zero carbon power system resource** and is **vital to any and all decarbonisation scenarios**. The EU and Member States must raise their level of ambition and commitment to tapping the full cost-effective potential of energy efficiency across the economy. In addition to solidifying the EU and Member States commitment to the 20% energy savings target, this effort must be coupled with a package of effective programme designs and implementation practices. No single solution will be enough.

For additional information on energy efficiency programmes and policies, see: www.raponline.org

¹⁰ Under any of these scenarios, the power sector may potentially have an important role in contributing to energy efficiency and/or facilitating the energy services market. However, these aspects did not fall within the scope of the Energy Savings 2020 study.

¹¹ According to Ecofys and Fraunhofer ISI, the 20% target is approximately equivalent to an absolute target of 1,600 Mtoe of primary energy use by 2020.

¹² The energy used by consumers or ‘end-users’ is considered *final energy*. But conversion and transmission losses are often quite substantial. The total of resources required to produce and deliver heat, power and fuel products are considered *primary energy*. Counting savings in terms of primary energy use allows consistent treatment of savings across different types of energy (oil, gas, electricity) and ensures that the full effect of fuel-switching (from gas to electric heat, for example) is measured, and inefficient fuel-switching is not encouraged. While national end-use targets may be best specified in absolute and adjusted final energy, the EU’s overall 20% target will remain a primary energy target.

¹³ The report suggests a weighing factor of around 2.5 for electricity conversion and 1.2 for district heat conversion. Upon proper demonstration, different factors might well be justified in some cases.



European Climate Foundation

www.europeanclimate.org

Contact:

Patty Fong
Programme Director Energy Efficiency
European Climate Foundation
patty.fong@europeanclimate.org



Regulatory Assistance Project

www.raonline.org

Contact:

Richard Cowart
Director of European Programmes
Regulatory Assistance Project
rCowart@raonline.org