

“Energy Efficiency First”: How to make it happen

Next steps and areas of focus to make “energy efficiency first” operational

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“Energy efficiency first” is the principle of considering the potential for energy efficiency¹ first in all decision-making related to energy.

Where energy efficiency improvements are shown to be most cost-effective, considering also their role in driving jobs and economic growth, increasing energy security and reducing climate change, these should be prioritised.

Applying the principle will start to redress the historic bias towards prioritising increasing supply over saving energy – a bias which still persists.

As an organising principle, “energy efficiency first” applies throughout the energy system, to all policy-making and investment decisions.

The implementation of “energy efficiency first” thus includes:

- identifying all decision points concerning the energy system where energy saving solutions might otherwise be overlooked or undervalued;
- putting in place reliable data, measurement and verification methodologies to value the long-term economic, environmental and social costs and benefits of these solutions to allow a level playing field for comparison;
- ensuring the removal of barriers preventing energy efficiency improvements; and
- developing and enforcing concrete policies and measures to prioritise investment in energy efficient goods and energy services which bring greater public value and/or are more cost-effective.

Several examples are included in this paper of how the principle should function. The principle is universal and flexible, and thus its precise manifestations and outcomes may evolve over time.

¹ Energy efficiency captures all energy efficiency improvements across the entire energy system, including end-use efficiency, supply efficiency and system efficiency (for example, demand response), which lead to primary and/or final energy savings. The EU Energy Efficiency Directive (2012/27/EU) defines energy efficiency as the ratio of output of performance, service, goods or energy, to input of energy; while energy savings means a measurable reduction in energy use due to improved energy efficiency.

1 The fundamentals

1.1 Assessment methodology

The European Commission has stated in its Energy Union proposal that it “will ensure that energy efficiency and demand side response can compete on equal terms with generation capacity”ⁱ. This will require:

- a cost-benefit assessment of increasing energy efficiency alongside assessments of increasing supply at key decision points in energy policy development and system planning; and
- comparison of the two on a level playing field.

Unfortunately, the methodology the Commission used for the impact assessments for the 2030 climate and energy framework was biased against energy efficiency because it overestimated costs – through inflated discount rates – and downplayed or failed to quantify long-term benefits. This impacted both the recommendations the Commission made, and the likeliness of political support for higher ambition.

Alternative calculations in the draft impact assessment for the 2014 Energy Efficiency Communicationⁱⁱ clearly illustrated the impact on cost estimates of using different discount ratesⁱⁱⁱ, but these were not published.

Moreover, the comparison of costs and benefits is currently rather selective. The 2014 Energy Efficiency Communication^{iv} compared all energy system costs with only one benefit, fossil fuel import savings, which led to the European Council to agree on a low target. This ignores all the evidence and recommendations set out by the International Energy Agency (IEA) concerning energy efficiency’s multiple benefits^v.

- In order to ensure that energy efficiency can compete on equal terms, the European Commission must urgently review the discount rates used for the assessment and comparison of the cost and benefits of policies and use a social discount rate, as recommended by international and national institutions, including the United Nations, the IEA and the European Commission in its Impact Assessment guidelines^{vi}.
- The work done by the IEA on capturing the multiple benefits of energy efficiency should be built upon and methodologies developed that would allow including them in future cost-benefit assessments.

1.2 System planning: aligning demand projections

Reducing demand through energy efficiency measures will reduce the need for energy production, storage and distribution capacity. Yet energy planners regularly underestimate energy savings in the projections that they use for large-scale infrastructure planning and funding allocation, such as projections by ENTSO-E and ENTSO-G, and those used for Projects of Common Interest (PCI) funding allocation^{vii}.

As things stand there is no requirement to ensure consistency between the demand projections used by official EU planning authorities and those used by the Commission, which assume the success of EU energy savings targets and policies. It is well understood that planners need contingencies, but greater attention is needed to 'energy efficiency proof' energy projections in order to prevent overestimation of demand and consequently superfluous and wasteful investments in energy infrastructure.

- DG ENER or ACER should make an assessment of whether projections used for key purposes are in line with Commission assumptions. The European Commission should issue a mandate to the appropriate body to ensure this consistency on an ongoing basis.

2 The energy efficiency framework

2.1 Stepping up implementation and enforcement

The Energy Efficiency Directive (EED) is the framework for promoting energy efficiency improvements across the whole energy system in Europe, setting out overall ambitions and minimum requirements for 2020 and beyond. In particular the requirements to deliver a minimum level of annual savings (Article 7), to develop building renovation plans (Article 4), to renovate 3% of buildings that are owned and occupied by central governments (Article 5), to promote high-efficiency heating and cooling (Article 14), and to remove detrimental incentives for energy efficiency and to foster demand side participation in power markets (Article 15) aiming at increasing removing market barriers and triggering business opportunities for energy efficiency actors. However, implementation is currently poor^{viii}.

- Member States should step up EED implementation efforts, as called for by the European Council 19 March 2015, and the European Commission should rigorously enforce the EED legislation.

2.2 Reaching the energy savings potential

Turning the “energy efficiency first” principle into practice requires a mix of instruments including targets to set out the direction and speed of travel, and to provide the necessary market predictability.

The Energy Efficiency Directive provides this mix of instruments and targets, including a combination of a headline EU and indicative national targets, minimum savings per year and a variety of other provisions.

The indicative national targets put forward by Member States so far do not add up to the EU target for 2020, which is itself too low to secure the cost-effective energy savings potential. The requirement for all Member States to achieve a minimum annual savings of 1.5% is in reality reduced to around 0.8% due to many exemptions.

The EED review due in 2016 is the moment for the EU to tackle these deficiencies.

- The EU energy efficiency target for 2030 should be reviewed in line with more accurate energy demand projections and impact assessments which use discount rates that reflect the “energy efficiency first” principle and the assessment of cost-effective savings potentials.
- The annual minimum energy savings requirements set out in Article 7 of the EED should be extended to 2030 and obsolete exemptions removed.

2.3 National energy plans and reporting

The “energy efficiency first” principle must be at the heart of the Commission’s thinking for the 2030 governance system, including a possible streamlined system of monitoring and reporting for climate and energy legislation, based on a binding template to increase transparency. Guidance for Member States, and the Commission’s assessment of national plans, should reflect this. In particular, if Member States will be required to produce at the same time Energy Efficiency and Renewables Plans, they should initiate the process by elaborating credible national demand projections for 2030 and report national targets and efficiency measures to achieve them as a first step.

3 Energy sector market design and regulation

The upcoming energy market design communication provides an opportunity to integrate the “energy efficiency first” principle in market design and regulation. The Internal Energy Market Directives, in particular the Electricity Directive and Gas Market Directive, recognise that energy efficiency has an important role to play in delivering competitive markets that maximise consumer welfare and provide energy services at least cost. The Energy Union communication has emphasised the need to empower and incentivise consumers to take control over their energy consumption. But there is still considerable room for improvement in actually delivering this.

The Internal Energy Market framework would also be enhanced by an obligation on energy regulators in Member States to formally oversee the realisation of energy efficiency whenever this can ensure the lowest possible costs in the long run for energy consumers while maintaining quality services.

Cross-border and regional market arrangements must also give full access and consideration to energy efficiency. This means fully accounting for the energy efficiency potential in regional resource adequacy evaluations; removing any legal barriers to the participation of demand-side resources; putting in place governance mechanisms to provide clear mandates for promoting “energy efficiency first”, and ensuring that any capacity mechanisms or similar reforms treat energy efficiency on an equal footing with increasing supply.

Removing barriers and opening up energy markets will further require enhanced governance arrangements, including assignment of clear roles and accountability for delivering on requirements.

- New electricity and gas market arrangements should formally promote “energy efficiency first” via an obligation on national energy regulators to fully account for energy efficiency in energy market arrangements, and equal treatment for energy efficiency in any legislation.

Despite the liberalisation of Europe’s energy markets, many services including transmission and distribution infrastructure provisions are natural monopolies under the oversight of regulators. These regulated sectors must also incorporate “energy efficiency first” into their operations, via the removal of incentives that block investment in energy efficiency, and the introduction of a least-cost investment standard that requires consideration of energy efficiency before proceeding with investment in increasing supply side resources^{ix}. This could result in the avoidance of even major upgrades to electricity or natural gas infrastructure, through judicious use of energy efficiency programmes.

Member States are already encouraged in this direction under the EED and the Electricity Directive, but not as firm requirements^x. Although some pioneer DSOs are already starting to investigate the potential of energy efficiency^{xi}, the provisions in these laws needs to be strengthened and applied to both European and national transmission and distribution projects.

- Promotion of “energy efficiency first” in regulated parts of the energy sector means extension and strengthening of the Electricity and Gas Directives and the EED, including Articles 14 and 15 of the EED and provisions relating to the tasks of regulators, TSOs and DSOs in the electricity and gas market directives.
- Take the opportunity of the provisions of Article 15 of the EED that requires MS to undertake assessment on energy efficiency potential of their gas and electricity infrastructure to identify ways to incorporate “energy efficiency first” into their operation.

4 A savings test for EU funding and financing

The Commission proposed a regulation to set up a European Fund for Strategic Investments (EFSI), which is currently discussed by the EU legislators. The objective of the Fund is to leverage new private investments worth some €300 billion over three years into projects that deliver jobs and growth. Given that investments in energy efficiency measures, such as building renovation programmes, have demonstrated their capability to leverage and to create jobs and boost economic growth^{xii}, they would appear to be a perfect choice for projects under the Fund. Nevertheless an indicative list of projects drawn up to demonstrate the investment potential contained very few energy efficiency projects and the proposed regulation may not ensure that energy efficiency projects would have a fair chance in competing with increasing energy supply.

To increase the flow of financing to energy efficiency, financial experts within the Energy Efficiency Financial Investors Group (EEFIG) have suggested a series of structural reforms^{xiii}.

- Support for investments in increasing energy supply should only be granted when it can be established that the entire life-cycle costs and benefits of investments in energy efficiency improvements are adequately represented, and can be compared on equal terms with these investments, including increasing generation capacity, and distribution and transmission infrastructure.
- Special support should be given to investment platforms that focus on sectors with high economic and societal added value or that aggregate smaller projects, notably driven by regions, cities and SMEs, into clusters.
- Ex-ante conditionalities criteria linked to the implementation of EU energy efficiency acquis, based on the models of those already existing for granting ERDF and Cohesion financing^{xiv}, should be introduced whenever EU funds are used to finance energy projects.

ⁱ European Commission, 2015, Press release - Energy Union secure, sustainable, competitive, affordable energy for every European, 25 February 2015.

ⁱⁱ European Commission, 2014, Impact Assessment accompanying Communication on Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy, SWD (2014) 255 final.

ⁱⁱⁱ Coalition for Energy Savings, 2014, Inflating the costs of energy efficiency - A review of the Commission's cost-effectiveness analysis of an energy efficiency target for 2030, 3 September 2014.

^{iv} European Commission, 2014, Communication on Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy, COM (2014) 520 final.

^v Improvements in industrial productivity can be worth 2.5 times actual energy savings, and health benefits can outweigh the costs of efficiency improvements by a factor of four. IEA, 2014, Capturing the Multiple Benefits of Energy Efficiency. <http://www.iea.org/topics/energyefficiency/energyefficiencyiea/multiplebenefitsofenergyefficiency/>

^{vi} European Commission 2009, Impact Assessment Guidelines, SEC (2009) 92.

^{vii} For example, the gas demand projections used by the Commission to allocate funding for gas infrastructure projects under the Connecting Europe Facility are 30% higher than the Commission's reference scenario for gas demand by 2030, and 72% higher than projections if a 30% energy savings target is met. E3G, 2014, Energy Security and the Connecting Europe Facility, September 2014. <http://e3g.org/x3KXb>

^{viii} Coalition for Energy Savings, 2015, Implementing the EU Energy Efficiency Directive: Latest analysis of Member State plans for end-use energy savings targets (Article 7), March 2015.

Buildings Performance Institute Europe (BPIE), 2014, Renovation strategies of selected EU countries - a status report on compliance with Article 4 of the Energy Efficiency Directive.

Smart Energy Demand Coalition (SEDC), Mapping Demand Response in Europe Today: Tracking Compliance with Article 15.8 of the Energy Efficiency Directive.

^{ix} Bayer, 2014, "Efficiency First: Key Points for the Energy Union Communication", RAP, February 2015.

^x Articles 14 and 15 of the Energy Efficiency Directive; Article 25 of the Electricity Directive.

^{xi} For example, Italian Enel Distribuzione and British Electricity North West.

^{xii} Cambridge Econometrics, Verco, 2014, Building the Future: The economic and fiscal impacts of making homes energy efficient.

^{xiii} Energy Efficiency Financial Investors Group (EEFIG), 2015, Energy efficiency - the first fuel for the EU economy - how to drive new finance for energy efficiency investments - Final report, February 2015.

^{xiv} European Commission, 2014, Guidance on Ex-ante Conditionalities for the European Structural and Investment Funds PART II. http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/eac_guidance_esif_part2_en.pdf

Annex: An example of applying the “energy efficiency first” principle with the goal of increasing energy security

