

Briefing note - benefits to consumers and climate of Article 7 of the Energy Efficiency Directive

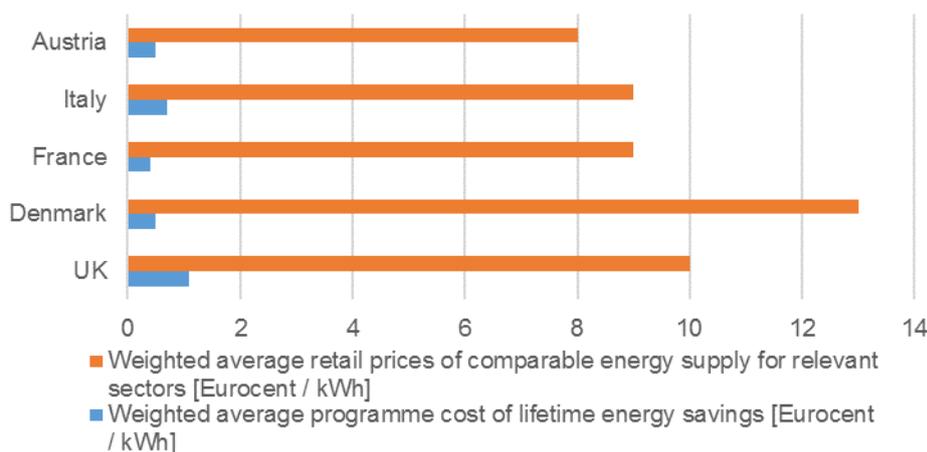


by Dr Jan Rosenow, Regulatory Assistance Project

Given that Article 7 of the Energy Efficiency Directive (EED) is a key driver for energy efficiency in Europe, it is a legitimate question to ask whether it delivers benefits for consumers. So far, there is no comprehensive assessment of the cost and benefits of Article 7 other than high-level economic modelling in the Impact Assessment of the EED. Work by the Regulatory Assistance Project (RAP) and others shows that the policy measures deployed by Member States to comply with Article 7 deliver a wide range of benefits to consumers, the energy system and society - by far outweighing the costs.

Evidence shows that negawatts are much cheaper than megawatts

The most comprehensive data on the costs of measures promoted by Article 7 of the EED can be found for Energy Efficiency Obligations, the instrument that provides the largest share of the savings. A review of all Energy Efficiency Obligations in Europe where data exists demonstrates high cost-effectiveness.¹ The figure below shows the cost of EEOs to the public in Eurocent/kWh and compares those costs to the typical cost of supplied energy. All five EEOs analysed clearly show that the cost of negawatt hours is much lower than megawatt hours. Even if the contributions from those who benefit from the programme to the investment cost of efficiency measures are added (which is typically about twice as much as the programme cost), the cost per kWh even in the most 'expensive' programme are just above 3 Eurocent/kWh.



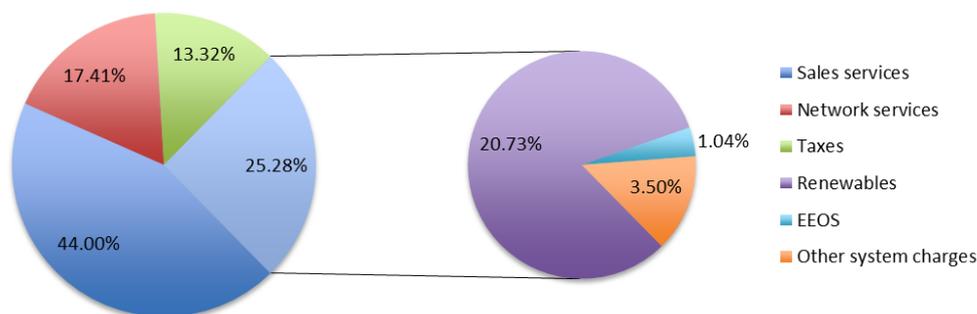
¹ Rosenow, J., Bayer, E. (2016): Costs and benefits of Energy Efficiency Obligation Schemes. Report for the European Commission

Data for alternative measures such as loans, tax rebates and grants shows that the costs of those measures are of a similar scale, although somewhat higher. On average, saving 1 kWh through those measures has a public cost of 1.4 Eurocent/kWh.²

Both for EEOs and alternative measures the cost of saving one unit of energy is much less than the costs of supplied energy which means that the public and consumers benefit directly from the cost savings. In other words, one unit of energy saved is much cheaper than one unit of energy supplied.

Impact on bills

Most of the alternative measures are funded through general taxation rather than through energy bills. EEOs are financed through a surcharge on energy bills. Below the example of Italy shows the share of EEOs of the total energy bill in the household sector. It demonstrates that EEOs only contributes 1% to the total household energy cost.



Similar analysis by the UK government estimates the cost of EEOs in 2013 to be around 3% of households' energy bills.³

The costs of funding the energy efficiency measures through EEOs is more than offset by the energy cost savings as one would expect given the much lower cost of saving one unit of energy compared to supplying it: The most systematic analysis of how EEOs impact on consumers' bills has been carried out by the UK government. It shows that by 2020 consumers on average pay 9% less for their energy as a result of past EEOs.⁴ This analysis is corroborated by actual data on UK household gas demand: Between 2004 and 2011, total household gas consumption in the UK decreased by 5% per year on average, or approximately 3.6% per year after temperature correction. This led to a cumulative reduction in residential gas demand of around 15% even as the number of households in the UK was increasing.⁵ From independent analysis we know that most of this was driven by energy efficiency improvements of which the majority was delivered by EEOs.⁶

² Scheuer, S. (2013): Energy efficiency: How effective are public support schemes? A European snapshot of financial and fiscal incentives

³ DECC (2013): Estimated impacts of energy and climate change policies on energy prices and bills. London, DECC

⁴ DECC (2013): Estimated impacts of energy and climate change policies on energy prices and bills. London, DECC

⁵ DECC (2014): Energy consumption in the UK. London, DECC

⁶ Centre for Economic and Business Research (2011): British Gas Home Energy Report 2011: An assessment of the drivers of domestic natural gas consumption, London.

Efficiency delivers a wide range of multiple benefits

In addition to bill savings (which is the most obvious benefit of energy efficiency improvements) Article 7 delivers a wide range of multiple benefits to consumers, the energy system and society. Amongst those are improvements in health, comfort, air quality, job creation and economic growth. Energy efficiency (and the resulting demand reduction) also delivers substantial environmental benefits in terms of CO₂ mitigation.

One area, often overlooked in Europe, where substantial benefits accrue is the energy system. Such benefits include avoided transmission and distribution cost, avoided line losses and minimising reserve requirements. A recent study on exploring the scale of those benefits in Europe affirms what international experience has demonstrated for a long time: namely, that comprehensive, long-term, and aggressive investment in end-use energy efficiency will yield substantial energy system cost savings. The value of electricity savings in Germany to the power system alone is in the range of EUR 0.11-0.15 per kilowatt-hour⁷. This illustrates that the benefits to the energy system alone can justify ambitious energy efficiency targets and policies such as Article 7 of the EED.

⁷ Agora Energiewende, ECF, RAP (2014): Benefits of Energy Efficiency on the German Power Sector. Retrieved from: www.raonline.org/document/download/id/7095