

# Regulatory practices for the promotion of energy efficiency



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An overview by ICER & CEER



## Clarifying the “jargon”

### “Energy Efficiency” or “Energy Savings”?

The terms “energy efficiency” and “energy savings” are sometimes used interchangeably.

**Energy efficiency is the policy area, the aim of which is to deliver energy savings** using energy efficiency measures.

Energy efficiency measures lead to better use of the energy consumed e.g. insulating buildings to reduce energy consumption for heating while obtaining the same room temperature. These measures are often across different sectors (e.g. transport, buildings, eco-design of products and appliances etc).

Saving energy means **consuming less energy** e.g. by switching off lights or heating in unused rooms.

Energy savings will not happen by default.

Targeted energy efficiency objectives, measures and programmes are needed.

### “Energy saving obligations” or “energy saving certificates”?

Several countries (plan to or) have introduced obligations on energy companies to invest in energy efficiency e.g. United Kingdom, Belgium (Flanders region), Ireland, the Netherlands, Denmark and Poland.

Energy savings obligations do not necessarily imply the introduction of certificates (the US model) nor of certificate trading (as in the case of the UK). Energy saving certificates (known as “white certificates”) rely instead on the creation of a market for trading (e.g. white certificates markets in France or Italy). A white certificate is both an accounting toll, which proves that a certain amount of energy has been saved, and a tradable commodity.

## A role for the energy regulator in energy efficiency?

The regulator’s role in terms of energy efficiency varies from country to country and state to state.

In almost all EU Member States, the national energy regulator **does not** have responsibility for energy efficiency. Nevertheless, **energy efficiency is highly pertinent to energy regulators’ work.**

National/state regulators play their part (to a greater or lesser extent) in a number of indirect ways such as ensuring adequate investment in infrastructure (including smart grids), incentivising network operators to deliver savings and overseeing unbundling (which can unlock the potential of energy efficiency encouraging power providers to sell energy services rather than kWhs).

Energy efficiency is of growing importance in addressing issues of climate change and affordability.

Energy efficiency can deliver energy savings and reductions on emissions.

## Campaigning for energy savings

Europe is currently set to meet only half of its energy efficiency target (of a 20% improvement in energy efficiency by the year 2020).

Nevertheless, CEER remains a strong believer in Europe’s energy savings potential, advocating the need for Europe to deliver on its energy savings goals in order to achieve a secure and clean energy future.



*Teams (EDP, Portugal) going door to door giving away incandescent bulbs for CFL ones.*



Regulators are committed to playing their part to encourage all energy consumers to be more energy efficient

The ability of consumers to be more flexible in their use of electricity can contribute to secure and sustainable energy supplies and help to achieve financial and environmental benefits.

Empowered customers can:

- Switch retail supplier
- Shift demand – demand response
- Reduce demand

Cost reflective prices are the cornerstone. In all European countries, network tariffs (set or approved by the regulator) are cost reflective and therefore do not include any incentives to increase the volume of transported energy.

Regulators' work directly empowers customers to be active in energy markets e.g. in making supplier switching easier, work on billing, complaints, smart metering and in supporting demand-side management.

## Demand-Side Management

Currently in Europe, Demand-Side Management (DSM) programmes include mostly interruptible contracts (for large business customers) and time of use tariffs at the domestic level (e.g. which encourage households to shift demand for electric water or space heating via lower tariff charges during typically off-peak periods during a day).

Several countries are identifying and pursuing opportunities to stimulate sustained behavioural change and the uptake of energy efficiency at the household level. Some have already worked on trials and/or evaluations of DSM (e.g. in Britain, Sweden, Ireland and Norway).

Hourly metering already introduced in countries such as Croatia, Egypt, Italy, Portugal and Spain have successfully promoted energy savings through price signals to end users. Smart meters are likely to play an important role going forward in enabling a demand response.

## Helping meet climate change objectives by promoting smart grids and smart metering

Energy regulators are acting as key facilitators of smart meters and smart grids. Given that many EU countries are contemplating the roll-out of smart metering systems, CEER, in 2010, developed guidelines for (Member States, regulators and industry in their consideration of) the deployment of smart metering systems.

Regulators are raising awareness of how smart meters and smart regulation (e.g. time of use tariffs and information) can help customers save energy and have more control over their energy bills, while at the same time help meet climate change goals.

The Austrian regulator's (E-Control's) tariff calculator enables customers to find out (via the web or their smart-phones) the cheapest (personalised) electricity and gas offers available in Austria. Other regulators are intending to follow this lead.

Ihr Preisvergleich inklusive Neukunden Rabatte		Ohne Neukunden Rabatte anzeigen		
Strompreis Grundversorgung	Preisfall	100% Einsparung bei 100 kWh	Vergleichen	Info
<b>VERBUND</b>	VERBUND Strom	€ 84,84	100 kWh	Denkt an Rabatte wachsen
<b>WIKI Strom</b>	DYLANIA Strom	€ 85,11	120 kWh	Denkt an Rabatte wachsen
<b>lyfonic</b>	lyfonic Privat Neukunden	€ 87,95	80 kWh	Denkt an Rabatte wachsen
<b>KELEA - Kiehlert Baum - AG</b>	Austria RWR	€ 88,28	100 kWh	Denkt an Rabatte wachsen
<b>Von Verbraucher für Verbraucher AG</b>	Von Verbraucher	€ 91,43	100 kWh	Denkt an Rabatte wachsen
<b>selektum</b>	selektum T&E	€ 92,45	70 kWh	Denkt an Rabatte wachsen
<b>Energie Kiehlert Baum</b>	EMO Strom	€ 92,65	70 kWh	Denkt an Rabatte wachsen
<b>A&amp;E Neukunden Vertriebs GmbH</b>	A&E Neukunden Energiepartner	€ 93,76	80 kWh	Denkt an Rabatte wachsen
<b>E-ENERGY GÖTTING</b>	PRINZ KREIER	€ 93,89	80 kWh	Denkt an Rabatte wachsen
<b>A&amp;E Neukunden Vertriebs GmbH</b>	A&E Neukunden Energiepartner	€ 94,12	70 kWh	Denkt an Rabatte wachsen
<b>A&amp;E Neukunden Vertriebs GmbH</b>	A&E Neukunden Energiepartner	€ 95,16	70 kWh	Denkt an Rabatte wachsen
<b>A&amp;E Neukunden Vertriebs GmbH</b>	A&E Neukunden Energiepartner	€ 95,28	70 kWh	Denkt an Rabatte wachsen
<b>A&amp;E Neukunden Vertriebs GmbH</b>	A&E Neukunden Energiepartner	€ 96,42	70 kWh	Denkt an Rabatte wachsen

Tariff calculator, <http://www.e-control.at/de/konsumenten/service-und-beratung/toolbox/tarifikalkulator>

Policy makers must view the demand side as an energy system resource.

Energy suppliers can have a central role in encouraging improved domestic energy efficiency.

When used with differential tariffs and customer awareness, smart meters can encourage customers to reduce their demand when prices are high or when system reliability or power quality is at risk.

Enabling a demand response by customers makes retail and wholesale markets more efficient as well as helping to meet sustainability goals (e.g. by encouraging a shift in energy consumption away from peak times).

## Revealing the value of energy to consumers

Better information about tariffs and the economic incentives to be gained from energy efficiency improvements, can help consumers make better decisions about the choices and options they have around improving energy efficiency.

Work is being done through the framework of the Citizen's Energy Forum (which the European Energy Regulators co-host with the European Commission) to improve the presentation of information (e.g. on consumption and on tariffs) on the bill or through other channels.

Other initiatives vary from country to country and range from providing energy-savings tips, customer education campaigns and efficiency audits to measures which encourage consumers to shift energy to off-peak time.

## Lessons from Europe – Innovative approaches



### Ofgem's new (RIIO) approach to regulation

One of the longest established EU regulators, Ofgem (the British regulator) reviewed whether its standard RPI-X regulatory model was, after 20 years, still fit for purpose to meet new challenges such as the transition to a low carbon economy. Ofgem has opted for a new performance-based regulatory model which, inter alia, supports the role of network companies in relation to energy efficiency. The new model (called RIIO) is based on strong incentives on smart network companies, on innovation stimulation and a focus on expected outputs (for current and future consumers) and efficiency.

$$\text{Revenue} = \text{Incentive} + \text{Innovation} + \text{Output}$$

The price controls for electricity and gas network companies under RIIO will run for longer periods (i.e. 8 years rather than the previous 5 years) starting from 2013-2021.

To encourage greater innovation, Ofgem will set up a £400 million fund for the transmission and gas distribution companies. This is based on the successful Low Carbon Networks Fund already in place for electricity distribution networks.

### Carbon Emission Reduction Target (CERT)



- Ofgem administers the British government's Carbon Emission Reduction Target (CERT).
- CERT is the government's main domestic energy efficiency instrument.
- The CER target was 185 Mt (lifetime) CO<sub>2</sub> by 31 March 2011. In August 2010, this was extended (on a pro-rata basis) to the end of December 2012, increasing the target to 293 Mt (lifetime).
- 40% of the obligation must be met in the Priority Group. The Priority Group includes those aged 70 and over and those on qualifying benefits. 16.2 Mt (lifetime) CO<sub>2</sub> (15%) of extension obligation must be met in the Super Priority Group.
- 73.4 Mt (lifetime) CO<sub>2</sub> (68%) of the extension obligation must be met by promoting professionally installed insulation measures.

#### ➤ What has CERT achieved?

- 182 Mt CO<sub>2</sub> emissions reductions achieved in CERT to date. This equates to 62% of the extended target of 293 Mt CO<sub>2</sub>.
- 42% of total savings to target are from the Priority Group.
- 61% (112 Mt CO<sub>2</sub>) of total savings to target are from insulation (including DIY).
- See [www.ofgem.gov.uk/cert](http://www.ofgem.gov.uk/cert)

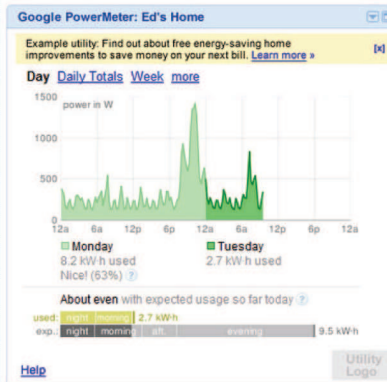
The British government's Electricity Market Reform (EMR) proposals foresee an expanded role for demand-side solutions.





**PPEC** is the Portuguese regulator's (ERSE's) competitive tender mechanism to promote energy efficiency. Measures submitted by eligible promoters (e.g. suppliers, network operators, consumer or business associations, universities etc.) are assessed by ERSE by means of a competitive process and based on a comprehensive cost-benefit analysis.

20% of Portugal's PPEC 2011-2012's budget is allocated to Demand-Side Management measures. Projects range from the installation of 30,000 standby killers, which automatically stop the power supply to any home appliances (such as TV's, PC's, air conditioners, etc.) which are in standby mode, to "Knowwatt", which provides real-time information to consumers on how much power they are consuming and how much they are spending, thus helping them to make decisions on their consumption, depending on the cost and environmental impact.

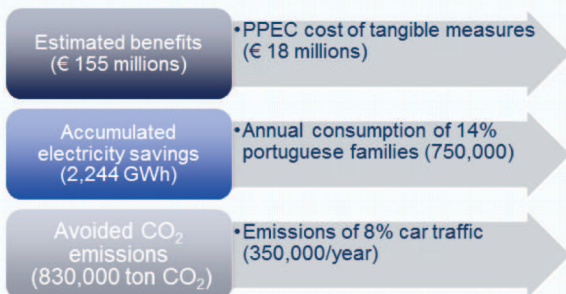


### PPEC's Costs and Benefits

Portugal's PPEC plan to promote energy efficiency has already been tried and tested.

PPEC 2007-2009 (which focused on 26 measures) saved Portugal €74 million - almost twice the projected amount – at an investment cost of €10 million. It helped avoid the emissions of 285,000 tons of carbon dioxide by cutting consumption by 770GWh.

### Expected Cost and Benefits of Tangible Measure (PPEC 2011-2012)



### How is it financed?

PPEC 2011-2012 funding comes from:

- € 23 million from PPEC (electricity tariffs) - i.e. an annual increase in network tariff of 0.46% and in end-user tariff of 0.21%
- € 5 million from promoters
- € 9 million from beneficiaries

### Some of the winning projects

PPEC 2011-2012 money was allocated to 57 measures. *It's a contest so only the best measures win!*

- Replacing 340 thousand incandescent lights (e.g. traffic lights) with LED (light-emitting diode) ones
- 150 thousand load management systems
- distributing 1 million compact fluorescent lamps (CFLs) (i.e. energy-saving ones) to vulnerable customers
- 31 thousand fluorescent tube lamps (T5)
- 10 thousand presence sensors in lifts
- 1100 variable speed drives in pump system motors in industrial companies
- 2600 energy audits for households, services and industry
- 2100 schools involved in energy efficiency educational programmes

## Regulators share experiences

Regulators contribute towards a low carbon economy through the exchange of information and best practice on energy efficiency through their regional associations and at international level through the International Confederation of Energy Regulators (ICER). ICER is a global confederation representing more than 200 energy regulators worldwide.

### ICER Energy Efficiency Report (2010)



ICER undertook in 2010 (under CEER's lead) an ambitious worldwide survey of regulatory approaches for the promotion of energy efficiency.

ICER's Energy Efficiency Report (2010) is the first step taken by energy regulators worldwide to gather data on regulatory practices aimed at fostering energy efficiency. The ICER report is a particularly useful reference point for policy makers, regulators and others on energy efficiency practices from across the globe, allowing comparison to be made of energy efficiency policies between the following regions: Africa and the Middle East, North and South America, Asia and Australia and Europe (all 27 EU Members States are covered).

ICER is continuing this work on energy efficiency by reviewing (in 2011) best and promising practices on the promotion of energy efficiency through case studies. The 2011 report will include case studies and examples of best practices on the integration of renewable and distributed generation into the overall energy supply and their impact on the grid and competition.

### ICER Distinguished Scholar Award for MEDREG's work on Energy Efficiency comparisons

The Association of Mediterranean Regulators for Electricity and Gas (MEDREG) won the 2010 ICER Developing Countries Distinguished Scholars Award for its paper assessing the "*Effects of the Introduction of Successful Mechanisms to Promote RES/CHP and Energy Efficiency in Non-EU Countries*".

The paper identifies both the barriers to and the critical success factors for the introduction of energy efficiency measures. It found that the most efficient instruments, in the MEDREG region, were energy savings obligations, tender mechanisms, time based pricing which allows customers to change their daily load consumption to save money (e.g. in Croatia, Egypt, Italy, Portugal and Spain), and energy audits (e.g. in Algeria, Egypt, Israel, Tunisia, Turkey and most EU countries). The MEDREG paper focuses on 3 case studies – the energy savings obligations in Europe (e.g. France, Flanders in Belgium, Italy and the UK), the Portuguese tender mechanisms, and the use of time based pricing through the adoption of smart metering in Jordan.

### CEER Status Review on Sustainable Development

In 2009, the Council of European Energy Regulators (CEER) assessed the progress that Europe had made in working towards sustainable energy markets. CEER's Status Review on Sustainable Development (2009) documents the energy efficiency and other (e.g. carbon abatement, air quality, renewables) measures adopted in EU Member States in an effort to manage the transition to a low carbon energy sector. It reveals a wide range of measures introduced across Member States.

Setting energy efficiency policy are matters for governments, not regulators. Collaborative efforts of regulators at regional and international level have yielded reports which document experiences and allow comparisons and lessons to be drawn both from the most and least successful energy efficiency measures.



## ICER Energy Efficiency Report in a nutshell

The importance of the ICER Energy Efficiency Report (2010) is that it provides information on approaches adopted across the globe to promote energy efficiency. In it, energy efficiency measures are grouped according to jurisdictions (Africa and the Middle East, North America, South America, Asia, Australia and Europe) into a number of categories:

- Legal and regulatory obligations
- Financial instruments
- Market-based incentives (including tradable certificates, tenders and demand side management)
- Voluntary agreements
- Energy audits
- Consumer education and information provision (including billing regulation and smart metering)



Many of the energy efficiency initiatives described in the ICER Report have not been put in place by the energy regulators (many of whom either have no remit in energy efficiency matters or have only a limited oversight role) but rather by other government agencies. Some innovative measures described in detail in the ICER report are mentioned briefly here, for illustrative purposes only:

**Japan** has deployed an array of energy efficiency measures covering all sectors of its economy (e.g. its Top Runner programme which sets energy efficiency targets for machinery and equipment).

In the **United States**, the state regulators have adopted a wide range of strategies to promote energy efficiency that can include removing natural disincentives for utilities for efficiency, mandating efficiency and/or Demand-Side Management programmes. Generally, the provision of information to consumers coupled with financial incentives to implement cost-effective technologies or practices has been a key characteristic of the majority of successful efficiency programmes in the US.

In some states, the electric utilities implement efficiency programmes, and the state regulator develops regulatory mechanisms to ensure that the utilities have the proper incentives to implement efficiency programmes without losing revenues from electricity sales. In other states, third parties, independent of the electric utilities, are selected to provide efficiency programmes, sometimes in conjunction with the utilities. In some states, efficiency has successfully competed as a cost-effective alternative to network upgrades and was therefore awarded forward, long-term contracts by regulators to avoid costly system outlays.

**Europe** has in place a legal and regulatory framework to promote energy efficiency and a commitment by EU Member States to cut primary energy consumption by 20% by 2020. Several countries have introduced innovative measures. For example, the Portuguese “efficiency cheque” reduces electricity costs to consumers with verified energy savings stemming from investments in energy efficiency. The British “pay-as-you-save scheme” uses saving on energy bills to pay for the upfront costs of smart meters roll-out. Moreover, some countries (e.g. Austria and Britain) established a link between energy efficiency support and social policy (programs for schools and low-income households).

There are also market-based instruments such as national tradable energy efficiency certificates systems (called “White Certificates”) adopted by France and Italy and the tender mechanism introduced in Portugal (described above) to select energy efficiency measures through a competitive procedure. Other countries, like Norway, rely on energy funds administered by flexible and market-oriented organisations.

In an effort to share experiences with policy makers, of regulatory practices (from across the globe) which promote energy efficiency, the ICER Energy Efficiency Report was sent to each of the energy ministers of the G8+ meeting in June 2010 in Muskoka, Canada. The full report and a shorter Executive Summary are available as an open resource on [www.icer-regulators.net](http://www.icer-regulators.net)

## Events



- ◇ **World Forum on Energy Regulation (WFER) V, 14-16 May 2012, Québec**  
The Régie de l'énergie du Québec (Quebec Energy Board) will host the 5th World Forum on Energy Regulation in Quebec City, Canada on 14-16 May 2012. This 3 day conference dedicated to energy regulatory issues of a global nature will attract 1,000 experts from across the globe. <http://www.worldforumv.org/en.html>
- ◇ **ICER/CEER workshop on energy efficiency, 12 April 2011, Brussels**  
During Europe's 2011 Sustainable Energy Week, this half-day workshop include lessons from the United States, best practices in Europe to promote energy efficiency, work by the International Energy Agency, ICER's (2010) Energy Efficiency Report and the European Commission's revised Energy Efficiency Action Plan. <http://www.eusew.eu/>
- ◇ **ICER/IGU Workshop on regulatory issues of global significance for the gas industry, 8 March 2011, Washington DC**  
The aim of this ICER/IGU workshop was to promote cooperation and understanding between members of ICER and the International Gas Union (IGU). [http://www.icer-regulators.net/portal/page/portal/IERN\\_HOME/ICER\\_HOME/ABOUT\\_ICER/ICER%20Events/ICER%20-%20IGU%20Workshop](http://www.icer-regulators.net/portal/page/portal/IERN_HOME/ICER_HOME/ABOUT_ICER/ICER%20Events/ICER%20-%20IGU%20Workshop)
- ◇ ICER/CEER had an exhibit stand at the United Nations Climate Change conference (COP-15) in Copenhagen in December 2009.  
[http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_INTERNATIONAL/COP%2015%20\(Copenhagen\)](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_INTERNATIONAL/COP%2015%20(Copenhagen))

## Publications

- ◇ **ICER Energy Efficiency Report**, June 2010, ref. I10-CC-02-04  
[http://www.icer-regulators.net/portal/page/portal/IERN\\_HOME/ICER\\_HOME/ABOUT\\_ICER/Publications/Reports](http://www.icer-regulators.net/portal/page/portal/IERN_HOME/ICER_HOME/ABOUT_ICER/Publications/Reports)
- ◇ CEER/ERGEG factsheet « **The Drive Towards Smart Grids** », October 2010, FS-10-01  
<http://www.energy-regulators.eu>
- ◇ CEER/ERGEG factsheet « **Smarter Regulation for Energy Customers** », October 2010, FS-10-02  
<http://www.energy-regulators.eu>
- ◇ **CEER Status Review of Sustainable Development in the Energy Sector**, April 2009, ref. C09-SDE-10-03, <http://www.energy-regulators.eu>
- ◇ MEDREG paper « **Effects of the Introduction of Successful Mechanisms to Promote RES/CHIP and Energy Efficiency in Non-EU Countries** »  
<http://www.worldforumv.info/Forum-Outcomes/Forum-Outcomes/>
- ◇ **World Energy Regulators' Statement on Climate Change**, October 2009  
<http://www.medregulators.org>

### About ICER and CEER

The International Confederation of Energy Regulators (ICER), created in October 2009, unites more than 200 energy regulators from across the globe through its membership which comprises 11 main regional associations of energy regulators worldwide plus the Australian Energy Market Commission.

Through the Council of European Energy Regulators (CEER) the national energy regulators of Europe speak with one voice at EU and international level. CEER is a not-for-profit association under Belgian law with a Brussels-based secretariat. See [www.energy-regulators.eu](http://www.energy-regulators.eu)

*The content of this leaflet does not necessarily reflect the opinion of the individual members of ICER nor CEER.*

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