INTERNATIONAL ENERGY AGENCY

WORKSHOP REPORT 2012

Policies for Energy-Provider-Delivered Energy Efficiency

European Union Regional Workshop, 18-19 January 2012, Brussels

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This workshop report was prepared for the European Union PEPDEE Workshop held in January 2012 in Brussels. It was drafted by the IEA's Energy Efficiency and Environment Division. This paper reflects the views of the International Energy Agency (IEA) Secretariat, but does not necessarily reflect those of individual IEA member countries. For further information, please contact the Energy Efficiency and Environment Division at Grayson.heffner@iea.org.

INTERNATIONAL ENERGY AGENCY

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- Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.
- Improve transparency of international markets through collection and analysis of energy data.
- Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.
- Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

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Executive summary

The IEA together and the Regulatory Assistance Project (RAP) in co-operation with UK DECC and the European Commission's DG-Energy delivered an EU-focused workshop on Policies for Energy Provider Delivery of Energy Efficiency (PEPDEE) at the European Commission's Charlemagne Building on 18-19 January 2012. This was one of several regional policy dialogues held as part of the PEPDEE effort. Other policy dialogues, hosted by governments and co-sponsored by regulators and energy provider associations, have been held in Australia and North America.

Energy providers can effectively deliver energy efficiency – if the right regulatory framework and enabling conditions are established. The past decade has seen a worldwide trend in mobilising energy providers to invest in energy efficiency, with new policies requiring energy providers to deliver energy efficiency implemented in Australia, China, the European Union and the United States. Policies that require energy providers to meet energy savings targets are called energy efficiency obligations (EEOs).

EU EEO programmes include the UK's Carbon Emissions Reduction Target (CERT), the Italian White Certificates Programme, the French Grenelle I and II schemes, and additional schemes in Denmark, Flanders (Belgium), and Portugal. Taken together these schemes accounted for over one-third of the estimated EUR 8.1 billion global energy-provider-delivered energy efficiency spending in 2011.

The past year has seen intensive debate throughout the EU on the role of energy providers in delivering energy efficiency. Article 6 of the Energy Efficiency Directive, recently agreed by the European Parliament and the European Council of Ministers, requires that member states oblige energy providers to deliver annual energy savings equivalent to 1.5% of energy sales each year for the next six years (beginning in 2014).

The two-day IPEEC-PEPDEE policy dialogue took place in the midst of these negotiations. The workshop examined several key points related to energy efficiency obligations for energy providers, including:

1. **Success of EEO policies in Europe to date.** Despite wide variation in how EU member states have designed and implemented EEOs, each scheme has been judged successful by its government and the obligations have expanded over the years.
2. **Financial impact on energy retailers.** Energy market liberalisation has affected the ability of some business entities, primarily retailers, to finance new policy obligations. Energy efficiency obligations must work for energy providers as well as governments, which may mean including the possibility to profit by performing well.
3. **Building trust and creating customer-friendly business models are needed to mobilize customer demand.** The UK CERT programme has successfully integrated social and energy savings goals to date, but problems remain in sustaining consumer demand. Energy providers need to become trusted sources of advice, develop the credibility of delivery agencies, and create offers attractive to customers.
4. **Obligation policies will continue to focus on households and small- and medium-sized business.** This focus plays on the strengths of energy providers in helping overcome common consumer barriers. France has placed obligations on companies that import transportation fuels, but this remains new and unproven territory.
5. **Regulatory capacity building for National Regulatory Authorities (NRAs) is needed**, as they must develop new competencies related to energy efficiency programme implementation.

6. **Energy efficiency obligations must be long-term and accompanied by complementary policies**. A multi-year approach is crucial to stimulating the industrial investment needed to scale-up the supply of energy efficiency products and material. Provider obligation policies also need complementary financing and fiscal policy measures to support investments with long paybacks. Some market failures, such as the split incentives (landlord - tenant) problem, cannot be overcome through obligation policies alone.

7. **Ancillary policies such as tradability require careful consideration.** Tradability is effective in harnessing third parties and stimulating energy efficiency innovation, but also brings disadvantages such as added complexity and encouragement of speculative behaviour. The ability of an obligation scheme to encompass trading depends on national circumstances; there is no one size fits all. For this and other reasons it is difficult to imagine a pan-European trading scheme.

8. Member states will need to carefully consider **if and how to include social considerations in energy efficiency obligation policies**.

Introduction

The IEA, together with its working partner the Regulatory Assistance Project - Europe (RAP-Europe), is undertaking a new work programme focused on energy efficiency and energy providers. Formulated under the auspices of the International Partnership on Energy Efficiency Cooperation (IPEEC) and led by the UK's Department of Energy and Climate Change (DECC), the Policies for Energy Provider Delivery of Energy Efficiency (PEPDEE) activity has been established to promote co-operation and knowledge-sharing on how energy providers can improve the energy efficiency of their customers. Other participating governments include Australia and the United States, as well as the European Commission.

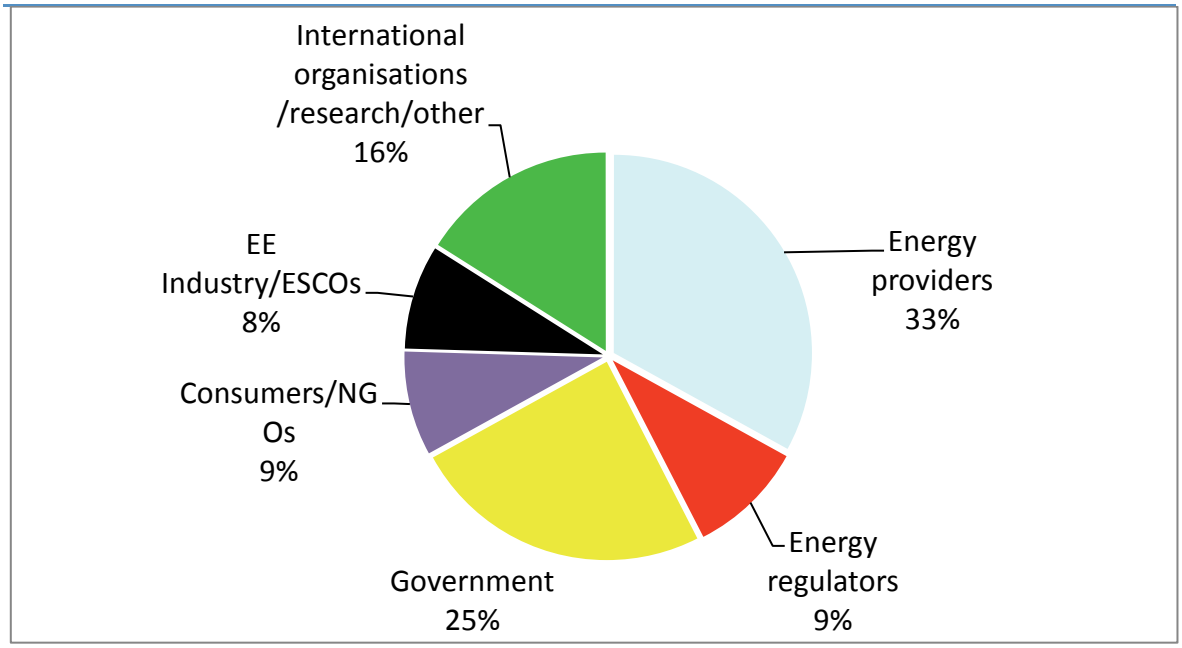
PEPDEE seeks to facilitate co-operation and knowledge-sharing among IEA and IPEEC member countries on how energy providers can improve the efficiency of gas and electricity customers, and what regulators and governments can do to mobilise such efforts. A key PEPDEE objective is to improve collaboration and promote dialogue between the many stakeholders interested in the role of energy providers in scaling up energy efficiency.

Towards this end, and in co-operation with UK DECC and the European Commission's DG-Energy, the IEA and RAP-Europe delivered an EU-focused workshop on Policies for Energy Provider Delivery of Energy Efficiency (Brussels, 18-19 January 2012). The workshop included presentations by energy providers, energy regulators, consumer advocates, the energy efficiency industry and governments, as well as the IEA and RAP-Europe.

This was one of several regional policy dialogues to be held as part of the PEPDEE effort. Other policy dialogues, hosted by governments and co-sponsored by regulators and energy provider associations, have been held in Australia, China and North America. This report summarises the European regional policy dialogue.

Attendance at the Brussels PEPDEE policy dialogue was by invitation. Great care was taken to ensure strong representation by all stakeholders (See Figure 1).

Figure 1. Breakdown of PEPDEE policy dialogue participants by stakeholder group



Energy efficiency obligations and EU energy policy

Mr. Philip Lowe, Director General of the European Commission's Directorate General of Energy, opened the workshop. Mr. Lowe described the central role that energy efficiency plays in both the EU's 20/20/20 target and the 2050 carbon roadmap. Energy efficiency is expected to deliver 20% energy savings by 2020 and 30% to 40% energy savings by 2050. At the current rate of progress, only half of the anticipated 20% energy savings coming from energy efficiency will be achieved by 2020. This is of great concern as energy efficiency is crucial in energy policy to achieve international competitiveness and security of supplies, and to avoid further major investments in electricity generation.

Energy providers can help customers use energy more efficiently by providing the energy services that customers need. An impact assessment performed in developing the Energy Efficiency Directive shows that energy efficiency obligations could not only close the 2020 energy savings gap but also produce most of the remaining energy savings called for in the 2050 energy roadmap. Exploiting this large energy saving potential requires the energy efficiency market to develop more quickly than it has up until today; accomplishing this will require new forms of regulatory/policy stimulus, such as energy efficiency obligations.

The buildings sector faces particular challenges in effecting energy efficiency improvements. The current renovation rate of 1.5% a year will not yield the 2020 energy savings goals, and extra efforts are needed to bring this up to at least 3%. The public sector will play an important role as 12% of the stock is owned by public sector entities. New business models that balance benefits and costs among participants will help enable financing of necessary improvements.

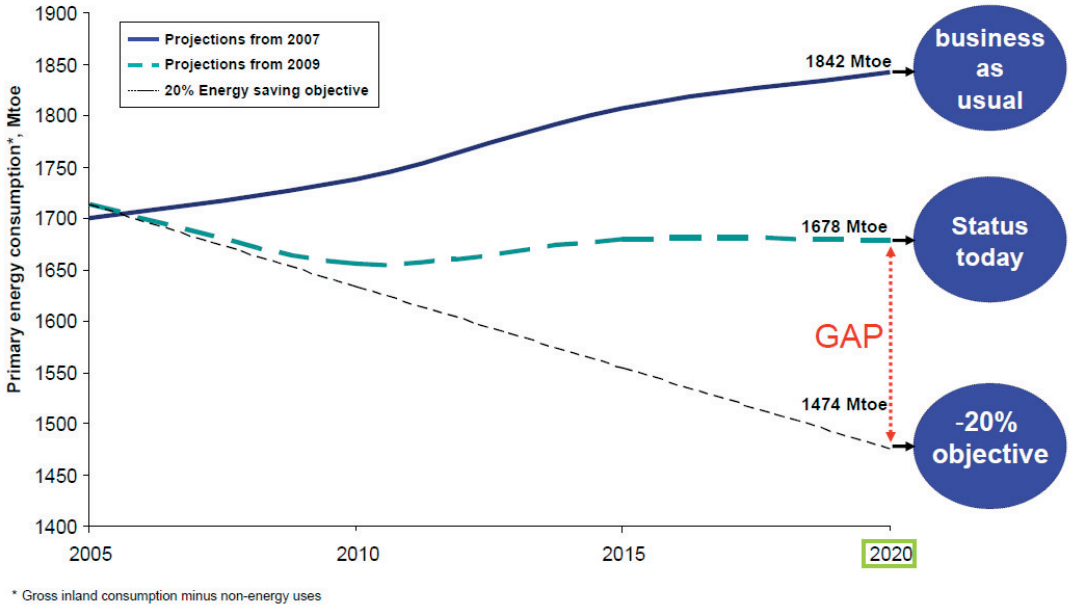
A low level of consumer awareness regarding the opportunities for and benefits of energy efficiency is an issue across all consuming sectors. Awareness levels for small and medium-sized enterprises (SMEs) are comparable to those for households. Even in large companies, finding dedicated staff working on energy efficiency is the exception rather than the rule.

In Europe, the energy sector itself is the biggest consumer of energy. Large quantities of energy are required for generation, in part because of large losses within the system. Improved infrastructure planning and integration is needed to pursue energy savings opportunities such as waste heat utilisation and co-generation.

Often questions are asked about why energy providers should be interested in selling less of their product. In a world with competitive and open markets, and where energy is becoming increasingly scarce, the best business model is to offer the most competitive and most affordable energy services. The Commission believes that energy-provider-delivered energy efficiency is an important part of strategies to secure energy supply at competitive prices for industry and at affordable prices for households.

Paul Hodson, Head of DG-Energy's Energy Efficiency Unit, presented the results of studies showing that, at current trends, the EU will fall short – by almost half – of its 20% energy savings go (see Figure 2). The buildings sector in particular suffers from a large gap in legislation, especially as regards the annual rate of renovation (current legislation just sets the standard to which the renovations need to be performed). There is also a growing recognition that public funding alone cannot drive the energy efficiency agenda forward – private sector investment is required as well. Furthermore, review of existing policies, such as the pioneering Energy Services Directive and the Combined Heat and Power (CHP) Directive, are not delivering enough energy savings. The Energy Efficiency Directive (EED) will fill this gap.

Figure 2. Progress and Shortfall in Meeting the EU's 20/20 Target



Source: DG Energy 2011

Article 6 of the EED requires governments to oblige energy providers to meet an energy savings target equivalent to 1.5% of annual sales over the next six years. This obligation is a centrepiece of the Directive, expected to fill almost half the current shortfall in meeting the 2020 target. Many details remain to be worked out, such as how the obligation is calculated, and what sort of alternative mechanisms will deliver equivalent savings results. Other elements include differentiation on types of measures, with savings from short-term measures (*e.g.* switching light bulbs) restricted to 10% of the total, and requirements that programmes include social aims, allow third parties to realise savings, and allow savings to be counted over a five-year rolling period. Some of these requirements may be especially difficult for smaller energy companies.

Regarding obligations on transport fuel providers, Mr. Hodson confirmed that this is a new area with no easy answers. France has recently obligated companies that import transportation fuels; Ireland is exploring a similar measure. Transport is included in the voluntary agreements in the Netherlands. However, these are the exceptions; most other schemes do not oblige transportation fuel providers.

Regarding demand-side management schemes as alternatives to obligation, the proposed EED includes a long list of possibilities (including spending schemes and voluntary agreements) but the Commission has not yet specified any measures. What is important is that such measures achieve same level of savings and the same level of continuity, and deliver verifiable results.

Some energy retailers in unbundled and liberalised markets may encounter difficulties in mobilising the financing needed to meet new obligations. The effect of market liberalisation on the financial wherewithal of energy providers should be taken into account in developing obligation policies. It is generally agreed that energy efficiency obligations have to work for providers – including the possibility to profit by doing it well.

Further discussion focussed on the UK obligations model in particular, the success of which is linked to realistic targets and stringent non-compliance penalties (*e.g.* the threat of fines or ultimately license revocation). But there are problems with consumer demand. Consumers need

to be both engaged (which is often difficult) and provided with a business model that works for them. This combination has been difficult to achieve with some measures, such as insulation. The interventions must be broadened to include more market actors (*e.g.* landlords) and more incentives to participate (*e.g.* fiscal incentives). More effort to combine measures – such as codes and standards, property assessment, property taxes, etc. – is needed to succeed rather than just relying on a single mechanism. The insulation industry needs to be included as part of the solution.

Peter Bach of the Danish Energy Agency explained why obligations for energy providers are essential in meeting the EU's 20/20/20 energy savings and 50/50 carbon reduction targets. Energy providers are:

- in place now, and can act quickly to deliver energy and carbon savings;
- already major energy market actors; their commercial relationship with end-users together with wide geographic coverage make them capable of taking nation-wide actions;
- able to mobilise a stable financing regime, separate from the public budget; and
- aware that they have a commercial incentive to transform themselves from commodity energy suppliers to providers of value-added energy services, including energy efficiency.

For all these reasons, energy efficiency obligations are part of solution to meeting EU energy and carbon savings targets. The provisions of the Energy Efficiency Directive will allow for national schemes, rather than pan-European ones, ensuring flexibility within a common framework.

Energy efficiency obligations: global perspective

Grayson Heffner of the IEA presented the results of a recent IEA study identifying the main barriers to energy efficiency, including: low end-user awareness; lack of access to financing; low implementation capacity; and subsidised energy prices. Energy providers are in a good position to address many of these barriers. In the European Union, energy providers are already involved in providing energy efficiency; the question is how to broaden and scale up these efforts. The IEA's study of Policies for Energy-Provider-Delivered Energy Efficiency (PEPDEE) aims to support this process through analysing institutional issues, taking stock of which delivery schemes are effective under what market conditions, and sponsoring regional dialogues among government policy makers, energy providers and energy regulators.

Richard Cowart of the Regulatory Assistance Project-Europe (RAP-Europe) presented energy efficiency policies for energy providers as an imperative, because of its multiple benefits for power systems, the economy, consumers and the environment. Obligations and tradable white certificates are powerful energy efficiency policy tools; however, there is no single best structure. Rather, the right structure depends on country context, energy market design, energy efficiency opportunities and many other factors.

Energy providers can be pivotal players in the delivery of energy efficiency improvements. They are a logical source of revenues and financing, with stable energy revenue cash-flows and collateral in the form of large infrastructure investments. They are also responsible for many functions that can play a role in scaling-up energy efficiency, *e.g.* tariff design, metering and billing.

Extensive global experience in energy-provider-delivered energy efficiency is available from five EU member states, 24 US states and three Australian states. China is now moving forward with developing energy efficiency power plants, and other countries (including Brazil, Canada and India) are using a variety of mechanisms to mobilise energy providers to deliver energy efficiency. Energy efficiency is a huge market opportunity for energy providers; in the United States, annual energy efficiency spending by energy providers has topped USD 6 billion and is heading towards USD 15 billion within the next few years.

China's demand-side management rule (2011) requires grid companies to meet 0.3% of peak demand with energy efficiency. This is over and above the requirements of the 12th Five-Year Plan (2011-2015), which mandates a 16% reduction in energy intensity over five years. Chinese policy makers, energy providers and energy regulators are now working out the details of this new regulatory mechanism.

End-use energy efficiency offers many benefits for power systems, such as peak demand management, lower line losses, improved utilization of network capacity, and avoided emissions. Wholesale competition may also play an increased role in mobilizing energy efficiency, as is happening in the United States with forward capacity markets.

Considerable variation is seen in the type of energy provider obligation policies in place. In the United States, obligations on regulated investor-owned utilities and competitive retail suppliers, as well as schemes that provide funding derived from energy utility bills, are used to fund third-party energy efficiency programme administrators. A new institutional model – the energy efficiency utility – is being replicated in several US states and Canadian provinces. Savings from energy provider obligations can accumulate impressively over time. In California, three decades of energy efficiency implementation has resulted in 25% of demand provided for by energy efficiency.

Global experience shows that financing large-scale energy efficiency implementation requires a 25% cost-sharing from some entity – usually, a utility or government – to leverage the remaining 75% of private investment. Promoting large-scale energy efficiency requires a stable source of revenue, but several options are available such as –recovery through rates, wire/pipe charges, carbon auctions and tax revenues. There is further room to explore opportunities, for example, linking carbon revenue and energy efficiency: *i.e.* recycling carbon revenue for energy efficiency. Other requirements for successful programmes include quality control, rigorous measurement and verification (M&V) regimes, continuous improvement and strong independent oversight.

Results of energy efficiency obligations in the European Union

Eoin Lees of RAP-Europe described how energy efficiency obligations in the European Union work. The costs are passed through in different ways. In a liberalised market, they can be seen as a cost of doing business and passed on to end-customers. In regulated markets, energy providers recover their costs through a regulated tariff. Regardless of the cost recovery method, energy savings benefits far exceed the combined costs to both consumers and energy providers.

Delivery schemes also vary. In some countries energy providers deliver energy savings to customers directly. In other countries, obligated party and third party energy efficiency companies enter into bilateral agreements. In Italy and France accredited third parties create white certificates that are then traded bilaterally or through markets.

At present, most energy savings activity is in the residential sector, for many reasons including: customer convenience, administrative cost savings from standardizing efficiency measures; transparency of measures for market actors; and economies of scale through mass marketing and delivery. Each country is slightly different in terms of sectors and end-use focus.

It is especially noteworthy that over the course of 50 programme-years (the product of the number of programmes and the years of results), no obligated party has failed to meet their annual or cumulative target. Evidence also shows that obligation policies are working at both disaggregated and aggregated levels. An assessment of 4 million customer bills made by British Gas showed a 22% reduction in average consumption over the period 2006-10. The United Kingdom has seen a 15% decrease in residential sector total gas demand over five years, despite a 7% increase in gas customers.

Martin Orrill of British Gas New Energy described how the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP) have transformed the British Gas business model. British Gas supplies gas, electricity and home repair services to millions of households and businesses in England, Scotland and Wales. Its clean energy portfolio now includes energy efficiency, micro-generation, solar, insulation, smart metering, security, gas and electricity supply, central heating and boiler care, plumbing, electrical equipment and appliance care. British Gas is responsible for one-third of the total programme under the CERT.

British Gas has always taken the view that energy efficiency obligations should be placed on the retailer/supplier instead of the network, as the network does not have the same advantages of market access and customer service relationships. The company takes energy provider obligations very seriously; they are at the top of the "risk register" to which management pays close attention. Not only does the company face fines of up to 10% of turnover (GBP 2 billion) for falling short of its targets, but repeated noncompliance can result in license revocation.

As there is no cost-recovery under the CERT model, all implementation costs come directly off the company's bottom line. Under retail competition, this creates an opportunity to compete on delivering energy efficiency effectively just as retailers compete to attract customers. In 2006, a separate business unit, British Gas New Energy, was created to respond to expectations that energy commodity consumption was likely to fall while opportunities to profit from delivering energy efficiency and other clean energy solutions was likely to increase.

Managing the risk associated with meeting energy savings obligations raised the strategic importance of British Gas New Energy. This, together with a business model focused on delivering new energy services, has resulted in high growth, with GBP 150 million turn-over in 2010. The long-term nature of CERT and other obligations has helped create a stable policy

environment, which encourages the investment in commercial development required for rapid growth.

Obligation policies have transformed the market for certain measures. Installation of condensing boilers is a good example. With the involvement of energy providers able to put in place the necessary marketing and delivery schemes, installations have risen dramatically. British Gas New Energy and its trade allies installed 43 000 condensing boilers in 2010, up from 2 000 just a few years ago.

Developing more measures and technologies to satisfy obligations is desirable, as it reduces the pressure to push some measures that are less popular than others or measures for which market potential has been exhausted. The focus on a single measure (such as insulation) causes energy providers to go to extremes to create demand. One UK energy provider offers households free installation of insulation plus a reward of GBP 100 – and customers still are not signing on.

The CERT is an opportunity and a risk. In satisfying the CERT, British Gas has conducted over 10 million energy audits, delivered 52 million compact fluorescent lights (CFLs), and developed several new measures including micro-generation, rooftop PVs and renewable heating. Despite quotas established for vulnerable groups, lower-income communities still miss many funding opportunities. The new Community Energy Saving Programme (CESP) has shown many examples (solid wall insulation, heat-pumps) that can achieve huge increases in energy efficiency.

Stakeholder views on energy efficiency obligations

This workshop was structured to provide opportunities for stakeholders to articulate their views on the key issues that should be addressed in energy-provider-delivered energy efficiency policies. Spokespersons representing electricity providers, gas providers, regulators, consumer advocates and the energy efficiency delivery industry had opportunity to present their views and discuss areas of agreement and disagreement.

Daniele Agostini of Enel SpA, who also chairs Eurelectric's Energy Efficiency Working Group, presented the electricity provider perspective. Energy providers are ready to do their part in meeting the European 20/20/20 targets, but have a vested interest in making sure policies are effective and balanced. Getting the policies right is a challenge for several reasons. The electricity sector is changing quickly and drastically. Retailers are being squeezed between their wholesale suppliers and their customers. On the demand or retail side, it is increasingly important to think through which customers are the focus of services and programmes, and determine whether there is sufficient market demand for success.

Regarding the Energy Efficiency Directive, electricity providers are concerned with the effect of policy interactions – not just energy efficiency policy, but also climate change, and economic and environmental policies. Thus, there is a need to consider policy overlap and avoid confusion. The interaction of policies and markets is a particular concern because of uneven extent of liberalisation around the European Union. While generation markets are fully competitive and distribution and transmission fully regulated, retail supply is still a mixed bag of competitive and partly regulated regimes. As unbundling continues to reduce power sector integration, countervailing mechanisms must be considered in order to avoid market distortion. Policy exemptions for small operators can, for example, lead to unfair market advantages. Policy makers need to consider the effect of new forms of regulation (such as energy provider obligations) on the gains from market liberalization.

Obligation policies will translate into higher bills for consumers - at least in the short run. Thus, the economic costs and gains need to be carefully considered. This includes the types of costs (intervention costs, search costs, transaction costs and information costs), the details of the calculation (when costs are incurred, when benefits materialise and what discount rates are used) and what market barriers may stand in the way. In that vein, it is important to consider whether consumers are ready for energy-provider-delivered energy efficiency. Many retailers with extensive experience with door-to-door marketing have found that customers are often not open to energy efficiency offers. Part of the problem is that resources focused on energy efficiency are miniscule – perhaps EUR 300 million annually, compared to an energy commodities market of EUR 60 billion. Getting the energy efficiency enterprise built up enough to take advantage of mass market scales will require capacity building by energy providers, but more importantly awareness-raising for the customers to want to buy energy efficiency services.

E.On's Pauline Lawson, who also chairs Eurogas' Supply & Markets Development Committee, presented a gas provider perspective on energy efficiency obligations. Eurogas supports initiatives aimed at further developing cost-effective energy efficiency measures. Dr. Lawson suggested that obligation policy development should start by specifying the objective. Taking this approach might reveal whether having the same target and same scheme for all countries makes sense. Dr. Lawson also suggested distinguishing energy savings from energy efficiency improvements. A sustainable way to save energy is to use energy better, *e.g.* using less to achieve the same objective. But energy efficiency and energy conservation are two different things: energy conservation might mean reduction in services*, e.g.* doing without instead of doing more with less. Dr. Lawson pointed out that 20% increase in energy efficiency by 2020 is not

necessarily a cap on energy consumption. Energy retailers clearly have a role to play and are busy developing offers for their customers. Companies are offering audits, advice, installation services and consumer awareness efforts, especially for young people. Having interested and engaged customers – and being prepared to meet their diverse needs – is just good business. However, obligation policies should be on equal footing with other measures. National governments should have the freedom to choose the most cost-effective route, with all energy efficiency measures being considered. The key to success is creating a customer demand for energy efficiency services.

Pedro Verdelho, of Portugal's Energy Services Regulatory Authority (ERSE), described the infrastructure operator's role in developing the energy services market. For energy regulators, the main issues of importance are ensuring that regulatory incentives align with the objective of energy efficiency and that regulation encourages the participation of new and innovative service providers. In an era of limited resources and competing policies, the role of regulators must change. For example, tools such as pricing tariffs should be used in new ways, to promote efficient use of resources. Pricing, however, will not be enough: the presence of market failures requires thinking through complementary policies that combine with price schemes to overcome barriers.

One example of a specific mechanism is the energy efficiency bidding programme operated by ERSE. This bidding mechanism gives a diverse range of institutional actors, including energy suppliers, the opportunity to submit measures that are then selected by ERSE using technical and economic criteria. Cost sharing between regulator and participating organisations leverages financing, making it possible for programme benefits to easily outweigh costs. ERSE estimates that the benefits of this round of tenders for energy efficiency measures when implemented will be nine times higher than costs: the expected potential gains are EUR 155 million for costs of EUR 18 million). Finally, rigorous ex-post evaluation of savings is important, both to clearly document results and avoid any double counting of savings via overlapping with other programmes.

UK Consumer Focus' Heidi Ranscombe described the importance of accounting for distributional impacts when conducting programme evaluations, particularly the regressive effect of energy efficiency spending that is financed through energy tariffs. When policies and programmes are evaluated, extra consideration should be given to fuel-poor households. Compatibility and interactions with other policies, such as the Ecodesign Directive, also need attention.

If the intent of energy efficiency policy is to stimulate behavioural change, positive consumer experiences are essential. For example, which organisations are deemed trustworthy, which delivery agencies are considered credible and how to ensure effective co-ordination when multiple agencies are involved are all important. A connection should exist between the source of programme financing and how the money is spent. Consumers should have an opportunity to benefit from programmes they have funded in a transparent and verifiable way. For these reasons, levies from one country spent in another will be politically difficult. Quality of products and installation can be ensured through accreditation and certification schemes. Fair access to energy efficiency programmes for all consumers should be ensured.

Finally, special care should be taken to communicate clearly to consumers. This includes communicating the consumer benefits of energy efficiency through labels and making sure that consumers have accurate metering and bills. Cases exist in which consumers are getting smart meters but are not getting accurate bills.

Adam McCarthy of Johnson Controls provided an energy efficiency industry perspective. Johnson Controls is a provider of energy products and energy services, and is one of world's largest energy service companies (ESCOs). Energy efficiency providers consider the 1.5%

reduction target for primary energy through EEOs contained in Article 6 of the Energy Efficiency Directive to be ambitious but achievable. Targets play an important role in energy efficiency policy. As regards sectoral coverage, it is important to address the large energy savings potential in the commercial and industrial sectors. For example, a recent retrofit on the Empire State Building in New York City achieved 40% decrease in consumption – an amount corresponding to the savings potential of retrofitting 40 000 households. However energy efficiency obligations alone are not enough. Other policies, such as a public sector renovation rate target, measures to promote ESCOs and performance contracting, and removal of barriers to demand-response measures are also needed. Utility obligation schemes should promote deep and meaningful renovation and measures with lasting impact, without being too prescriptive. M&V of savings and allowing for third-party involvement are also important.

Policy dialogues

The workshop format included parallel small group discussions of four distinct issues faced by policy makers in the development of energy efficiency obligations. This section highlights the policy dialogue regarding these issues, based on rapporteur summaries.

Group A: Choosing which end-use sectors are covered

Group A included energy providers, government policy makers, NGOs and academics. Opening presentations were made by **Marcella Pavan of Italian Regulatory Authority for Electricity and Gas (AEEG**), and **Thibaut Leinekugel le Cocq, of the French Directorate General of Climate and Energy Efficiency**. These presentations may be found on the IEA website (www.iea.org/newsroomandevents/workshops/name,14220,en.html).

Ms. Pavan described the considerable differences in sector coverage across the current European energy provider obligation schemes. The UK scheme is focused entirely on the residential sector, whereas the Italian and French schemes include all sectors. The Danish scheme excludes transport, while the recently revised French scheme includes transportation. Both the Belgian and French schemes exclude energy-intensive industries and industries covered by the EU Emissions Trading Scheme (EU ETS). In theory, wider coverage of obliged actors and of eligible end-users should yield greater benefits and lower costs, especially in terms of trading and compliance. A more extensive scope may require more complex administration, however, especially as regards quality assurance and M&V.

Mr. Leinekugel le Cocq described the appeal of policies in France that oblige energy providers to deliver energy efficiency. Such policies take advantage of the positioning of energy providers, who are well-placed to advise their clients on energy efficiency. Such schemes do not involve state funds and may be undertaken without the need for client co-financing. Allowing energy suppliers to trade certificates – rather than deliver energy efficiency themselves – provides flexibility and enhances the cost efficiency of the scheme. The size of the energy consumption and the savings potential should be taken into account when considering sectoral coverage. In France, the residential and tertiary sectors account for 42% of total energy consumption, with transport accounting for another 32%. Industry is exempted as it is already covered by the EU ETS. The exemption of industry is why the revised French scheme has been extended to include transport.

The subsequent policy dialogue yielded general agreement that:

- flexibility to take account of national circumstances is very important in designing the energy efficiency obligation for any country or region; and
- experience with obligations suggests that it is better to start at a fairly modest level and then expand the activity based on the lessons learned.

Extensive discussion centred on the pros and cons of sourcing energy savings from each consuming sector, including residential, tertiary, agriculture, industry and transport. In terms of energy provider sourcing of energy efficiency, factors other than just sector are important. In the tertiary and industrial sectors, the entities are diverse in terms of size and energy consumption, making it difficult to assess energy savings opportunities and challenges. Further subdividing these sectors is helpful, *e.g.* large energy-intensive industry, small energy-intensive industrial companies and non-energy-intensive companies. In the tertiary sector it is helpful to distinguish between large and small energy consumer and public and private entities.

Energy-provider-delivered energy efficiency is particularly effective in overcoming the barriers

common to small energy consumers such as households and non-energy-intensive SMEs. These include lack of technical knowledge of technologies and measures, the transaction costs of arranging different trades to carry out the necessary improvements, and accessing affordable financing.

Further benefits can be captured by bundling numerous small measures and developing standardised approaches. Energy providers have an established relationship with small customers; this can increase consumer confidence regarding the quality of the energy efficiency measures. This relationship also provides an already established channel for communicating energy efficiency opportunities to customers (not the case for distribution system operators [DSOs], however).

While energy-provider-delivered energy efficiency may provide mechanisms for financing, in Europe it has not yet addressed the principal agent (landlord - tenant) barrier. It is also not clear whether deep renovation can be financed through energy providers. Difficulty determining whether energy savings are additional to that provided by policies already in place was also identified as a challenge.

In terms of choosing eligible sectors, the following points were agreed:

- Energy-provider-delivered energy efficiency to residential and small industrial or tertiary entities has proven successful in a number of countries.
- Energy-provider-delivered energy efficiency can work for larger industrial and commercial users, though care must be taken to avoid duplication of policies already aimed at these sectors (*e.g.* EU ETS and national voluntary agreements). Energy providers will have limited leverage over the largest industrial customers, who likely have more specialised technical expertise than the energy provider. Issues around additionality and free ridership may also be more complex, *e.g.* separating out the impact of energy efficiency measures from other larger investments in process improvements. M&V for industrial consumers is more challenging as well, as standard approaches such as deemed savings may not be appropriate; as a result, more costly direct measurements will likely be required.
- Including the transport sector is a largely unproven policy tool. More detailed analysis is needed to assess the results of the French scheme.
- The agriculture sector needs more M&V work, especially to develop and apply deemed savings approaches.

Group B: Energy provider obligations and business opportunities

This group comprised energy providers, government, regulators, the energy efficiency industry, NGOs and academics. Opening presentations were made by **Marielle Liikanen, Chairman of the Council of European Energy Regulators (CEER) Retail Market Functioning Task Force,** and **Randall Bowie, Public Affairs Division of Rockwool International**. These presentations were followed by questions and answers, and then group discussion. The presentations may be found on the IEA website (www.iea.org/newsroomandevents/workshops/name,14220,en.html).

Ms. Liikanen described the challenges faced by national regulatory authorities (NRAs) as they develop new competencies needed to regulate energy efficiency programme implementation. Although some member states are already regulating policy schemes to promote energy efficiency, this is the exception not the rule. A case can be made for the European legislator to propose new responsibilities for NRAs in relation to energy efficiency and demand response. Along with these new responsibilities there will be a need to build new competencies for regulators, in order to consider issues such as competitive effects, cost efficiency and customer

protection. This would make it easier for NRAs to contribute to the overall effort of achieving energy savings and to ensure proper market functioning at the same time.

CEER sees scope to improve provisions in the proposed Directive in order to avoid undue burdens on regulators or unintended consequences on energy markets. Concerns exist regarding distortion of competition due to role of DSOs in demand response measures. The 1.5% target contained in Article 6 may not be appropriate for all member states. Given variations in economic development, wealth, consumer profiles, markets for end-use technologies, etc., a minimum energy efficiency obligation would best serve the purpose of the Directive. Similarly, the 10% cap on short-term savings might not be appropriate for member states.

Mr. Bowie of Rockwool International presented the viewpoint of the energy efficiency industry on energy provider obligation policies. First, it is critical that any energy efficiency obligation on energy suppliers be a long-term policy. This is crucial to stimulating the industrial investment needed to scale up the supply of energy efficiency products and material. Subsidiary messages include: getting the rules and quality criteria correct from beginning; making sure the eligible measures are long-term and high-quality (not quick and dirty); creating a clear gate-keeper role for regulators, and building the capacity needed for them to carry out this role; use of life-cycle economic analysis in selecting measures and evaluating deemed savings; and establishing clear and transparent principles for M&V (including guidelines on baselines, additionality and gross versus net savings).

Supplier obligation policies need complementary financing and fiscal policy measures, especially to support investments with long paybacks, such as deep building renovations. Households and businesses will not want to enter into a medium- or long-term commitment, as they might relocate or change business. Financing measures such as PAYS-type loans, which stay with the building instead of the borrower, will allow asset owners to combine energy provider-offered measures with long-term financing.

The residential market is invariably the hardest to address – despite the efforts of over a decade of energy supplier obligations. Not only is there little consumer appetite for energy efficiency, but the measures on offer often do not meet consumer wishes. Energy suppliers might want to concentrate on improving consumer information on their energy use, providing energy audits, recommending comprehensive energy efficiency measures and mitigating perceived risks.

Stakeholders participating in the policy dialogue expressed a number of different views. Energy providers emphasized the need to avoid one-size-fits-all rules, instead arguing for flexibility to accommodate national differences be they cultural or market-based. It was clear that the energy providers in different countries had different views on the attractiveness of energy efficiency obligations. Some energy providers maintained that quite a bit of energy efficiency was already underway without regulations such as energy supplier obligations.

All agreed on the importance for the details of obligation policies to be worked out in a democratic fashion, with the objective of societal benefit. Obligations on energy providers can be viewed as a proxy for obligations on individual consumers, with the energy supplier entrusted to deliver the energy savings in an equitable manner, and energy supplier behaviour and results overseen by an independent regulator. In fact, in some countries and for different reasons energy suppliers have been left out of the energy efficiency delivery model entirely, but are still obligated to fund the programmes through a wires charge or tax on delivered energy. In these countries (*e.g.* some US states and Canadian provinces), the business of delivering energy efficiency is either competitively bid for by interested parties or an independent entity is funded to undertake delivery of energy efficiency.

In a more practical vein, discussion turned to how to find the right agents and the right delivery schemes for energy efficiency. This is important in order to avoid market distortion and ensure implementation of obligation policies is in line with the market liberalisation agenda. In the United Kingdom, there is some concern that the Green Deal may create opportunities for energy providers, already quite active in energy efficiency businesses, to dominate the new energy efficiency markets being opened up. Oversight of this process will be up to the regulator, who (as described earlier) will have to develop new capabilities to fulfil this role.

The basic fairness of financing schemes, especially if they involve subsidies from one group of customers to another, was discussed briefly. Energy suppliers and regulators should consider carefully how to evaluate different schemes, including both savings and co-benefits, in order to determine which financing schemes are economic. Rules for making such determinations need to be developed. A relationship between targets and the specificity of measures was also noted. Higher targets should be offset with less prescriptive measures as a general principle. The lack of viable programmes was also noted, especially in the households sector. Scaling up energy-provider-delivered energy efficiency will require prospecting for new energy savings opportunities.

Areas of agreement by the group included:

- The energy efficiency business is growing;
- The customer is the central and not always an informed actor whose needs have to be met if success is to be achieved - likely the hardest task in meeting obligations;
- Public bodies should show how to overcome the barriers to energy efficiency investments; and
- There is a need to address energy efficiency in transport.

Areas of disagreement included:

- Whether obligation schemes should be mandatory or voluntary;
- Whether there would be any added value of an EU-wide common approach; and
- Whether the primary objective for energy obligations is to reduce GHG emissions or to improve the economy by reducing costs.

Group C: Pros and cons of tradability

Opening presentations were made by **Caiman Cahill, European Commission DG-JRC Institute for Environment and Sustainability,** and **Thibaut Brac de la Perriere, Sustainable Development Department, EDF.** The presentations may be found on the IEA website (www.iea.org/newsroomandevents/workshops/name,14220,en.html). In the European Union, the main modality of trading is the white certificates schemes in Italy and France. White certificates have a dual nature: they serve as both an accounting tool and a tradable commodity. A white certificate contributes to tradability because it establishes clear title to the energy savings, yet it can have only one owner at any one time. Because it is tradable, the market value of white certificates can be quite different from the economic value of the energy saved. Several white certificate schemes are in place (Italy, France, Australia), with more to come (Ireland, Portugal, Romania and Bulgaria). Most of the existing schemes focus on the residential sector. Italy has, by far, the most developed and highest-volume energy savings trading scheme in the world.

The advantages of tradability include:

- potential to harness the innovation and specialization of third party market actors to reduce the costs of delivered energy savings;
- providing multiple mechanisms for transacting energy savings trades, either on a bilateral basis with over-the-counter (OTC) trade and/or through a fully developed secondary market;
- trading can stimulate energy savings activities, allowing obligated parties to meet their targets, governments to increase the overall energy saving target, and aggregators to enter the market; and
- trading may provide a boost to energy efficiency innovation by involving more actors.

Some disadvantages of trading include:

- differences in scheme designs make it difficult to harmonise across countries or engage in cross-border trade;
- the added complexity of trading may increase the administrative cost of obligation policies;
- trading may increase the propensity for speculative and unethical behaviour; and
- trading can potentially increase the cost of meeting an obligation, as the marginal price may be more expensive than the cost of self-procurement.

The situation in every country is different, with no single approach being optimal for all countries. Different sectors will be more suited or attractive to trading than others, depending upon the value of the trade (*e.g.* market price less project cost). For example, the opportunities to profit through energy savings trading may be more prevalent in the commercial sector (where energy savings project costs are lower) as opposed to the residential sector (where costs are higher and the value from trading less).

Areas of clear agreement by the group included:

- The practicality and utility of trading within an obligation policy depends on national circumstances; there is no one-size-fits-all solution;
- It is difficult to envisage a pan-European trading scheme in the foreseeable future;
- Practical experience suggests starting with energy efficiency obligations and then moving to a trading regime if that is appropriate;
- Experience suggests starting with a simple scheme, as greater complexity is not only more costly, but introduces opportunities for "gaming the system"; and
- As much of the experience of the European knowledge on this subject is based on theory rather than practical experience, an independent verification should be undertaken in the near future.

Group D: Social considerations in obligation policies

The composition of this group was evenly split between energy providers, government, energy regulators, the energy efficiency industry, NGOs/consumer advocates and academics. Opening presentations were made by **Darryl Croft, Association for the Conservation of Energy**, and **Frances Williamson, UK Energy Retail Association**. The presentations may be found on the IEA website (www.iea.org/newsroomandevents/workshops/name,14220,en.html).

Topics explored during the group discussion included:

- The effect of liberalised versus regulated energy markets on social considerations within energy efficiency policies, which raises key questions: Does reserving energy efficiency action for low-income groups as part of an energy efficiency obligation make sense under

both market regimes? What about the interaction of social tariffs and low-income energy efficiency set-asides?

- Equity considerations, *e.g.* who pays for what and who gets the benefits?
- Difficulties faced by energy providers in finding and engaging low-income customers, particularly the most disadvantaged in society; and
- Cost recovery for such obligations and using the tariff system to make cost recovery less regressive.

Several areas of agreement were found by the group:

- The EU Energy Efficiency Directive should contain a clause on social consideration but it should allow flexibility to member states;
- There should be more clarity on the trade-off between cost effectiveness and the need to target low-income groups;
- There should be more discussion of the multiple benefits of energy efficiency policies; and
- Research is important, but even more important is action based on lessons learned and experience gained.

The group expressed surprisingly little disagreement. Most participants believed that the energy efficiency obligation should include social considerations and one participant went further, believing that the obligation should be used as a tool to alleviate energy poverty. There was also general agreement that the underlying problem is the lack of poverty alleviation policies, which leads some governments to use energy sector policies to improve social welfare. Participants felt that any European-wide approach to social considerations within EEOs needs to be flexible enough to adapt to national circumstances while keeping in mind the desired social outcomes.

The group recommended that Governments should:

- invest in a database on the building stock that segments buildings according to tenure;
- measure and quantify the benefits arising to low-income households additional to the energy saving financial benefits (*e.g.* health); as this will have direct benefits to ministries in government other than energy, perhaps some funding should be forthcoming from these;
- consider that specific measures may be different between regulated and liberalised energy markets;
- The group did not consider it to be a market distortion to exempt small companies from energy efficiency obligations, as obligations often are targeting richer groups in society;
- Greater transparency is needed on the actual cost to energy providers to meet their energy saving targets; and
- As inevitably some low-income households will not be reached by obligations, the government may still need to intervene.

Closing notes

The EU regional PEPDEE workshop concluded with a few final remarks on energy provider obligations from the private sector and public perspectives.

Ulrik Stridbaek of Dong Energy described the Danish experience with energy efficiency obligations. Dong Energy is quite happy with the scheme, as it has provided significant business opportunities. In addition to its businesses based on oil, natural gas, electricity and heat, Dong is moving towards renewable energy (especially wind). From the perspective of an energy provider, energy efficiency can be seen as threat or an opportunity. This presents energy companies with a strategic choice – embrace the emerging energy efficiency market or leave it to others. The Danish obligations scheme has unleashed an energy service market now valued at EUR 100 million per year and broadened the role of the Danish distribution system operator from pure energy provider to energy and energy services provider.

With obligations providing a firm driver for energy savings, the company has a new basis for interacting with customers. The idea that a company would help customers to use less of their product initially seemed foreign. However, considering that energy is a competitive business with a low margin product, the introduction of energy efficiency makes energy companies more diversified. Energy efficiency obligations provide a new way of engaging with customers, and Dong Energy has used this opportunity to forge new business relationships, especially with large customers. This is a feature that could be utilised in other European markets.

Tom Bastin of UK DECC described the history of successful energy efficiency obligations through to the current Carbon Emissions Reduction Target (CERT) programme. CERT set a cumulative energy savings target of 192 TWh, achieved 250 TWh, and created GBP 2 billion of new energy efficiency investment. Carbon savings were 3.2 $MtCO_2$ annually at the end of the scheme.

A new programme (launched in 2012), entitled Green Deal, is a pay-as-you-save scheme. Customers receive a comprehensive package of EE measures from a "Green Deal provider" which are paid for out of savings over the lifetime of the measures (*e.g.* 25 years). Repayments are made via energy bills and the lending is collateralised with the property, not the person.

Energy companies will have a new obligation focused on targeted households where either more expensive measures are required or the household is part of a vulnerable group. The result will be that the level of investment grows but actual savings delivered will be lower.

Acronyms

ACE	Association for the Conservation of Energy
AEEG	Regulatory Authority for Electricity and Gas (Italy)
CEER	Council of European Energy Regulators
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Savings Programme
DECC	Department of Environment and Climate Change (UK)
DG	Directorate General
DGEC	Directorate General for Energy and Climate (France)
EDF	Electricite de France
ERA	Energy Retailers Association (UK)
ETS	Emissions Trading Scheme (EU)
EED	Energy Efficiency Directive
EEO	Energy Efficiency Obligation
ESCO	Energy Services Company
ERSA	Energy Services Regulatory Authority
IPEEC	International Partnership for Energy Efficiency Cooperation
JRC	Joint Research Council (EC)
M&V	Measurement and Verification
NRA	National Regulatory Authority
PEPDEE	Policies for Energy-Provider-Delivered Energy Efficiency
RAP	Regulatory Assistance Project

References

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