

Energy Provider-Delivered Energy Efficiency: An International Review

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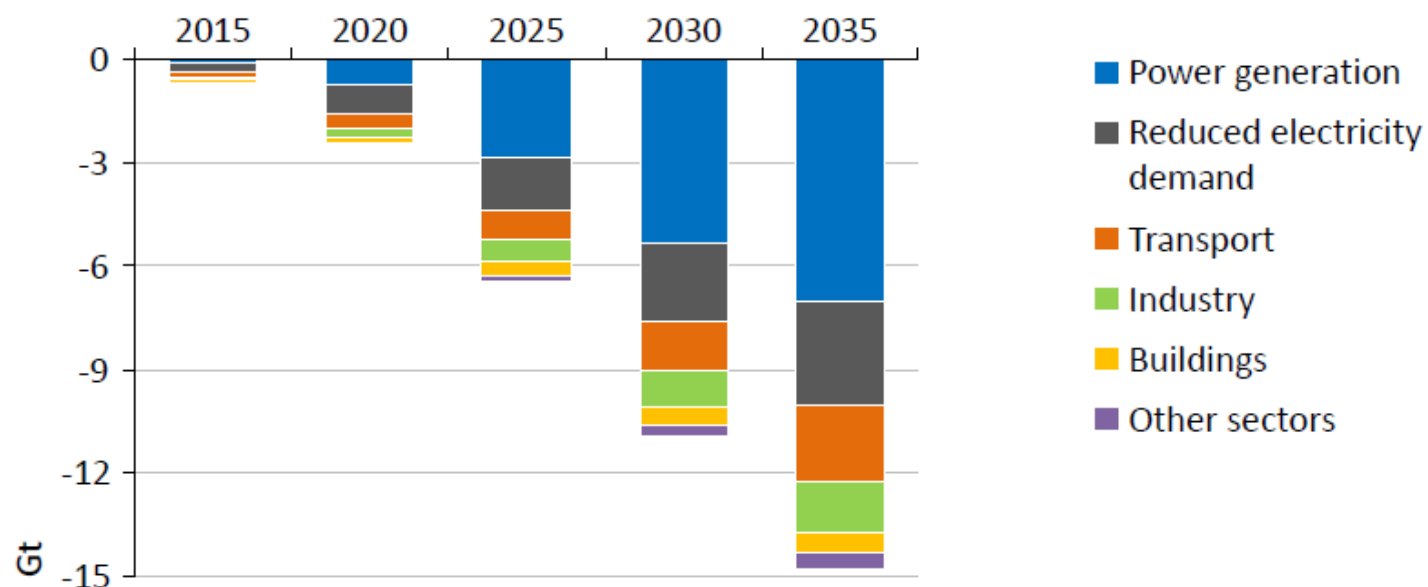
Arnhem, The Netherlands



International
Energy Agency

End-use energy efficiency will lead the way to sustainable development

World energy-related CO₂ abatement by sector in the 450 Scenario compared with the New Policies Scenario



The power sector accounts for 2/3 of cumulative emissions abatement to 2035, through switching to less carbon-intensive generation, more efficient plant & lower electricity demand

Why target energy providers?

- ☐ Well positioned in the energy marketplace
- ☐ Strong technical and administrative capacity
- ☐ Ability to mobilize funding
- ☐ Shared responsibility – with government - for energy security and sustainability
- ☐ Well positioned to help overcome barriers to energy efficiency

Energy provider EE spending is set to increase

Region	Energy Revenues (USD Billions)	2011 EE Spending (USD Millions)	Spending metric (%)
North America ¹	400	7,800	1.9
EU 27 ²	650	2,500	0.4
Australia	25	90	0.35
Brazil	50	25	0.5
China	410	N/A	N/A

- *North American spending expected to double by 2015*
- *EU spending will ramp up if energy efficiency obligations are adopted*
- *Australian state spending is scheduled to ramp up through 2015*
- *China spending levels as yet unknown*
- *2011 global EE spend by energy providers was \$10.6 billion*

¹ Electricity only

² Gas and electricity

Sources: Lees 2012; Crossley and Swanson 2011; Faruqui 2011; Heffner 2012



The IEA's energy efficiency recommendation for energy providers

- **Provide a level playing field for energy efficiency and energy supply options in resource procurement and wholesale markets;**
- **Oblige energy providers to deliver cost-effective energy efficiency to end-users;**
- **Require that energy customers be provided with cost-reflective pricing and other information they need to manage their energy use; and**
- **Consider utilizing revenues from end-use energy consumption to fund energy efficiency**



The PEPDEE Project

- ❑ **Purpose:** Support delivery of energy efficiency via energy providers
- ❑ **Approach:** Research on regulatory mechanisms and EE delivery schemes plus knowledge-sharing and regional/national policy dialogue
- ❑ **Who:** cooperation of IEA and the International Partnership for Energy Efficiency Cooperation (IPEEC), Regulatory Assistance Project as working partner

Regulatory mechanisms

- Energy efficiency obligations;
- Integrated resource planning;
- Energy efficiency funding through utility revenues;
- Creating markets to mobilize energy efficiency;
- Opening resource procurements to energy efficiency;
- Performance incentives for energy providers;
- Energy tariff design;
- Establishing independent energy efficiency providers;
- Decoupling throughput from profitability

Source: <http://www.raponline.org/document/download/id/4872>

Designing an energy efficiency obligation

Design parameter	Design choices			
Coverage	Networks only	All fuels (e.g., heating oil, transport fuels)		
Sector coverage	All sectors	According to consumption		Exclude large end-users
Savings target	Primary or end-use?	Annual or cumulative?	Energy or GHG emissions?	Short or long-term?
Obligated parties	Omit small companies?	Only networked providers?	Include upstream entities?	
Cost recovery	Through regulated rates	Through a wires charge	None - cost of doing business	
Eligible measures	Only pre-approved	Any cost-effective measure with ex post measurement		
Means of Procurement	Self-provision	Through third parties	Through secondary markets	Through 3 rd party administrator

Obligations schemes around the world

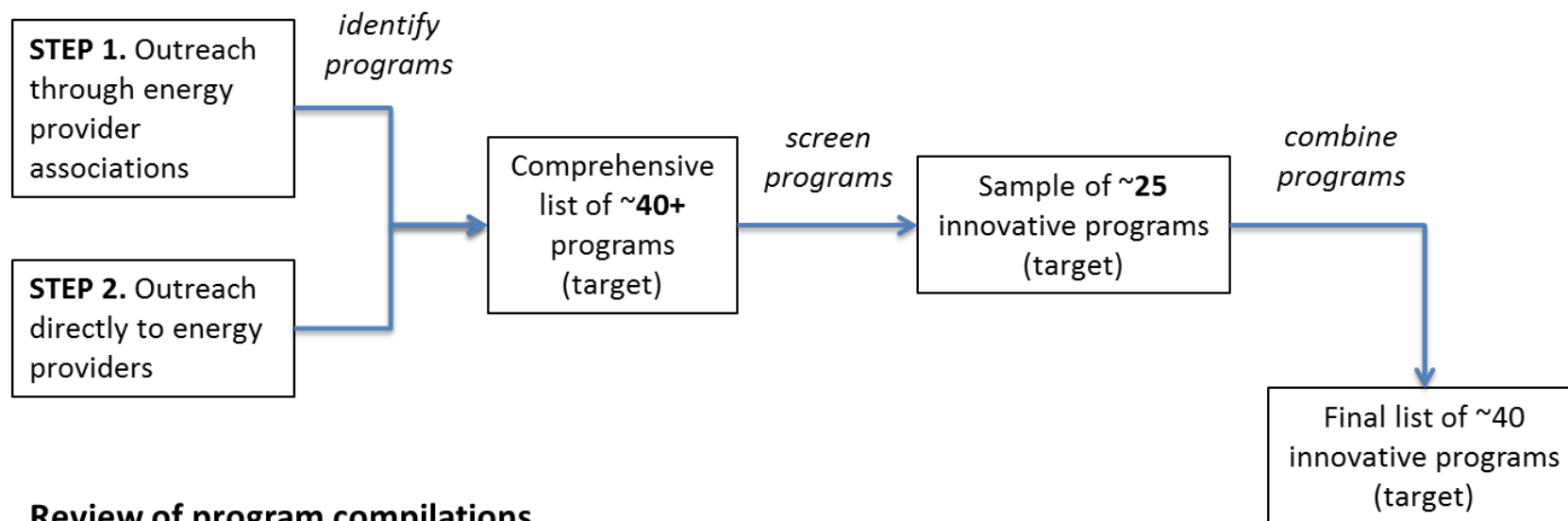
Country	Obligated Entities	Eligible Sectors	Administrator	Spending (€ 10 ⁶)
Belgium - Flanders	Distributors	HHs and SMEs	Government	26
France	Energy retailers and transport	All except large industry	Government	300
Italy	Distributors	All	Regulator (AEEG)	240
Great Britain	Electric and gas Retailers	Residential only	Regulator (Ofgem)	1,200
Denmark	Electricity, gas & heat distributors	All except transport	Government	40
New South Wales (Australia)	Electricity and gas retailers	All except energy-intensive industries	State regulator and energy agency	30
Victoria (Australia)	Electricity and gas retailers	Residential and commercial	State regulator and energy agency	50
South Australia	Electricity and gas retailers	Residential with targets for vulnerable groups	State regulator and energy agency	N/A
US aggregate	Gas and electricity distributors	All	State regulators	5,230
Canada aggregate	Gas and electricity distributors	All	Provincial regulators and energy agencies	880
Brazil	Electricity distributors	All with targets for vulnerable groups	Regulator (ANEEL)	200
TOTAL				8,170

Energy efficiency delivery schemes

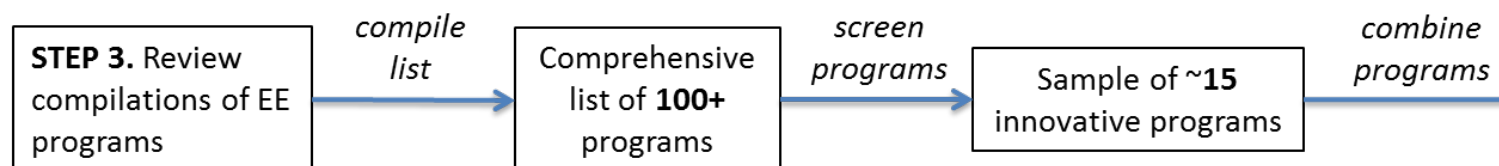
- Incentives - offered to end-users or vendors
- On-bill financing – best when there are net bill savings
- Equipment replacement - win-win for end-users and providers
- Bulk procurement and distribution – realizing economies of scale
- Providing information - empowering consumers to help themselves.
- Advice and assistance programs – most common scheme
- Comprehensive implementation – maximizing savings through multiple measures

Stock-taking of energy-provider – delivered energy efficiency

Outreach to energy providers



Review of program compilations



Energy-provider delivered industrial EE programmes – a sampling

Energy Provider	Programme Name	Programme category	Annual Savings
Centerpoint Energy (USA)	Custom Process Rebates	Advice and assistance; Incentives	0.4 PJ
Eskom (South Africa)	Standard Offer and Performance Contracting programmes	Incentives	\$700 million
Iberdrola USA	Block Bidding Programme	Incentives	24,500 MWh
Sempra Energy (USA)	SoCalGas and SDG&E on-bill financing programmes	On-bill financing Incentives	Not directly estimated
Connecticut Light and Power/Yankee Gas Services	Small Business Energy Advantage Programme	Comprehensive Implementation; On-Bill Financing	30,000 MWh
Electrabel (Belgium)	Energy Efficiency Expert Centre Energy Kronos	Advice and assistance; Information and Communications	N/A
Endesa (Spain)	Energy Management Platform	Information and communication	N/A
Bonneville Power Administration (USA)	Scientific Irrigation Scheduling Service	Advice and assistance; Information and communications	40,000 MWH
Origin Energy (Australia)	Energy Savings Guarantee	Direct Installation; On-bill Financing	N/A



PEPDEE regional policy dialogues

- Sydney, Australia – December 12, 2011
- Brussels – January 18-19, 2012
- Washington, DC – April 18-19, 2012

Views from the Sydney workshop

- **Tradability is important, especially for smaller retailers**
- **Harmonization of state schemes will reduce overhead costs and allow economies of scale**
- **Retailers should be free to source savings from all sectors**
- **Regulations should not be unduly restrictive**
- **Thresholds should be considered carefully so as not to confer competitive advantage**
- **Mixing energy efficiency and social welfare policies complicates both**

Views from the Brussels Workshop

- **Sectoral coverage – where to draw the line**
- **Challenges in creating consumer demand**
- **Effect of obligations on market liberalization gains**
- **Obligations alone cannot address some market failures; ancillary policies are needed**
- **National regulators need EE capacity building**
- **Trading has pros and cons – consider with care**
- **Social provisions should allow national flexibility**
- **Energy efficiency obligations must be a long-term policy**

Views from the Washington workshop

- **EE now accepted as a mainstream resource**
- **EE often the low-cost and low-risk resource option**
- **Low natural gas prices threaten EE in two ways:**
 - **CCGTs become a more competitive supply option**
 - **Avoided costs are smaller relative to programme costs**
- **Best practices for delivering energy efficiency to consumers still emerging**
- **Simpler and more attractive program designs and improved M&V approaches are needed**
- **New technologies offer new opportunities well-suited for energy providers**

PEPDEE issues common to OECD countries

- Effect of obligations policies on energy prices
- Recovering the costs of energy provider-delivered energy efficiency
- Including tradability in obligations schemes
- Making sure all consumers benefit from EEOs
- Avoiding market distortions brought on by obligations policies
- Ensuring EEOs complement other energy carbon and energy efficiency policies
- Role of wholesale energy markets as an alternative to energy efficiency obligations

PEPDEE Status and Next Steps

Phase 1 Reports

- Sydney, Brussels, Washington, DC workshop reports completed
- Stock-taking of energy provider-delivered energy efficiency schemes

Follow on policy work

- Price impacts of obligations
- Harmonization strategies for developing national schemes
- Cost recovery approaches
- Are the benefits of tradability worth the effort?
- Market approaches to maintaining social equity
- Avoiding market distortions from obligations
- Harmonizing EEOs with other energy and carbon policies

Knowledge dissemination

- Developing EEO strategies for IPEEC member economies
- PEPDEE workshops and engagement
- PEPDEE handbook for IPEEC member governments