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Best Practices in Designing and Implementing Energy Efficiency Obligation Schemes

Research Report
Task XXII of the International Energy Agency
Demand Side Management Programme

Executive Summary and Appendix

Report prepared by:
The Regulatory Assistance Project

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The Regulatory Assistance Project (RAP) is a global, non-profit team of experts focussed on the long-term economic and environmental sustainability of the power and natural gas sectors. We provide technical and policy assistance on regulatory and market policies that promote economic efficiency, environmental protection, system reliability, and the fair allocation of system benefits among consumers. We have worked extensively in the United States since 1992 and in China since 1999. We added programs and offices in the European Union in 2009 and plan to offer similar services in India in the near future. Visit our website at www.raponline.org to learn more about our work.

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Executive Summary

In June 2012, the Regulatory Assistance Project published a report[1] on best practices in designing and implementing energy efficiency obligation schemes. The following is a summary of the main conclusions of the report.

An energy efficiency obligation (EEO) is a regulatory mechanism that requires obligated parties to meet quantitative energy saving targets by delivering or procuring eligible energy savings produced by implementing approved end-use energy efficiency measures. The requirement to meet quantitative energy saving targets distinguishes EEOs from other similar mechanisms, such as a general requirement to acquire all cost effective energy efficiency with no target specified.

Governments in various jurisdictions around the world have endeavored to improve end-use energy efficiency, and in some cases also achieve other objectives, by designing and implementing schemes that place energy efficiency obligations on particular parties. These EEO schemes share three key features:

- a quantitative target for energy efficiency improvement;
- obligated parties that must meet the target;
- a system that: defines the energy saving activities that can be implemented to meet the target; measures, verifies and reports the energy savings achieved through these activities; and confirms that the activities actually took place.

Typically, obligations in EEO schemes are placed on providers of networked energy (e.g., electricity and natural gas distributors or standalone retail suppliers). Obligations can also be placed on providers of other energy forms (e.g., liquefied petroleum gas, heating oil, transport fuels, district heating), and even on end users of energy. In some jurisdictions, energy savings to meet the obligation are delivered by a third party "energy efficiency utility". This report considers only EEO schemes that place obligations on energy providers, that is entities that supply energy to end-users.

The full report covers 19 EEO schemes implemented in a range of jurisdictions around the world. The report includes a table (reproduced in the Appendix to this paper) that summarises and compares key design parameters among these schemes. This table and the detailed case studies of the schemes in the full report demonstrate that there are many different ways to design and implement EEO schemes.

Despite this diversity, it is possible to identify three broad types of EEO schemes:

- Schemes with quantitative energy saving targets that have been established relatively independently, often with their own enabling legislation. Energy saving targets are specific to each scheme and are not related to resource planning and acquisition by the obligated energy providers. Governments will usually set the targets, but the schemes can be administered by government or by a body (often the energy regulator) that is independent of both government and the obligated energy providers. Schemes in Australia and Europe generally follow this model.
- Schemes with quantitative energy saving targets that are integral components of resource planning and acquisition by the obligated energy providers. These schemes are often established by energy regulators to influence the resource mix adopted by energy providers. The design and implementation of the schemes are frequently subject to legal hearing processes as part of energy provider rate cases. The schemes are usually administered jointly by the energy regulator and the obligated energy providers. Schemes in North America generally follow this model.
- Schemes with quantitative energy saving targets that have been established principally by governments

1 Crossley, D., Gerhard, J., Kadoch, C., Lees, E., Pike-Biegunska, E., Sommer, A., Wang, X., Wasserman, N., and Watson. E. (2012). *Best Practices in Designing and Implementing Energy Efficiency Obligation Schemes.* International Energy Agency Demand Side Management Programme, Task XXII Research Report. Montpelier, Vermont, The Regulatory Assistance Project. Available at: www.raponline.org/document/download/id/5003

as integral components of government policies. Energy saving targets for these schemes are set by the government and a government agency acts as the scheme administrator. Schemes in China and Korea generally follow this model.

This report describes and explains how the EEO schemes it covers actually operate by systematically classifying information about the schemes into categories that apply to all the schemes. Following a review of this information, the report identifies the following best practices in designing and implementing an EEO scheme.

Policy Objectives. Keep the policy objectives of the EEO scheme simple and clear, and focussed on achieving energy savings. If the scheme has multiple objectives, ensure that the achievement of any non-energy-related objectives does not hinder pursuit of the primary objective to achieve energy savings.

Legal Authority. Use a carefully selected combination of legislation, regulation, and Ministerial and administrative processes to establish and operate the EEO scheme.

Fuel Coverage. Decide the fuel coverage of the EEO scheme according to the overall policy objectives for the scheme and estimates of energy efficiency potentials for the different fuels. Start by covering one or two fuels and then expand the scheme to other fuels as experience is gained.

Sector and Facility Coverage. Decide the end-use sector and facility coverage of the EEO scheme according to the overall policy objectives for the scheme and estimates of energy efficiency potentials for the different sectors and facilities. If it is intended to tightly restrict sector and facility coverage, consider whether assessing compliance will become too onerous.

Energy Saving Target. Set the level of the energy saving target for the EEO scheme according to the overall policy objectives for the scheme and aim to strike a balance among making progress, the cost to consumers of meeting the target, and what is practically possible based on an assessment of energy efficiency potential. Set the target in terms of final energy (i.e. the quantities of energy delivered to, and used by, consumers) unless the scheme covers several different fuels in which case use primary energy. Denominate the target in energy units unless the scheme has a policy objective that relates to GHG emissions reductions in which case consider using carbon dioxide equivalent units. Set a relatively long timeframe for the target, preferably between 10 and 20 years. Calculate eligible energy savings over the estimated lifetime for each energy efficiency measure. Consider setting sub-targets and portfolio requirements where the scheme has policy objectives that are not solely related to achieving energy savings.

Obligated Parties[2]**.** Determine the obligated parties in the EEO scheme according to the fuel coverage of the scheme and the type of energy provider that has the infrastructure and capability to manage the delivery and/or procurement of eligible energy savings. Consider restricting the obligation to larger energy providers. Allocate individual energy saving targets to each obligated party on the basis of that party's market share of energy sales. Consider whether to implement carve-outs for energy-intensive, trade exposed industries and/or other specified groups of end-users.

Compliance Regime. As an integral component of the EEO scheme, establish a procedure for obligated parties to report claimed eligible energy savings to an appropriate authority and a process for checking and verifying these savings. Establish a penalty to be imposed on obligated parties that fail to meet their individual energy saving targets. Set the level of the penalty high enough to mobilize energy providers to meet their targets.

Performance Incentives. Consider whether to implement performance incentives in the EEO scheme to be awarded to obligated parties that exceed their energy saving targets.

Eligible Energy Savings. Enable non-obligated parties in the EEO scheme to implement energy efficiency projects to produce eligible energy savings. Do not place restrictions on the energy efficiency projects or measures that can be implemented to produce eligible energy savings, provided that the energy savings can be verified.

2 This report considers only EEO schemes that place obligations on energy providers. However, other entities may also be considered as obligated parties. For a detailed discussion of the issues to be considered in determining the best obligated party for a EEO scheme see: Neme, C., Gottstein, M., and Hamilton, B. (2012). *Residential Efficiency Retrofits: A Roadmap for the Future.* Montpelier, Vermont, The Regulatory Assistance Project. Available at: www.raponline.org/document/download/id/918

Eligible Energy Efficiency Measures. Consider establishing in the EEO scheme a list of pre-approved energy efficiency measures with deemed energy saving values, but do not limit the measures that can be implemented to produce eligible energy savings to only those on the list.

Measurement, Verification and Reporting. As an integral component of the EEO scheme, establish a robust system for measuring, verifying and reporting energy savings and other activities that contribute to scheme targets. Consider whether to also establish procedures to verify whether energy savings are additional to what would have happened in the absence of the EEO scheme.

Trading of Energy Savings. Consider enabling in the EEO scheme trading of energy savings among both obligated parties and third parties.

Funding. Establish an appropriate mechanism in the EEO scheme to enable recovery of the costs incurred by obligated parties in meeting their individual energy saving targets.

The full report includes a unique comparative analysis of 19 different energy efficiency obligation schemes implemented in a range of jurisdictions around the world. For the first time, information about the three different types of schemes from Australian/Europe, North America and Asia has been systematically classified into categories that apply to all the schemes. Each of the three types of schemes is the product of quite different ways of thinking about how to use energy providers to deliver energy efficiency, yet the report shows that all three types can be analysed using the same set of parameters.

Through reviewing this information, the report identifies the conclusions summarised above about best practices in designing and implementing an EEO scheme. Again, these conclusions apply to all three types of schemes. Adopting the identified best practices in designing and implementing new schemes, and updating existing ones, should improve the effectiveness of the schemes in delivering cost-effective energy efficiency.

Appendix

Comparison of Key Design Parameters Among Energy Efficiency Obligation Schemes

Design Parameter	Australia – New South Wales	Australia – South Australia	Australia – Victoria
Policy Objectives	Reduce electricity consumption and costs; complement a national emissions trading scheme; reduce cost of additional generation and network capacity	Improve residential energy efficiency and reduce GHG emissions. Assist households to prepare for energy price increases Reduce energy costs for households	Reduce GHG emissions; encourage the efficient use of electricity and gas; encourage investment, employment, and technology development in energy services
Legal Authority	Combination of legislation and regulation	Combination of legislation, regulation, and ministerial determinations	Combination of legislation and regulation
Fuel Coverage	Electricity	Electricity and natural gas	Electricity and natural gas
Sector and Facility Coverage	Residential, commercial, and industrial sectors; all facilities	Residential dwellings	Residential dwellings and commercial and other non-residential premises
Energy Saving Target	0.4% of total electricity sales in 2009, increasing to 4.0% in 2014	Set levels of annual tCO_2-e reductions increasing each year	2.4 $MtCO_2$-e per annum from 2009 to 2011; 5.4 $MtCO_2$-e per annum from 2012 to 2014
Sub-targets and Portfolio Requirements	None	Set number of energy audits in low-income households	None
Obligated Parties	Electricity retailers; electricity generators that supply customers directly; and customers who purchase electricity directly from the wholesale market	Licensed energy retailers with 5,000 or more electricity or natural gas residential customers in South Australia	Electricity and gas retailers with 5,000 or more customers in Victoria and who purchase electricity or gas from specified sources
Compliance Regime	Surrender of energy efficiency certificates	Undertake activities to meet emissions reduction and energy audit targets	Surrender of energy efficiency certificates
Penalty	AUD 24.86 per tCO_2-e shortfall in 2012, adjusted annually for inflation	AUD 70 per tCO_2-e shortfall; AUD 500 per energy audit shortfall	AUD 40 per tCO_2-e shortfall in 2010, adjusted annually for inflation
Performance Incentives	None	None	None
Eligible Energy Savings	Energy savings from preapproved energy efficiency projects; accredited non-obligated parties may implement energy efficiency projects	Energy savings from energy efficiency activities undertaken by, or on behalf of, obligated energy retailers	Energy savings from installing preapproved energy efficiency products; accredited non obligated parties may install products
Eligible Energy Efficiency Measures	Preapproved measures with deemed energy saving values, plus methodologies to assess other measures on a case-by-case basis	Preapproved measures with deemed energy saving values, additional measures added from time to time	Preapproved products with deemed energy saving values, additional products added from time to time
Measurement, Verification, and Reporting	Random audits of energy efficiency projects	Audits of retailers' operations re compliance with REES obligations	Audits of records of product installations
Trading of Energy Savings	Trading of energy efficiency certificates	Limited transfer of credits among obligated parties	Trading of energy efficiency certificates
Funding	Obligated parties' costs are treated as a cost of doing business	Per-customer amount included in regulated price determination	Obligated parties' costs are treated as a cost of doing business

Design Parameter	Belgium – Flanders	Canada – Ontario	China
Policy Objectives	To encourage efficient use of energy in a liberalised market	To promote and expand energy efficiency in Ontario	To prioritise DSM in tight supply situations
Legal Authority	Legislation	Combination of legislation and regulation	Regulation issued by central government agency
Fuel Coverage	Electricity	Electricity	Electricity
Sector and Facility Coverage	Household and non-energy-intensive industry and service sectors	Residential, commercial, industrial, institutional, and low-income customers	All economic sectors and any facility including transmission and distribution networks
Energy Saving Target	From 2012, the energy saving target has been replaced with specific "action obligations"	1,330-MW reduction in peak demand by 2014 and 6,000 GWh of energy savings by 2014	Savings of 0.3% of electricity sales and load reduction of 0.3% of maximum load in the previous year
Sub-targets and Portfolio Requirements	None	Distributors assigned targets proportional to share of provincial peak demand and annual electricity consumption	Load-monitoring equipment on 70% of peak load and load-control equipment of 10% of peak load
Obligated Parties	Electricity distributors	Electricity distributors	Government-owned grid companies
Compliance Regime	Compliance with the action obligations is based on evaluation of annual reports prepared by electricity distributors	Electricity distributors must file for approval a strategy that describes how the distributor intends to achieve its targets	Score a minimum of 70 points in a system that uses quantitative and qualitative measures to score performance from 0 to 100 points
Penalty	EUR 0.1 per kWh of shortfall	None	None
Performance Incentives	None	Allowed on a sliding scale between 80 and 140% of goal achievement	Available pending a result of "Excellent" (90 points or higher); no further details available
Eligible Energy Savings	Savings from energy efficiency actions implemented by obligated electricity distributors	Savings achieved through distributor's own programmes, or through contracted government programme	Savings achieved by grid companies and energy service company subsidiaries of grid companies
Eligible Energy Efficiency Measures	Measures specified or approved by central government agency	Government-run programmes or programmes approved by the regulator in the distributor's service territory	Measures not specified; energy savings from other fuel types may be converted into electricity saving
Measurement, Verification, and Reporting	Preapproval of energy efficiency programmes and calculation methods for energy savings; only first-year savings credited	Distributor programmes must be evaluated by a third party; the regulator must publish result annually	100% of savings can only be claimed if audited by third party or recorded by equipment
Trading of Energy Savings	No	No	Obligated parties may purchase savings from customers and ESCOs under bilateral contracts
Funding	Regulator approves cost recovery through tariffs	Collected from all ratepayers based on energy use or contribution to peak demand	City utility surcharge, revenue from differential electricity prices, and other funding sources

Design Parameter	Denmark	France	Italy
Policy Objectives	To decrease total energy consumption by 2% in 2012 and 4% in 2020	To realise the available potential of energy efficiency in France	To serve as the primary driver for end-use energy efficiency
Legal Authority	Voluntary agreements by obligated parties within a legislative framework	Combination of legislation and regulation	Combination of legislation and Ministerial Decrees
Fuel Coverage	Electricity, natural gas, district heating; and heating oil	All fuels, including district heating and cooling and transport fuels	Electricity and natural gas
Sector and Facility Coverage	Residential, public, private business, and energy-intensive industry end-users	Residential and commercial buildings, manufacturing industries, networked industries, transport, and agriculture	All sectors including transport, and all end-uses including small-scale co-generation and photovoltaics
Energy Saving Target	2.95 PJ for 2006-2009 (0.7% of consumption); 6.1 PJ for 2010-2012 (1.2% of consumption)	54 TWh cumac for July 2006 to June 2009; 345 TWh cumac for January 2011 to December 2013	2.2 Mtoe cumulative in 2008; increasing to 6.0 Mtoe cumulative in 2012
Sub-targets and Portfolio Requirements	None	90 TWh cumac for transport fuels	None
Obligated Parties	Distributors of electricity, natural gas, district heating, and heating oil	Energy retailers that sell the covered fuels to end consumers	Distributors of electricity and natural gas
Compliance Regime	Energy savings must be well documented and they must be verifiable by an independent party	Surrender of energy efficiency certificates; banking is allowed for up to nine years	Surrender of energy efficiency certificates; one-year grace period before penalty is assessed if at least 60% of target is met
Penalty	EUR 0.1 per kWh of shortfall; possibility for distributor to lose license	EUR 0.02/kWh lifetime final energy shortfall	EUR 25,000 to 155 million assessed on case-by-case basis
Performance Incentives	Weighting factors for longer lifetime energy efficiency measures	None	Possible 5% premium over achieved savings
Eligible Energy Savings	Distributors must engage third parties to achieve energy savings within own or any other energy type except for transport	Savings can be produced by obligated parties, local authorities, and social housing landlords	Savings can be produced by obligated distributors and accredited energy service providers
Eligible Energy Efficiency Measures	Many types, including energy audits, targeted information, subsidies for efficient appliances and equipment; also small scale renewables	Standardised and non-standardised measures plus contributions to programmes targeting fuel poverty, education, or innovation	Preapproved list of measures with deemed energy saving values plus other measures assessed on a case-by-case basis
Measurement, Verification, and Reporting	Distributors verify and report savings; can be calculated or deemed savings	Deemed savings for standardised measures; regulatory approval required for others	Deemed savings, partial on-field measurement, or measures subject to preapproval
Trading of Energy Savings	Energy savings may only be traded among obligated energy distributors	Over-the-counter trading of energy efficiency certificates	Trade of energy efficiency certificates through over-the-counter market or spot market
Funding	Cost recovery through tariffs	Cost recovery through tariffs is possible but has yet to be allowed	Fixed contribution to cost recovery through a tariff contribution; transport measures not eligible for cost recovery

Design Parameter	Korea	Poland	United Kingdom
Policy Objectives	Improve efficiency in production, conversion, transport, storage, and utilisation of energy	Drive energy efficiency in the public sector	Reduce fuel bills and the carbon impact of homes by improving energy efficiency
Legal Authority	Combination of law and regulation	Combination of law and regulation	Legislation and statutory instruments
Fuel Coverage	Electricity, natural gas, and district heat	Electricity, natural gas, and district heat	Electricity and natural gas
Sector and Facility Coverage	Commercial, industrial, educational, and residential customers	End-use sectors; energy savings in obligated parties' own activities; reductions in grid losses	Residential dwellings including those of low-income households and disadvantaged groups
Energy Saving Target	None	53,452 GWh by 2016	Lifetime savings of 293 $MtCO_2$-e for 2008 to 2012 and 19.25 $MtCO_2$-e for 2009 to 2012
Sub-targets and Portfolio Requirements	None	80% of energy efficiency certificates are to be issued for end-use measures	40% of the target must be met with savings in households with low-income and/or elderly people
Obligated Parties	Energy utilities	Electricity, natural gas, and district heating companies and brokers	Electricity and natural gas retailers and certain electricity generators
Compliance Regime	Energy utilities must submit a DSM plan and report the results to a government agency	Surrender of energy efficiency certificates	Determined by the regulator based on the final measurement of carbon reductions achieved by each obligated party
Penalty	None	Up to EUR 2 million for non-compliance	Penalty may be imposed for non-compliance
Performance Incentives	None	None	Uplifts that increase the carbon reductions claimable for certain measures
Eligible Energy Savings	Savings from energy efficiency projects implemented by energy utilities, ESCOs, and energy efficient equipment vendors	Savings achieved through energy efficiency projects selected through annual auctions	Savings from energy efficiency projects implemented by obligated parties or by contractors engaged by the obligated parties
Eligible Energy Efficiency Measures	No preapproval required; energy efficiency improvements or load management measures	Measures specified or approved by a government ministry	Energy efficiency measures implemented in residential dwellings
Measurement, Verification, and Reporting	Verification of actual energy savings by an independent third party	Projects exceeding 100 toe of savings must be verified through an audit	Deemed savings or calculated savings approved by the regulator
Trading of Energy Savings	None	Energy efficiency certificates are fully tradable on the Polish Power Exchange	Transfers of emissions reductions and trading of obligations allowed among obligated parties
Funding	Through a customer charge for electricity and from energy utility revenues for gas and district heating	Costs are passed through to consumers via tariffs for electricity, heat, and natural gas	Costs are considered a cost of doing business and are passed on to the customer through increased prices

Design Parameter	United States – California	United States – Connecticut	United States – Massachusetts
Policy Objectives	Obtain 100% of cost-effective energy efficiency and reduce total consumption by ten percent within ten years	Acquire all cost-effective energy efficiency	Acquire all available energy efficiency and demand reduction resources
Legal Authority	Combination of legislation and regulation	Combination of legislation and regulation	Combination of legislation and regulation
Fuel Coverage	Electricity and natural gas	Electricity, natural gas, propane, and heating oil	Electricity and natural gas
Sector and Facility Coverage	New construction; heating, ventilation, and air conditioning; and low-income customers	All customer classes in all sectors, including low-income customers	All customer classes in all sectors, including low-income customers
Energy Saving Target	6,965 GWh (0.9% of sales), 1537 MW, and 150 million therms in 2010-2012 for investor-owned utilities; 700,000 MWh for publicly owned utilities	Energy saving targets for each obligated party are specified in annual Conservation and Load Management Plans approved by the energy regulator	1.4% of retail electricity sales in 2010, 2% in 2011, and 2.4% in 2012; 0.6% of retail gas sales in 2010, 0.9% in 2011, and 1.15% in 2012
Sub-targets and Portfolio Requirements	None	None	Minimum spend on low-income residential customers of 10% of budget for electricity and 20% for gas
Obligated Parties	Investor-owned and publicly owned electricity and natural gas utilities	Electricity distributors, municipal utilities, and natural gas utilities	Electricity and gas distributors and municipal aggregators
Compliance Regime	Obligated utilities implement approved energy efficiency programmes and report the results	Obligated parties must prepare and implement annual plans detailing energy saving targets and programmes	Obligated utilities must jointly file a three-year statewide energy efficiency plan; regulator determines compliance
Penalty	Yes, if achievement is below 65% of target	None	USD 0.05/kWh or USD 1 per therm shortfall
Performance Incentives	Starting at achieving 80% of the target and capped at USD 450 million for investor-owned utilities	For achievement of between 70 and 130% of targets; based on program expenditures	For achievement of between 75 and 125% of targets; based on program net benefits
Eligible Energy Savings	Savings from programmes implemented by the utilities themselves or by contractors	Savings produced by obligated parties through implementing approved annual plans	Savings produced by obligated parties through implementing approved three-year plans
Eligible Energy Efficiency Measures	Measures included in 12 statewide energy efficiency programmes	Measures included in annual plans approved by the regulator	Measures included in three-year plans approved by the regulator
Measurement, Verification, and Reporting	Rigorous protocol carried out by third-party contractors	Deemed energy saving values and engineering calculations	Utilities are responsible for evaluation, measurement, and verification
Trading of Energy Savings	None	Obligated parties may purchase energy efficiency certificates from third parties	None
Funding	Public goods charge and natural gas DSM charge; additional funding through rate cases	System benefits charges, funding from carbon and capacity markets, plus other funding sources	System benefits charges, funding from carbon and capacity markets, plus other funding sources

Design Parameter	United States – Minnesota	United States – New York	United States – Texas
Policy Objectives	Reduce per capita use of fossil fuel by 15% by 2015	A reduction in electricity use of 15% by 2015 and end-uses of gas to be as efficient as possible	Reduce system peak demand, energy consumption, and energy costs
Legal Authority	Combination of legislation and regulation	Regulation	Combination of legislation and regulation
Fuel Coverage	Electricity and natural gas	Electricity and natural gas	Electricity
Sector and Facility Coverage	All end-use sectors and all facilities; large customer facilities may petition for exemption	All end-use sectors and all facilities	All facilities and all customers in the residential and commercial sectors
Energy Saving Target	1.5% of retails sales for both electricity and natural gas	0.5% electricity savings in 2008 increasing by 2% each year through by 2015; 4.34 Bcf annual natural gas savings through 2011, and 3.45 Bcf after 2011	15% of load growth by 2008, 20% by 2009, 25% by 2012, and 30% by 2013
Sub-targets and Portfolio Requirements	None	None	5% of energy savings must be to "hard-to-reach" customers
Obligated Parties	Electricity and natural gas utilities	Investor-owned electricity and natural gas utilities and government energy efficiency agency	All investor-owned electricity utilities plus large municipally owned electricity utilities
Compliance Regime	Utilities implement energy efficiency programmes included in a plan filed with the regulator	Obligated parties prepare reports on energy efficiency performance for the regulator	Obligated utilities must file an annual energy efficiency plan and report with the regulator
Penalty	None	For utilities achieving 70% or less of energy saving target	None
Performance Incentives	Increasing proportion of net system benefits when achieved energy savings exceed 90% of target	Increased return on equity for utilities achieving 80% or more of energy saving target	One percent of program benefits for every two percentage points that utilities exceed their targets
Eligible Energy Savings	Savings from programmes delivered by the utilities or by contractors	Savings from energy efficiency programmes implemented by any party that can substantiate savings	Savings produced in energy efficiency programmes implemented by third party energy efficiency providers
Eligible Energy Efficiency Measures	Preapproved list of measures with deemed energy saving values plus other measures assessed case by case	Measures for residential, multifamily, low-income, commercial, and industrial customers must be preapproved	Measures in standard offer and market transformation programmes defined by the regulator
Measurement, Verification, and Reporting	Deemed savings or by using a measurement and verification protocol, plus third-party certification for larger projects	Obligated parties prepare measurement and verification plan for each program for approval by the regulator	Obligated utilities are responsible for establishing measurement and verification protocols for standard offer programmes
Trading of Energy Savings	None	None	None
Funding	Energy efficiency cost-recovery charge determined in rate cases	System benefits charges, and funding from carbon market	Obligated utilities recover program costs through base rates or cost recovery tariffs

Design Parameter	United States – Vermont
Policy Objectives	Reduce the need for power purchases, reduce GHG emissions, minimise costs, and provide energy efficiency as part of a comprehensive resource supply strategy
Legal Authority	Combination of legislation and regulation
Fuel Coverage	Electricity
Sector and Facility Coverage	Residential, commercial and industrial sectors; facilities covered must include new construction, low-income households, and dairy farms
Energy Saving Target	320,000 MWh energy savings for 2012-2014; 60.8 MW summer peak reduction
Sub-targets and Portfolio Requirements	Demand reductions targeted to transmission-constrained areas
Obligated Parties	Regulated electricity distribution utilities, with the obligation satisfied for most utilities by energy efficiency programmes delivered by an energy efficiency utility
Compliance Regime	Regulator executes contracts with the energy efficiency utility for specified amounts of energy savings and demand reductions
Penalty	None
Performance Incentives	Administrator of the energy efficiency utility can earn up to 2.7% of the total three-year budget
Eligible Energy Savings	Savings produced by the energy efficiency utility through delivering energy efficiency services
Eligible Energy Efficiency Measures	Measures in energy efficiency programmes approved by the regulator
Measurement, Verification, and Reporting	Deemed energy savings verified by third parties
Trading of Energy Savings	None
Funding	Volumetric wires charge to customers and funding from carbon market

Other recent RAP publications on energy efficiency include the following:

Residential Efficiency Retrofits: A Roadmap for the Future

Roughly half of all efficiency and/or carbon emission reduction in North American and European buildings can be achieved through retrofit improvements to existing homes. In this publication, RAP offers a roadmap to help policymakers and practitioners design and implement a comprehensive residential retrofit strategy. We present eight principles for success based on two decades of international experience, designed to achieve the level of energy savings that will be needed to address the challenge of climate change.

The Executive Summary of this report is available separately in English and German at: http://raponline.org/document/download/id/4424.

The full report is available at: http://www.raponline.org/document/download/id/918

Prices and Policies: Carbon Caps and Efficiency Programmes for Europe's Low-Carbon Future

This paper was presented at the 2011 ECEEE Summer Study.

With the adoption of the Climate and Energy Package in 2008, European decision-makers created an integrated suite of policies to reduce carbon emissions, increase renewable energy production, and advance energy savings. As the EU ETS moves to carbon auctioning, decision-makers must continue to link carbon prices with other policy tools to meet Europe's adopted carbon and sustainable development goals. This paper demonstrates how energy efficiency (EE) policies can help meet ETS goals at lower cost, creating space to tighten carbon caps, and/or reduce the cost of protecting high-emitting industries and new Member States. Smart "complementary policies" can directly link ETS and EE strategies, especially by using auction revenue for EE programmes. Complementary policies are also needed to support low-carbon power markets, grid expansion, and renewable power investment across Europe.

The full paper is available at: http://www.raponline.org/document/download/id/931

Who Should Deliver Ratepayer Funded Energy Efficiency? A 2011 Update

This report describes policy options and approaches for administering ratepayer-funded electric energy efficiency programs in US states. It reviews how states have administered energy efficiency programs to learn what lessons their experience offers, and describes the most important factors states should consider with different administrative models. State legislators and utility regulators will find this report useful as they consider ways for energy efficiency administration to be more effective, both in states that are considering the question for the first time, and in more experienced states that are implementing significant increases in their savings goals. RAP's first version of this report was written in 2003.

The full report is available at: http://www.raponline.org/document/download/id/4707

Valuing the Contribution of Energy Efficiency to Avoided Marginal Line Losses and Reserve Requirements

While utilities and their regulators are familiar with the energy savings that energy efficiency measures can provide, they may not be aware of how these same measures also provide very valuable peak capacity benefits in the form of marginal reductions to line losses that are often overlooked in the program design and measure screening. This paper is the first of two that the Regulatory Assistance Project is publishing on the relationship between energy efficiency and avoiding line losses.

The full report is available at: http://www.raponline.org/document/download/id/4537

Achieving Energy Efficiency: A Global Best Practices Guide on Government Policies

This best practices guide provides a summary overview of the most effective policy mechanisms that regional, national, state or local governments at the executive, legislative or regulatory level can adopt to achieve significant energy efficiency in buildings, processes and equipment used in the residential, commercial, industrial, public and institutional sectors. By policy mechanism, we mean specific laws, regulations, processes and implementation strategies that foster the development and use of products and services which require less energy input to deliver the same or more productivity and output. Our focus is on how government policies can accelerate and increase efficiency investments to achieve additional savings. We do not address best practices in the design or delivery of efficiency programs that would flow from these policies. Nor do we address tariff structures or energy pricing and financing tools that can be employed to help end users invest in efficiency.

The full report is available at: http://www.raponline.org/document/download/id/4781

Regulatory Mechanisms to Enable Energy Provider Delivered Energy Efficiency

The Regulatory Mechanisms to Enable Energy Provider Delivered Energy Efficiency paper identifies varied, but complementary, government regulatory mechanisms utilized worldwide to mobilize the resources of energy providers to implement investments in energy. The paper identifies and describes twelve types of regulatory mechanisms that governments use effectively to: mobilize energy provider investments directly; facilitate investments in demand-side resources; or implement policies and programs that underpin important elements of successful investment programs. The paper also explains how each regulatory mechanism functions in different market settings to mobilize resources or enable effective programs, identifies key issues that ensure successful implementation, and then outlines an example of how at least one jurisdiction has achieved successful implementation of the mechanism.

The full report is available at: http://www.raponline.org/document/download/id/4872

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts focused on the long-term economic and environmental sustainability of the power and natural gas sectors. We provide technical and policy assistance on regulatory and market policies that promote economic efficiency, environmental protection, system reliability and the fair allocation of system benefits among consumers. We have worked extensively in the US since 1992 and in China since 1999. We added programs and offices in the European Union in 2009 and plan to offer similar services in India in the near future.
Visit our website at **www.raponline.org** to learn more about our work.

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