

Summary Table for Compendium of Energy Efficiency Policies of APEC Economies (2009) *

*While improvement of energy efficiency (EE) can be achieved through a number of means, such as goals to reduce CO₂ emissions, this table focuses on explicit EE goals.

**The following summary table was prepared based on answers to a questionnaire submitted by 18 APEC economies. Due to the lack of a timely response from China and Russia, the summary data for these two economies was prepared by APERC researchers to the best of their knowledge based on available information. In addition, APERC has not received official answers to the questionnaire from Papua New Guinea (PNG), and there is very limited information available.

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year		Monitoring mechanisms
Australia	No overall goal			No sectoral goals			<p>Action plans The National Strategy for Energy Efficiency (NSEE) and the National Framework for Energy Efficiency (NFEE) are the major programs of work for promoting energy efficiency in Australia.</p> <p>Measures Industry: 1) Businesses using more than 0.5 PJ of energy a year are required to conduct an energy efficiency opportunities assessment and report the results publicly; 2) Increasing skills through training; 3) Assistance for energy intensive business. Transport: 1) Fuel consumption labelling standards; 2) Plans to develop a package of measures to improve the fuel efficiency of the Australian vehicle fleet. Residential: 1) Minimum Energy Performance Standards (MEPS) and Labelling for appliances and equipment; Greenhouse and Energy Minimum Standards (GEMS) are to be developed; 2) Energy Star endorsement labelling; 3) Phasing out of inefficient light bulbs and hot water systems; 4) Introduction of higher house energy efficiency rating and higher building standards from 2011; 5) Phase-in mandatory disclosure of residential building energy, greenhouse and water performance at the time of sale or lease from 2011. Commercial: 1) Businesses using more than 0.5 PJ of energy a year are required to conduct an energy efficiency opportunities assessment and report the results publicly; 2) Significantly increase over time the stringency of energy efficiency provisions for all commercial buildings starting in 2010; 3) Phase-in from 2010 the mandatory disclosure of energy efficiency of commercial buildings. Power: Generator Efficiency Standards program (in partnership with the Australian Government). Government: Improving the operational performance of buildings leased by the government. Other: 1) National Energy Efficiency Skills Initiative (NEESI) to be introduced in 2010; 2) Plans to strengthen energy audit and assessment capabilities.</p>	Australian Bureau of Statistics collects and publishes energy use statistics. Department of Resources, Energy and Tourism administers the Energy Efficiency Opportunities program where companies report energy efficiency information. ABARE undertakes decomposition analyses for the industry sector. The Department of Environment, Water, Heritage and the Arts monitors residential energy use and the effects of its programs. The Department of Climate Change administers the National Greenhouse and Energy Reporting Scheme, collecting energy use data.
Brunei Darussalam	Reduction of energy intensity (TPES/GDP) by 25%	2030	2005	Reduction of 10% in energy consumption in government buildings			<p>Measures Industry: Promote energy audits, energy management and use of efficient equipment and appliances. Transport: Promote techniques for energy saving driving and introduce fuel-efficiency labelling for vehicles. Residential & Commercial: 1) Promote energy audit and management; 2) Introduce EE labelling for electrical equipment and appliances; 3) Promote use of more EE lighting and other equipment and appliances; 4) Introduce EE building guidelines; 5) Hold continuous awareness campaigns; 6) Enhance EE education. Power: 1) Improve power generation thermal efficiency and minimum energy performance standards for new gas-fired power plants; 2) Improve efficiency of street lighting. Government: Regulate operating hours for air-conditioners in governmental buildings. Other: 1) Encourage energy saving and conservation (EE&C) through energy education; 2) Incorporate energy education in curriculum syllabus; 3) Incorporating EE&C activities and distributing energy saving tips booklet in schools.</p>	
Canada	20% increase in energy efficiency (adopted at sub-federal levels)	2020	Declared in 2008, but base year unspecified	No sectoral goals			<p>Action plans ecoENERGY Efficiency Initiative: multi-sector program during 2007–2011 to promote EE retrofits, EE in new buildings, purchase of high efficiency equipment, and best practices, such as vehicle maintenance, to reduce fuel consumption. Program activities include information campaigns, training and education, provision of financial incentives (e.g. EcoENERGY Retrofit), labelling (EnerGuide and EnergyStar), regulations, and investment in clean energy related science and technology.</p> <p>Measures Industry: 1) EcoENERGY Efficiency Initiative for Industry offers Dollars to \$ense workshops (also available to commercial/institutional sectors) to educate on measures, including EE, that reduce operating costs and create a better work environment; 2) CanmetENERGY conducts R&D and knowledge transfer activities on industrial energy systems; 3) The voluntary Canadian Industry Program for Energy Conservation provides information and tools to improve EE. Transport: 1) EcoENERGY Efficiency Initiative for Personal Vehicles offers education to Canadian motorists, including the AutoSmart driver education program; 2) EcoENERGY Efficiency Initiative for Fleets, including the FleetSmart information campaign and SmartDriver courses; 3) CanmetENERGY conducts R&D on advanced fuels, hybrid, and electric vehicles, and fuel cells; 4) New fuel consumption regulations will be introduced in the 2011 model year. Residential: EcoENERGY Efficiency for Buildings and Houses provides home builders with training to achieve the R-2000 standard or affix an EnerGuide label. Residential and Commercial: 1) EcoENERGY Retrofit provides grants to owners/operators of buildings and houses that perform energy upgrades; 2) CanmetENERGY conducts R&D on building technologies and simulation tools; 3) Canadian Premiers agreed to enhance the Model National Energy Code by 25% by 2011, add EE as 5th core objective in the National Building Code, increase the number of products covered by minimum energy performance standards, and facilitate home-owners' access to energy audits and retrofits. Power: Accelerated Capital Cost Allowance (CCA) for Clean Energy Generation allows 50% CCA for projects to use fossil fuels efficiently, including co-generation. Government: Federal Buildings Initiative to promote EE retrofits in government buildings. Other: 1) The Energy Efficiency Act authorises the government to set minimum energy performance standards (MEPS) and labelling requirements for energy using equipment; 2) Low interest loans are available from provincial/territorial governments for EE projects.</p>	EcoEnergy Efficiency Initiative conducts annual program reviews. Office of Energy Efficiency (OEE) monitors and reports on its activities through an annual Report to Parliament under the Energy Efficiency Act. OEE also produces a report on Energy Efficiency Trends in Canada (using Log-Mean Divisia Index I Methodology).

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year	Monitoring mechanisms	
Chile	Chilean government plans to publish the National Energy Efficiency Action Plan 2010 – 2020, which will contain overall and sectoral goals, in early 2010			No sectoral goals			<p>Action plans During the first quarter of 2010, the Chilean Government will publish the National Energy Efficiency Action Plan 2010 – 2020, which will contain overall and sectoral EE goals.</p> <p>Measures Industry: 1) Promotion of EE research and dissemination of results of EE projects as well as evaluation of EE pilot projects, technology development and EE innovation in the mining sector; fostering EE culture within mining companies that are members of the EE Roundtable; 2) Energy Efficiency Pre-investment Program. Transport: 1) Replacement of 500 trucks that have been in use for more than 25 years in accordance with the National Truck Replacement program; 2) Eco-Driving training program started in June 2009, with the aim of training 1,000 drivers by early 2010; 3) Development of an assessment methodology for the implementation of the fuel-economy labelling for vehicles. Residential, Commercial, and Government: 1) Improve EE of residential buildings. Since 2002, the Ministry of Housing and Urbanism (Ministerio de Vivienda y Urbanismo – MINVU) began a process to establish minimum thermal standards for residential buildings. This process consisted of three milestones, two of which have been achieved, such as Thermal Regulations for Roofs (went into effect in March 2000 and included minimum transmittance and thermal resistance requirements) and Building Envelope Regulation (went into effect in January 2007 and was applied to the entire building envelope, including roofs, walls, ventilated floors and windows); and the third, Maximum Energy Demand Regulation for Housing, is currently being developed (it is aimed at regulating maximum energy demand of a housing unit, which is viewed as a whole system rather than the sum of different construction elements); 2) National Light Bulb Replacement program (replacement of 2.9 million incandescent bulbs with compact fluorescent light bulbs); the energy savings of 806 GWh in 4 years are expected; 3) Establishment of minimum energy performance standards for appliances is under way (will first be applied to lighting).</p>	The National Energy Commission (CNE) publishes an annual energy balance as well as aggregate and sectoral energy intensity data. Universidad de Chile's Programa de Estudios e Investigaciones en Energia (PRIEN) conducts decomposition analysis to distinguish structural and activity changes in energy intensity. The Studies Area Division of the National Energy Commission is responsible for gathering information necessary to develop energy balance data.
China**	20% reduction in energy consumption per unit of GDP All provinces (cities and autonomous regions) have their own overall EE goals, such as Beijing (20% reduction in energy consumption per unit of GDP) and Shandong province (22%).	2010	2005	Buildings: to save 110 million tonnes of coal equivalent in building energy consumption from 2005 to 2010.	2010	2005	<p>Action plans "A comprehensive work plan of energy conservation and emission reduction" adopted in June 2007 comprised of various energy-related action plans to achieve the overall energy conservation (EC) target. In line with the important measures for EC outlined in the "11th Five-Year Plan", the government carried out key actions in depth, including : a) Ten key energy conservation projects in the medium- and long-term plans for EC; b) 1000-Enterprises implementation plan for EC; c) EE benchmarking of key energy-consuming enterprises; d) Further strengthening of oil- and power-saving work; and e) Implementation plan of national actions for EC and emissions reduction.</p> <p>Measures To achieve overall EC goals, the central government has adopted a series of administrative, legal and economic means to promote EE. 1) Administrative means: a) Giving priority to EC in the state energy strategy; b) Further improvement of central and local structures for EE (such as establishment of the National Energy Conservation and Emission Reduction Leading Group chaired by Prime Minister Wen Jiabao); c) Assigning various EC tasks among local governments and major enterprises and exercising the "one-vote veto" assessment of their performance as a monitoring mechanism; d) Introducing policies for promotion of industry structural adjustment and elimination of outdated production processes; e) Launching various actions to promote progress in EC technologies and upgrades in EC projects; f) Strengthening the system of energy consumption statistics, which would lay the foundation for the quantitative management of energy consumption data. 2) Legal means: a) On 1 April 2008, the newly revised "Energy Conservation Law" (which was adopted in 1997 and amended in 2007) formally went into effect; b) Establishing several mechanisms to promote EE as a long-term goal, including EC target responsibility system, EC evaluation and review system for fixed-asset investment projects, the system for eliminating outdated production processes, EC management system for the key energy-consuming entities, management system for EE labels, and EC commendation award system; c) Adoption of new regulations, such as Energy Conservation Regulation for State-funded Institutions and Energy Conservation Regulation for Civil Buildings, based on the existing state legal framework. (Most of China's current 46 EE standards have been in effect since 1 June 2008.) 3) Economic means: a) Tax scheme for EE improvement, including corporate income tax relief, capital gains tax relief, export tax rebates, etc. ("Energy-efficient or water-saving equipment directory of corporate income tax concessions (2008)" has been in effect since 2008); b) The central government provided EC funds and encouraged regional and local municipal governments to improve their EC investment and financing; c) Differentiated electricity pricing policy was implemented to limit industrial development of high energy-consuming, high pollution, as well as outdated processes and equipment; d) Monetary policies to promote EE, including credit support, demonstration and promotion of EC contract management system; e) Implementation of mandatory government procurement policy (government procurement reports concerning EC products and services have been issued since 2007).</p>	The system of "one-vote veto" based on "Energy Conservation and Emissions Reduction Statistics and Monitoring Evaluation System and Methods" is applied to evaluate achievement of various EC tasks divided among local governments and major enterprises. The National Development and Reform Commission is responsible for monitoring and reporting on EE and EC projects. The assessment of progress with local EC targets, which is conducted every year by the central government, helps understand the energy conservation situation in local areas, identify problems and facilitate promotion of EC projects. Statistics departments at all government levels are in charge of the energy statistics system. Key energy-consuming entities must employ energy managers and provide annual reports on EE&C activities.
Hong Kong, China	25% reduction of energy intensity	2030	2005				<p>Measures Industry: Enhance utilisation of landfill gas for town gas production. Transport: Extend the coverage of energy efficiency in the public transport system, in particular the mass transit railway network and high-speed train system and the promotion of eco-driving behaviour for fuel economy. Commercial: 1) Buildings Energy Funding Schemes; 2) Operating a mandatory Energy Efficiency Labelling Scheme (First Phase implemented and Second Phase to be implemented) and a voluntary Energy Efficiency Labelling Scheme for certain energy-consuming products ; 3) Operating Hong Kong Energy Efficiency Registration Scheme for buildings. Power: 1) Providing incentives in the post-2008 Scheme of Control Agreements with power companies to encourage investment in renewable energy facilities and enhance EE with power companies; 2) Carry out EE&C programs for customers; 3) Launching voluntary compliance guidelines and codes. Government: Promoting environmental protection and energy conservation in government buildings through setting targets in various environmental aspects for new and existing government buildings, implementing energy saving projects and identifying demonstration projects. Other: 1) Mandatory Energy Efficiency Labelling Scheme to assist consumers in choosing EE appliances and to raise public awareness on energy saving (savings in electricity consumption are expected to reach 150 GWh per year after full implementation of the mandatory EELS); 2) Promotion of building energy efficiency through legislation for mandatory implementation of Building Energy Codes; 3) Since 2000, the Government has launched a pilot project to encourage a wider use of fresh water cooling towers in air-conditioning systems, with 6 designated areas in the first stage. Over the years, the number of designated areas has expanded to 95 (as of November 2009), covering about 75% of the non-domestic floor area of the economy. The scheme has been in operation on a standing status from June 2008; 4) Launching fund schemes to encourage public participation in energy saving and tax incentives for renewable energy and EE building services installations; 5) Promotion of the replacement of incandescent light bulbs by compact fluorescent lamps through various means, including the planned consultation on progressively restricting the sales of incandescent light bulbs; 6) Implementation of a district cooling system through the Kai Tak Development Project to supply chilled water to buildings in the new development area for centralised air-conditioning; 7) Promotion of wider adoption of electric vehicles.</p>	Energy end-use database, surveys, benchmarking, trend analysis and annual updates of Hong Kong energy end-use database.

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year	Monitoring mechanisms
Indonesia	a) Achieving energy elasticity of less than 1 b) Realising energy savings potential (energy savings potential in 2000–2025 could be as high as 41 % compared to a base-case scenario)	a) 2025 b) 2030	2005	Sectoral goals are a subset of the overall goal part b) a) Industry sector (for select industries) 15% to 30% b) Commercial building sector electricity savings 25% c) Residential sector 10% to 30%	2030	2005	Through the energy conservation clearinghouse; data collection by the National Statistical Agency –BPS; specific government energy surveys; and mandatory monthly reporting by government departments/agencies and regional governments on office building energy use.
Japan	Reduction of energy Intensity (TPES/GDP) by 30% on average during the FY2008–2012 period	2030	2003	Industry: a) Federation of Electric Power Companies: Reducing CO ₂ emissions intensity (emissions per unit of end-user electricity) by an average of approximately 20%; b) Petroleum Association of Japan: Improving CO ₂ emissions efficiency by 20%; c) Japan Iron and Steel Federation: reducing energy consumption by 10%; d) Japan Cement Association: Improving EE by 3.8%; e) Japan Chemical Industry Association: Improving EE by 20%; f) Japan Paper Association: Improving EE by 20%, improving CO ₂ emissions efficiency by 16%	2008–2012	1990	For Overall Goals: Each project under the “New National Energy Strategy” is evaluated annually by a division in ANRE/METI to confirm the progress of the project and adjust, if necessary, the resources for the project. For Sectoral Goals: Some business entities in the industrial and energy-conversion sectors that participate in the follow-up research are evaluated in terms of voluntary action plan achievements.
Korea	Reduction of energy intensity (TPES/GDP) by 46% (from 0.341 in 2006 to 0.185 in 2030)	2007	2030	Industry: Reduce energy use by 16.7 Mtoe (12.5% reduction from BAU scenario) Transport: Reduce energy use by 7.0 Mtoe (15.1% reduction) Residential & Commercial: Reduce energy use by 12.0 Mtoe (20.3% reduction) Public & Others: Reduce energy use by 1.9 Mtoe (31.5% reduction)	2030	2007	Ministry of Knowledge Economy (MKE) and Korea Energy Management Cooperation (KEMCO) are responsible for monitoring and reporting. The report is periodically submitted to National Energy Saving Promotion Committee.

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year		Monitoring mechanisms
Malaysia	Malaysian government plans to publish the Energy Efficiency Master Plan, which will contain goals and targets, in June 2010			Goals for the industrial, commercial and building sectors will be contained in the Energy Efficiency Master Plan			<p>Action plans Strategies for promoting energy efficiency improvement are outlined in the Ninth Malaysia Plan (2006–2010). Greater emphasis will be placed on promoting energy efficiency in the Tenth Malaysia Plan (2011–2015).</p> <p>Measures Industry: 1) Efficient Management of Electrical Energy Regulation 2008; 2) Energy Efficiency and Conservation Guidelines Part 1: Electrical Energy–use Equipment; 3) Industrial Energy Audit Guidelines; 4) Energy–use benchmarks for the eight energy intensive subsectors. Transport: n/a Residential: 1) Green Building Index; 2) Voluntary energy performance labelling. Commercial: 1) The Code of Practice on the Use of Renewable Energy and Energy Efficiency in Non–Residential Buildings; 2) Showcase of Low Energy Office and Zero Energy Office buildings through demonstrations. Power: Demand–side management. Government: Reduction of energy use in government buildings. Other: Awareness creation and knowledge dissemination activities on EE potential and benefits.</p>	The progress and achievement of the EE program under the Ninth Malaysia Plan (2006–2010) is monitored through an outcome–based assessment method. An assessment report is prepared twice, at the middle and the end of the Plan period, and is submitted to the Economic Planning Unit of the Prime Minister’s Department.
Mexico	Energy savings in electrical power consumption of 43,416 GWh	2012	2006	<p>Energy Saving Goals: a) Daylight Saving Time (1,363 GWh); b) Energy Efficiency Standards Program (17,850 GWh); c) Energy Saving Program for the Federal Public Administration (221 GWh); d) The Electrical Energy Saving Trust Fund (FIDE’s) Program (4,414 GWh)</p>	2012	2007	<p>Action plans (for overall goals) With the approbation of the Energy Reform, the Mexican government has adopted several mechanisms for the promotion of EE and its introduction at different levels in the residential (or domestic), municipal, industrial, commercial (and services), and government sectors. Strategy III.1.1 – To propose financial policies and mechanisms in order to accelerate the adoption of EE technologies in public and private sectors. Strategy III.1.2 – To drive the optimisation of supply and use of energy from the entities and organisations that make up the Federal Public Administration. Strategy III.1.3 – To extend coordinated actions among public, social, and private sectors, in order to encourage the efficient use of energy by the population. Strategy III.1.4 – To promote the reduction of energy consumption in residential and building sectors. Strategy III.1.5 – To promote the efficient generation of electricity through self–supply and co–generation. Strategy III.1.6 – To integrate public policy proposals in order to boost the potential of efficient co–generation. Strategy III.1.7 – To promote a series of regulations that allows the Regulatory Energy Commission to broaden and strengthen its regulatory powers in regulating and promoting efficient co–generation. Strategy III.1.8 – To support research activities related to increasing EE in generation, distribution, and electrical energy consumption.</p>	The monitoring of results is conducted every six months or annually and reported in the following documents: Activities Report of the Ministry of Energy, Government Report, Sectoral Perspectives, and National Energy Balance.
New Zealand	<p>1) Savings of 30 petajoules (PJ) in non–transport energy</p> <p>2) 9.5 PJ of additional direct use of renewable energy per year</p> <p>3) Savings of 20 PJ in the transport sector</p>	<p>1) 2025</p> <p>2) 2025</p> <p>3) 2015</p>	<p>3) 2007</p>	<p>Energy Saving Goals: a) Households: 3.45 PJ saved; NZD 110 million energy savings a year (NZD 47 million a year by 2012); b) Products/equipment: 14.5 PJ saved; NZD 230 million energy savings a year; c) Industry: 10.5 PJ saved (2.4 PJ saved by 2012); d) Commercial: 1 PJ saved; e) Transport: 175.1 PJ saved – represented by 4,826 million liters of fuel; NZD 333 million energy savings from vehicle fuel economy by 2033</p>	<p>a) 2025</p> <p>b) 2025</p> <p>c) 2025</p> <p>d) 2025</p> <p>e) 2025</p>	<p>e) 2007</p>	<p>Action plans New Zealand’s EE goals and implementation mechanisms are outlined in the New Zealand Energy Efficiency and Conservation Strategy. Measures Industry: 1) Improve the energy performance of energy intensive businesses; 2) Support transfer, development and deployment of energy efficient technologies. Transport: 1) Management of transportation demand; 2) Provision of more energy efficient public transport; 3) Fuel economy standards and labelling; 4) Encouraging the use of renewable fuels. Residential: 1) Minimum Energy Performance Standards (MEPS) and Labelling for appliances and equipment; 2) Energy Star endorsement labelling; 3) Improving the energy performance of new homes (building code and water heaters); 4) Improving the energy performance of existing homes through grants to improve insulation and retrofitting. Commercial: 1) Improve the energy performance of commercial buildings (building code); 2) Capital grants for energy intensive business. Power: 1) Promoting a more efficient power system; 2) 90 percent of electricity to be generated by renewable sources. Government: 1) Six lead core public service agencies to be carbon neutral the other 28 major agencies on the way to carbon neutrality; 2) Investing in sustainable energy; 3) Reducing the use of energy intensive products. Other: awareness raising campaigns.</p>	The Ministry of Economic Development (MED) reports progress on the implementation of the strategy to the Minister as annual progress reports. All agencies involved in the implementation of the strategy are accountable for monitoring and reporting to MED the impacts of their programs and the contribution to overall strategy objectives.
Papua New Guinea**	n/a	n/a	n/a	n/a	n/a	n/a	<p>Measures Industry: n/a Transport: n/a Residential: n/a Commercial: n/a Power: n/a Government: n/a Other: n/a</p>	n/a

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year	Monitoring mechanisms	
Peru	15% reduction in energy demand as well as reduction of CO ₂ emissions by 35.63 million tonnes	2018	2005	Reduction of energy demand with EE program for 2009–2018 in each sector: a) Residential – 143.6 PJ ; b) Commercial/Services – 147.1 PJ; c) Public – 0.9 PJ; d) Transport – 80.9 PJ. Total sectoral goal is 372.6 PJ of energy demand reduction by 2018.	2018	2005	<p>Action plans Referential Plan for the Efficient Use of Energy 2009 – 2018 (Plan Referencial para el Uso Eficiente de Energía – PRUEE) outlines the goals in four sectors (Residential, Industry, Public and Transport) where energy efficiency improvements were determined from an energy demand point of view. The Peruvian economy aims to reduce its energy consumption by up to 15 percent by 2018. According to the Peruvian government, to achieve this goal, all action plans would be implemented in each sector as proposed in the Referential Plan. Reductions in CO₂ emissions as a result of these programs have been estimated at 35.6 million tonnes.</p> <p>Measures Transport: 1) Education campaigns for vehicle drivers; 2) Restricting car use one day a week (or one day without a car) to reduce urban traffic and fuel consumption. Residential: 1) Replacing 1 million traditional stoves with efficient and improved stoves; 2) Replacing kerosene stoves with GLP or NG stoves; 3) Replacing incandescent bulbs with CFLs; 4) Improving consumption habits and encouraging best practices; 5) Replacing 100,000 electric heaters with solar heaters; 6) Implementing Minimum Energy Performance Standards in household appliances (especially lamps and refrigerators); 7) Implementing mandatory labelling (in the short-term) for electric appliances in residential sector; 8) Regulating the elimination of inefficient equipment imports; 9) Introducing National Building Regulations for bioclimatic and EE design of buildings, as well as energy-labelling for buildings. Industrial and Services: 1) Replacing 30,000 electric motors; 2) Improving energy performance by 60% in total for heaters/boilers; 3) Promoting more dynamism in cogeneration use; 4) Using more efficient lighting lamps (replacing of T12 FL with T8 FL, electromagnetic ballasts with electronic ballasts, and incandescent lamps with efficient CFL lamps). Power: Promoting of co-generation and distributed generation. Government: 1) Modernising public lighting (replacement of traditional T12 with T8); 2) Replacing electromagnetic ballasts with electronic ballasts; 3) Total replacement of incandescent lamps with EE lamps.</p>	The Ministerial Resolution N° 038-2009-MEM/DM established the “Energy Consumption Index” as a monitoring mechanism for energy efficiency in Peru.
Philippines	Potential cumulative energy savings of 9.08 million barrels of fuel oil equivalent	2014	2007	Reduction of final energy demand by 10% (under the 2009–2030 Philippine Energy Plan) in each sector: Industry, Residential, Commercial, Transport, and Agriculture	2030	2009	<p>Action plans The National Energy Efficiency and Conservation Program (NEECP).</p> <p>Measures Industry: Energy management service/energy audit (including commercial sector). Transport: Fuel Economy Run Program and Fuel Conservation and Efficiency in Road Transport (FCERT). Residential: Standards and labelling for household appliances. Commercial: n/a Power: Power conservation and demand management (Power Patrol). Government: Government Energy Management Program (GEMP). Other: Information, education and communication campaigns; voluntary agreement program; recognition award program.</p>	Monitoring of activities through monthly and quarterly accomplishment reports. Action plan is measured through percentage utilisation of annual budget fund. Other activities are monitored and measured through the submission of quarterly energy consumption reports and annual energy consumption report as well as annual energy conservation program by private companies in the commercial, government building, and industrial sectors.
Russia**	The overall goal of minimum 40% reduction in energy intensity of the Russian economy (defined as Total Final Energy Consumption/GDP) was set by the Presidential Decree N. 889 entitled “Concerning some measures for improving the energy and ecological efficiency of the Russian economy” (June 4, 2008).	2020	2007	No clearly-established sectoral goals. Energy Saving Goals (established by the Federal Targeted Program for an Energy Efficient Economy (EEE FTP), in tonnes fuel equivalent (tfe) during 2006–2010): Industry: 50–54 million tfe (technological upgrade target for energy-intensive industries is 7% by 2010); Transport: 5 million tfe for railroad sector and 4.3–5.5 million tonnes of motor f.e. for the rest; Residential and Commercial: about 38 million tfe; Power: 44 million tfe (also targets an increase in the share of renewable energy in power generation from 1.5% in 2010 to 2.5% in 2015 and 4.5% in 2020); Government: 8.3 million tfe and 5% annual decrease in energy consumption (= 3.6 billion roubles in savings during 2002–2010); Other: in agriculture – 6–7 million tfe.			<p>Action plans The Federal Targeted Program for an Energy Efficient Economy (FTP EEE) adopted in Nov 2001 was to be implemented in two stages. The First Stage (2002 – 2005) included various measures to promote the strengthening of structural reforms and market foundations in Russia’s energy sector. For the Second Stage (2006 – 2010), key tasks include speeding up the renewal and upgrade of the material and technical base; increasing efficiency and competitiveness of industrial production; preparing for the removal of outdated and expiring energy equipment; increasing EE of production by utilising modern, highly efficient processes and equipment, etc. In addition, the Ministry of Energy put forth a Complex Measures Plan for the realisation of the federal policy for energy saving and improvement of EE across the Russian economy to facilitate the execution of the 4 June 2008 Presidential Decree, which covered: 1) the development of a modern legal and regulatory framework; 2) the establishment of an institutional structure; 3) government financial support and the creation of a favourable investment climate; 4) increased use of public-private partnerships; 5) informational and educational support for various measures and activities at the international, federal, regional, and municipal levels. The Ministry of Energy is finalising the draft of the Federal Targeted Program “On Energy Saving and Energy Efficiency Improvement up to the year of 2020,” which will replace and upgrade the FTP EEE, while focusing on reaching the overall target of minimum 40% reduction in energy intensity of the Russian economy by 2020 compared to 2007.</p> <p>Measures (introduced with the new Federal Law on “Energy Conservation and Increase of Energy Efficiency” (FLEC IEE) (adopted in November 2009)) Industry and Power: 1) Introduction of incentives and tax benefits for Russia’s heavy industry to replace highly energy inefficient machinery and equipment; 2) Mandatory energy audit and energy and heat efficiency labelling of industrial production, processes, and plants; 3) Technical upgrades of equipment by introducing energy saving and EE technologies; etc. Transport: 1) Mandatory EE labelling of automobile and transportation devices for consumers; 2) Plans to introduce fuel efficiency standards and to encourage replacement of regular gasoline with a more energy-efficient fuel, such as natural gas; 3) Promotion of “eco-driving” educational programs, and 4) Adoption of other energy saving measures and initiatives. Residential, Commercial, and Government: 1) Regular audit and monitoring of energy, heat, and water usage (by installing mandatory meters in existing and new buildings and recording EE data in mandatory energy passports); 2) Phasing out incandescent lighting from 2011 and complete ban on use, sale, and distribution by 2014; 3) Requirements for EE labelling of household appliances, heat-generating units, and construction materials; 4) Enforcement of building codes and mandatory energy passports (i.e. energy and thermal efficiency certificates) for energy-consuming entities, etc. Other: 1) Encouragement of R&D in EE and energy conservation area; 2) Introduction of a long-term tariff system and energy-service contracts; 3) Promotion of awareness-raising and capacity-building programs as well as information dissemination at various levels of Russian society by creating a single and unified federal information network and analytical energy efficiency system; etc.</p>	Establishment of effective administrative and legal mechanisms for effective management and control in monitoring and measuring the program’s effects based on data and statistics compilation and trend analysis. Additional monitoring mechanisms include energy efficiency and energy saving surveys and data collection as well as the comparison of the results with the indicative targets or norms established by the 2009 FLEC IEE and related legal acts; mandatory energy audit of buildings (for heat, power, and water usage), energy-intensive equipment and economic entities, and other measures.

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year	Monitoring mechanisms	
Singapore	Reduction of energy intensity of GDP: · by 20 % · by 35 %	2020 2030	2005 2005				<p>Measures Industry: 1) Energy Efficiency Improvement Assistance Scheme (EASe) to identify EE potential; 2) Grant for Energy Efficient Technologies (GREET); 3) Investment Allowance (IA) scheme; 4) Design for Energy Efficiency Scheme (DFE) to incorporate EE considerations during conceptual design; 5) Accelerated depreciation allowance scheme; 6) Innovation for Environmental Sustainability (IES) fund. Transport: 1) Promoting public transport through a series of measures; 2) Green Vehicle rebate to encourage use of hybrid and CNG vehicles; 3) vehicle quota system (VQS); 4) electronic road pricing (ERP); 5) fuel economy labelling for: a) Motor vehicles with internal combustion engine (diesel, petrol, LPG, CNG); b) Hybrid-electric vehicles (all fuels) and c) Electric vehicles; within a limit of less than 7 passengers and unladen mass less than 3000 kilograms; 6) Euro IV emissions standard; 7) Eco-driving programme; 8) Test-bedding new technologies. Commercial Buildings: 1) EASe for Buildings; 2) Energy Smart Building Labelling Programme for energy performance equal to or better than the top 25%; 3) Building Control Regulations standard to reduce heat transfer from external environment; 4) Green Mark Buildings; 5) Green Mark Incentive Scheme to encourage higher Green Mark ratings Households: 1) Mandatory energy labelling scheme; 2) Reducing standby power consumption by encouraging households to switch off appliances; 3) Residential Envelope Transmittance Value (RETV) standard; 4) Electricity Vending System (EVS). Government: 1) The public sector taking the lead to demonstrate and set example for the private sector; 2) Mandatory energy audit of public sector buildings with a space greater than 1500 sq m by March 2010. Power sector: co-generation and tri-generation, and gas-fired combined cycle gas turbines (CCGTs).</p>	Programs have inherent methods for monitoring and measuring the effects of measures; other methods include monitoring through survey.
Chinese Taipei	Reduction of energy intensity: · by 20 % · by 50 %	2015 2025	2005	<p>Industry: Reducing CO₂ intensity by 30% in 2025; Transport: Raising new car EE standards by 25% in 2015; Residential and commercial: Improving EE of appliances and devices by 10%-70% in 2011 and raising the EE standard by 2015 by replacing traditional equipment with 20%-90% more efficient products; Cross-sectors: 7% reduction of overall energy use by 2015</p>			<p>Measures Industry: 1) Requiring motor energy consumption and EE labelling and industrial base modification by replacing old motor devices with high-EE ones (80% replacement will improve EE by 15%); 2) Effective management promoting EE of new boilers and boiler operations (expected efficiency improvements applied to 50% of the boilers currently in use will be 1%) as well as the replacing low-EE boilers with high-EE ones (50% replacement will improve EE by 3%); 3) Expanding electric power consumption generated by co-generation systems from 7.16 million kW to 10.00 million kW. Transport: 1) Gradually improving fuel efficiency standards for all vehicles by 15%; 2) Replacing old vehicles with new EE vehicles in the government sector (97% replacement will improve energy savings by 20%); 3) Encouraging the use of highly efficient hybrid vehicles (HV) in the government sector (energy savings reaching 20% with a 5% HV market share). Residential and commercial: Eliminating incandescent lighting by 2012 and replacing regular lights with LED lamps (with a 15% market share) by 2025. Power: 1) Adopting high-EE generating units for coal-fired power plants (EE improvement of 3.5%); 2) Adopting high-EE generating units for gas-fired power plants (EE improvement of 5.5%); 3) Improving power dispatch/transmission facilities (reducing power transmission losses by 0.5%). Government: Executing mandatory energy-efficiency management, establishing a government organisation and school energy conservation and GHG reduction measures, and setting up a goal of 1% energy saving annually to reduce energy consumption by 7% by 2015. Other: Enhancing EE management through the following measures: 1) All electrical appliances are to be labelled with EE ratings; 2) Gradual increase of EE standards for general lighting systems and white goods (increasing EE by 20% for lighting, 25% for refrigerators, and 25% for air conditioners); 3) Building energy consumption indices raised by 5%. For refrigerators and air conditioners: 1) Complete adoption of inverter-fed air conditioners (EE improvement of 25% with a 100% market share); 2) Introduction of highly-efficient large centrifugal chillers (EE improvement of 25% with locally-made products reaching 20% market share); 3) Natural-refrigerant, inverter-controlled refrigerators (EE improvement of 25% with a 100% market share); 4) Inverter-fed freezers and storage cases (EE improvement of 20% with a 50% market share); 5) CO₂ heat pumps (COP ≥ 3.0 with a 20% market share).</p>	Surveys, end-use information gathering, and statistics compilation.
Thailand	20% Energy Saving	2011	2005	No sectoral goals			<p>Action plans The EE Strategy aims to increase the EE of all sectors, particularly transport and industry. There have been a number of measures introduced to achieve this goal.</p> <p>Measures Industry: EE Programs for the industry sector include: 1) Tax Incentives (performance-based tax incentives); 2) Revolving Fund for EE (low-interest funds for EE investments); 3) Technical Assistance; 4) Standards and Regulations; 5) Collaboration with Major Private Corporations (firm commitment and top-down approach); 6) Promotion of natural gas for industry (to replace fuel oil, and to produce electricity, with combined heat and power generation). Additional measures are: 1) Speeding up industry structural reform; 2) Establishing tax measures to promote energy conservation in factories; 3) Enforcing Minimum Energy Performance Standards; 4) Establishing energy conservation certification for factories; 5) Promoting energy production systems with efficient combined energy use. (In 2004, annual energy savings were USD 160 million, in 2008 - USD 750 million, and will reach USD 1.5 billion in 2011). Transport: 1) By 2020, 70% of gasoline consumption will be replaced by NGV (25%) and gasohol (45%); 2) Promotion of biodiesel production (8-year tax holidays and exemptions from import duties); 3) Natural gas for vehicles (by 2011, over 500,000 automobiles and 750 refuelling stations nationwide will use natural gas); 4) Establishing tax measures to promote energy conservation. PTT and Ministry of Energy have put together a fund of USD 170 million to provide low interest loans for conversion costs for taxi and fleet corporations. Residential: 1) Building code and building material standards; 2) Minimum Energy Performance Standards (target - 50, in place - 11) and High Energy Performance Standards (target - 54, in place - 8) for air-conditioners, refrigerators, ballasts, fluorescent and compact fluorescent lamps, etc. Commercial: Factories and Commercial Buildings with a peak demand above 1,000 MW or consumption level higher than 20 million MJ/year are subject to EE regulations. They are required to appoint Persons Responsible for Energy (PRE) and implement the Energy Management System (EMS) in accordance with the DEDE guidelines (the latter would lead to a 5-10% reduction in energy consumption). Power: DSM and Number 5 labelling program - compulsory for entities with peak demand of more than 1 MW or annual consumption higher than 20 TJ. Government: 1) Promoting EE and conservation through regulatory measures; 2) Creating awareness and educating people on energy conservation as well as related environment benefits; 3) Creating incentives to promote and encourage investment in EE projects; 4) Promoting research, development, and demonstration for energy saving technologies; 5) Establishing standards and labels for energy-consuming equipment and materials; 6) Promoting networking in EE for cooperation among private, academic, government, and financial sectors. Other: A subsidy of up to 50% of total investment costs is provided to help introduce advanced EE technologies; Advanced Energy Efficiency Demonstration Program to demonstrate high performance and advanced energy saving technologies (expected results include energy savings of 15% by the entities and facilities participating in the program).</p>	Thailand has adopted the PMQA Method, which includes: maintaining a database, EE program evaluation, conducting surveys and audits, statistics, benchmarking, diagnostics, end-use information, monitoring, trend analysis, etc. The Department of Alternative Energy Development and Efficiency (DEDE) plays a major role in monitoring and reporting on EE activities in the industry sector. The Energy Policy and Planning Office (EPPO) is in charge of monitoring the residential, transport, and government sectors. The results of monitoring activities are published in annual government reports, annual reports of the Energy Conservation Promotion Fund, and annual organisation reports. EE monitoring activities are financed by the ENCON Fund.

Economy	Overall goals	Goal year	Base year	Sectoral goals	Goal year	Base year	Monitoring mechanisms	
United States	Reduction of energy intensity of GDP by 25%	2030	2005	<p>a) Residential: Reduction of new home energy use by 50% and further by 70%</p> <p>b) Commercial: Net-zero energy use in new buildings</p> <p>c) Industry: 25% reduction of energy intensity by participants (energy/physical output)</p> <p>d) Public: 30% reduction in energy intensity of federal buildings (energy/floor space)</p> <p>e) Transport: CAFE standard of 35.5 miles per gallon</p>	<p>a) 2015, then 2020</p> <p>b) 2025</p> <p>c) 10 years</p> <p>d) 2015</p> <p>e) 2016</p>	<p>a) benchmark home energy use</p> <p>b) 2004</p> <p>c) varies by participant</p> <p>d) 2005</p> <p>e) NA</p>	<p>Action plans National Action Plan for Energy Efficiency: 1) Recognise EE as a high priority resource; 2) Long-term commitment to implement cost-effective EE; 3) Communicate benefits of EE; 4) Fund programs to deliver EE; 5) Align utility incentives with delivery of cost-effective EE.</p> <p>Measures Residential and Commercial: 1) Building Technologies Program (R&D program); 2) Building energy codes; 3) Appliance MEPS and labelling; 4) EE standards for lighting (phase out most incandescent lights by 2014); 5) Limits on appliance standby power; 6) Energy Star endorsement labelling. Residential: 1) Tax credits for home improvements; 2) Energy efficient mortgages to finance EE features in new homes; 3) Weatherisation assistance for low-income households. Commercial: Commercial lighting initiative. Industry: 1) Industrial Technologies Program (deployment of efficient technologies and R&D on energy conversion and utilisation, on energy-intensive industrial processes, and on resource recovery and utilisation); 2) Voluntary agreements with industry; 3) Tax credits for manufacturers of energy efficient appliances. Public: 1) Federal Fleet Petroleum Reduction and Alternative Fuel Use Increase: decrease fleet petroleum consumption by 2% per year and increase alternative fuels use by 10% per year through 2015; 2) Federal Energy Management Program (DOE-private sector efficiency projects for federal agencies); 3) Qualified Energy Conservation Bonds (support state and local governments' efficiency programs); 4) Energy saving performance contracting; 5) Utility energy service contracts. Transport: 1) National corporate average fuel efficiency standards targeting 35.5 mpg by 2016; 2) Vehicle Technologies Program (technology deployment and R&D on light vehicle technologies; also, R&D for aviation and for heavy vehicles under the 21st Century Truck Partnership); 3) Tax credits for hybrids, electric and diesel vehicles; 4) Various financial incentives for manufacturers of high efficiency vehicles and their components. Power: 1) EE Technology R&D (high-temperature superconductivity (HTS), transmission and distribution, and energy storage); 2) Tax credits for distributed fuel cells and micro turbines. Cross-Cutting: 1) Information campaigns (Powerful Savings Campaign, www.EnergySavingTips.gov, "Easy Ways to Save Energy", Energy Efficiency Public Information Initiative); 2) Loan Guarantee Program (many sectors are eligible for loans for energy efficiency improvements); 3) Many state and utility loan and subsidy programs exist to promote the adoption of energy efficient technologies.</p>	<p>The National Action Plan for Energy Efficiency relies on self-reporting by stakeholders. The Federal Fleet Petroleum Reduction and Alternative Fuel Use Increase relies on agency self-reporting. The Department of Energy's program activities are tracked in a database showing activities and results; programs are evaluated annually, and program impacts are published. The Department of Energy's Energy Information Administration tracks many EE indicators throughout the economy.</p>
Viet Nam	Reduction of total energy consumption · by 3-5% · by 5-8% (BAU Case)	2010 2015	2006	No sectoral goals			<p>Action plans National Energy Efficiency Program (VNEEP).</p> <p>Measures Industry: 1) Develop EE&C management model in enterprises; 2) Support industrial enterprises to improve, upgrade, and optimise technology. Transport: Optimal use of transportation facilities and equipment by minimising the amount of fuel consumed. Residential: 1) Development of standards and EE labelling for selected products (air conditioners, refrigerators, TFLs, CFLs, ballasts, water heaters, fans, etc.); 2) Providing technical assistance to domestic EE equipment producers. Commercial: 1) Improving capacity for EE&C in building design and management; 2) Development of pilot models and dissemination of EE&C management activities in building operations. Power: Electricity saving program for the period 2006-2010 calls for the reduction of transmission and distribution losses from 12% in 2006 to 9% by 2010. Government: Completion of legislative framework on EE&C (law on EE&C, regulations on labelling and MEPS); EE&C Office (EEO) at MOIT and EE&C Centres have been established since 2006. Other: 1) Public awareness enhancement on EE&C; 2) Integration of EE&C into the national education system; 3) Development of pilot models for "EE&C in household" movement.</p>	<p>Establishing EE database and carrying out surveys.</p> <p>Each project conducted under VNEEP is being evaluated annually by EECO and reported to the National Energy Efficiency Steering Committee.</p>