



Promoting Energy Efficiency and Conservation

1. OVERVIEW

Sustained high fuel prices—with crude oil recently breaching the \$100 mark—and the pressing issue on climate change are two global realities prompting immediate and strategic interventions. Energy efficiency and conservation programs constitute one such strategic intervention.

Establishing a legal framework for formulating policy and institutionalizing energy efficiency and conservation protocols in the energy market (supply-side and demand-side) under monitored compliance is expected to lead towards the attainment of measurable energy efficiency improvement targets.

The said legal framework, along with the introduction of innovative and revolutionary market interventions, will result in the eventual phase-out of inefficient technologies in favor of efficient ones. These would include a major retrofit program for commercial, industrial, and residential sectors, public transport leasing, the expansion of mass transport systems, the promotion of non-motorized technologies, the rationalized operation of tricycles, and an aviation fuel efficiency enhancement program. A comprehensive energy efficiency and conservation effort is expected to defer installation of at least 500 MW in power generation capacity and generate fuel savings of 100 million LOE by 2012.

2. VIEWS EXPRESSED

2.1 During the Plenary Sessions

Mr. Sohail Hasnie, Senior Energy Specialist of the Asian Development Bank (ADB) expressed the view that, country may not be able to sustain the energy consumption demand growth unless specific action plans for the building sector, such as the replacement of incandescent bulbs with Compact Fluorescent Lamps (CFLs), are included in the Alternative Policy Scenario. He pointed out that, replacement of 1,000,000 incandescent bulbs with CFLs would translate to the equivalent of 50 MW of deferred power capacity.

Fr. Jose Ramon T. Villarin, SJ, President of Xavier University in Cagayan de Oro projected that, the current oil price trends would push the adoption of more efficient ways of transporting people and goods and services and make clean, climate-friendly, sustainable energy alternatives more competitive.

Mr. Edgar O. Chua, Country Chairman of Pilipinas Shell Petroleum Corporation expressed the view that, energy conservation and management of CO₂ emissions can be addressed through better traffic management and the adoption of recommended practices for vehicle maintenance.

Mr. Tadayuki Ogawa, Consultant of Japan International Cooperation Agency (JICA) shared the experience of Japan in the successful implementation of its energy conservation program to mitigate the impact of the oil crisis on the Japanese economy. This, he said, was achieved via an Energy Conservation Law that provided for incentives for cost reduction and energy savings and a support and subsidy system offered by government. It involved, he said, the widespread dissemination and use of energy conservation technologies and the adoption of an energy conservation philosophy by consumers and enterprises.

Mr. Raymond A. Marquez, Acting President of Energy Practitioners Association of the Philippines expressed support for the enactment of an Energy Conservation Law that will address the energy crisis by developing local energy auditors and energy managers, developing an energy services industry, encouraging development of energy efficient technologies, providing incentives for and/or removing barriers to effectively promoting efficiency in the energy market sector, and establishing an Energy Conservation Fund as a vehicle for facilitating the provision of other financial incentives. The Philippines, he said, has to sustain the momentum of its energy efficiency and conservation program up to a level that would put it on par with the west or at least with developed neighboring countries.

Atty. Vigor D. Mendoza II, Chairman of the United Transport Koalisyon (I-UTAK) declared that, part of their long term plan is a review of road networks and their capacities. He said that, the object of such a review would be to rationalize the number of public utility vehicles on the roads.

Undersecretary Anneli R. Lontoc of the Department of Transportation and Communication (DOTC) discussed DOTC's five (5) fundamental strategies to promote fuel efficiency in the land transport sector, namely:

- 1) Increase vehicle efficiency through
 - Modernization of public transport fleets,

- Implementation of inspection and maintenance systems to ensure road worthiness and compliance with vehicle emission standards ,
- Enforcement of vehicle standards and other relevant rules and regulations.

- 2) Switch to alternative fuels such as LPG, CNG, and to electric-powered vehicles.
- 3) Switch to energy-efficient transport modes, including a high occupancy mass transport system, railways, a rapid bus system, and non-motorized transport (biking and walking).
- 4) Decrease travel distance and travel time through traffic decongestion measures and the clearing of roadways of obstructions.
- 5) Increase vehicle load factor by promoting bigger capacity vehicles.

Mr. Robert C. Nacienceno, General Manager of the Metro Manila Development Authority (MMDA) presented MMDA's plan to enhance its Bus Route Project with Radio Frequency Identification Technology. This, he said, would provide the desired efficiency in improving the dispatch and control of buses plying EDSA and other major thoroughfares.

2.2 Summit Day 2

Dr. Kelvin S. Rodolfo, Professor of the National Institute of Geological Sciences at the University of the Philippines and Professor Emeritus of the Department of Earth and Environmental Sciences of the University of Illinois reported that, the condition known as "peak oil" is predicted to occur around 2015. "Peak oil" refers to the highest global production level for crude oil, beyond which the production of oil will fall into steady decline because of diminishing oil supplies and the fact that the remaining global resources of oil will be deeper or harder to extract. That situation means that, we can only expect steadily rising oil prices as demand will always be outstripping supply. That and the global warming problem require that, we must look to curtailing our use of fossil fuels now.

2.3 Summit Day 3

Dr. Hiroaki Nagayama, Consultant on Energy Science of Japan International Cooperation Agency (JICA) indicated that, the Philippines, in lieu of just taking a reactionary attitude towards the energy crisis, needs to anticipate future conditions and, accordingly, undertake a sustainable energy efficiency and conservation program that will address both local and global issues like climate change, environmental degradation, health issues, and the high cost of energy. Dr. Nagayama opined that, while the Department of Energy may have enough vested authority and power to implement energy conservation, some legal issues may arise concerning the DOE's power to take punitive action against non-compliant establishments.

He noted that, due to fewer energy-intensive industries in the Philippines, the energy intensity of the industrial sector in the country is actually low compared to those in developed and newly industrialized countries. He said, however, that the DOE lacks a reliable energy consumption monitoring system. He said that, it lacks energy intensity sectoral data that are needed for analysis and forecasting. A benchmark for energy efficiency by sectors and by industries should be collected by the DOE for analysis and planning.

He also pointed out that, the price of regular gasoline in the Philippines is the highest in Asia. Under the deregulated oil industry environment of the country, the price of gasoline absorbs residual increases in the price of diesel, which is kept low because diesel fuel has a bigger social and economic impact. Gasoline is used mostly by the private vehicle owners and only a few public transport entities (taxis, vans).

Dr. Nagayama suggested the adoption of a standard labelling program for road transport vehicles. This, he said, will help lead the country towards new and fuel efficient vehicle technologies like hybrid, fuel cell-driven, electric-driven, and solar-driven engines, and other supporting mechanical technologies like common rail direct injection, variable valve timing intelligence, overhead and double overhead cam, lightweight engines, aerodynamic designs, etc.

Dr. Yongping Zhai, Principal Energy Specialist of the **Asian Development Bank (ADB)** said that, ADB included energy efficiency projects in its financing portfolio because of energy efficiency's multiple beneficial effects which include the preservation of energy resources, the mitigation of global warming, the protection of the environment, the socio-economic development of the country, and the reduction of health costs.

Ms. Odette B. Alcantara, Convenor of the environmentalist group **Mother Earth Philippines** highlighted the need for social mobilization techniques to scale up the best energy practices across all sections of society. She emphasized the need for the political (government), the economic (business), the social (civil society), and the spiritual (the Church) sectors of Filipino society to work together to achieve energy conservation objectives.

Architect Christopher C. dela Cruz, Chairman of the **Philippine Green Building Council (PhilGBC)** advocated the "Green Building" program, with emphasis on instituting effective energy management systems for sustainability.

2.4 Summit Workshop on Energy Efficiency and Conservation

The main resource person for this Workshop was **Dr. Benjamin S. Austria, Executive Director** of the **Energy Development and Utilization Foundation**.

Dr. Austria pointed out that, high energy prices pose a serious threat to economic growth and that energy efficiency and conservation (EEC) measures are important tools for meeting that threat and for enhancing global competitiveness. EEC measures, he said, help alleviate the financial burden of high energy prices, reduce the investment requirements for energy infrastructure, extend the limited supply of limited energy resources, enhance the competitiveness and viability of domestic enterprises, and mitigate emissions of greenhouse gases.

He said that specific measures to promote EEC include:

- 1) equipment appliance labelling
- 2) equipment appliance standards
- 3) building standards

- 4) energy audits
- 5) financial incentives and disincentives
- 6) penalties and awards
- 7) campaign programs
- 8) fuel consumption ratings
- 9) fuel consumption standards
- 10) fuel efficiency standards
- 11) vehicle taxation
- 12) vehicle quota system
- 13) bases for incentives
- 14) route schemes
- 15) emission standards.

He also highlighted the importance of private sector participation. He stressed that, the way forward for the country was to:

- 1) continue to expand energy efficiency and demand side management programs,
- 2) establish a policy and regulatory framework that includes financial incentives,
- 3) strengthen and support institutions involved in the promotion and implementation of energy efficiency programs, and
- 4) provide adequate information to all sectors.

Dr. Austria stressed that, institutions, policies, and financing were essential ingredients in the successful promotion of energy efficiency and conservation. He also pointed out, however, that the human factor was very important in promoting the widespread implementation of EEC programs.

Reacting to Dr. Austria's remarks, **Ms. Leticia T. dela Cruz, Managing Director of Geosphere Technologies, Inc.** representing Energy Service Companies (ESCOs), identified the following barriers to effective implementation of EEC measures:

- 1) no clear government guidelines on energy efficiency,
- 2) lack of government support for ESCO activities and the lack of tax incentives for energy efficiency objectives, and
- 3) lack of experience of banks and other financial institutions in evaluating loans for energy efficiency projects.

ESCOs are companies that are supposed to assist other firms in the installation and/or financing of projects designed to improve their energy efficiency and reduce their maintenance costs for facilities, over a period of time.

Mr. Reynaldo D. Legada, President of Energy and Aviation Support Group advocated the promotion of energy efficiency through "Heat Rate Improvement of Power Plants". That involved, he said, the proper maintenance of power plant equipment and auxiliaries and the adoption of combustion improvement programs.

2.5 During the ADB Workshop

During the Post-Summit Workshop at the ADB wherein the views expressed during the Summit were discussed and integrated, the proposed initiatives for a nationwide EEC program were focused on the following:

- 1) Establishment of the legal framework for an Energy Efficiency and Conservation (EEC) program through an appropriate set of policies (pursuant to policy studies on EEC);
- 2) Implementation of demand side management among power distribution utilities;
- 3) Implementation of a fleet management program for public transport operators;
- 4) Setting up of baseline data and benchmarks;
- 5) Promotion of green technologies;
- 6) Implementation of a retrofit program for the commercial and industrial sector;
- 7) Establishment of comprehensive financial facilities to support EEC;
- 8) Formulation and execution of a national strategy for system loss reduction from power generation, transmission, and distribution sectors; and
- 9) Implementation of a nationwide program requiring the rapid and massive switch from incandescent lamps to compact fluorescent lamps (CFL), to be spearheaded by the power distribution utilities.

3.ANALYSIS AND COMMENTS

3.1 Issues / Views/ Suggestions Raised During the Plenary Sessions

PROPONENT	STATEMENTS/ RECOMMENDATIONS	PROBLEM ANALYSIS/ COMMENTS
<p>Mr. Sohail Hasnie, Senior Energy Specialist of the Asian Development Bank (ADB)</p>	<p>The replacement of 1,000,000 incandescent bulbs with CFLs would translate to the equivalent of 50 MW of deferred power capacity.</p>	<p>Noted and agreed. An order mandating this nationally should be immediately issued.</p> <p>The DOE already has program that promotes the use of energy efficient lamps in the government and private sectors. Administrative Order 183 directs all government entities to replace existing lamps with energy efficient lamps. A Philippine Efficient Lighting Market Transformation Project is now being rolled out to promote the use of energy efficient lighting in all sectors.</p>
<p>Dr. Hiroaki Nagayama, Consultant on Energy Science of Japan International Cooperation Agency (JICA)</p>	<p>The world oil price is one external factor that affects the pricing of electricity. Therefore, the high price of electricity is something that everyone has to live with at this time. The government, however, can take certain actions, even though that electricity industry is a regulated industry, to hold down the cost of electric power.</p> <p>The government should exert more efforts to do a full scale IEC to boost EEC awareness in the commercial, industrial, transport, and residential sectors.</p>	<p>The Philippines is net importer of crude oil. Thermal plants of NPC, the IPPs and other private generating facilities use fuel oil and imported coal to generate electricity.</p> <p>Compared to other Asian countries, the contributing factors that makes electricity so expensive in the Philippines are the following: a) technical and pilferage systems losses in both transmission and distribution lines are overly high and beyond typical levels; b) power plant efficiencies are low and the required heat rates are typically not within the set standard range; c) the peso-dollar exchange rate was depreciating until recently ; d) taxes are high; and e) expensive fuel inputs.</p>

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<p>Dr. Hiroaki Nagayama, Consultant on Energy Science of Japan International Cooperation Agency (JICA)</p>	<p>The establishment of a standard labelling program for road transport vehicles should be pursued by the government. This will highlight and promote the use of new and fuel efficient vehicle technologies (like hybrid, fuel cell-driven, electric-driven, and solar-driven) and other supporting mechanical technologies (like common rail direct injection, variable valve timing-intelligent, overhead and double overhead cam, lightweight engine technology, aerodynamic design, etc.).</p> <p>There is a need for the government to massively promote EEC in all of the energy consuming sectors.</p> <p>The government may opt to reactivate the “Committee on Power Conservation and Demand Management (Power Patrol)” and the “Committee on the Fuel Conservation and Efficiency in the Transport (Road Transport Patrol)”.</p>	<p>The wasteful use of gasoline because of poor driving habits and the importation of second-hand vehicles contribute to the high demand for gasoline.</p> <p>The government abolished the Oil Price Stabilization Fund (OPSF) to let market forces work under the deregulated oil industry environment of the country. However, the price of gasoline partially subsidizes diesel to keep its price low, because the price of diesel fuel has a bigger social and economic impact.</p> <p>The energy efficiency and conservation program of the government may not have reached all the concerned target sectors. One of the barriers could be the resources needed to disseminate widely information that is useful for the industrial, commercial, residential, and transport sectors in building-up their capacities and expertise for undertaking effective EEC programs.</p> <p>Also, inadequate management support and a less-than-firm government policy direction insofar as implementing EEC is concerned could be another factor holding back the spread of the EEC program of government.</p> <p>The DOE has no reliable energy consumption monitoring system, thus the absence of an energy intensity sectoral analysis. This analysis is needed to study the impact each sector has on energy consumption and to forecast the effects of each energy conserving measure proposed.</p>

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<p>Dr. Hiroaki Nagayama, Consultant on Energy Science of Japan International Cooperation Agency (JICA)</p>	<p>The Philippines needs to have a sustainable EEC program that will address local and global issues such as climate change, environmental degradation, health, and the high cost of energy.</p> <p>The country may try to find solution through the development of a comprehensive Energy Conservation Law that would spell out specific policies, goals, directions, regulations, and guidelines for enforcement of its EEC program.</p> <p>There is a need to educate the people to conserve energy and to use it efficiently.</p> <p>The government must invest in the proper education of its people on the efficient utilization of energy. It must also help energy providers, suppliers, and distributors of energy to utilize more energy efficient equipment and methods. Partnerships with energy sector groups, non-governmental organizations, business firms, professional associations, and civil society groups need to be established to generate areas of cooperation in EEC efforts.</p>	<p>Many people believe that the Department of Energy has enough authority and power to implement energy conservation.</p> <p>However, certain legal issues are unclear, like whether DOE has the power to impose penalties on non-compliant establishments (e.g., reportorial compliance on energy consumption or being wasteful in the use of energy).</p> <p>The Philippines currently has no Energy Conservation Law to help address the energy crisis. Such a law could help develop local energy auditors and energy managers and develop the ESCOs industry, encourage the development of energy efficient technologies, and provide incentives and/or remove barriers to achieving efficiency in the energy market sector.</p> <p>The government has hitherto harboured an essentially reactionary attitude towards energy issues. There was an obvious lack of foresight in failing to sustain efforts started decades ago in the area of EEC. Thus, the momentum for an energy efficiency and conservation program never built up so that, today, we have fallen behind the west and even with the developed neighbouring countries in EEC initiatives.</p> <p>The country currently has no wide-scale awareness campaign to educate and motivate people to accept and adopt EEC initiatives.</p>

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<p>Dr. Yongping Zhai, Principal Energy Specialist, Southeast Asia Infrastructure Division of the Asian Development Bank (ADB)</p>	<p>International financial institutions like ADB have a global social mission to help developing countries implement and finance energy efficiency and conservation projects because of their many benefits not only to the country but to the entire world.</p> <p>It is imperative for the government to look and work closely with ADB and take advantage of the financial window facilities being provided by it to help the energy sector attain energy efficiency.</p>	<p>EEC programs can be regarded as a potential energy resource, as a means of mitigating climate change and global warming, as a way of helping protect the environment, as an approach to preserving health, and as a contributor to the socio-economic development of the country.</p>
<p>Dr. Kelvin S. Rodolfo, Professor of the National Institute of Geological Sciences at the University of the Philippines</p>	<p>We can only expect steadily rising oil prices as demand will always exceed supply from now on. That and the global warming problem require that we must look to curtailing the use of fossil fuels now.</p>	<p>To lessen the dependence on fossil fuels, which is imported energy, the DOE needs to aggressively push several energy conservation projects and programs it has in its pipeline and to promote the development of alternative fuels.</p> <p>The DOE is already very actively supporting efforts to reduce carbon dioxide and other greenhouse gas emissions.</p>
<p>Ms. Odette B. Alcantara, Convenor of Mother Earth Philippines</p>	<p>Social mobilization is necessary to engage the entire populace in a nationwide EEC effort.</p>	<p>There is no question about the need for massive social mobilization in a national energy conservation effort.</p>
<p>Arch. Christopher C. de la Cruz, Chairman of the Philippine Green Building Council (PhilGBC)</p>	<p>“Green Building” is a program that must be promoted nationally for energy efficiency and conservation.</p>	<p>To promote the design and construction of “green” buildings, it is suggested that the government or professional associations like the United Architect Association establish awards on the basis of the energy efficiency of buildings. “Green building” topics should also be included in the curriculum of Engineering and Architecture courses.</p>

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<p>Atty. Vigor D. Mendoza II, Chairman of the United Transport Koalisyon (I-UTAK)</p>	<p>It is necessary to improve transport systems, since slow moving traffic and traffic jams cause fuel wastage.</p>	<p>Part of a long term plan is to review and improve road networks and traffic systems.</p>
<p>Usec. Anneli R. Lontoc, of the Department of Transportation and Communication (DOTC)</p>	<p>A National Land Transport Policy is being developed by the DOTC.</p> <p>The five (5) fundamental strategies of the DOTC to promote fuel efficiency in the land transport sector are:</p> <ol style="list-style-type: none"> 1) Increase vehicle efficiency through <ul style="list-style-type: none"> - Modernization of public transport fleets - Implementation of inspection and maintenance systems to ensure vehicle road worthiness and compliance with emission standards - Enforcement of vehicle standards and other relevant rules and regulations 2) Switch to alternative fuels such as LPG, CNG, and the use of electric-powered vehicles 3) Switch to energy-efficient transport modes, including high occupancy mass transport systems, railways, BRT, and non-motorized transport. 4) Decrease travel distance and travel time through traffic decongestion measures and clearing of roadways of obstructions. 5) Increase vehicle load factors by promoting bigger capacity vehicles. 	<p>This is overdue and welcome.</p> <p>The DOE will provide necessary assistance to DOTC to cause the promotion of EE & C in the transport sector.</p> <p>The DOE is currently promoting the use and the commercialization of alternative fuels for road transport.</p>
<p>Mr. Robert C. Nacienceno, General Manager of Metro Manila Development Authority (MMDA)</p>		<p>The enhancement of the Bus Route Project with radio frequency identification technology will improve the dispatch and control of buses plying EDSA.</p>

PROPONENT	STATEMENTS/ RECOMMENDATIONS	PROBLEM ANALYSIS/ COMMENTS
<p>Fr. Jose Ramon T. Villarín, SJ, President of Xavier University, Cagayan de Oro</p>	<p>An information dissemination campaign to reduce vehicle use will have immediate impact. This includes:</p> <ul style="list-style-type: none"> - Park and Ride - Park and Wait - Carpooling <p>People must be aware of the fuel economy of all kinds of vehicles and must practice good driving habits and regular preventive maintenance, minimize vehicle loads, and avoid rapid acceleration.</p>	<p>Agreed.</p> <p>The DOE is promoting under its NEECP program the “Vehicle Use Reduction Concept”.</p>
<p>Mr. Edgar O. Chua, Country Chairman of Pilipinas Shell Petroleum Corporation</p>	<p>To cushion the impact of rising energy prices, reduce greenhouse gas emissions, and protect the local environment through a comprehensive and scaled-up approach towards a more efficient use of energy in the transport sector, the government should develop a public transport reform program and introduce a plant management program for public transport operators.</p>	<p>It is agreed that energy conservation and management of CO₂ emissions can be addressed through better traffic management and promotion of personal practices on vehicle maintenance.</p> <p>The DOE has actually been implementing a Road Transport Patrol Program that aims to promote energy efficiency in the transport sector by raising public awareness regarding good driving habits. Fuel economy runs have also been conducted yearly to put premiums on vehicles that are fuel efficient. However, the riding public are more concerned with the impact of such a program on the level of transport fares.</p>
<p>Mr. Tadayuki Ogawa, Consultant on Energy Science of Japan International Cooperation Agency (JICA)</p>	<p>An energy labelling program has been introduced to the Philippines.</p>	<p>Various home appliances have been rated for their energy efficiency through the Top-Runner Program and continuing efforts on the part of manufacturers.</p>

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<p>Mr. Raymond A. Marquez, Acting President of the Energy Practitioners Association of the Philippines</p>	<p>The Energy Conservation Law should be fully implemented.</p>	<p>Agreed.</p> <p>The DOE is updating the previous Enercon Bill submitted in Congress.</p>
<p>Dr. Benjamin S. Austria, Executive Director of the Energy Development and Utilization Foundation</p>	<p>An Energy Conservation Law will establish mandatory rules and regulations regarding energy use, such as consumption monitoring, energy conservation measures, and mandatory energy audits in all commercial and industrial sectors.</p> <p>What the country needs to do is:</p> <ol style="list-style-type: none"> 1) continue to expand energy efficiency and demand side management programs, 2) establish a policy and regulatory framework that includes financial incentives, 3) strengthen and support institutions involved in the promotion and implementation of energy efficiency programs, and 4) provide adequate information to all sectors. 	<p>There is no argument here.</p> <p>Various “enercon” programs and initiatives are already in place and more are now being discussed.</p>
<p>Ms. Leticia T. dela Cruz, Managing Director of Geosphere Technologies, Inc.</p>	<p>Government should assist ESCOs, or Energy Service Companies, so that these can help other firms implement energy efficiency and conservation programs.</p> <p>Presently, the barriers to effective implementation of EEC measures are:</p> <ol style="list-style-type: none"> 1) no clear government guidelines on energy efficiency, 2) lack of government support for ESCO activities and the lack of tax incentives for energy efficiency objectives, and 3) lack of experience of banks and other financial institutions in evaluating loans for energy efficiency projects. 	<p>ESCOs are supposed to assist other companies in the technical and financial aspects of implementing energy efficiency and conservation programs in their plants and operations.</p> <p>The role of these ESCOs and the nature of support that government should provide them should be studied in greater depth.</p>

3.2 Issues / Views/ Suggestions Raised During the Summit Workshop on Energy Efficiency and Conservation (Day 3)

PROPONENT	STATEMENTS/ RECOMMENDATIONS	PROBLEM ANALYSIS/ COMMENTS
<p>Mr. Reynaldo D. Legada, President of Energy and Aviation Support Group</p>	<p>The “Heat Rate” in all power plants and IPPs should be monitored.</p> <p>There should be regular seminars and training on Heat Rate Improvement for all power plant personnel in order to attain higher plant efficiencies.</p>	<p>Energy conservation requires proper plant maintenance in order to achieve the highest possible plant efficiencies.</p>
<p>Dr. Corazon P.B. Claudio, President of Earth Institute of Asia, Inc.</p>	<p>The “blue” biotechnology for marine resources is still unexplored and it should be given a deep thought as a possible renewable energy resource.</p>	<p>It does appear that there is great potential for the blue biotechnology for marine resources.</p>
<p>Ms. Anna Whitehouse, President and Managing Director of Total Philippines, Inc.</p>	<p>A massive campaign for efficiency in use and the conservation of fuel in the transport sector should be given priority.</p>	<p>Agreed. The demand for oil undoubtedly rises because of wasteful consumption by the large number of vehicles on the road. The fuel savings that can be derived here can be very significant.</p>
	<p>A public information campaign promoting good driving habits should be resumed.</p>	<p>Fuel efficiency and conservation does not currently appear to be a major concern of the driving public in this country as they appear more focused on fuel price levels. This state of mind, admittedly, needs to be corrected.</p>
	<p>EEC programs not only contribute to the reduction in fuel demand but also help in addressing environmental concerns.</p>	<p>Of course. The use of cleaner alternative fuels also reduce the high demand for petroleum products.</p>

3.3 Other Issues / Views/ Suggestions Raised During Summit Workshop

PROPONENT	STATEMENTS/ RECOMMENDATIONS	PROBLEM ANALYSIS/ COMMENTS
<p>Mr. Jasper E. Inventor, Climate and Energy Campaigner of Greenpeace Southeast Asia</p>	<p>The public wants to contribute to energy conservation efforts but lacks the proper information.</p> <p>The policy framework does not currently exist to support the public's desire to help save energy.</p>	<p>Simply reminding everyone to switch off anything that utilizes or consumes energy or power when not in actual use will go a long way to saving energy. This applies to simple household appliances as well as large industrial equipment.</p>
	<p>There is a lack of political will to ensure that best practices are replicated and scaled up.</p>	<p>In any event, it is agreed that a more massive information and education campaign is needed to raise public awareness and build commitment to energy conservation efforts.</p>
		<p>The National Energy Efficiency and Conservation Program (NEECP) is a continuing program of the Government that reflects the government's policy directions. The NEECP is being promoted nationwide, targeting participants from the commercial, industrial transport, household, and educational sectors, plus government offices and attached agencies and bureaus.</p>
		<p>It is agreed that a new Energy Conservation Law, by spelling out specific policies and incentives, would undoubtedly move the national energy conservation program forward faster.</p>
<p>Dr. Segundo E. Romero, Faculty Member of the School of Public and Development Management at the Development Academy of the Philippines (DAP)</p>	<p>There is the lack of a cross-sector performance monitoring system for energy.</p> <p>Among the initiatives in this area are the formulation of a cross-sector performance monitoring and feedback plan, the formulation of cross-sector performance indicators and standards, the establishment of a cross-sector performance monitoring and feedback system that will conduct a cross-sector performance baseline, the building up of a proper database, and the establishment of an awards and incentives system. Also, capacity development in performance monitoring needs to be undertaken for the various energy sector stakeholders.</p>	<p>The DOE is now working on this.</p>

4. CONCLUSION AND RECOMMENDED ACTIONS

From the foregoing analysis of Summit Workshop and Post-Summit results, the following are recommended priority actions:

4.1 Energy Conservation Law

A comprehensive Energy Conservation Law (Act) is believed to be one of the most essential elements required for the effective promotion of energy conservation, given the experience our Asian neighbors. An Energy Conservation Fund would be a vehicle for facilitating the provision of appropriate financial incentives for energy conservation.

The Philippines currently has no such Energy Conservation Law. It will need such a law to address the energy crisis. A comprehensive energy law will incorporate policies and measures that will to develop local energy auditors and energy managers, develop the ESCOs industry, encourage the development of energy efficient technologies, and provide incentives for and remove barriers to the effective promotion of efficiency initiatives in the energy market sector.

In addition to the enactment of a comprehensive Energy Conservation Law, the DOE may also revive and strengthen the “Committee on Power Conservation and Demand Management (Power Patrol)” and the “Committee on the Fuel Conservation and Efficiency in the Transport (Road Transport Patrol)”.

4.2 Energy Efficient Lighting

The Philippine Efficient Lighting and Market Transformation Project (PELMATP) is an initiative of the Department of Energy that promotes programs and activities that encourage the development and use of efficient lighting.

As a result of views expressed during the Summit that highlighted the importance and significance of this efficient lighting initiative, **President Gloria Macapagal-Arroyo** in her speech during the final plenary session of the Energy Summit issued a directive for the Philippines to phase out incandescent lighting by 2010. Given that energy efficient lighting has already been mandated in all government facilities through Administrative Order 183, the goal of getting this initiative implemented nationwide in all sectors of

society by 2010 is achievable. It is recognized of course that the active participation of the private sector is crucial to effectively phasing out incandescent lighting in the country.

4.3 Magna Carta for Residential Electricity Consumers

The Magna Carta for residential electricity consumers, one of the highlights of **Senator Juan Ponce Enrile's** speech, empowers residential electricity consumers to report complaints and be accorded courteous, prompt, and non-discriminatory service by the electricity service provider. The DOE, through EECDO on the other hand, provides residential electricity consumers, particularly members of the household sector, practical tips in conserving energy in their use of electrical appliances and household devices. The need to reach more household members and create more impact and wider adoption of energy conservation practices is today's challenge.

The Magna Carta identified the ERC to be the main agency involved in addressing complaints of consumers. On its part, the DOE has the Consumer Welfare and Promotion Office (CWPO) to receive complaints and find appropriate actions to resolve these complaints. It is recommended, however, that quite apart from providing the venue for the airing of complaints, more public seminars and information dissemination activities be undertaken to enlighten residential consumers on appropriate measures and practical tips to save on electricity use.

4.3 Transport Sector

Regular gasoline prices in the Philippines are the highest in Asia. Gasoline is used mostly by private vehicle owners, although a few public transport vehicles (taxis, vans) also make use of it. The wasteful use of gasoline as a result of poor driving habits and the allowed importation of second-hand vehicles have contributed to pressures on gasoline demand that have allowed its high price levels to be sustained.

It is politically difficult to contain the rise in the number of vehicles on the road or introduce further restrictions on their use. Of course, the use of alternative fuels like biodiesel, ethanol, and AutoLPG could ease somewhat the high demand for petroleum products. Additionally, it is recommended that a massive information campaign to promote efficiency and conservation in the use of fuel

in the transport sector be undertaken. The information campaign should educate the public on good driving habits and proper vehicle maintenance.

The establishment of a standard labelling program for road transport vehicles should also be undertaken by the government. This will help lead the country towards new and fuel efficient vehicle technologies like hybrid, fuel cell-driven, electric-driven, and solar-driven engines, and other supporting mechanical technologies like common rail direct injection, variable valve timing intelligence, overhead and double overhead cam, lightweight engines, aerodynamic designs, etc.

There are other equally important strategic initiatives to promote fuel efficiency in land transport sector. These include: increasing vehicle efficiency through the implementation of an inspection and maintenance system to ensure road worthiness and compliance with vehicle emission standards, enforcing vehicle standards and other relevant rules and regulations, switching to alternative fuels such as LPG and CNG, using electric powered vehicles, switching to energy-efficient transport modes, including high occupancy mass transport systems, railways, MRT/BRT, and non-motorized transport, decreasing travel distance and travel time through traffic decongestion measures and the clearing of roadways of obstructions, and increasing vehicle load factors by promoting bigger capacity vehicles.

5. CONCLUSIONS / THE WAY FORWARD

5.1 Immediate Actions

Pursuant to President Arroyo's recent directive, the DOE has initiated the complete phasing-out of incandescent bulbs by 2010, to be replaced with energy efficient lighting systems like compact fluorescent lamps (CFLs). With assistance from the National Electrification Administration (NEA), it has been estimated that the number of CFLs to replace the incandescent bulbs nationwide will be 68 million by the end of 2010.

Immediately after the Summit also, a joint task force for energy conservation was created by **DOE Secretary Angelo Reyes**, consisting of representatives from the DOE, PLIA, DTI, DECS, NEA, media, NGOs, and multilateral financial institutions like the Asian Development Bank and the World Bank. This task force will flesh out the specific details of a comprehensive national energy efficiency and conservation plan.

To build up its database, DOE field officers are now gathering pertinent data on electrical connections per sector (household, commercial, industrial, and government). Likewise, distribution utilities have been asked to provide information on their customers' electrical connections per sector.

The UNDP-GEF-assisted Philippine Efficient Lighting Market Transformation Project (PELMATP) has been set up to do the following activities over the next two years:

- 1) Conduct a study that will lead to the setting up of minimum energy performance standards (MEPS) for incandescent bulbs. (MEPS approach is a strategy that DOE has adopted for weeding out inefficient consumer products, including incandescent bulbs, in the local market.)
- 2) Continue to develop partnerships with LGUs, schools, other government agencies, the industry sector, the commercial sector, and umbrella organizations (such as Gawad Kalinga, Chambers of Commerce and Industry, League of Corporate Foundations, etc.) to promote the use of CFLs instead of incandescent bulbs in the household sector.
- 3) Develop micro-financing schemes through the consumer cooperatives so that consumers would be able to buy CFLs on an installment basis.
- 4) Develop a better warranty system for lamps, including CFLs, in order that consumers would be better protected from substandard or fake CFLs.
- 5) Develop an energy efficient lighting saving calculator for households, to equip them to make better and more informed decisions (in real time) in their purchasing of lamps, particularly in comparing CFLs with conventional bulbs.
- 6) Partner with electric utilities and electric cooperatives to promote the shift to the use of CFLs by customers in their respective franchise areas (as part of the companies' value-added services to their customers).

5.2 Development of Other Relevant Policies and Implementation Strategies

It is imperative that certain policy instruments be put in place to be able to pursue a comprehensive approach to energy efficiency and conservation.

The principal national policy could be integrated in an Energy Conservation Law, similar to those in other countries. It is proposed that a bill to this effect be filed in Congress immediately. While such bill is pending, executive and administrative issuances may be used as policy instruments to enable the implementation of the proposed action plans. Among the recommended policy instruments are:

- 1) Policy instrument for demand side management in the electric power distribution sector (within 6 months);
- 2) Amended Procurement Law/Guidelines for EEC-related equipment to allow energy service companies (ESCOs) to audit government offices (by 2009);
- 3) Policy instrument for the phase-out of inefficient technologies (by 2009);
- 4) Lamp waste management policy (by 2009)

The sub-sector on Energy Efficiency and Conservation proposed a number of major priority action plans. The following are the action plans for the immediate-term:

- 1) The development of a national strategy for efficiency improvement in power generation, transmission, and distribution;
- 2) The implementation of a major retrofit program for - Local government units, commercial establishments, and industrial firms;
- 3) The creation of innovative financial facilities, to include loan guarantee facilities and a fund for EEC projects;
- 4) The reinstatement of demand side management practices among distribution utilities;

- 5) The rapid and massive replacement of incandescent bulbs with compact fluorescent lamps (CFLs), to be spearheaded by power distribution utilities; and
- 6) The scaling-up of information, education and communication (IEC) efforts on EEC initiatives.

For the short-term period, the following are the proposed action plans:

- 1) The creation of an Energy Efficiency & Conservation Center (EECC);
- 2) The review and amendment of the Procurement Law and its guidelines for energy efficiency related procurement;
- 3) The development and updating of energy efficiency standard labeling for GHG contributors, e.g., home appliances, motor vehicles, etc.;
- 4) The provision for the implementation of a public transport leasing program; and
- 5) The provision for the implementation of an aviation fuel efficiency enhancement program.

For the medium-term period, the following are the proposed action plans:

- 1) The extension of the energy efficiency lighting program to local government buildings and roadways; and
- 2) The implementation of public transport reform for mass transit.

For the long-term period, the following are the proposed action plans:

- 1) The monitoring of compliance with the various action plans;
- 2) The scaling-up of effective action plans; and
- 3) The redesign or introduction of new interventions.

Promoting Energy Efficiency and Conservation Program of Action

Objective 1				Strategy			
<ul style="list-style-type: none"> To establish legal framework for Energy Efficiency (EE) thru an appropriate policy (including policy studies on EE). To reinstate DSM practice across all sectors To establish baseline data and benchmark To scale-up IEC on Energy Efficiency (all media) 				<ul style="list-style-type: none"> Provide higher taxes for inefficient technologies and support implementation of AO183. Develop a Lamp Waste Management Policy and conduct policy study on the Calibrated Phase Out of inefficient technologies Integration and development of curriculum and instructional materials Initiate Social Mobilization Program for Market Monitoring Push for Retrofitting Program across all sectors 			
Priority Action	Success Indicator	Type of Measure	Lead Agency /Sector	Priority Action	Success Indicator	Type of Measure	Lead Agency /Sector
Immediate (within 6 months)							
Introduce Fleet Management Program for Public Transport Operators		Policy and Legislation	DOTC (lead) Transport Operators and Associations, Air Carriers				
Promote Green Technologies (awareness support services, adoption)			NGOs and Academe				
Implement and Monitor the revised Energy Efficiency Guidelines for New Buildings Mandate Energy Managers and Auditors			DOE, DPWH LGU, OBO Energy Associations C&L Establishments PCCI, Foreign Chambers PEZA				
Create comprehensive and innovative Financial facilities e.g. Loan Guarantees, Energy Efficiency & Conservation (EE&C) Fund			GFI PFI IFI MDBs				
Develop National Strategy for System Loss Reduction from Generation, Transmission and Distribution Sectors DU-led rapid and massive switch to CFL			DOE and Attached Agencies ERC DUs IPPs				

Priority Action	Success Indicator	Type of Measure	Lead Agency /Sector
Short-Term (within 1 year)			
<p>Creation of Energy Efficiency & Conservation Center</p> <p>Review and amend procurement law/ guidelines for Energy Efficiency related procurement</p> <p>Capacity building program for Energy Efficiency program implementation</p> <p>Provide additional fiscal and non-fiscal incentives for Energy Efficiency technologies</p> <p>Develop/Update Energy Efficiency Standard & Labeling for GHG Contributors e.g. appliances, motor vehicles, etc.</p> <p>Provide incentives to investors of Lamp Waste Management Facility</p>	MOA signed with other Stakeholders/ Government Agencies	Policy and Legislation	DOE (lead), DOJ, DOLE EMB-DENR DND, NEDA BoC, DILG DTI, OP NCIP, etc.
<p>Public Transport Leasing Program</p> <p>Aviation Fuel Efficiency Enhancement Program</p> <p>Retrofitting Program for Land Transport</p>			DOTC (lead) Transport Operators and Associations Air Carriers
Medium-Term (5 years)			
<p>Extension of Energy Efficiency lighting, in local government buildings and roadways</p> <p>Develop Energy Efficiency Guidelines for residential buildings</p>			OP, HOR, CPBD, SENATE/SEPO, DOE, ERC, DUs, DOF, DTI, EMB-DENR, DOTC, DOST, DPWH, DILG/LGUs
Public Transport Reform- Mass Transit			DOTC (lead) Transport Operators and Associations, Air Carriers

Types of Measure:

- Policy and Legislation
- Regulation, Enforcement and Compliance
- Information-Education-Communication (IEC)
- Capability-building
- Market Development
- Investment (Financing, Infrastructure, Technology, Incentives)