

2008
PHILIPPINE ENERGY SUMMIT
SUMMARY REPORT

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President's Message

MALACAÑAN PALACE
MANILA



Warmest greetings to all participants to the *Energy Summit 2008* and congratulations to the **Department of Energy** for taking the lead in this affair.

Adequate and stable supply of energy is essential to national progress, fueling our economy forward. In 2007, our economy grew at an incredible rate, and to surpass our gains, we need to match the demands of growth and address the issues concerning our energy sector, especially the problems brought about by the rising price of oil in the global market.

Government has undertaken different measures to meet our energy requirements, such as putting certain power assets like PNOC-EDC on the market, going to Spain to push the Jatropha project, calling for amendments to the EPIRA to realize open access, and promoting geothermal energy through the GIGA program. Local governments, on the other hand, have done their share with projects like the Montalban Methane Power Plant, powered by methane from Metro Manila's garbage and the operations of other power plants nationwide.

While these measures may be in place, we still need to double our efforts to achieve our target of 60-percent self-sufficiency in three years' time, apart from addressing global environment issues, like climate change, global warming, and air pollution. In light of these concerns, we need to further explore possible alternatives, like bio-fuels, geothermal, wind, solar, and other sources of alternative and renewable energy, even as we tackle issues like energy conservation and efficient energy utilization.

As different stakeholders gather in this historical summit, I trust that the insights and ideas that arise will further input into policies that, will provide long-term solutions to our energy problems, truly making our dream of a strong and energy-independent Republic real.

Mabuhay kayong lahat!

Gloria Arroyo
GLORIA MACAPAGAL-ARROYO

MANILA
29 January 2008

Energy Secretary's Message



THE SPIRIT OF OPPORTUNITY

The runaway trend in international crude oil prices, which began to make itself manifest in late 2007 and early 2008, provoked us as a nation to go on crisis mode—given the dire implications of this development on our economy and on our way of life. But the **2008 Philippine Energy Summit** proved that, much as we are all concerned about protecting vulnerable sectors from the impact of a high oil price regime, we could look beyond the looming energy and power crises into a wide field of opportunities on the horizon.

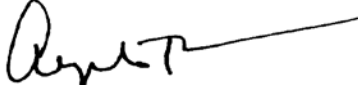
The consensus that emerged among more than 2,500 stakeholders who took part in the Summit is that high oil prices have a silver lining in the sense that we are forced to seriously ponder ways by which to wean ourselves from our dependence on imported fossil fuels in transport and power generation.

The discussions stimulated by the illuminating plenary sessions and by the lively workshops channeled creative energies toward focused strategic interventions and innovative multi-sector responses to the challenges posed before us. These yielded a wealth of recommended action plans in the substantive areas of power cost management, conventional energy exploration, renewable energy development, energy efficiency promotion, and oil price management

Just as important, the Energy Summit strengthened bonds among stakeholders in the collective search for sustainable answers to our energy and power needs in the testy years ahead. As long as we continue to collaborate in a positive, inclusive and solutions-oriented frame of mind, we should be able to blaze new trails toward energy security and independence along the lines of sustainable and climate-friendly development.

Through the steps we have taken to institutionalize social mobilization interventions and mechanisms for monitoring action plans, we should be able to move forward on our agreed priority action items in a deliberate and timely manner.

In behalf of the community of energy stakeholders, we at the Department of Energy would like to thank all those who contributed to the overwhelming success of the Energy Summit. We will be counting on you to see through the successful pursuit of the initiatives that we have all agreed to undertake for the good of our nation.


ANGELO T. REYES
Secretary
Department of Energy
5 February 2008

EXECUTIVE SUMMARY

The 2008 Philippine Energy Summit, held January 29-31 at the SMX at Mall of Asia, brought together over 2,500 energy stakeholders from various sectors.

President Gloria Macapagal Arroyo called for the holding of the Energy Summit following a clarion call for the adoption of emergency and immediate measures—including proposed official declaration of tax holidays and policy shift in energy resource development—needed to cushion the adverse impact of spiraling price movements in the world crude oil market. At that time, the crude oil price had already reached US\$100 per barrel and was correctly predicted to increase further in the months ahead, a very depressing piece of economic news that further weighed down on energy authorities as it made their mission exceedingly complex.

Partly an immediate response to the oil price spike, as indicated by its theme “\$100 per Barrel: Crisis or Opportunity?”, the Summit yielded a comprehensive, short- to long-term reflection and sharing on the energy problem in its various dimensions and manifestations. A rich harvest of insights from well-attended plenary sessions and packed workshops was processed by a multi-sector team on February 1-3 at the Asian Development Bank (ADB). The first draft of the Summit Report was submitted to President Arroyo on February 5 during the Summit’s closing ceremonies.

This enhanced Summit Report documents—and synthesizes—the diverse views expressed during the Summit by various stakeholder groups on how to respond to the looming energy crisis.

Broad Framework

Energy authorities recognize the political and economic ramifications of the energy crunch. Soaring crude oil prices put an economy at far greater risk, causing the nation’s cost of living to increase wildly—a sorry situation that may lead to economic slowdown or even to massive job losses and, eventually, to social unrest. As it is poised to disrupt the Filipino way of life, the looming energy crisis thus becomes a national security concern.

Those perceived ramifications had never been lost on the Energy Summit participants. In fact, this report carries their wide-angled panoramic views of the here and now of the impending energy crisis and the current regime of high power cost. They suggested actions that they thought ought to be taken on various levels to reduce the crisis’ impact on the economy, most particularly on perceived vulnerable sectors. They insisted on having a new fiscal framework to sustain the government’s bid for fresh investments in oil and gas exploration and in the development of other sources of energy. They even spelled out various steps that individuals, advocacy groups, local government units, private firms and government agencies can take to conserve and efficiently use energy. In the same breath, they wanted immediate legislative actions that would enable industries to access the services of suppliers and distributors of cheaper electricity. And they even proposed new policies meant to develop the country’s renewable and alternative sources of energy in order to reduce the country’s dependence on fossil fuel.

All these suggestions—some are doable in the immediate, foreseeable future and some may require much longer time—are contained in this report, which now serves as initial guidance to the tasks ahead.

Strategic Objectives

As generalized in its program, the 2008 Philippine Energy Summit sought to carry out these strategic objectives (not necessarily in the order of their priority):

- To lower electricity rates to an affordable level that can make Philippine industries more competitive in the global market and also benefit the greater masses of consumers of electricity
- To cushion the impact of spiraling price increases on vulnerable sectors
- To work for the immediate enactment of a law governing the development of renewable and alternative sources of energy, strengthen the country’s biofuel development programs, and draw up programs that will make motorists to switch to alternative fuels

- To extend all-out support to investors dealing in oil and gas exploration in the country
- To promote efficient use of energy through a nationwide energy conservation program
- To come up with a mechanism that will mobilize, coordinate and focus the country's collective action to fight off energy crises such as the impending one
- To set up an effective monitoring system based on the performance indicators skewed in one particular direction, which is the delivery of clean, reliable and affordable energy, a system still to be drawn up by a group of people representing cross-section of the Philippine energy community

Key to Achieving Goals

The basic key to carrying out effectively these strategies is a regularly updated energy database. Without it, any energy-related development program is doomed to fail from the start. Updated seismic baseline data, both offshore and inland, for example, form a basic requirement to luring fresh investments in oil and gas exploration. A scientific study on which strain of jatropha burns more easily, as another example, is a must-read for those seeking to cultivate a tuba-tuba farm intended for their biofuel project. Similarly, a historical record of electricity bills is one document that can best serve the interest of consumers' advocacy group. An updated map of a power-franchise area can help pinpoint which portion is without electricity and which must be given priority in the next phase of electrification program. Moreover, a social mobilization and information-education-communication (IEC) campaign rallying the people to efficiently use and conserve energy is also anchored to well-researched studies on energy efficiency and conservation. In all, constant updating of various energy-related data can help achieve the strategic objectives of the Energy Summit.

Energy databases not only cater to the needs of investors. It should also be accessible to the energy regulators and energy-performance monitors. Moreover, it must be able to provide information or answers to the nagging questions raised by consumers and advocacy groups who sometimes mistake cost-recovery for greed. A database on the controversial take-or-pay provision found in some power supply contracts may partly explain the high electricity charges. Electricity consumers groping for the right answer is one cogent reason for the need to install monitoring systems on energy production and distribution.

Cheaper Electricity Cost

The high cost of power takes a heavy toll on the operating capital of Philippine manufacturers, making them uncompetitive in the global market and restraining their capacity to generate jobs.

The solution proffered on the spot was to speed up the implementation of the Open Access provision of the EPIRA Law (Electric Power Industry Reform Act of 2001) so that industrial consumers can tap suppliers of cheaper electricity. This will doubtless benefit the industries. Open-access arrangements between some manufacturers operating inside the economic zones and the power distributors of their choice proved earlier to be beneficial to locators in said zones; but such arrangements are now subject of a legal dispute between the Philippine Economic Zone Authority, which regulates economic zones, and the power distributor armed with a congressional franchise to serve the area wherein the economic zones are located.

On this note, the lawmakers will be asked to revisit the EPIRA Law and make the necessary amendments to accelerate the implementation of its open-access provision and thus enable industrial consumers of electricity to tap power distributors offering cheap rates.

It was also recommended that implementation of time-of-use pricing of electricity be accelerated to make possible more efficient power system management and consumption.

Another notable proposal raised during the Summit was to increase the lifeline rate subsidy for users of electricity who consume not more than 100 kWh per month. A corollary program that the national government signified to adopt was the grant of direct subsidy to this group of electricity consumers.

Cushioning the Impact of Oil Price Hikes

Priority measures seen to mitigate the impact of oil price hikes include: the provision of fuel discounts to transport workers and direct subsidy to vulnerable sectors; review of pricing formula for new contracts between producers and users of natural gas; deregulation of public transport fares; and review of RA 0843's provision on oil pollution management fund.

The government must also review of taxes on crude oil and allocate the greater part of oil tax fund to pro-poor

projects. At the same time, it must intensify its drive against oil smuggling to augment its financial coffers.

Likewise, it must monitor the distribution of fuel from refineries to gas stations to ensure that fuel products are not adulterated with water and to strictly enforce the rules governing LPG distribution. Another task is for the government to stop colorum (unauthorized) vehicles from plying on designated routes and to eliminate kotong (extortion by cops) to improve governance on the road—moves meant to steady the already strained incomes of transport workers.

Other proposed initiatives in the area of oil price management included:

- Targeted expenditures schemes for pro-poor projects from oil collections;
- Revisiting the taxation regime on petroleum crudes and products
- Providing discounts and subsidies on basic needs (food, shelter, education) to vulnerable sectors such as the rural and urban poor, small fisherfolk and farmers

Improving roads and bridges and establishing efficient mass transport systems were seen as long-term responses to the issue.

As a corollary measure, the government will provide incentives for the development and utilization of alternative fuels and energy-efficient devices.

Promoting Energy Efficiency

Building on the strategic impact of the Philippine Efficient Lighting and Market Transformation Project, spearheaded by the DOE, President Arroyo in her speech during the final plenary session of the Energy Summit issued a directive for the Philippines to phase out incandescent bulbs by 2010. A massive multi-sector effort will be mobilized to make this shift to efficient lighting possible; the same platform will be used to promote the use of appropriately labeled energy-efficient appliances and the adoption of best energy practices.

Among the other measures proposed to sustain energy-efficient practices are:

- the enactment of a comprehensive Energy Conservation Law, based on the experience in several Asian countries
- the formulation of a Magna Carta for residential electricity consumers, which would empower these consumers to report complaints and be

accorded courteous, prompt, and non-discriminatory service by the electricity service provider

- a radical idea to abolish income tax and to institutionalize a consumption-based carbon tax on the premise that it makes more sense to penalize citizens who inflict damage on the environment than those who earn income.

It was also recommended that more public seminars and information dissemination activities be undertaken to enlighten residential consumers on appropriate measures and practical tips to save on electricity use.

In view of the wasteful use of gasoline as a result of poor driving habits and lax rules on the importation of second-hand vehicles, it was recommended that the public be educated on good driving habits and proper vehicle maintenance. A standard labelling program for road transport vehicles is also recommended to help lead the country toward new and fuel-efficient vehicle technologies.

Other proposed strategic initiatives to promote fuel efficiency in land transport included:

- 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
- clearing of roadways of obstructions, and increasing vehicle load factors by promoting bigger capacity vehicles.

All-Out Support for Energy Exploration and Development

The Philippines government has offered investors an attractive package of fiscal incentives to entice them to explore and develop its energy resources and, as a result of the Energy Summit, is now in the process of improving this package to get the serious investors to conduct more exploration activities in its remaining frontier areas. Amendments to PD No. 87 are needed to make the whole package of fiscal incentives more attractive.

Similar incentives will be offered to investors in renewable energy. The fiscal incentives and forms of marketing support are lined up in the Renewable Energy bill, now under deliberation in Congress, to increase investments in geothermal, solar, wind and hydro sources of energy.

An inevitable corollary to these oil exploration incentives is a more attractive set of additional fiscal incentives and tax breaks intended to lure oil prospectors into exploring the country's sedimentary basins which, according to experts, are not as "geologically prospective" as those of its ASEAN neighbors.

The requisite gathering and development of high-quality, detailed geological and geophysical data will boost the investors' enthusiasm to explore the country's energy resources.

On the other hand, the biofuel programs, which have been of late the focus of attention among prospective investors, will be reinforced with more in-depth studies such as full cost-accounting of biofuel energy investments.

However attractive the package of fiscal incentives is, bureaucratic foul-ups tend to douse the enthusiasm of investors eager to explore the country's energy resources. It took the Malampaya gas field, for example, ten years—and about 1,600 permits, certificates, clearances and approvals from local officials—to enable the investors to bring it to production. The processing of the required permits will have to be streamlined to lure more investors interested in exploring the country's energy resources.

Promoting Alternative and Renewable Energy

As global oil supply continues to decline, it becomes imperative for a net oil importer like the Philippines to shift its focus to developing its own sources of alternative and renewable energy. Already, Congress is laying down the regulatory and policy framework on the development and utilization of these energy resources. The absence of this framework, however, has been noted to have dampened the enthusiasm of investors to enter into the picture. This accounts for the overwhelming clamor for the immediate passage of the Renewable Energy Bill into law after nearly two decades.

In addition, the Department of Energy will issue an operation manual and form a one-stop shop which will coordinate inter-agency efforts on renewable and alternative energy sources, including information-sharing.

At the same time, the government will encourage banks and financial companies to lend to those small businessmen seeking to venture in the development and utilization of renewable and alternative energy. By the same token, it will partner with multilateral financing institutions for funding assistance to big-ticket renewable and alternative energy projects in the country.

As an immediate action, the government will launch an IEC campaign to familiarize people on the benefits of employing devices using sustainable renewable and alternative energy. This is also another way of creating a market for alternative fuels.

Lastly, the government will draw up programs to motivate the people to undertake communal production feedstock for biofuel projects and other initiatives related to renewable and alternative energy. It was also recommended that the implementation of the Biofuels Law and the CNG program be accelerated.

Social Mobilization and Intensified Information Campaign

Energy is a national concern. And a looming energy crisis provides cause for collective action, based on a shared understanding among many Filipinos of the issues at hand, to cushion its negative impact on Philippine society. The clarion call is for the people to prepare for—and to minimize—the damage that might be wrought by the looming energy crisis and for the government to shepherd the country's recovery from this damage.

Such shared understanding is perceived to be an impetus for individuals and groups to do the appropriate things in times of an energy crunch. Those things range from discarding incandescent bulbs in favor of compact fluorescent lamps to cutting down on weekly fuel consumption to shifting from premium gasoline to compact natural gas. Taken together, these little changes in lifestyle and consumption behavior would enhance efficiency in energy use and reduce greenhouse gas emissions that are believed to exacerbate global warming.

Following these views, participants in the Energy Summit suggested the need for the formation of a broad coalition of community groups and stakeholder organizations to mount an intensified social mobilization and information-education-communications (IEC) campaign, using various media, to build critical mass around best energy practices and to increase public awareness on:

- the various programs the government carries out to minimize the damaging impact of the looming energy crisis
- the imperative need to conserve energy and use it efficiently
- the multiple benefits that can be derived from using cleaner and more efficient alternative fuels
- the urgent need for Congress to legislate measures intended to lower the cost of electricity
- the changes in price movements of crude oil and other petroleum products
- the need for continuing review of power supply contracts among energy producers
- the need to help minimize pilferage of power in their communities
- the policies the government adopts in response to constant adjustments in world crude oil price
- the call for collective action to pressure concerned agencies and energy producers to improve their services and productivity

Proposals to consolidate social mobilization interventions included the:

- creation of a platform for convergent cross-sectoral action;
- development of a decentralized, multi-stakeholder planning system; and
- launch of a massive campaign for a mind/behavior switch on many levels.

Performance Standards and Monitoring

Any call for collective action for efficiency and productivity would be useless without a set of performance standards governing the production and delivery of clean, reliable and affordable energy. Thus, a core group of experts and concerned individuals will be tasked to design and define the standards with which to govern energy production and delivery, with emphasis on dimensions keyed to the core programs of the Energy Plan of Action, including but not limited to power cost and access, renewable energy access, conventional energy access, energy efficiency and oil price management. The aspect of security is an added dimension in the set of monitoring standards, which will then be brought to wider consultation for adoption by the entire energy community.

Monitoring output will be used to generate comprehensive baseline data on energy access and security, which will then be used to create an Energy Statistical System.

Monitoring output will be also be the basis for rewarding those who comply with the list of performance standards and punishing those who deviate from it.

Concrete proposals in this area included:

- the forging of a cross-sectoral covenant on performance monitoring
- deployment of a cross-sector monitoring system, covering plans, indicators, standards, awards and incentives.

Resetting Priorities, Moving Forward

As it defines the goals that need to be met and programs that need to be implemented, this report already sets the tone of the energy development programs to be included in the updated Philippine Energy Plan (PEP). The strategies drawn up in the course of holding the 2008 Energy Summit have prompted energy authorities and stakeholders to refocus their priorities on the more critical energy issues: lowering of electricity rates and cushioning the impact of the energy crunch.

Those priorities will certainly be reflected in the proposed 2009 budget not only of the Department of Energy but also of other agencies involved in mitigating the potential damage that can be caused by the looming energy crisis. Even the allocation of the 2008 national budget has already been reprogrammed to include direct subsidy to those who are perceived to be vulnerable, should the current energy crunch become a full-blown energy crisis. And the current deliberations by lawmakers on power contracts also mirror the shift in focus of Congress's legislative agenda.

Following the Energy Summit, the DOE has continued to engage the other energy stakeholders in putting flesh to the proposed programs of action. Many of the insights and proposed interventions have been reflected in the updated provisions of the PEP, which the DOE will further refine on the basis of sectoral and regional consultations. Once finalized, the updated PEP, along with corollary strategic programs, will flesh out the implementation plans and other initiatives put forward in this report. With the sustained enthusiastic support of the entire Philippine energy community, there is every reason to believe that the short-, medium- and long-term objectives of the Energy Summit can be achieved.

Accelerating Investments in Oil & Gas Exploration and Development

I. OVERVIEW

The Philippines, in addition to its strategic location in the Southeast Pacific Region and the presence of frontier areas that are still available for exploration, currently has some attractive fiscal terms and incentives for petroleum investments. However, existing as well as prospective private sector investors see the need for government to amend Presidential Decree No. 87. Specifically, what appears to be needed are improvements in the said fiscal terms in order to provide better incentives that will make petroleum exploration activities more attractive to serious investors. Also needed are more streamlined processes within the Department of Energy and other regulatory agencies of the government for awarding and approving oil and gas exploration and development contracts. The process of acquiring permits from various government agencies and local government units in order for any exploration and development activities to proceed must be improved, in the light of recent experiences by petroleum service contractors in the geophysical surveys and drilling activities that were conducted in the offshore areas of Cebu, Bohol, and Negros,

Service contractors have indicated that more incentives need to be provided to balance the very high cost of petroleum exploration and development and the considerable exploration risk taken by oil companies in geologically complex environments and in frontier

and deep-water areas. Also, service contractors have indicated that a cross cost-recovery mechanism should be provided to encourage exploration companies to undertake greater risks in exploration.

Another principal recommendation is the development of high quality (2D and 3D) geological, geophysical, and technical data for easy access and assessment by prospective investors. This will require a capability-building program for government technical personnel and the acquisition of the necessary hardware and software to convert all database data to digital format. This capability-building program for government technical staff needs to be accelerated to ensure their effectiveness in addressing the petroleum industry's expectations. This will undoubtedly require also a review of the compensation and benefits package of highly-skilled technical personnel, and a review and updating of the mechanics of the Petroleum Contracting Round.

Among other major recommendations are the immediate formulation of working agreements with government agencies, LGUs, and NGOs in order to facilitate the issuance of approvals, permits, certificates, and clearances for the implementation of work programs of service contractors, the review of DOE policies and guidelines to ensure that they are

responsive to the needs of the petroleum industry, the formulation of implementing rules and regulations for the natural gas industry, and the undertaking of a research and development program on other uses of natural gas.

2. VIEWS EXPRESSED

2.1 During the Plenary Sessions

Mr. Thomas Crouch, Deputy Director General of the **Asian Development Bank (ADB)** began by saying that, the global energy concerns revolved around the security of supply, high prices, and environmental harm. He said that, world energy demand is projected to grow by 1.6% per annum until 2030 but that 70% of this growth in demand will come from emerging economies. Mr. Crouch then said that, oil and natural gas prices have been rising steadily since 2000 and that the oil reserve replacement rate has been dropping steadily since the late 1990s. Moreover, he said, the average size of new discoveries of oil has declined threefold and the newly found deposits are deeper and harder to reach. In essence, he stressed that the tight supply-demand balance worldwide—and the attendant high prices—is expected to persist for the foreseeable future. He then pointed to the “new direction” aimed at energy efficiency, alternative energy development, and tackling the threat of climate change.

Mr. Sohail Hasnie, Senior Energy Specialist of the **Asian Development Bank (ADB)** noted that, there is a rising net oil import dependency across the Southeast Asian region. In the Philippines, he said, energy consumption grew by an average of 3.5% per year over the last 20 years and is expected to grow even faster until 2030.

Dr. Nandita Mongia, Regional Coordinator and Team Leader for the **Regional Energy Program for Poverty Reduction in Asia and the Pacific** of the **UNDP Regional Center in Bangkok** stressed that, we have undoubtedly entered a new era of expensive oil. She said that, the factors that have brought this about are growth in world oil demand,

shrinking buffers, oil supply insecurity, speculation in the world oil market, and under investment in oil exploration and refining. She pointed out that, the Philippines (like Bangladesh, Pakistan, and Cambodia) is among the countries with a high oil price vulnerability index (OPVI). She said that this means that poor communities, particularly, will “be forced to climb down the energy ladder” and switch back to burning wood, crop residues, and dung cakes for fuel. She pointed to the following strategies for reducing vulnerability: managing oil price risk through pricing policies and targeted subsidies, enhancing oil supply through strengthening exploration and building refining capacity, restraining oil demand by increasing efficiency in transport and industry and agriculture, preparing for emergencies by building strategic reserves and planning for rationing, and diversifying fuels by developing renewables and biofuels but also by using more coal and natural gas. She cautioned that, the high energy costs put the Millennium Development Goals “at risk”.

Mr. Sergio R. Ortiz-Luis, Jr., President of the **Philippine Exporters Confederation, Inc.** said that, the Philippines’ export industry sector was being weighed down by a “triple whammy” of high electricity rates, high oil prices, and a strengthening peso. As a result, he said, Philippine exports declined by two percent in November 2007 as compared to the same month in 2006.

Dr. Cayetano W. Paderanga Jr., Chairman of the **Institute for Development and Econometric Analysis, Inc. (IDEA)** and former **NEDA Director-General** said that, three major clouds are gathering on the Philippine short- to medium-term horizon, namely, the sub-prime credit crisis in the US, high oil price levels, and the appreciation of the peso. With respect to oil prices, he pointed to the following sectors as most affected by increasing petroleum prices: petroleum refineries, manufacture of oil-derived products, air transport, public transport utilities, and rubber tire and tube manufacturing. As a result of the three major clouds he described, Dr. Paderanga forecasted a significant slowdown in the country’s economic growth for this year and next year.

Dr. Emmanuel S. De Dios, Dean of the School of Economics of the University of the Philippines, stressed that energy prices and energy security are an issue for us today and are bound to be “an overriding strategic issue even beyond the current headlines.” He said that, he expected only a mild softening (if at all) of global petroleum prices and a continuation of high energy prices domestically. He pointed out also that, a recession in the US would cause demand for our exports to weaken, but it would cause petroleum prices to soften. Whether the net effect on us of these two influences would be positive or negative would probably depend on the severity of the slowdown in the US economy as this will affect demand worldwide.

Dr. René B. Azurin, Professor of the College of Business Administration of the University of the Philippines said, that the shock of crude oil prices hitting the psychological barrier of \$100 per barrel might cause us to focus attention on measures that address the narrow issue of high oil prices. He said that, it was essential to take a broader perspective of the whole oil price problem. For example, he said, dealing with the problem of high oil prices by trying to bring down the price of oil products by eliminating value-added-taxes and tariffs on oil products or providing subsidies indicates a rather narrow perspective. That approach fails to take into account the fact that keeping oil product prices high by taxing them effectively discourages their consumption and encourages energy conservation. Further, that approach also fails to take into account the fact that oil products are polluting and that taxes on them are part of the price the polluter must pay for dirtying the atmosphere. Subsidies and lower taxes diminish the incentive for consuming less energy. Moreover, Dr. Azurin said, taxes and tariffs on oil products raise the price of those products and, accordingly, improve the investment attractiveness of products made with the alternative energy sources that should be promoted because they are less polluting. Taxes on oil products, he said, provide the right incentives for behavior (e.g., energy conservation) that should be encouraged. On the other hand, he said, subsidies on oil products introduce the wrong incentives and behavior (e.g., wasteful energy consumption) that should be discouraged. Dr. Azurin then proposed that, the country’s entire tax system be

overhauled by replacing income with carbon as the basis for taxation. Instead of taxing income, he said, the government should raise its needed revenues by taxing oil and other products whose manufacture and consumption emit carbon and other pollutants into the atmosphere.

Fr. Jose Ramon T. Villarín, SJ, President of Xavier University in Cagayan de Oro said that, clean and climate-friendly energy was no longer a pipe dream but an imperative. He said that, in a globally warmer world, “carbon will be constrained” and he expected this to happen in a decade or so. He then pointed out that, located where we are in the tropics, we have an abundance of clean energy sources like wind, water, sun, and waves. Thus, he said, the current level of oil prices represent an opportunity and a stimulus for us to develop climate-friendly, sustainable energy alternatives.

Mr. Edgar O. Chua, Country Chairman of Pilipinas Shell Petroleum Corporation spelled out the energy challenge as “producing more energy for a growing world population, while stabilizing or even reducing greenhouse gas emissions.” He said that, crude oil prices have reached record high levels and are expected to continue to rise. What he asked, if crude prices rise to \$200 per barrel? He then said that, there is nothing we can do about the international prices of oil but we can mitigate the local impact by demand management, fuels diversification and supply security, and emergency preparedness.

Mr. Jesse O. Ang, Country Manager for the International Finance Corporation (IFC) reviewed what has happened since 2003 when the DOE held the first of three contracting rounds to stimulate activity in the petroleum exploration sector. Since then, he said:

- 1) A total of 22 Service Contracts were awarded from 2004-2006;
- 2) Since 2004, over 30 new participants – both domestic and foreign -- have entered the industry through successful bidding for new service contracts and through farm-in to existing ventures; and

- 3) Total acreage area under contract has increased by 15 times since 2004.

He emphasized the need for more local private investments in the exploration for indigenous petroleum, geothermal, and coal resources; otherwise, the country will remain an importer of oil, gas, and coal

Dr. Kelvin S. Rodolfo, Professor at the **National Institute of Geological Sciences** of the **University of the Philippines** stressed the need to utilize effectively our petroleum resources as the oil supply is diminishing and the global climate is tremendously affected by the world's continued consumption of oil.

2.2 During the Summit Workshop

Mr. Rafael E. del Pilar, President of PNOC-Exploration Corporation who chaired the session, set the objectives of the workshop as generating, evaluating, sharing, and integrating ideas, information, and insights on the subject of accelerating oil and gas investments in the country.

Atty. Eduardo F. Hernandez, President of the Petroleum Association of the Philippines (PAP) and Director of PNOC-Exploration Corporation set the tone for the workshop with what he described as a wake-up call to the state of oil and gas exploration and development in the country and in the world. He stressed that, the global demand for energy is growing at a pace never experienced before. He indicated that, the geology or "prospectivity" of oil or gas resources and the fiscal terms of petroleum service contracts must be properly balanced in order to attract investments. He mentioned other factors that affect significantly successful petroleum exploration and development in the country, such as politics and corruption, the hospitality extended by the government and its citizens, and the position of the religious sector and the environmentalists to exploration and development activities.

Among the important points he made were:

- 1) The country has been exploring for oil with little success and thus there is a need to pursue more aggressively the drilling of exploration wells to upgrade our petroleum areas' "prospectivity". There is also a need to provide

more attractive fiscal policies that are more in keeping with the geology of our sedimentary basins.

- 2) The Philippine Energy Contracting Round (PECR) should be conducted more frequently (e.g., semi-annually) to accommodate prospective investors in energy resource exploration and development. Along this line, he suggested that:
 - For blocks not taken during a bid round, the DOE should consider negotiating with private companies interested in acquiring rights in the area;
 - With respect to blocks not offered during a particular PECR, the DOE should allow private parties to negotiate directly with them.
- 3) There are very long delays in the approval of Service Contracts (SCs) and Farm-In Agreements (FIAs) even in spite of the endorsement by the DOE to the Office of the President. He suggested that, the Executive Secretary should have the authority to approve SCs and FIAs.
- 4) He observed that, there is rather slow processing of bidded areas. As example, he said that, the Service Contracts for the 2006 PECR have yet to be awarded. He suggested:
 - A definite timeframe for the DOE to approve the SC or FIA, starting from the submission of all required documents to the DOE;
 - Automatic approval of the proposed SCs and FIAs, if the DOE fails to act upon it within the specified processing period.
- 5) The process for evaluating service contractors needed to be strengthened to ensure the contractor's unquestionable technical and financial capability and to establish the availability of exploration funds. There should be adequate proof of the financial ability of proponents to engage in exploration activities in their respective service contract areas.

- 6) Difficulties and delays in securing Tax Exemption Certificates for importations are commonly experienced.
- 7) The DOE should, on behalf of the oil companies, secure the necessary endorsements and permits from relevant government agencies and take care of dealing with groups and personalities opposed to the project.
- 8) Executive Order (E.O.) 556, which specifically requires PNOC-EC to go through a lengthy and tedious bidding process to farm-out interests in its Service Contract areas, slows down the entire exploration effort
- 9) There are important *territorial issues*:
 - In 1998, the DOE issued a concession to Alcorn covering the Kalayaan Islands but then they were restricted to a table survey because of an injunction against their physical presence in the area.
 - When several countries share a common economic bonanza, it is important to decide whether political disputes on territorial limits will play first or second fiddle.
 - While we may have defined in our 1973 and 1986 Constitution our territorial limits, it is extremely important that we also establish our baselines under the UN-CLOS as this will give us added international protection. This should be done on or before the deadline on May 2009.
 - In the meantime, the JMSU should be extended to allow more seismic studies to be conducted. This will add to our greater understanding of the geology of the basin.
- 10) The current terms with respect to sharing are rigid. There must be appropriate legislation to give the government more flexibility in offering Service Contract terms.

Ms. Rachel Masters, Senior Manager of FUGRO Multi-Client Services emphasized the importance of detailed geological survey data. She stressed that, the benefit of enhanced quality digital data that can

be stored over a long period is that this can be made easily accessible to oil companies and, thus, help attract more exploration investments. She also said that, the Philippines should consider intensifying the promotion of prospective basins to attract more investments in energy exploration.

Mr. Patrick Tan, likewise of **FUGRO in Singapore** pointed out that, the model of multi-client exploration will encourage knowledge-sharing among countries with common interests and encountering exploration difficulties.

Mr. Kevin Lyon, President of Chevron Malampaya LLC admitted that, the high-cost and high-risk of oil exploration coupled with the long lead time from discovery to development (citing the Malampaya gas project) increases greatly a company's investment costs. He suggested that, the government must draw up a plan to promote a more attractive fiscal regime and introduce a faster and more streamlined process for the acquisition of needed permits and certificates. He also suggested greater flexibility in commercial arrangements.

Mr. Keith Perrin, Asset Manager of Shell Philippines Exploration B.V. said that, the Department of Energy must create a "one-stop-shop" for assisting investors in securing permits and clearances for their projects. He mentioned that, the Malampaya Gas Field took ten years to develop and bring to production, and about 1,600 permits were required for it to just begin operations. This situation is considered unfavorable in attracting foreign investors to conduct exploration and/or development in the country. He said that, the country needed to be much more "investor friendly".

3. ANALYSIS AND COMMENTS

3.1 Prioritizing the Issues raised in the Summit Workshop

At the post-Summit workshop at the ADB, representatives from the private sector and from government agreed to merge the issues raised in the Summit workshop into similar or parallel concerns. Accordingly, these were eventually grouped into nine main issues and prioritized according to the number of times they were raised during the Summit workshop

discussion. The post-Summit workshop participants discussed also matters related to implementing each priority issue and agreed that all should be accomplished not later than the medium term, meaning in less than five years. On the next page is a summary of the results of the discussions.

3.2 Formulating the Strategies

After lengthy discussions on the nine (9) priority issues, it was agreed that those with a common objective should be joined for simplification.

Eventually, five (5) basic strategic initiatives were identified as follows:

- 1) Setting up of an Energy Investment Center;
- 2) Improvement of fiscal terms;
- 3) Proposing legislation for the downstream gas industry;
- 4) Improving the Philippine Energy Contracting Round system; and
- 5) Continuing the DOE's capacity-building activities.

4. CONCLUSIONS AND RECOMMENDED ACTIONS

4.1 Conclusions

The shared objective of all participants in the Summit workshop was to find ways of attracting investments into the country for oil and gas exploration and development. All expressed the opinion that the DOE should pursue aggressively the revision of the current policies on:

- a) contract application,
- b) awarding of Petroleum Service Contracts,
- c) implementation of contractors' work commitments.

It was noted that, the major concern of the petroleum companies was the fiscal policy governing petroleum service contracts. Although the Philippines is considered as having one of the most attractive fiscal regimes in the world, the country's petroleum basins are not as "geologically prospective" as compared to its Asian neighbors. Thus, it was

frequently suggested that government consider offering additional fiscal and tax incentives to attract serious investors into the country.

Another issue frequently raised was the need for streamlining the process of securing the necessary permits and certificates from the concerned government agencies for exploration and development projects.

Also expressed was the need for the Philippine government to technically improve and upgrade its petroleum database, which is outdated (generally) and in vintage format. The reprocessing and conversion of survey data into digital format would facilitate their access by investors interested in oil exploration.

It was also thought to be very important to make the local government units (LGUs), environmentalist groups, non-governmental organizations (NGOs), and other concerned entities understand the importance of the exploration activities and consequent energy projects. Thus, various participants thought that there needed to be a better public information campaign focused on the benefits that such projects bring to host communities and to the country's economy. It was suggested that extensive information, education, and communication efforts should be carried out specifically in areas where environmentalist groups are extremely active. It was thought that the DOE should demonstrate a more serious commitment to promoting to the public the necessity for the development of petroleum resources in the country.

4.2 Recommended Actions

The issues raised by the participants at the Summit and the post-Summit workshops at ADB make clear the areas where concrete action must be taken if government wants to attract foreign and domestic investments in oil exploration into the country. The discussions resulted in action plans that are do-able in the immediate and in the short term, and these can be implemented effectively if given the full support of the government, in particular, the Department of Energy and other concerned agencies.

The apparent consensus of the Summit and post-Summit workshop participants is that, within the short-term (meaning, within a year), the DOE must undertake the following activities:

No.	Priority Issue	Issue to be addressed by	Implementation
1	Social and environmental issues encountered during the exploration and development phase affect the Service Contractor's performance of its work commitments.	Government	Short-term
2	The current fiscal terms are not attractive enough for the serious investor in oil and gas exploration and development.	Government	Medium-term
3	There is slow processing/awarding of Service Contracts.	Government	Short-term
4	There are long delays in the issuance of permits and approvals; numerous application requirements (e.g., tax exemption certificates).	Government	Short-term
5	The fiscal terms of Petroleum Service Contracts must be benchmarked with what other countries offer.	Government	Medium-term
6	Tax Incentives must be improved.	Government	Medium-term
7	Presidential Decree (P.D.) No. 87 is outdated.	Government	Short-term
8	There is no legislation for the downstream natural gas industry.	Government	Medium-term
9	The role of the Department of Energy as lead agency (with regard to inter-agency relations and meeting the needs of the Service Contractor) must be enhanced.	Government	Short-term

- 1) Coordinate and formalize appropriate agreements with concerned government agencies, LGUs, and NGOs to facilitate the issuance of approvals, permits, certificates, and clearances for the implementation of work programs of Service Contractors.
- 2) Undertake a review of Presidential Decree No. 87 in consultation with various stakeholders and propose the necessary amendments to the fiscal provisions and tax incentives for new Petroleum Service Contracts.
- 3) Lobby for the passage in Congress of the Natural Gas Bill, which would govern the country' downstream natural gas industry.
- 4) Review the guidelines for the Philippine Energy Contracting Round (PECR), propose improvements, and see to their implementation.
- 5) Conduct competency training for its technical personnel in petroleum resource evaluation and management and in digital data management.
- 6) Acquire the latest computer hardware and appropriate software for petroleum resource evaluation and management and for conversion of the country's database of geological and seismic information into digital format.
- 7) Create a department unit that would assist service contractors in dealing with social / environmental issues in connection with their petroleum exploration and development operations.
- 8) Institute a streamlined process for the acquisition of permits and approvals for petroleum exploration operations from the DOE and other relevant government agencies.
- 9) Review the compensation and benefits package of DOE's technical personnel with the end of ensuring that highly skilled and experienced personnel remain in the government service.

In the medium-term (meaning, in five years or less), the following activities are expected to have been accomplished by the DOE.

- 1) Approval of a Bill filed in Congress proposing amendments to P.D. 87 and providing improved and better fiscal terms and additional tax incentives for new Petroleum Service Contractors.
- 2) Issuance by the DOE of the Implementing Rules and Regulations (IRR) for the Natural Gas Act.
- 3) Full implementation of a consistent and streamlined system for the awarding of petroleum acreage through the Philippine Energy Contracting Round.

Additionally, the government, through the Department of Energy, should consider possible arrangements with petroleum service companies for providing new geophysical data and information on the frontier and under explored areas to improve their "prospectivity". Such arrangements, through contracts or Memorandums of Agreement, could include the acquisition of 2D and 3D seismic data by service companies such as PGS and Western Geco. This would make available better geoscientific data to oil companies seriously considering petroleum exploration in the country's sedimentary basins.

Bilateral agreements with other countries that have advanced knowledge and technology in petroleum exploration would also help promote petroleum exploration in the country. Past agreements with Norway, Germany, Australia, and Japan should be renewed and implemented. Agreements with our neighboring countries, like Malaysia, Indonesia, Vietnam, and China should be explored and established where beneficial.

4.3 Summary of the Action Plan

The following table outlines the Action Plan, broken down into immediate, short-, and medium-term activities, based on the five strategic initiatives proposed to realize the objective of attracting petroleum exploration and development investments into the Philippines.

Accelerating Investments in Oil & Gas Exploration and Development Program of Action

Objective 1		Strategy	
<ul style="list-style-type: none"> To streamline regulatory requirements To assist the Service Contractors in securing the requirements, permits and approval for the implementation of their operation Attract more investors to explore, develop, and produce energy resources in the Philippines 		To set up an Energy Investment Center or to enhance/restructure the existing office in the DOE that will serve as a one-stop shop for energy investors whose task will include assistance in the following: Social, Environmental and Security concerns; LGU representation and coordination; and concerns with other government agencies/units (e.g. permits, clearances etc.)	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Formulate draft MOA individually with concerned government agency	Draft MOAs prepared	Policy and Legislation	DOE (lead), DOJ, DOLE, EMB-DENR DND, NEDA, BoC, DILG DTI, DOF, NCIP, etc.
Short-Term (within 1 year)			
Draft/finalize MOA with concerned government agencies	MOA signed with other stakeholders/government agencies	Policy and Legislation	DOE (lead), DOJ, DOLE, EMB-DENR DND, NEDA, BoC, DILG DTI, DOF, NCIP, etc.
Devise a system of procedures and protocol with partner agencies	Faster delivery of regulatory requirements and business permits	Capability-building	DOE (lead), DOJ, DOLE, EMB-DENR DND, NEDA, BoC, DILG DTI, DOF, NCIP, etc.
Medium-Term (5 years)			
Implement the signed MOA with concerned government agencies	Easier acquisition of permits and approvals.	Regulation, Enforcement and Compliance	DOE (lead), DOJ, DOLE, EMB-DENR DND, NEDA, BoC, DILG DTI, DOF, NCIP, etc.
Update continuously the system of securing permits	More applications for Petroleum Service Contracts	Capability-building	DOE (lead)

Objective 2		Strategy	
<ul style="list-style-type: none"> To attract more investors to explore, develop, and produce energy resources in the Philippines To accelerate and intensify exploration activities 		Improve Fiscal Terms by providing incentives or enhancement in the existing terms (as benchmarked with other countries) to promote exploration activities, e.g. compensate the exploration risk, allowing cross recovery, and improving profit split to contractors, etc.	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Review of PD 87	Completed the review and formulate amendment proposals to PD 87	Policy and Legislation	DOE (lead) and Petroleum Association of the Philippines (PAP)
Short-Term (within 1 year)			
Consultation with stakeholders	Gathered proposals from the stakeholders re: PD 87 in two consultations	Policy and Legislation	DOE (lead) PAP, DOF, DOJ Service Contractors
Medium-Term (5 years)			
Propose a House Bill to amend PD 87	Amendments to PD 87 signed into law	Policy and Legislation	Congress (lead) DOE (lead lobbyist) PAP, DOF, DOJ
Long-Term (beyond 5 years)			
Consultation with stakeholders	Increase by 20% of the exploration and more active service contracts	Investment (Incentives)	DOE (lead) DOF

Types of Measure:

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

Objective 3		Strategy	
<ul style="list-style-type: none"> To promote the use of natural gas beyond the power sector To have a clear policy and program for market development and maintain competition and open market 		Propose appropriate legislation for downstream gas industry	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Short-Term (within 1 year)			
Lobby for the passage in Congress of the Natural Gas Bill	Enactment into law of the Natural Gas Bill	Policy and Legislation	Congress (lead) DOE (lead lobbyist)
Medium-Term (5 years)			
Formulate Implementing Rules and Regulation	IRR approved by the Secretary of Energy	Policy and Legislation	DOE (lead) DOJ, PAP Stakeholders
Long Term (beyond 5 years)			
Implementation of the Natural Gas Act	Increased utilization of Natural Gas in non-power sector	Regulation, Enforcement and Compliance; Market Development	DOE (lead) Stakeholders

Types of Measure:

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

Objective 4		Strategy	
Prompt award of exploration blocks to qualified investors		Improvement of PECR system • Specific guidelines on blocks not offered or taken during PECR • Approval procedures and monitoring processes, to include technical and financial assessment of contractors	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Review of the PECR guidelines	Completion of the review and circulation of the revised and improved PECR guidelines.	Policy and Legislation	DOE
Short-Term (within 1 year)			
Implementation of the PECR guidelines	Conduct PECR under the revised guidelines	Regulation, Enforcement and Compliance	DOE
Medium-Term (5 years)			
Regular review and update of the PECR guidelines	Review and update every two (2) years	Policy and Legislation	DOE

Types of Measure:

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

Objective 5		Strategy	
<ul style="list-style-type: none"> • Improve the systems within the Department of Energy and the services to investors • Enhance/ improve the access to and quality of all geological, geophysical and engineering database 		Continuous capacity-building for the Department of Energy	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Competency training in Resource Evaluation and Management	100% Capability of DOE staff in Resource Management	Capability-building	DOE (HRD, ERDB)
Competency training in Data Management for DOE staff	100% Capability of DOE staff to manage digital database	Capability-building	DOE (HRD, ITMS)
Short-Term (within 1 year)			
Acquisition of computer hardware and software to convert the databases to digital format	Required hardware and software in place	Investment (Technology)	DOE (ITMS)
Medium-Term (5 years)			
Continuous training in Resource Evaluation and Data Management	100% Capability of DOE staff in Resource Evaluation and Data Management	Capability-building	DOE (HRD, ERDB, ITMS)
Conversion of all existing databases to digital format	100% Conversion of database	Investment (Technology, Infrastructure)	DOE (ITMS)
Long-Term (beyond 5 years)			
Improve benefits and incentives package for DOE personnel comparable with industry standard	Retention of competently trained and experienced personnel in DOE	Policy and Legislation; Capability-building	DOE

Types of Measure:

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

II Promoting Renewable and Alternative Energy

I. OVERVIEW

In 2007, the Philippines imported oil and petroleum amounting to \$6.8 Billion, a significant 20% increase over the previous year. This fact is definitely a cause of concern because any increase in money spent for this imported commodity represents precious resources that could conceivably be used in other applications with more social utility.

The necessity for developing and using indigenous and environment-friendly energy resources and reducing dependence on imported energy is spelled out in Republic Act No. 7638, also known as the DOE Law. Pursuant to this law, the aggressive development and utilization of renewable and alternative energy resources is proclaimed as State policy and it has been deemed imperative to realize the twin goals of energy security and energy independence.

The shift from fossil fuel sources to renewable and alternative energy resources is a key component for realizing these objectives. Obviously, the energy sector must achieve the transition to a sustainable system based on renewable and alternative fuels as increasingly prominent, viable, and competitive fuel options. Current initiatives in the pursuit of this goal should be directed towards creating a market-based environment that is conducive to private sector investment and participation in the renewable and alternative fuel field. It should also be directed at encouraging technology transfer and research and development. Fiscal incentives should provide for a preferential bias for renewable energy

(RE) and alternative energy (AE) technologies and projects that are environmentally sound.

With the end in view of increasing the RE and AE sector's contribution to meeting the country's primary energy demand, the recommended immediate actions include:

- 1) the improvement of RE and AE policies which is anchored on the passage of the Renewable Energy Bill and the National Biofuels Program,
- 2) the creation of a "One-Stop-Shop" for sustainable energy projects,
- 3) the improved access to financing packages for RE and AE projects, and
- 4) capacity building initiatives for all concerned parties. Strengthening public and private sector partnership in this effort shall serve as a key means for ensuring the installation of some 2,500 MW of renewable energy facilities by 2025 and the utilization of biofuel-blends of at least 2% bio-diesel and 10% bio-ethanol blends by 2009 and 2011, respectively.

This can be complemented with the start of commercial operations of public buses fueled by compressed natural gas (CNG) and the expansion of taxi operations using units that utilize LPG as fuel.

2. VIEWS EXPRESSED

2.1 During the Plenary Sessions

Mr. Thomas Crouch, Deputy Director General of the **Asian Development Bank (ADB)** pointed out that, carbon emission from energy consumption remains very high and continues to escalate over time. In this regard, he stressed that, there is a need to work for lower carbon emissions through the use of clean energy, energy efficient technologies, and renewable energy sources.

Mr. Sohail Hasnie, Senior Energy Specialist of the **Asian Development Bank (ADB)** mentioned that, the escalation of greenhouse gas emission is due to the growing energy consumption of emerging economies. Thus, he recommended that, government quickly pass a Renewable Energy Bill and an Energy Efficiency Bill.

Dr. Nandita Mongia, Regional Coordinator and Team Leader for the **Regional Energy Program for Poverty Reduction in Asia and the Pacific** of the **UNDP Regional Center in Bangkok** pointed out that, the shift to inferior fuels such as dung cakes, wood and crop residues for cooking and kerosene for lighting pose risks to household members. Hence, she emphasized the need to develop renewable energy technologies for off-grid electricity.

Mr. Sergio R. Ortiz-Luis, Jr., President of the **Philippine Exporters Confederation, Inc.** mentioned that, we have one of the highest costs of electricity in the region. He stressed that, electricity is a big part of the business sector's operational costs. He then suggested the need to tap the country's alternative/renewable energy sources in order to address the concerns of electricity quality and security.

Dr. René B. Azurin Professor of the College of Business Administration of the **University of the Philippines** pointed out that, it was important to focus on factors that we can do something about and not on factors we can do nothing about, like the global price of oil. He said that, we can expect a continuing upward trend in global oil prices and all we can realistically do is try and reduce our country's dependence on imported oil for the energy needs required to sustain our economic growth. This meant, focusing on developing indigenous sources of energy.

Fr. Jose Ramon T. Villarín, SJ, President of **Xavier University** in **Cagayan de Oro** said that, clean and

climate-friendly energy (CE) is no longer a pipe dream but an imperative. He further stated that, "CE is our competitive advantage because it is the one resource we have in abundance in the tropics. CE will be one of the greatest equalizers of the 21st century because the resources that will be needed for CE will come from the tropical belt of this planet. By CE, I mean energy from water, sun, wind, geo-heat, tidal forces, and biology, we are a poor country sitting on all that energy capital." We are poor, he continued, "because we seem unable to mobilize this energy capital into assets that will power our development."

Mr. Edgar O. Chua, Country Chairman of **Pilipinas Shell Petroleum Corporation** said that, one of the strategic responses to mitigate the impact of escalating oil prices is through fuel diversification and supply security. Thus, he said, the Renewable Energy Bill should be passed immediately to increase investment in geothermal, wind, solar, and hydro sources of energy. In the coming decades, he said, the world must meet the challenge of producing more energy for a growing world population, while stabilizing or even reducing greenhouse gas emissions.

Ms. Elisea G. Gozun, Chairperson of **Earth Day Network Philippines** and former **Environment Secretary** observed that, escalating conventional fuel prices is an opportunity for renewable energy. She stressed the need for the immediate passage of the Renewable Energy and Energy Efficiency Bills, as well as the strict implementation of the Biofuels Act.

Mr. Meneleo J. Carlos, Jr., Chairman of the **Federation of Philippine Industries** said that, competitive alternatives, such as hydro, geothermal, wind, nuclear, and hybrid combinations for the generation of electricity, require thorough cost analysis taking into account the availability of technology, financial, land resources, etc. He further stated that, if full cost accounting is considered, renewable fuels would be cheaper than fossil fuels.

2.2 Summit Day 2

Mr. Jose Ma. Lorenzo P. Tan, Vice Chairman of the **World Wide Fund for Nature (WWF-Philippines)** mentioned that, the main issue with respect to RE is the inadequate public information in terms of its viability as an energy technology and its economics as a investment venture. He said that, investments in RE ventures can generate high returns, contrary to popular belief. He recommended that, the government work for the immediate passage of the

RE bill and ensure its strict implementation, develop an integrated business model for RE development, and provide carbon credits to RE projects to expand carbon trading.

Atty. Miguel M. Trinidad, Country Director for Finance of SunPower Philippines Manufacturing Ltd. mentioned that, global energy demand for non-renewable sources will increase by another 50% over the next 15 years and traditional energy resources are now approaching the peak production levels. Accordingly, fossil fuels will become increasingly costly as reserves are depleted. In view of this, he recommended the implementation of programs that would stimulate photovoltaic (PV) start-ups, such as net metering, subsidies/low interest loans for small off-grid systems, develop infrastructure for grid connectivity, and enhance PV systems support infrastructure. He also lobbied for the immediate passage of the RE Bill.

2.3 Summit Day 3

Senator Miriam Defensor-Santiago, Chairperson of the Senate Committee on Energy said that, energy dislocation or periods of energy poverty arises because of four (4) trends, namely:

- 1) high fossil prices,
- 2) growing concern for energy security,
- 3) growing social concerns about the local and global environments, and
- 4) technology innovation which attracted global investment in alternative and renewable energy, now standing at US\$100 billion.

Senator Santiago further explained that, there is a complex interdependency of the said four trends and she proposed the following fixed principles

- Flexibility – the country should maintain a portfolio of energy options;
- Building collaborative networks – the government's job should be connected to the endeavors of the NGOs, business companies, consumers, and the Philippine public;
- Promoting energy efficiency – every business should put in place an energy efficiency plan covering operations, supply chains and workforce behavior, and

- Making carbon a mainstream economic cost for business – filing of a Carbon Pricing Bill to strengthen carbon measures.

With the increasing price of fossil fuels, Senator Santiago mentioned that, the Senate is expected to take up the following measures:

- Provide incentives for clean coal technologies;
- Place a premium on alternative fuel bills (substitutes for gasoline and diesel in the transport sector);
- Increase efficiency of biomass fuels and promote use of kerosene and LPG for cooking;
- Increase access to efficient stoves for biomass and modern fuels;
- Subsidize capital costs for rural grid electrification and develop off-grid solutions;
- Target subsidies to access and not to consumption;
- Remove market barriers to trade in kerosene, LPG, biomass fuels, and charcoal; and
- Provide supportive regulatory policies for meeting energy services.

2.4 Workshop on Regulatory Framework and Policy Direction

There were a total of 159 officially registered participants in this workshop, half of whom came from the private sector. Government representatives comprised 30% of the total, while 16% came from civil society. Those who represented international funding institutions like JICA, ADB, USAID, and the diplomatic community comprised 5% of the participants. Aside from the officially registered participants, there was an estimated 50 more walk-in participants.

Among the personalities in the group were **Atty. Angela Consuelo S. Ibay** of KLIMA Climate Change Center-Manila Observatory, **Ms. Carina Agarao** from the Center for Community Advancement, Eastern Petroleum President **Mr. Fernando L. Martinez**, **Ms. Luli H. de Leon** of Chevron Geothermal Philippine Holdings, Inc., JICA Consultant **Mr. Tadayuki Ogawa**, Energy Consultant **Engr. Delfin de la Cruz, Jr.**, **Mr. Alex Ablaza** of ADB, **Mr. David De Montaigne** of Global Green Power.

Highlights of the presentation of the main resource speaker **Ms. Catherine P. Maceda, Deputy Managing Director of EON, Inc.**, are given below.

Ms. Maceda noted that, while other countries started development of alternative energy sources during the past decades, the Philippines has barely begun developing systems for realizing renewable energy goals. She said that, this lack of initiative in addressing the energy problem of the country has been recognized by **H.E. Gaudencio Cardinal B. Rosales** and other sectors in the country, but seems to have been ignored by the government.

She then noted that, the importation of oil and petroleum amounted to \$6.8 billion during the past year, a considerable 20% increase from the year previous to that. This is something that should be a concern for the government as the money diverted to oil imports could have had more social utility. The total import expenditure could have funded the education of almost 35 million children, could have built half a million classrooms, or could have fed more than 5 million families.

She then described the Philippine situation and the prospects of development of renewable energy technology, pointing out that, indigenous energy sourcing can be increased from its present 57% and installed plants that produce renewable energy can enlarge its current 30% share in total energy production. The possibility of noticeable improvements can be realized with the passage of the Renewable Energy Bill, which is presently being deliberated on in the Congress.

The primary barrier in promoting renewable energy, she said, is the absence of a legal framework to guide the technological, institutional, and social development of these alternative energy sources. The current 4,450 megawatts production of the country can potentially and easily be improved to more than 9,000 megawatts, a 100% increase in production. The goals of the DOE, she said, are overwhelming, as, for instance, it targets making the Philippines the regional and global leader in geothermal and wind energy production. Also, another objective of the DOE is the 100% increase, or doubling, of the country's hydroelectric capacity and the emergence of the Philippines as the solar cell manufacturing hub.

She indicated that, in terms of resource capability and availability, the Philippines has the potential of producing 76,600 megawatts of energy. Renewable

energy technology has the potential to generate considerable income, and, moreover, it is something that can be sustainable. Challenges to renewable energy development, however, like market constraints and financial limitations, have to be recognized. The passage of the Renewable Energy Bill, she said, would be an important initial step. Renewable energy, she said, confers on the country's numerous benefits. First, she said, it can ensure the energy security of the country by providing a regular and sustainable energy source whose supply is less volatile than that of oil. Second, renewable energy can be a climate change imperative, offering solutions to the problems of global warming and other climate change consequences. Third, the development of renewable energy can contribute to and spur national and local development and progress.

Currently, she observed, 18 versions of the Renewable Energy Bill are in the Upper House, and there seems to be prospects for immediate consolidation. The Senate initiative is shepherded by **Senator Miriam Santiago** who chairs the Energy Committee, while **Representative Juan Miguel Arroyo** chair of the House Energy Committee, leads the renewable energy talks in that branch of the legislature. The contents of the bill essentially consist of provisions for incentives to stakeholders and market players and it can serve as an omnibus law for energy development. Fiscal incentives, like tax breaks and marketing assistance from the government, and non-fiscal incentives, like portfolio standards and net-metering arrangements, are outlined in the proposed Renewable Energy Bill.

Strong support from various sectors seems to affirm the rationale of the bill, as 59% of surveyed individuals claim that it would address energy security. The survey also shows that people think that the bill would address climate change, increase investments, and provide power to small communities. Ms. Maceda then went on to assert that, there is a relationship in the number of news items about renewable energy and the increase in the price of petroleum products. This merely indicates that there is renewed interest in the issue of alternative energy whenever there is an energy crisis.

Ms. Maceda highlighted the challenges that pertain to the promotion of renewable energy. These fall under three main headings, namely, market aspect, financial aspects, and technological aspects.

She concluded by emphasizing three (3) points:

- 1) that renewable energy would address the immediate need for energy security and long-term energy independence,
- 2) that renewable energy is more efficient, more sustainable, and cleaner than fossil fuel, and
- 3) that to realize renewable energy goals means convincing the government to take immediate policy and administrative actions.

Several discussants reacted to Ms. Maceda's presentation.

Dr. Nandita Mongia, Regional Coordinator and Team Leader for the Regional Energy Program for Poverty Reduction in Asia and the Pacific of the **UNDP** in **Bangkok** highlighted, the importance of ensuring that no one, most especially the poor, is excluded from having a share of the country's energy. It is the poor, she said that, are especially affected by the abrupt increases in oil prices and by the fluctuations of the petroleum market. Studies reveal that 25% of the urban poor still rely on firewood as their main energy source. Dr. Mongia also made the assertion that alternative energy resources are in fact available and there is no reason why these should not be taken advantage of. What is necessary, she said, is that the right policies are put in place to usher in the development of these renewable energy resources.

Dr. Mongia identified several barriers to the development and realization of renewable energy goals. The first generation barrier, she said, involves the lack of awareness of people, who then tend to reject proposals without any real knowledge of how these work. This barrier, she contended, was not a problem in the Philippines, as its citizens are relatively well-informed and most recognize the need for such alternative technologies. The second generation barrier, which she said, is the one that is observable in the Philippine setting, refers to the inability of the proposals to develop into concrete policies that address the problems of market acceptance and penetration. That, she said, requires a collective push in order to be overcome. The third generation barrier goes beyond the problem of energy security and considers how renewable energy can address the poverty dilemma. It focuses on what can be done to make renewable energy initiatives generate income for local communities.

To promote development of RE technologies, Dr. Mongia enumerated certain strategic directions :

- 1) increase investment into interlinked renewable energy technologies,
- 2) increase investment in biofuels,
- 3) allow access of these technologies to the poor, and
- 4) expand into high value applications.

Dr. Mongia also gave the following policy recommendations:

- 1) renewable energy must be fed in to the electric power grid,
- 2) necessary legislation must be passed and appropriate policies must be adopted,
- 3) fiscal and financial incentives must be provided, and
- 4) the increase in public investments must be supported. In addition, short- and long-term actions must be considered, like supporting micro-finance and community based projects, expanding the role of development banks and the NGOs, and calibrating policy responses and support from both national and local governments.

Mr. Anthony James Menzies, Advisor of Chevron Geothermal Philippine Holdings, Inc. (CGPHI) observed that, renewable energy development efforts in the Philippines appear to be merely reactive. He noted that policy response only emerges as a result of key energy occurrences, like, for instance, the oil price shock of the late 70s and the early 90s. The point of the Renewal Energy Bill, he said, is to make the country proactive in its approach to energy security. What the government needs to focus on is the development of the market to create consumers of energy supplies and assure producers that a strong market demand exists. The use of different types of alternative energies, like wind, solar, and geothermal must be maximized.

He pointed out that, over the past years, renewable energy development has been slow and protracted. But, he said, focus on its development can help local communities through employment and tax revenues.

What is essential, he said, is that predictable markets and predictable returns are assured in order to attract investments and financing in support of these alternative technologies.

Mr. Larry F. Bayrante, President of the National Geothermal Association of the Philippines (NGAP) and Division Manager of PNOC-Energy Development Corporation expressed concern for the goals identified by the Department of Energy. He pointed out that, Philippine geothermal energy production is presently at 1,925 megawatts, which is in fact the second largest in the world, but, as impressive as it is, its growth has been stunted for more than 10 years. Although present development plans target geothermal production in excess of 3,000 megawatts, one of the primary barriers to geothermal energy growth is the current policy that bars developers from entering Aeta (an indigenous tribe) areas that are protected by the IPRA and the NIPAS Act. Geothermal power development has been difficult because of this reason. He noted, however, that sustainable development is possible even in the IPRA and NIPAS areas.

Another area of focus would be the risks in the exploration phase, which is one of the most important but neglected parts of the development process. Mr. Bayrante asserted that, unless a great deal more of exploration work is done, then prospects for investments may be unlikely. Another risk area he mentioned was the peace and order situation, particularly in Mindanao.

Dr. Alvin B. Culaba, Director of the Center for Engineering and Sustainable Development Research at the De La Salle University asserted that, science and technology are important components of the energy problem. Scientific considerations must, obviously, be taken into account in implementing renewable energy solutions and building renewable energy facilities. In this light, he noted that, the archipelagic nature of the country is problematic because facilities are not randomly located, but site specific. There needed, he said, to be development of stand-alone systems for off-grid technologies. Current knowledge, he said, demonstrates that community sustainable projects can be feasible.

The micro-hydrolic energy project of DLSU was mentioned by Dr. Culaba as an example of innovative technology building. Also, he related how DLSU students managed to build a solar car by hand in just

10 months, compared to other countries that took 1 to 2 years to develop one, utilizing state-of-the-art technology.

The point, Dr. Culaba stressed that, there must be investment in people. Research and development is an area that must be focused on by the government, which, he noted, already recognizes the need for local experts. In developing renewable energy technologies, he said, one must be fully versed in the science behind these. Research and development, would make energy security response more long-term, as it would strengthen manpower skills and capacity.

Mr. Alberto R. Dalusung III of Preferred Energy, Inc. emphasized that, aside from the mentioned compelling reasons for the passage of the RE Bill into law and the promise of feed-in tariffs and net-metering, discussions should also take into account the nuances between on-grid and off-grid strategies. The regulatory framework, he said, must focus on both. He stated that, present initiatives must be “decongested” because there are too many details, and he warned that “the devil is in the details”.

The Workshop’s facilitator, **Mr. Naderev M. Saño, Head of the Climate Change and Energy Program of World Wide Fund for Nature (WWF-Philippines)**, delivered the closing comments with a wrap up of the main problems identified by the participants, specifically the absence of a national law governing the utilization and development of RE resources and the accompanying consequences like the dearth of incentives for investors in RE technology. This has led, to rather sluggish investments in the development of RE. Mr. Saño also gave a summary of the proposed solutions, topped by the crafting of a national campaign to educate, inform, and spur to action the general public on the exigency of embracing RE, followed by the passage of the RE Bill into law, and the passage of a Land Use Act.

Mr. Saño concluded the workshop by urging everyone to continue working together towards a common vision of a secure energy future that takes into account the social, economic, and environmental dimensions. The results of this Workshop are summarized on the next page.

The problems, gaps, issues, and concerns that were identified during this workshop were generally typified. In this workshop, problem clustering bared the following clusters:

- 1) Stakeholder interests/conflicts
 - Jurisdictional issue
 - Governance
 - Community risks
 - Biofuels dilemma
- 2) Finance/resources
 - Financing
 - Research and Development of RE technologies
 - Incentives
- 3) Processes/mechanics
 - Policy inadequacy
 - Government role
 - WESM
 - Implementation concerns
- 4) Learning/growth
 - Awareness and interest
 - Knowledge and expertise

Table of Identified Initiatives under Workshop on Regulatory Framework and Policy Direction

Proposed Initiative	Votes
1. Public Information campaign promoting RE	24
2. Passage of the RE Bill in law	19
3. Passage of a Land Use Act	16
4. Increase fiscal incentive to lower start-up cost of renewable energy, specifically solar	7
5. To provide support for RE education training , R & D and continuing education	5
6. To make RE technologies available and affordable for the farming/agriculture sectors/ stakeholders (via appropriate policies and incentives)	5
7. Encourage electric distribution utilities to source power requirement from generators using Renewable Energy	5
8. Country inventory of RE resources	4
9. Creation of a central office that will coordinate all efforts to promote renewable energy	4

2.5. Workshop on Market and Financial Barriers

Highlights of the presentation of the Workshop's main resource speaker, **Mr. Marlon M. Centeno, Vice President of Northwind Development Power Corporation**, are given below.

Mr. Centeno revealed that, the development of renewable energy, particularly wind energy, provided economical, technical, social, and environmental benefits to electricity consumers of the Ilocos Norte Electric Cooperative (INEC). His presentation then focused on market and financial issues as among the challenges in the promotion of RE. He said that, he believed these would be addressed with the passage of the pending RE Bill.

He identified the following as the Market and Financial Barriers relative to the development of RE in the country:

- Inability to deliver competitive power rates to the Wholesale Electricity Spot Market (WESM), given the wheeling charges from TransCo and the wind turbine's expensive upfront cost: This is the main cause of Northwind's deteriorating competitiveness. However, he said, wind power's competitiveness improves over the long term. He suggested that, these can be addressed through the adoption of reasonable fixed-rate or feed-in-tariffs for RE.
- Restricted foreign investment: The Foreign Investments Act of 1991 states that, wind power generation is limited to only 40% foreign ownership.
- Tax treatment: The sale of power generated by RE is zero rated for VAT purposes but it remains a taxable VAT transaction, thus, the sale will not result in an output VAT. Input tax on zero rated transactions are to be recovered as tax credits or refunds.
- Non-passage of the RE Bill
- Credit rating of ECs: Electric cooperatives should be given credits for their RE use in order to help improve their credit rating.

A panel of experts contributed their thoughts on the issues brought out in the workshop. This panel consisted of:

- **Mr. Marietto A. Enecio, Senior Vice President and Program Development Head of the Development Bank of the Philippines;**
- **Ms. Jane McKay, President and CEO of Treswell Investment Asia Corporation;**
- **Ms. Anita M. Celdran, Team Leader of Philippine AhlCarbono; and**
- **Engr. Marcial T. Ocampo, Energy Consultant on Alternative Fuels.**

Among the main points made during the discussions by this panel of experts were:

- There is a need for a more concerted and consistent effort to promote and develop RE resources.
- A somewhat long period is required to realize an adequate return on investment for RE projects, but, once achieved, these provide a stable and steady increase in the rate of return.
- Despite the high demand for RE, investors are still reluctant because of its high upfront cost, particularly in the procurement of state-of-the-art RE technology know how and equipment.
- In 2008, funding available from the DBP for RE projects consisted of a loan value equivalent to 50% of the project cost but not exceeding P3M, to be payable over a 5-year term.
- It is difficult to obtain financing in the Philippines for the commercial use of wind power.

Other Workshop participants raised the following concerns and issues:

- High documentation cost for processing DBP loans;

- High required collateral of 50 % of the loan granted;
- High collateral requirements for the loan granted; and
- High investment cost for RE projects.

The following strategic initiatives were identified by the participants of this Workshop:

- Establishing the Power Grid as the buyer of renewable energy production;
- Setting up RE and AE financing windows in large and small banks;
- Developing the commercial market for RE resources;
- Providing incentives to address the high project cost of RE projects;
- Implementing priority dispatch on the Grid for RE-produced electric power;
- Creating greater market awareness for RE possibilities through information and educational campaigns; and
- Developing adequate pricing mechanisms for RE production.

2.6 Workshop on Technology Options

A total of 94 participants have attended the Workshop on Technology Options. The participants came from the government, the business sector, academe, and non-government organizations (NGOs). 38, or 40.4%, of the participants came from the public sector and 37, or 39.4%, came from the private sector. The academe was represented by 10 participants (10.6%) while the NGO sector was represented by 9 participants (9.5%).

Dr. Rowaldo R. del Mundo, Associate Professor of the National Engineering Center at the University of the Philippines was the main resource speaker for the Workshop.

In his presentation, Dr. del Mundo began by presenting the status, trends, and potential of different technology options for sustainable development. He cited the country's edge and disadvantage in the development

of RE sources, mentioning our excellent record in geothermal development in which, we have strong resource potential and technological experience. Dr. del Mundo also discussed such alternative energy technologies as nuclear, clean coal, and others, identifying the issues and concerns on RE technology options as well as the required action to be taken. Significant points he made are given below.

- Different RE technologies available (hydro, geothermal, solar, wind, biomass and biofuels) are already mature but still have to be fully harnessed. Available data showed the untapped potential of various RE resources (hydro = 13,097 MW; geothermal = 2,600 MW; wind = 76,600 MW).
- The production cost for biomass and biofuels will go down and solar PV production cost will also decrease by 40% by 2010.
- Given the strict discipline required collectively to adhere to its stringent safety rules, there is uncertainty as to our readiness as a people to get into nuclear energy for power production.
- Pursuing clean power development using clean coal technology could help stabilize the country's dollar reserve balance.

The reactions of the Workshop panel of experts are summarized below.

Dr. Corazon P.B. Claudio, President of Earth Institute of Asia, Inc. stressed that, alternative technologies carry a mixture of desirable and undesirable characteristics. She said that, any technology must be considered from the "Technology Life Cycle" point of view (i.e., generation, transmission, distribution, application, waste disposal, ecological, and risk management) saying that, this was indispensable for properly analyzing opportunities for technology development. She recommended also the adoption of the Communication, Assessment and Management (CAM) strategy in overall project development.

Engr. Angelito V. Angeles, President of the Philippine Association of Renewable Energy Centers (PAREC) and Director of Central Luzon State University (CLSU-ANEC) stressed the need for institutional approaches to study processes in RE technology components (he identified these as humanware, technoware, infoware and organoware). He further stressed the importance of the private sector as the engine for RE development. He concurred

with Dr. Claudio's suggestion to use CAM strategy and the Technology Life Cycle approach and suggested also the adoption of substantive evaluation models for an effective, efficient, timely, and relevant assessment of RE technologies.

Engr. Olegario S. Serafica, President of the Renewable Energy Association of the Philippines (REAP) emphasized the importance of honest-to-goodness resource assessment that reaches down to the micro level. He suggested taking a look at other possible RE resources such as biomass digester, ocean resources, and solar home systems that may be more in tune with the needs of poor rural folk. He stressed the importance of regular system monitoring and a feedback mechanism for ensuring the success of RE projects. He mentioned some project details that must be part of the planning for using RE technologies, like, for example, systems for properly disposing of used batteries and other equipment through a network of collection points. He also mentioned the aspect of gender development in the countryside and suggested that training efforts should include teaching women the use of the technologies.

Results of the Workshop on Technology Options are summarized below.

The initiatives identified by the participants can be classified under two major categories, namely, RE policy and RE program. RE Policy initiatives are identified as RE Bill, RE Policy Framework, and Infrastructure Policy support. RE Program initiatives are identified as Technology, Commercialization, Promotion, Area-Based Sub-Programs, and Funding support.

The prioritization attached by the workshop participants to the aforementioned initiatives is given below.

A. RE Policy Initiatives

A.1 RE Bill

Immediate-Term: The passage of an RE Bill that provides guidelines and regulations in the development and utilization of the RE resources of the country is the priority initiative identified by participants. The RE Bill shall include as one of its provisions on the creation of fiscal incentives and funds for R & D and project development and implementation. Support for its immediate passage by Congress must be given.

Short-Term: Technical and financial support for R & D, and incentives to local RE systems manufacturers/fabricators, must be provided.

Medium-Term: To help make RE a viable option, the passage of a law introducing penalties for “unclean” sources of energy is proposed.

A.2 RE Policy Framework

Immediate-Term: The adoption of a carefully crafted and consensus-based RE plan is identified as the priority initiative for the sustainable utilization of the RE resources of the country.

B. RE Program Initiatives

B.1 Technology Sub-program

Immediate-Term: A technology roadmap shall be developed to cover research, development, demonstration, and deployment (R & D³) of RE technologies in collaboration with concerned agencies.

Medium-Term: R & D must be undertaken on malunggay as a biodiesel source and biogas from livestock waste as a household power source.

B.2 Commercialization Sub-program

Immediate-Term: A one-stop shop must be created that would facilitate the development and implementation of RE projects. This one-stop-shop shall establish and maintain

an RE database which will include RE resources and details on viable projects for implementation. An RE resource inventory should be conducted to locate potential RE projects.

Medium-Term: A biogas system for use in households and swine farms should be developed.

B.3 Promotion Sub-program

Immediate-Term: An information and education campaign (IEC), to include regional energy summits, should be launched to “fast track” the promotion of RE technologies.

Short-Term: The IEC program should be monitored and evaluated.

Long-Term: Capacity-building programs must be undertaken to expand the RE human resource base.

B.4 Area-Based Energy Program

Short-Term: Affiliated non-conventional energy centers should be adopted as DOE Regional Offices in order to strengthen the efficient and effective implementation of RE programs, projects, and activities in the countryside.

B.5 Funds

Immediate-Term: Fund sources for RE R & D activities should be identified or created.

A summary of the strategic initiatives identified by the participants of this Workshop is outlined below.

Table of Summary of the Priority Identified Initiatives in Workshop on Technology Options.

INITIATIVES	VOTES CAST					%
	G	P	CS	Other	Total	
A. Policy	7	8	1	1	17	14.4
1. RE Bill	3	3	0	0	6	35.2
2. RE Policy Framework	4	5	1	1	11	64.7
B. RE Program	45	41	2	13	101	85.5
1. Technology Sub-Program	7	8	0	0	15	14.8
2. Commercialization Sub-Program	7	10	1	1	19	18.8
3. Promotion Sub-Program	19	15	0	8	42	41.5
4. Area-based Energy Sub-Program	6	0	0	4	10	9.9
5. Funds	6	8	1	0	15	14.8
Total	52	49	3	14	118	100
%	44.0	41.5	2.5	11.8		100

Note :
G – government
P – private sector
CS – civil society

2.7 Workshop on Alternative Energy

A. On Biofuels

Mr. Alexander P. Loinaz, Trustee of FILCAR Foundation was the principal resource speaker on biofuels. Mr. Loinaz brought up a number of issues and concerns, grouped into areas. His main points are given below.

On Agriculture:

Mr. Loinaz said that, alternative fuels production may lead to deforestation because of the slash-and-burn practices often found in the process of engaging in feedstock farming. Considering coconut as the primary biofuel feedstock, he suggested that, funding must be provided for a coconut trees replanting program, for irrigation, for fertilization, and for purchasing farm implements. He said that, there is a need to study carefully the development of other feedstock and the use of available agricultural areas. With respect to the food vs. fuel issue, he said that, biodiesel from coconut is not a threat to our country's food security since it will only take up to 7% of our average annual lauric oil inventory. He added that, even before the use of lauric oil for biofuel blends, about 70% of our lauric oils production was being exported, indicating that we have surplus to export. Moreover, he said that, farmers will not clear lands now planted to cash crops like rice and corn to plant coconut trees that will take 8 to 10 years to bear fruit and become economically viable. He pointed out that, other agricultural crops can be planted beneath the coconut trees and in less accessible areas that have contours and terrain unfavorable to rice or corn.

On Processing, Storage and Stockpiling:

In ensuring the supply of coconut oil, Mr. Loinaz emphasized the need for bulk storage and storage facilities for the stockpiling of lauric and other vegetable oils.

On Vehicle Technology Interaction:

Mr. Loinaz mentioned that, the quality of alternative fuels must conform to international standards for vehicle use. He said that, it is important to use compatible vehicle parts and components, especially appropriate elastomer products, to prevent the malfunctioning of vehicle systems. He, therefore, suggested prohibiting the sale and use of incompatible components and parts. He said that, going for higher blends like B20/B100 requires funding for vehicle fleet testing to study the effects

on deposit formation and lubricant life and the effects on the fuel injectors.

On Vehicle Emissions/Environment:

In monitoring the benefits (or lack thereof) of alternative fuels to the environment, Mr. Loinaz pointed out the lack of a proper emission testing laboratory that uses type approval equipment. Incentives such as fuel use rebates, according to him, must be provided to those having lower vehicle emissions. He mentioned that, the Inspection & Maintenance (I/M) Program as required by RA 8749 must be strictly implemented as well as periodic evaluations of vehicle emission performance and durability.

The reactions of the panel of experts for the Workshop on Alternative Fuels are summarized below.

Engr. Nenet C. Graza, Director for Integrated Research and Training Center of the Technological University of the Philippines mentioned that, the issue on biofuels is not about food security but more about feedstock security.

Mr. Rafael S. Diaz, Jr., Managing Director of the Asian Institute of Petroleum Studies, Inc. (AIPSI), brought up the issue of the lack of technology and knowledge on biofuels. He pointed out that, biodiesel feedstock, particularly jatropha, in the Philippines are permanent crops, whereas biodiesel feedstock in the EU and the US (corn) are seasonal crops. A "Set-Aside" Policy (similar to the EU's) can be implemented in the Philippines which gives priority to food use. He noted that, the mandatory ethanol blending in the Philippines is low (E5 to E10) compared to the EU and US levels.

Mr. Clovis T. Tupas, Operations Manager of PNOC-Alternative Fuels Corporation announced that, they are pursuing R & D on jatropha and that they will set-up 3 seed-buying centers in the country (Luzon, Visayas, and Mindanao) within the year.

Atty. Homer A. Maranan, Executive Director of the Chamber of Automotive Manufacturers of the Philippines (CAMPI) highlighted the fact that, fuel quality, liability & responsibility, engine performance, price of biofuels, local production, and local supply of alternative fuels are the main issues to be considered in the utilization of alternative fuels.

Ms. Florina A. Vistal, Vice President for **Government and Corporate Affairs** of the **Ford Group Philippines** presented Ford's perspective on the Philippine biofuels program. She mentioned that, short term alternative fuel programs should not weaken a long term biofuels program. Ford, she said, is developing a portfolio of advanced energy technologies and investing in R & D on clean and alternative fuels as part of its sustainable mobility strategy.

President Gloria Macapagal-Arroyo mentioned in her Summit closing speech that publicly-listed Chemrez is producing coco-biodiesel in Quezon City while Senbel is producing this in Lucena City. She noted, however, that both are working at under-capacity levels for lack of coconut oil supply. She instructed the Philippine Coconut Authority to help these firms look for the supply and to plant more coconut trees in Luzon.

The President also pointed out that, in 2005, she launched the national ethanol fuel program by breaking ground the San Carlos Bio-Energy plant in Negros Occidental, which will go on stream in December of this year. She stressed that, the first Philippine-made bioethanol from molasses will be produced in Ormoc in March, a result of an investment from Praj Industries of India who came here on an invitation she issued during her State Visit to India last year.

President Arroyo also pointed out that, Bionor Transformacion of Spain is also looking for 100,000 hectares to develop a jatropha nursery in Palawan, also as a result of her State Visit to Spain last year. Also, Abengoa of Spain is interested in 60,000 hectares of land for a cassava bioethanol nursery in Misamis Occidental.

B. On Using Compressed Natural Gas (CNG) And Liquefied Petroleum Gas (LPG) For Vehicles Used In Public Transport Systems

The issues that have to be resolved in connection with mandating that public transport vehicles be converted to the use of compressed natural gas (CNG) or liquefied petroleum gas (LPG) for fuel consists of the mechanics of program implementation, the technology aspects, and the financing methods.

On program implementation, **Mr. Raul T. Concepcion, Chairman** of the **Consumer & Oil Price Watch** recommended the acceleration of the program to convert Metro Manila buses and jeepneys to run on CNG or LPG instead of on diesel or gasoline as these

are cheaper. For example, CNG is P14.52 per liter as compared to P37.36 per liter for diesel. Likewise, he proposed, the extension of adequate financing for the conversion and/or acquisition of new or rebuilt CNG buses from abroad so that the present public utility buses can be replaced.

Some comments on the program implementation aspects of this proposal are given below.

While it is enticing to use CNG for transport fuel due to its environmental benefits and low cost, the pump price of P 14.52/DLE is only applicable during the pilot phase, i.e., for 7 years and 200 buses. A new pricing scheme for CNG fuel will be applied during the commercial phase, meaning beyond the 200 buses, which should be at least 30 % lower than diesel in order for it to be competitive to diesel. The pursuance of this program requires:

- a) private sector investment;
- b) assurance of natural gas supply from suppliers; and
- c) technological expertise and competency for government implementers, regulators, and operators of CNG facilities.

It should also be noted that, delays in the setting up and operation of CNG refueling stations will result in the deterioration of CNG buses acquired before these have been set up and financial losses for the participating bus operators. It is also advisable that, the operation of CNG refueling stations be open to all interested private investors and not monopolized by Pilipinas Shell Petroleum Corporation. Likewise, in order to successfully implement the program, the appropriate mechanics for coordination between and among government agencies involved and stakeholders must be in place so that issues, concerns, and other problem areas can be readily addressed.

On technology aspects, **Undersecretary Anneli R. Lontoc** of the **Department of Transportation and Communications (DOTC)** mentioned that, there are five (5) fundamental strategies to promote fuel efficiency in the land transport sector. These are:

- 1) Increasing vehicle efficiency through fleet modernization, proper implementation of maintenance and inspection systems to ensure roadworthiness and compliance with emission standards, and the strict enforcement of vehicle standards and relevant regulations;

- 2) Switching to alternative fuels like CNG and LPG, or to electric-powered vehicles;
- 3) Switching to energy-efficient transport modes, like high-occupancy mass transport systems, railways, BRT, and non-motorized land transport (like biking);
- 4) Decreasing the transport distance and travel time through traffic decongestion measures and ensuring that roadways are always free of obstructions; and
- 5) Increasing the vehicle load factors by promoting larger capacity vehicles.

She said that, a National Land Transport Policy covering these strategic directions is now being developed by the DOTC.

Ms. Anna Whitehouse, President and Managing Director of Total Philippines, Inc. suggested promoting AutoLPG as the cheaper, safer, and more environment-friendly alternative to gasoline and the introduction of CNG-run buses.

Some comments on the foregoing are mentioned below.

The government has a Natural Gas Vehicle Program for Public Transport (NGVPPT) that focuses on the use of CNG, initially for OEM public buses, and an AutoLPG Program for auto-LPG converted taxis. AutoLPG is presently also widely used on other converted vehicles such as tricycles, motorcycles, and motorboats.

The conversion of public buses now running on diesel is planned for after the NGVPPT pilot phase period. And, while it is a good idea to convert existing jeepneys to CNG, there is a need to first provide an adequate gas supply infrastructure, i.e., refueling stations. There is also a need to formulate enabling standards for conversion in order to ensure public safety. Furthermore, the natural gas pipeline from Tabangao, Batangas to Manila should be realized to make NGVPPT viable after the pilot phase. The level of technology expertise among government implementers and regulators must also be enhanced.

On the other side, conversion or retrofitting of buses and jeepneys to CNG would be good news to operators and drivers because this would extend the life of their old buses and jeepneys, and possibly

extend their PUJ franchises. It would also allow them to avail of cheaper price fuel.

The technology for buses or jeepneys to run on both diesel and LPG (dual fed) has been under study by the DOE, DOST, and DENR . The technology involves LPG replacing diesel up to 30 per cent. There is no major modification to be made on the engine but there will be an additional device to be installed to enable the engine to run on LPG fuel.

LPG is a cheaper fuel and 94 LPG stations already exist in the country.

On the financing aspects, **Atty. Vigor D. Mendoza II, Chairman of the United Transport Koalisyon (I-UTAK)** recommended the provision of low interest financing and easy loan processing to PUV operators willing to convert or change their engines from diesel or gasoline to LPG or CNG. The pump price difference between LPG and diesel is around P10.00 per liter. Thus, by supporting the shift to LPG, drivers stand to gain an additional income of around P300.00 per day, not to mention the positive effects the conversion to LPG use will have on the environment.

A comment was made that Government Financial Institutions (GFI) like DBP and Landbank already provide financial assistance through low interest loans to interested stakeholders. However, the stringent administrative procedures and requirements to qualify loan applicants hinder the availment of these loans. There is also very low level of awareness of the existence of the AutoLPG conversion program of the government.

C. On Emerging Technologies Like Electric-powered Vehicles

Undersecretary Anneli R. Lontoc of the **Department of Transportation and Communications (DOTC)** also brought up the promotion of electric vehicles as among DOTC's fundamental strategies to promote fuel efficiency in the land transport sector.

A comment was made that, there is lack of technical expertise among government implementers and regulators regarding emerging technologies. It was suggested that, government focus on alternative fuel technologies which will have a direct impact on the masses.

2.8 During the ADB Workshop

The initiatives identified during the three Summit Workshops on Promoting Renewable and Alternative Energy were discussed by selected participants during a Post-Summit Workshop held at the ADB. The participants analyzed and synthesized the Summit outputs and organized them under specific thrusts and priorities.

Four (4) major objectives or thrusts were identified that would support the promotion of RE in the country are the following:

- 1) Ensuring the aggressive development and utilization of the country's RE resources with the end in view of increasing the RE/AE sector's contribution to the energy mix;
- 2) Improving governance efficiencies and effectiveness in servicing the RE/AE sectors in order to promote sustained growth and development;
- 3) Establishing a mainstream RE/AE market in the medium-term (2-5 years); and
- 4) Establishing institutional capabilities in RE/AE development and use.

Seven (7) strategic initiatives supporting the four major thrusts are itemized below:

- 1) Formulating a coherent set of RE/AE policies and strengthening the RE/AE policy framework to promote the RE/AE sector's development;
- 2) Harmonizing government policies and regulations;
- 3) Providing a facility/mechanism to improve implementation of government policies and inter-agency coordination;
- 4) Introducing incentives in policy/ legislation;
- 5) Optimizing funding mechanism for RE/AE projects;

- 6) Increase public awareness and acceptance of RE/AE initiatives; and
- 7) Strengthening institutional capabilities.

The priority actions based on the identified initiatives are as follows:

- 1) Certification of the Renewable Energy Bill as a priority measure;
- 2) Passage of the RE Bill into law;
- 3) Strengthening of programs and technology options that promote the use of RE/AE in rural development and off-grid electrification;
- 4) Development of RE/AE technology roadmap;
- 5) Addressing of dispatch issues affecting RE resources (i.e., geothermal);
- 6) Advocacy of the National Land Use Policy Bill;
- 7) Creation of investment promotion program;
- 8) Setting-up of a "one-stop-shop" for sustainable energy projects;
- 9) Development and strengthening, in cooperation with civil society, of a monitoring and auditing system in the industry;
- 10) Encouragement of the country's financing institutions to create lending windows for small RE/AE developers and producers;
- 11) Making representations with multilateral financial institutions for the establishment of lending windows for RE/AE developers and producers;
- 12) Conducting of a market awareness program for RE/AE;
- 13) Development of programs that will promote communal production and utilization of RE;

- 14) Empowering of small communities/ entrepreneurs in RE/AE project development;
- 15) Development of RE/AE communication tool kits;
- 16) Development of research and development programs in RE/AE areas;
- 17) Establishment of faculty development programs for RE/AE subjects;
- 18) Establishment of academic programs in RE/AE;
- 19) Development of technical skills in RE/AE;
- 20) Creation of programs promoting RE/AE materials development; and
- 21) Implementation of the mandatory inclusion of RE/AE subjects in collegiate curriculum.

3. ANALYSIS AND COMMENTS

A. Renewable Energy

The issues and concerns on renewable energy raised during the Summit's plenary sessions and workshops were aimed at the improvement of the country's RE programs and the attainment of the goal of the Renewable Energy Policy Framework (REPF), which is to double the RE capacity within a ten-year planning horizon.

A key factor for RE development is the enactment of the now pending RE Bill that addresses the technology, market, financial, organizational, manpower, policy, and institutional aspects associated with the development of RE in the country. The on-going DOE-UNDP Project entitled "Capacity Building to Remove Barriers in the Development of Renewable Energy in the Philippines" is geared towards the removal of the present barriers to RE promotion.

The RE Program must of course be continually updated to reflect current RE technological advances. A technology roadmap should be developed to improve the program. Corresponding initiatives on the

commercialization and promotion aspects of the program should address related concerns as raised by Summit resource persons.

Some notable issues raised by Summit resource persons are itemized in the matrix on Table I.

B. Alternative Energy

B.1 Biofuels

On the food versus fuel issue, the National Biofuels Board, under the Biofuels Law, can, anytime, recommend specific actions in the event that food security is compromised due to the implementation of mandated blends of biofuel. The SRA and the PCA are directed under the Biofuels Law to ensure sufficient supplies of sugar, oil, and other crops for the country's food requirements. It is worth noting that the need to explore other biofuel feedstock (aside from coconut and sugar cane) including non-food crops (such as jatropha) and other second-generation feedstock (like agricultural residues and wood waste) in order to boost and sustain feedstock sources is well recognized.

It must also be noted that, biofuel feedstock production is not (at least presently) the cause of any deforestation observed in the country. Instead, feedstock like jatropha is now being used to reforest denuded areas caused by illegal logging activities. In addition, the Coconut Incentive Investment Fund can be a source of funds for re-planting, for re-fertilization, for irrigation systems, and for the purchase of farm implements. As mentioned earlier, it is well recognized that the ability to sustain the production of feedstock is a major consideration in biofuels development, hence the need to investigate other potential kinds of feedstock that are viable and sustainable in the long-term.

The food versus fuel dilemma may not arise if only domestic requirements are to be met under the mandate. However, if the biofuel industry eventually evolves from a purely domestic to an export-oriented

business, more biofuels obviously will need to be produced, requiring more feedstock and more land for energy crops. This will need to be studied.

Bulk storage for feedstock is also necessary to support the local biofuels industry and to protect it from supply shortage and price escalation. The UP Test Facility, which will be operational by mid-2008, has the capability to conduct tests on emission and engine performance and thus can also serve as a test facility for alternative fuels. Because of penalties for smoke belching, vehicle owners are directly benefited for maintaining fuel efficient and low-emission vehicles.

On our biofuel mandates (B1, B2, E5, and E10), these are within the limits of the technical recommendations under the World Wide Fuel Charter (although CME is already accepted as an alternative fuel, others are of primary concern). The introduction of a new fuel in the Philippine market obviously requires careful planning and implementation. Starting initially with lower blends is in line with the World Wide Fuel Charter's recommendation of blending only up to 10% (by volume) ethanol with gasoline. The committed projects for bioethanol in this country, to date, have a cumulative capacity of about 40 million liters a year, viz-a-viz the total requirement of 232 million liters by 2009. The R & D activities by the Philippine Alternative Fuels Corporation (PAFC) may be considered appropriate because jatropha is not yet utilized internationally and in large commercial scales. While jatropha is a possible biodiesel feedstock, it still requires R & D to establish variety selection, pest management practices, oil yields, etc.

The mandated B1 and E10 blends are governed by specific fuel quality standards promulgated by BPS. These standards ensure that the biofuels used in the country comply with the required fuel quality that will not harm vehicle engine systems. The accreditation and registration of biofuel

producers is necessary to control the quality of the biofuels produced. The use of biofuel blends of over 5% for biodiesel and over 10% for bioethanol needs further assessment.

The current price of biodiesel with CME is higher than petroleum diesel on a per liter basis. Coco-biodiesel is not comparatively cheaper on a 1:1 fuel substitution, but cost effective in terms of benefits to the vehicle and to the environment. This can be noted in the use of lower blends such as B1 and B2. The local production for biodiesel is adequate up to a 3% blend nationwide. With respect to bioethanol, however, the country needs about eight production facilities at 100,000 liters per day by 2009.

On Chemrez and Senbel, the reason why they are currently working under-capacity is not due to coco oil shortage but because of market constraints. Presently, the market share is divided among eight accredited biodiesel producers though a bidding process employed by the oil companies in compliance with the biodiesel mandate.

B.2 Natural Gas Vehicle Program for Public Transport (NGVPPT) and Auto-LPG

To pursue CNG utilization in transport, the following initiatives are to be taken :

- 1) immediate implementation of the NGVPPT pilot phase to determine the economic and technical viability of the use of CNG in transport;
- 2) determination by the DOE of the availability of a continuous supply of natural gas for transport use, especially during the commercial phase; (This means the provision of free access to natural gas by interested private investors and the development of gas supply infrastructure such as pipelines and refueling stations.);
- 3) formulation by the DOE, as the lead implementing agency, of enabling policies that will encourage the use of CNG for public utility buses and jeepneys;

- 4) provision by the DOE of capacity building programs to implementers and regulators in order that their expertise and competency in CNG/LNG technologies and in coordinating program activities with other concerned government agencies will be enhanced; and
- 5) intensification of nationwide information, education and communication (IEC) activities by the DOE, in coordination with concerned government agencies.

Existing policies, programs, and projects which assist in the promotion of clean air and sustainable transport technologies must be continued and/or expanded/intensified. However, the filing of the CNG Bill should take into consideration the need for the expansion of daughter stations and other infrastructure.

Also, there is a need for an issuance of an Executive Order to mandate DOE to ensure allocation of natural gas for transport. DOE, in collaboration with concerned government agencies and private corporations, should ensure the development of CNG supplies and vehicle conversion infrastructure. Implementers and regulators must undergo capability-building, like training seminars and international study visits, to enhance their skills and competencies. There should be enough funds for the manpower development required to be ready for the commercial phase. There should also be closer coordination among concerned government agencies in the program implementation.

The technology for buses' and jeepneys' conversion to run on LPG should undergo the Environmental Technology Verification Protocol (ETVP) evaluation to validate claims. There is a need to develop a policy on controlling the use of LPG so as to avoid issues on Fuel vs Household. There should be a clear policy direction in the utilization of AutoLPG so as to meet DOE's goal on self sufficiency.

There is a need to intensify IEC and public consultation activities for AutoLPG program awareness. DOE should conduct a feasibility study to initiate formulation of additional standards for other types of motor vehicles (e.g., motor boats and tricycles). Additionally, to aid in the policy formulation, DOE should determine the impact of using LPG for transport as well as for household use.

B.3. Emerging Technologies : Electric-Powered Vehicles

Other emerging technologies need further study to determine their suitability for the country. The technical and economic aspects of such technologies need to be carefully assessed. To do this properly, there would be a need for capacity-building on the part of implementers and regulators so that they would be capable of evaluating new technologies.

Notable Issues and Concerns of Summit Resource Persons

RESOURCE PERSON	COMMENTS/ISSUES	REMARKS
<p>Fr. Jose Ramon T. Villarin, SJ, President of Xavier University, Cagayan de Oro</p>	<p>“...clean and climate-friendly energy (CE) is no longer a pipe dream but an imperative. He further stated that CE is our competitive advantage because it is the one resource we have in abundance in the tropics. CE will be one of the greatest equalizers of the 21st century because the resources that will be needed for CE will come from the tropical belt of this planet. By CE, I mean energy from water, sun, wind, geo-heat, tidal forces and biology. We are a poor country sitting on all that energy capital. And we are poor because we seem unable to mobilize this energy capital into assets that will power our development.”</p>	<p>In order to maximize our abundant indigenous energy resources, we should immediately work towards the attainment of an optimum energy mix, putting premiums on greenhouse gas emission reduction, energy security and independence, and competitive cost and quality of electricity.</p>
<p>Mr. Meneleo J. Carlos, Jr., Chairman of the Federation of Philippine Industries</p>	<p>“...if full cost accounting is considered, RE would be cheaper than fossil fuels.”</p>	<p>The consideration of externalities (or third-party effects) and their incorporation into the cost analysis would greatly improve the relative attractiveness of RE projects. Full cost accounting and the whole life cycle approach must be commonly adopted in the analysis of both conventional and RE projects.</p>
<p>Mr. Jose Ma. Lorenzo P. Tan, Vice Chairman of the World Wide Fund for Nature – Philippines</p>	<p>“...there should be a logical balance in the use of RE and fossil fuels.”</p>	<p>This balance can be attained through the development of an optimum energy mix for the country.</p>
<p>Sen. Miriam Defensor-Santiago, Chairperson of the Senate Committee on Energy</p>	<p>“Subsidize capital costs for rural grid electrification and develop off-grid solutions.”</p>	<p>There is need for a smart subsidy so that off-grid electrification can effectively address poverty in the rural areas of the country.</p>
<p>Ms. Catherine P. Maceda, Deputy Managing Director of EON, Inc.</p>	<p>“...to realize renewable energy goals means convincing the government to take immediate policy and administrative actions.”</p>	<p>The government must realize that the enactment of the RE Bill is an immediate action that would serve as one of the long term solutions towards energy security and independence.</p>

RESOURCE PERSON	COMMENTS/ISSUES	REMARKS
<p>Dr. Nandita Mongia, Regional Coordinator and Team Leader for the Regional Energy Program for Poverty Reduction in Asia and the Pacific of the UNDP Regional Center, Bangkok</p>	<p>“...(stressed) the importance of ensuring that no one, especially the poor, is excluded from having a share of the country’s energy.”</p>	<p>Of course, access to affordable and reliable electricity significantly improves the conditions under which the poor sector of our society live.</p>
	<p>“...It must then be ensured that any renewable energy initiative should generate income for local communities.”</p>	<p>Experience reveals that providing RE for household lighting alone is not sustainable. To operate sustainably, a larger capacity so as to include additional loads for economic activities is needed.</p>
<p>Mr. Anthony James Menzies, Advisor of Chevron Geothermal Philippines Holdings, Inc. (CGPHI)</p>	<p>“...the renewable energy development of the Philippines is reactive.”</p>	<p>Admittedly, the abundance of indigenous energy resources coupled with the spiraling cost of conventional fuels calls for a more proactive approach to the development and utilization of our indigenous energy resources.</p>
<p>Mr. Larry F. Bayrante, President of the National Geothermal Association of the Philippines (NGAP) and Division Manager of PNOC-Energy Development Corporation</p>	<p>“Another area of focus would be the risks of the exploration phase, which is one of the most important but neglected part of the RE development process. Unless more exploration work is done, then prospects for investments may be unlikely.”</p>	<p>The need for a government entity to undertake an extensive exploration of our RE resources is vital for the attainment of our optimum energy mix. There should be one government agency that would undertake exploration in areas where private sector investors may not dare to go. A classic “best practices” example is PNOC-EDC which spurred the development of our geothermal energy resources. PNOC-EDC made the Philippines the second largest geothermal power producing country in the world. It is a fact that no other RE resource in the country has received the same amount of government attention and investment as that of geothermal energy.</p>
<p>Dr. Alvin B. Culaba, Director of the Center for Engineering and Sustainable Development Research of the De La Salle University</p>	<p>“Research and development would make energy security response more long-term, as it would strengthen manpower skills and capacity.”</p>	<p>It is a fact that every advanced country has intensive R & D programs. This is a requirement we should not overlook if we are to support the sustainable development and utilization of our RE resources.</p>

RESOURCE PERSON	COMMENTS/ISSUES	REMARKS
Engr. Angelito V. Angeles, President of the Philippine Association of Renewable Energy Centers and Director of CLSU-ANEC	<p>“...the adoption of Substantive Evaluation models for effective, efficient, timely, and relevant RE technologies.”</p> <p>“...the need for institutional approaches to process study RE technology components identified as humanware, technoware, infoware, and organoware.”</p>	An effective evaluation should involve the humanware, the technoware, the infoware and the organoware aspects of RE projects using accepted substantive evaluation models.
Dr. Corazon P.B. Claudio, President of Earth Institute of Asia, Inc.	“...Technology Life Cycle (i.e., generation, transmission, distribution, application, waste disposal, ecological and risk management) as a valuable tool for analyzing opportunities for technology development at various phases of project development.”	Agreed. The proper evaluation and assessment of RE projects and their comparison with conventional projects should take the whole life cycle approach.
Engr. Olegario S. Serafica, President of Renewable Energy Association of the Philippines (REAP)	“...importance of regular system monitoring and feedback mechanism to ensure the success of RE projects.”	Monitoring and evaluation need to be institutionalized in a sustainable RE development and utilization environment.

4. CONCLUSIONS AND RECOMMENDED ACTIONS

A. Renewable Energy

In summary, as a result of the Summit and post-Summit Workshop discussions relative to the development of renewable energy resources in the country, the following conclusions have arrived at:

- 1) There is a need to immediately pass the Renewable Energy Bill because it is a key factor needed to improve the country’s RE policies and it will lead to the attainment of an optimum energy mix that is supportive of greenhouse gas emission reduction, energy security, and energy independence.
- 2) There is a need to enhance the RE program to include the development of a

technology roadmap, a one-stop shop for the development of RE projects, and information, education and communication initiatives.

- 3) The identified objectives, strategic initiatives, and actions indicated above will promote renewable energy project development in the country.

B. Alternative Energy

With respect to biofuels and other alternative energy options, the following are recommended :

- 1) The DENR, DA, SRA, and PCA should work together to determine the most cost-effective and high-yielding feedstock varieties requiring the least land and water.
- 2) The DA should issue guidelines for the use of land for biofuel production.

- 3) The DOST should lead in the conduct of research and techno-economic and environmental studies on other biofuel feedstock, like jatropha, sweet sorghum, cassava, etc. The R & D must be geared toward the development of next-generation technologies for different types of feedstock with the objective of bringing down biofuel prices and addressing the issue of food versus fuel. The PAFC should officially report their R & D findings particularly on the varietal selection with the optimum yield and provide science-based advice to farmers. They should also conduct harmonization/compatibility studies for higher blends in vehicles (both old and new) and assess the readiness of flexi-fuel vehicles.
- 4) Coconut, sugar, and cassava are currently viable raw materials for biofuels but there is need to investigate non-food crops and agricultural residues as additional feedstock for biofuel production to improve sustainability in the long-term. The DA should study how to improve yield per hectare for various feedstock in order to produce more feedstock while using less land for biofuel production. The DA must also enforce strict implementation of land classification to sustain land availability for large-scale feedstock plantations while ensuring availability of lands for food production.
- 5) The DOE should develop enforceable standards for biodiesel and bioethanol to ensure fuel quality, vehicle compatibility, and emissions and performance compliance. The DOE should closely monitor the fuel quality of biofuels from the production plant to the dispensing pump.
- 6) The automotive industry should make available biofuel-ready vehicles, even at higher blends, as practiced internationally.
- 7) BOI should enhance incentives to encourage car manufacturers to accelerate production of alternative fuel vehicles. BOI should categorize biofuel production as a pioneering project in the BOI-IPP to encourage more investments in this area. More investment and trade missions should be conducted to promote such investments.
- 8) Lucena City's LGU initiative to put-up a bulk biofuel storage facility to serve as demo-facility that can be replicated in other areas should be supported.
- 9) The government re-fleeting program should prioritize the procurement of alternative fuel vehicles (AFVs).
- 10) There should be strict implementation of Inspection & Maintenance (I/M) programs and strict enforcement of the anti-smoke belching law.
- 11) A multi-sectoral IEC effort must be pursued to increase public awareness about alternative fuels and encourage its acceptance and support. The IEC initiatives must focus on informing and educating the public to stimulate consumer demand for alternative fuels and private sector investment in their production. The DOE, through the Clean Cities Program, must showcase the benefits of alternative fuels based on price, performance, and benefits to health and environment.

The views expressed during the Energy Summit indicate acceptance of the fact that fossil fuel resources are diminishing and price increases are therefore inevitable. There was therefore full recognition of the need to intensively develop alternative sources of energy to fuel economic growth.

It is recommended that, the foregoing initiatives and actions be immediately adopted for implementation by the concerned stakeholders in the RE and AE sectors.

Promoting Renewable and Alternative Energy Program of Action

Objective 1				Strategy	
Ensure the aggressive development and utilization of the country's RE/AE with the end view of increasing the RE/AE sector's contribution to the energy mix			<ul style="list-style-type: none"> • Improve RE and AE policies • Strengthen RE and AE Policy Framework that will promote the RE sector's development 		
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector		
Immediate (within 6 months)					
Certification of RE Bill as priority measure	At least: 2,500 MW RE capacity by 2025; 2% biodiesel-blend by 2009; 10% bio-ethanol-blend by 2011; 70 CNG buses by 2009	Policy and Legislation	Office of the President		
Passage of the RE Bill		Policy and Legislation	Congress		
Strengthen programs and technology options that promote the use of RE/AE in rural development and off-grid electrification		Policy and Legislation	DOE		
Develop RE and AE technology roadmap		Policy and Legislation	DOE		
Address dispatch issues affecting RE resources (i.e., geothermal)		Policy and Legislation	DOE, NPC PSALM WESM		
Supporting Action					
Short-Term (within 1 year)					
Fast track the consolidation of biofuel feedstock plantation			DA		
Advocate the passage of the National Land Use Policy Bill		Policy and Legislation	Civil Society		
Drafting of the RE Bill IRR		Policy and Legislation			
Medium-Term (5 years)					
Investment promotion activities			DOE		

Types of Measure:

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

Objective 2		Strategy	
Improve governance efficiencies and effectiveness in servicing the RE and AE sectors to promote sustained growth and development		<ul style="list-style-type: none"> • Harmonize government policies/regulations • Provide a facility/mechanism to improve implementation of government policies and inter-agency coordination 	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Review government policies/regulations	Appropriate issuance of policies Establishment of the one-stop-shop and operation manual	Policy and Legislation	DOE
Set-up a "one-stop-shop" for sustainable energy projects - Organizational and capacity building (re-tooling) - Creation of RE/AE knowledge center (includes database center and inter-agency linkage, share information system) where all information can be accessed		Policy and Legislation	DOE
Codification of standards		Policy and Legislation	DTI-BPS
Develop and strengthen a monitoring and auditing system in the industry in cooperation with civil society		Policy and Legislation	DOE
Supporting Action			
Short-Term (within 1 year)			
Operationalization of the One-Stop-Shop	Number of proponent served	Regulation, Enforcement and Compliance	DOE

Types of Measure:

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

Objective 3		Strategy	
Establish a mainstream RE/AE market in the medium term (2-5 years)		<ul style="list-style-type: none"> • Deploy mandate/incentives in policy/legislation • Optimize financial mechanism to RE/AE • Increase awareness of RE/AE 	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Undertake measures that will encourage the country's financing institutions to create a lending window for small RE/AE developers and producers	Number of lending windows	Investment	DOF
Conduct representations with multilateral financial institutions toward creation of non-sovereign lending windows for RE/AE developers and producers		Investment	DOE DOF
Conduct a market awareness program for RE/AE projects	Number of parties reached	IEC	DOE
Finalization of the National Biofuels Program	NBP approved	Policy and Legislation	National Biofuels Board
Supporting Action			
Medium-Term (5 years)			
Implementation of the non-fiscal incentives under the RE Bill	Percent contribution under RPS, Net metering, green energy options	Policy and Legislation	DOE

Types of Measure:

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

Objective 4		Strategy	
Establish institutional capabilities in RE/AE development and use		<ul style="list-style-type: none"> Promote public awareness and acceptance of RE/AE Strengthen capacities 	
Priority Action	Success Indicator	Type of Measure	Lead Agency/Sector
Immediate (within 6 months)			
Develop programs that will promote communal production and utilization of RE/AE		Capability-building	DOE
Capacitate small communities entrepreneurs in project proposal development		Capability-building	DOE
Develop RE/AE communication tool kits	Number of collaterals produced	IEC	DOE
Supporting Action			
Short-Term (within 1 year)			
Develop research and development programs on RE/AE	Number of new technologies	Capability-building	DOST
Medium-Term (5 years)			
Faculty development program Establish academic programs for RE/AE	Number of schools with academic programs on RE/AE	Capability-building	CHED
Technical skills development	Number of students trained	Capability-building	TESDA
Materials development	Number of materials developed and adopted	Capability-building	
Long-Term (beyond 5 years)			
Implement mandatory inclusion of RE/AE in college curriculum	Number of students enrolled	Capability-building	CHED

Types of Measure:

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