

# I. OVERVIEW

The 2006 Plan Update essentially presents a comprehensive assessment of the energy sector's performance in the first year of implementation of the Philippine Energy Plan (PEP) 2005-2014, which is the Reference Plan. It aims to strengthen the programs, refocus the activities and revisit the targets as may be expedient, to realize the two-fold energy sector goals attaining a sustainable 60.0 percent self-sufficiency level by 2010 and beyond; and pursuing the effective implementation of reforms in the power sector. It also lays out the current development challenges that need to be hurdled in each energy sub-sector together with the corresponding action plan to help actualize the goals.

An important component of the 2006 Update is an Integrated Investment Portfolio which details the various capital investment requirements that are needed in the different energy sub-sectors as well as other business opportunities. The chapter also presents an inventory of the various fiscal and non-fiscal incentives for prospective energy investors. Another feature of this Update is the energy information management program of the Department of Energy (DOE) to ensure the delivery of timely, consistent, reliable and accurate energy data to its various stakeholders and to support the data requirements of the PEP. Likewise, an indicative agenda covering the time horizon 2015-2024 is also presented for each sector to promote the long-term sustainability of targets set out in this Plan Update. The agenda highlights the promotion of alternative energy resource options, emerging clean energy technologies, innovations in energy exploration and development technology, and demand-side management (DSM).

Starting with this 2006 Update, the DOE will use ton-of-oil-equivalent (TOE) as unit of measurement in the Philippine Energy Balance Table (EBT) in conformance with internationally accepted standards. The DOE has been using barrel-of-fuel-oil equivalent (BFOE) since the early 1970s. The adjustment, however, has to be made as most economies have adopted TOE as energy accounting unit since oil has become their primary fuel. Member economies of regional groupings such as the Association of Southeast Asian Nations (ASEAN), Asia-Pacific Economic Cooperation (APEC) and the International Energy Agency (IEA) now make use of TOE for their reportorial requirements. In addition, a change in one of the statistical standards used in energy accounting, particularly the thermal efficiency of primary electricity from geothermal sources. The DOE is now adopting the average of 10.0 percent thermal efficiency for geothermal energy consistent with existing international standards. Also incorporated in this Update are the results of the 2004 Household Energy Consumption Survey (HECS).

The changes in energy accounting affect the data on geothermal and biomass in the country's energy mix. On the average, the change in the efficiency of geothermal energy improved its contribution by 15.0 percent. The demand for biomass on the other hand, resulted to a drop in its share by an average of 14.0 percent. In spite of the changes in the share of these fuels, the self-sufficiency level remains at almost the same level as that of the Reference Plan since the decline in biomass share was offset by the increase in geothermal share.

This Update also includes the regional energy profiles (REPs) for 16 administrative regions of the country which may be used to support the preparation or updating of their respective Medium-Term Regional Development Plans (MTRDPs). The REPs provide comprehensive information on the regions' existing and potential energy resources, an inventory of committed and indicative projects, downstream facilities and electrification projects that will eventually contribute to the overall economic stability and growth of the regions.

## ***MOVING TOWARDS ENERGY INDEPENDENCE***

The objective of the energy independence agenda is to reach an energy self-sufficiency level of 60.0 percent by 2010 and beyond.

This would be realized through the pursuit of the following strategies:

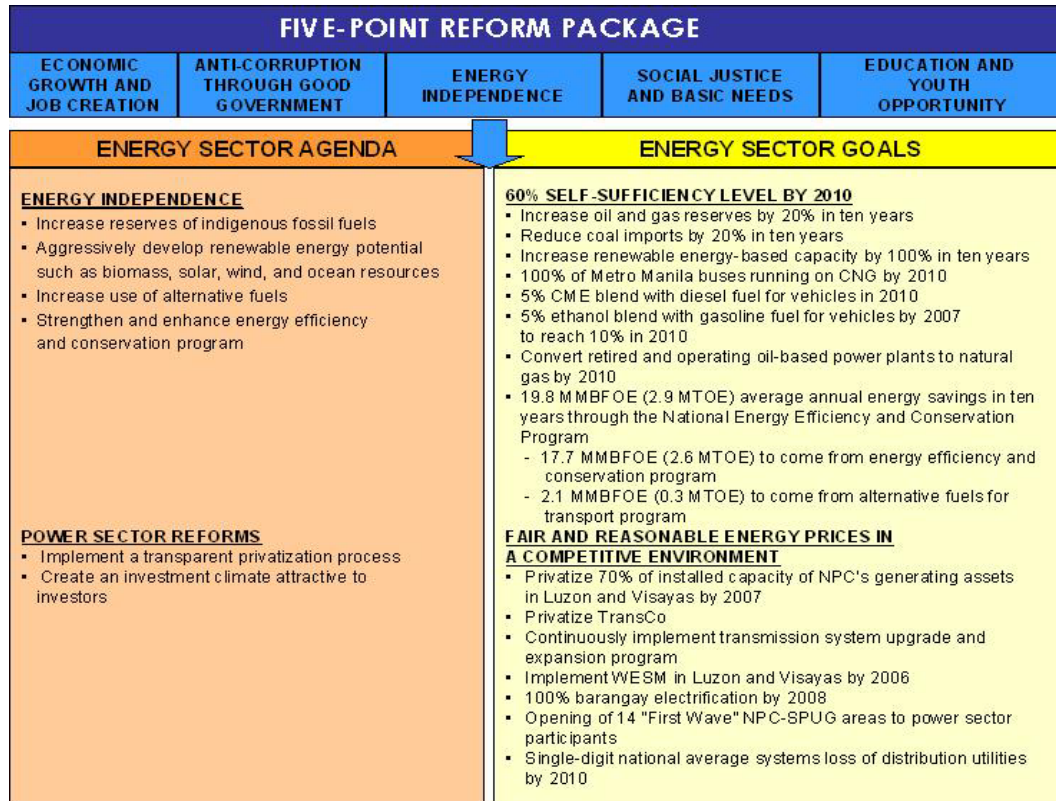
### ***Accelerating the exploration, development and utilization of indigenous energy resources***

Within the planning period, the DOE targets the increase of indigenous oil and gas reserves by 20.0 percent from the 2004 level of 481.0 million barrels of fuel oil equivalent (MMBFOE) or 69.5 million tons of oil equivalent (MTOE) to 579 MMBFOE (83.6 MTOE) by 2014 through competitive service contracting schemes. As of 2005, the country has a total of 456.0 MMBFOE (65.8 MTOE) of petroleum reserves of which around 20.0 percent is oil and 80.0 percent is natural gas.

In 2004, actual oil production from the Nido and Matinloc fields reached 0.14 million barrels (MMB) while the Malampaya and San Antonio fields produced a total of 87,556.6 million cubic feet of natural gas. By 2012, oil production is targeted to reach 21.3 MMB. In the same manner, indigenous gas production is seen to increase to 185,023.0 MMSCF. Although efforts are geared towards the maximum attainment of these targets, the realization of the estimated production level will still depend on the entry of investors and viability of new oil and gas fields.

Following the first Philippine Public Contracting Round (PCR-1) for petroleum and geothermal in 2003 and 2004 respectively, the DOE initiated another Philippine Energy Contracting Round (PECR) in the

Figure 1.1. FRAMEWORK FOR THE PEP 2006 UPDATE



second semester of 2005 for petroleum, geothermal and coal. The moratorium on applications for negotiated contracts started on May 15, 2005. Offered at the PECR were four petroleum blocks of about 12,000 square kilometers (sq. kms.) each and seven coal areas with several blocks of 1,000 hectares (has.) each.

Eleven petroleum service contracts were signed in 2005 which would entail initial financial commitments of about United States Dollar (US\$) 155 million.

The Plan targets a 20.0 percent reduction in coal importation by 2014 from the 2004 level of 7,510.1 thousand metric tons (KMT). With about 20.0 percent of the country's 10 million metric tons (MMMT) of coal demand being sourced locally in a year, the need for additional coal production is imperative especially for base load power generation and for the cement industry. In 2004, the country's in-situ reserves increased by 21.6 percent, from 2003 level of 296.3 MMMT to 360.2 MMMT. As of December 2005, the country has 35 coal operating contracts (COCs) with development, production and exploration commitments. Specifically for exploration, investments amount to US\$1.3 million (PhP 72.8 million). Fourteen of these COCs were awarded from 2004 to 2005.

**Intensifying renewable energy resource development**

Under the Renewable Energy Policy Framework (REPF) of 2003, renewable energy-based capacity will increase from its 2002 level of 4,449 megawatts (MW) to 9,147 MW by 2013. A total of 4,698 MW of renewable energy fueled-power plants needs to

be installed up to 2013. As of 2005, a total of 721 MW of renewable energy-based capacity has been installed consisting of 695 MW of hydropower, 25 MW of wind power plant and 1 MW of solar power facility. In 2004, the renewable energy share in the energy supply mix was 122.4 MMBFOE or 17.7 MTOE which represented 43.9 percent of the total energy production.

In its bid to become the leading producer of geothermal energy, the Philippines targets the installation of an additional 1,200 MW within the planning period from the existing capacity of 1,931 MW to 3,131 MW by 2013. In terms of generating capacity, geothermal resources contributed 10,282 gigawatt-hours (GWh) or 18.4 percent of the power supply mix and displaced about 17.7 MMBFOE (2.5 MTOE). During the PECR 2005, 11 geothermal blocks were offered.

The Plan envisions the increase of the overall hydropower available capacity from its current level of 3,219 MW to 3,999 MW by 2014 through the development of all viable small and mini-hydropower plants. The 345-MW San Roque Hydropower plant in Pangasinan and 350-MW Kalayaan 3 and 4 in Laguna were commissioned in 2004. Hydropower resources contributed 15.9 percent to the country's total power generation mix in 2004. Fuel oil displacement of the sector reached 14.8 MMBFOE (2.1 MTOE) during the same period.

The intensive promotion of biomass, solar and wind energy resources will be continuously carried out to reach an aggregate installed capacity of 548 MW by 2013. In 2004, the Philippine National Oil Company (PNOC) entered into a Memorandum of Agreement

(MOA) with Bronzeoak Philippines, Inc. (BP), and Talisay Bioenergy, Inc. (TBI) for the joint development and operation of a 30-MW Bagasse Cogeneration Project in Negros Oriental. The entry of six biomass projects during the planning period will contribute a total capacity of 136 MW.

For rural electrification a total of 8,944 units of solar home systems out of the targeted 15,100 units have already been installed as of December 2005 in Regions I-VII, Cordillera Administrative Region (CAR) and Mindanao under PNOC's Solar Homes Distribution Project. The project will be completed in 2007. The first ever grid-connected solar power facility was also inaugurated in the same year in Cagayan de Oro City providing an additional 1-MW capacity for Mindanao. There are also similar projects being implemented in other parts of the country under various Official Development Assistance (ODA) facilities

An initial assessment placed the country's total wind potential at 76,000 MW. In June 2004, the Philippine Wind Investment Kit was launched offering 16 sites for wind power development. Out of these offers, Pre-Commercial Contracts (PCCs) were awarded to five sites during the Wind Power Summit in December 2004. In March 2005, the remaining 11 wind sites were re-offered. Out of these re-offers, PCCs have been awarded to one site and another site was targeted under a bilateral agreement between the country and Spain. It is expected that respective PCCs of the remaining nine sites will be awarded in 2006. A milestone in wind energy development was the inauguration of the 25-MW Northwind Bangui Bay Wind Power Project in the Ilocos Region in June 2005.

Meanwhile, the passage of House Bill (H.B.) 1068 *"An Act to Promote the Development, Utilization, and Commercialization of Renewable Energy Sources"* is expected to boost renewable energy development in the country. The proposed bill aims to accelerate the development and utilization of renewable energy sources through the provision of fiscal and non-fiscal incentives to renewable energy developers, including mandatory generation, priority dispatch for intermittent generation, and establishment of a trust fund.

The zero rating provided for renewable energy generated electricity under the recently-implemented Reformed Value Added Tax Law (R-VAT) or Republic Act (R.A.) 9337 will enhance the competitiveness of renewable energy-sourced electricity.

#### **Increasing the use of alternative fuels**

The government will continue to promote the use of alternative fuels and technologies particularly in the transport sector. These cleaner alternatives include biofuels (i.e., coco-biodiesel or coco-methyl ester (CME), fuel ethanol and jatropha curcas), compressed natural gas (CNG) and autogas.

The government targets the full compliance of the entire bureaucracy with Memorandum Circular

(M.C.) 55, issued in February 2004 *"Directing all departments, bureaus, agencies and instrumentalities of the government, including government-owned and controlled corporation, to incorporate the use of one percent (1%) percent by volume of their diesel requirements."* As of December 2005, there are already 1,100 government vehicles of some 59 government agencies actually running on 1.0 percent CME blend. New players meanwhile are taking the lead in expanding the use of CME as fuel blend with the launching of *B1 diesel or Envirotek*. Within the planning period, the government will work to increase the blend to 5.0 percent with all diesel-fed vehicles nationwide being covered by the program. To increase availability of CME in the local market, the DOE approved the accreditation of two manufacturing companies in June 2004, namely: Senbel Fine Chemicals, Inc. and Chemrez, Inc.



Meanwhile, a goal is set to push for the 5.0 percent ethanol blend with gasoline fuel by 2007 and gradually increase this to 10.0 percent by 2010. The groundbreaking ceremony of San Carlos Bioenergy, Inc. in May 2005 will make it the country's first bio-ethanol manufacturing plant and power co-generation complex. Likewise, a milestone on the use of this alternative fuel was the launching of *E10* in August 2005, the first 10.0 percent ethanol-blended gasoline by Seaoil, a new oil industry player. Significantly surpassing the 5.0 percent mandated blend by the government, *E10* is now available in all Seaoil stations nationwide and four Flying V outlets in Metro Manila.

To encourage wider utilization, the DOE will strengthen its advocacy works to move forward the legislative agenda on CME and ethanol at the Lower House. On the other hand, a consolidated version of these bills (Senate Bill No. 2007) is being pushed at the Upper House titled: *"An Act To Mandate The Use of Biofuels In The Transport Sector Establishing For The Purpose The National Biofuel Program, Appropriating Funds Therefore, and For Other Purposes"*. Among other provisions, the proposed legislations will pursue the mandatory use of these fuels in both diesel and gasoline blends, as well as encourage industry investments through well-defined incentives.



Pres. Arroyo graced the product launching of the B1 diesel or the Envirotek bio-diesel premium, the first CME pre-blended diesel in the country held in Flying V's service station in Cainta, Rizal on August 11, 2005.

Meanwhile, the DOE has initiated consultations with various stakeholders on the potential of *Jatropha curcas* (locally known as "tubang bakod") as a biodiesel feedstock. Technical committee meetings have also commenced to look at various *Jatropha* biodiesel standards of several countries that may be used as reference in developing local standards.

In June 2005, on the other hand, test-runs of six units of buses piloted the Natural Gas Vehicle Program for Public Transport (NGVPPT) of the government. The NGVPPT was further given a boost through the issuance of Department Circular (D.C.) 2005-07-006, "Directing the Enhanced Implementation of the NGVPPT and the Development of CNG Supply and Infrastructure." By 2006, the number of pilot CNG buses that will ply along specific routes in Southern Luzon will increase to 200. The groundbreaking ceremonies for the construction of the CNG mother refueling station located in Tabangao, Batangas was held in March 2005 while the daughter station in Laguna (South Luzon Tollway near Mamplasan Exit) will be operational by 2006 to ensure the physical sustainability of the program. Meanwhile, under the NGVPPT, the CNG price for the first 200 buses was negotiated at Philippine Peso (PhP) 14.52 per diesel liter, almost half the prevailing average price of diesel at PhP 29.91 in December 2005. The program targets the fielding of 2,000 buses and establishment of ten CNG refueling stations by 2007. As a long-term strategy, the DOE will work for a more sustainable CNG price of buses beyond the 200 pilot units to achieve the target of all Metro Manila buses running on CNG by 2010 and also allow its widespread use in other provinces in Luzon.

#### Enhancing energy efficiency and conservation program



As an immediate measure against continuously rising oil prices, the DOE will double its efforts to generate nationwide commitment

and support to the National Energy Efficiency and Conservation Program (NEECP). The NEECP, which is the government's framework to promote efficient and judicious utilization of energy, estimates an aggregate energy savings of 178 MMBFOE (25.7 MTOE) within the planning period. Its carrier program, *EC (Energy Conservation) Way of Life* shall be a continuing collaboration with the private sector community. The intensified implementation of the various energy efficiency and conservation programs was estimated to have resulted in 8.1 MMBFOE (1.2 MTOE) in energy savings in 2004. The government-mandated austerity measures and other policy directives as well as the onset of the voluntary agreements program component of the *EC Way of Life* are expected to generate higher energy savings within the planning period. A total of 4.4 MMBFOE (0.6 MTOE) has been realized for the first semester of 2005.

#### Forming strategic alliances with other countries

The Philippines remained an active participant in international and regional energy groupings of various organizations such as the ASEAN, APEC and Asia Cooperation Dialogue (ACD). These strategic alliances collectively address common issues in the energy sector that include energy security, energy pricing and energy reforms.

In 2004, the country hosted and assumed the chairmanship of the 22<sup>nd</sup> ASEAN Ministers on Energy Meeting-Senior Officials' Meeting on Energy (22<sup>nd</sup> AMEM-SOME), the Manila AMEM + 3 (Japan, Korea and China) and the 6<sup>th</sup> APEC Energy Ministers' Meeting (EMM6). One of the highlights of the 22<sup>nd</sup> AMEM-SOME was the approval and adoption of the *ASEAN Plan of Action for Energy Cooperation (APAEC) for 2004-2009* whose drafting committee was led by the Philippines. The EMM6, on the other hand, issued the *Manila Declaration* which provided a framework of cooperation among APEC economies to develop response mechanisms for both short and long term energy supply disruptions. Several meetings likewise took place during the year that resulted in various energy agreements, among which are the Signing of the Joint Seismic Undertaking among PNOG, China Offshore Oil Company and PetroVietnam to study the possibility of exploring certain areas in the South China Sea and a Memorandum of Understanding (MOU) with the Republic of Korea's Ministry of Commerce, Industry and Energy (MOCIE) promoting cooperation in electric power development.

For the planning period, strengthening international relations will be a continuing strategy of the government. In diversifying the country's sources of oil supply, bilateral supply arrangements will be undertaken with Indonesia, Russia, Angola and Kazakhstan, among others. Investment roadshows and energy contracting rounds will also be intensified to spur energy resource development and facilitate the sale and privatization of the power sector assets.



DOE Sec. Lotilla, PNOC Pres. Mañalac and MOCIE Minister Hee-Beom Lee signed the MOU for the promotion of energy cooperation between the Philippines and Korea.

### IMPLEMENTING POWER SECTOR REFORMS

Power sector reforms under the Electric Power Industry Reform Act (EPIRA) of 2001 are designed to introduce competition and achieve reasonable electricity prices. Within this framework, the DOE shall continue to work on the following strategies:

#### *Continuing privatization process*

In view of the government's thrust of improving the efficiency in the power sector, provide better electricity services at competitive prices in the long run for the Filipinos, the government opens up greater participation of the private sector in realizing power market reforms. Thus, the government targets the privatization of NPC's generating assets through PSALM. As of end 2005, five power plants have been successfully privatized by the Power Sector Assets and Liabilities Management (PSALM) Corporation. The initial five plants bidded out were all mini-hydro facilities with combined capacity of 8.5 MW.

Meanwhile, PSALM is finalizing the transaction and bidding documents for the tender offer of the National Transmission Corporation (TransCo) which is the government's biggest privatization effort in the power sector.

#### *Creating an investment climate attractive to investors*

The operation of the Wholesale Electricity Spot Market (WESM) will lead to transparency and competition in the power sector. Developments in WESM are as follows: (a) delivery of the Market Management System (MMS) in December 2004; (b) commencement of the Trial Operation Program (TOP) in April 2005; and (c) final acceptance of the MMS Turnkey Project in November 2005.

The WESM will serve as an efficient venue for the trading of electricity to ensure that generation is balanced with the ever-changing demand for electricity. The target operation for Luzon has been set for the first quarter of 2006. The other remaining EPIRA conditions for open access will be put in place by 2006. Likewise, the privatization efforts of the government include the transfer of management and control of at least 70.0

percent of the total energy output of power plants under contract with NPC to the independent power producer (IPP) administrators.

On cross subsidies, full removal by the Energy Regulatory Commission (ERC) of inter-grid subsidies for the industrial and export zone sectors in 2005 will yield rate relief. In the residential sector, electricity rates will be further rationalized with the adoption of the time-of-use pricing mechanism to approximate the true cost of power at different times of the day. Meanwhile, the mandated lifeline subsidies will continue to cushion the impact of rate adjustments on the poor. The initial implementation of Retail Competition and Open Access has been scheduled by the ERC to commence in July 2006 for the Luzon grid.

Consistent with the ten-point agenda of the administration particularly the provision of water and electricity in all barangays, the Rural Electrification Program was adopted in April 2003 to improve the quality of life of the Filipino people. This program is an integration of all the electrification efforts of both the government and the private sector which aims to electrify the unenergized sitios, mostly in energized barangays and pockets of small villages nationwide to provide full access to electricity. The DOE, in particular, has targeted 100 percent barangay electrification by 2008 with the secondary objective of achieving 90.0 percent household electrification by 2007.

The extremely remote and unserved areas will be opened for private sector participation under the Qualified Third Parties (QTPs) scheme to augment government's efforts starting off with the opening of the 14 "First Waived" areas served by NPC-Small Power Utilities Group (SPUG). The first 14 areas are set for completion by 2006. To facilitate the entry of the QTPs, enabling policy directives have been issued by the DOE.

The provision of benefits under Energy Regulations (E.R.) 1-94 will be a continuing program of the DOE and its attached agencies and other stakeholders. As such, the DOE will expedite measures to streamline and simplify the process of availing the funds. Host communities will be encouraged and assisted to be able to gain access to both monetary and non-monetary entitlements as provided under the law.

### OTHER ENERGY PROGRAMS

The DOE will continue to implement its other programs that include consumer protection and empowerment in a deregulated oil industry environment, shepherding the development of the downstream natural gas industry and enhancing environmental management, among others.

The country's oil supply security will be ensured through a continuing infrastructure development program in the downstream sector to include refinery establishment/upgrading and, construction/rehabilitation of storage tanks and service stations; diversification of supply sources through strengthened international relations; and, improvement on products and facilities standards.

The natural gas industry will be developed with the establishment of critical infrastructure projects such as transmission and distribution pipelines primarily in Luzon where demand concentration for natural gas is projected by the end of the planning period. The DOE will also work for the passage of the Natural Gas Bill which will encourage investments in the required infrastructures network; expand the country's natural gas base and contribute to attaining the country's objective of promoting indigenous, clean energy fuel.

In terms of protecting the environment, the DOE will coordinate closely with the various multi-partite monitoring teams to ensure the compliance of power projects with environmental regulations and standards. It shall also continue to build institutional capacities in identifying and implementing Clean Development Mechanism (CDM)<sup>1</sup>-registered project activities in line with the country's commitment to the Kyoto Protocol, an international agreement which sets binding targets for the reduction of greenhouse gas emissions by industrialized countries.

Amidst the dynamic changes taking place in the energy industry, the DOE is committed to ensure consumer welfare and protection through the conduct of a continuing energy information, education and communication campaign. Advocacy is also being undertaken to involve local government units in the enforcement of standards and consumer protection.

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<sup>1</sup> **Clean Development Mechanism** - A mechanism under Kyoto Protocol that allows emission reduction projects that assist developing countries in achieving sustainable development and generate Certified Emission Reduction (CER) for use by the investing country or company.