

# V. OTHER ENERGY PROGRAMS

## A. DOWNSTREAM OIL INDUSTRY DEREGULATION

### PERFORMANCE ASSESSMENT

The Philippines' average consumption per day is only about 0.32 MMB in 2004, equivalent to 0.4 percent of the total world oil demand. The world demand increased by 3.3 percent in 2004 to 82.5 MMB per day from 79.9 MMB. The United States, the world's largest consumer of petroleum products, consumed an average of 20.4 MMB per day in 2004 followed by China with a total demand of 5.6 MMB. Japan, which barely has oil reserves of its own, is the world's third largest oil consumer and consumed an estimated volume of 5.57 MMB per day of oil in 2003 while India consumed 2.2 MMB per day in 2003.

### SUPPLY

#### Inventory

In 2005, actual industry inventory inclusive of stocks in-transit from the import sources averaged at 64-day supply equivalent, 8.0 percent higher than the 59-day average supply in 2004. This level was in conformance with DOE Circular No. 2003-03-002 which provides for a Minimum Inventory Requirement (MIR) of in-country stocks by the oil companies equivalent to 15 days for refiners, seven days for bulk suppliers and seven days for LPG players.

#### Importation

Crude imports increased slightly in 2005 compared with that in 2004 when the country experienced the conversion of the Caltex refinery to a storage facility and the shutting down of some process units of Petron and Shell due to maintenance activities. On the other hand, importation of finished petroleum products decreased by 22.4 percent for the same period. Product imports represented 37.7 percent of the country's demand.

Total import volume for 2005, though 5.7 percent lower than 2004 at 118.9 MMB, cost 29.4 percent higher at US\$ 6.5 billion.

#### Refinery Production

On May 5, 2005, Petron Bataan Refinery's LVN Isomerization and Gas Oil Hydrotreater No. 3 Units were inaugurated. The upgrading of Petron's refining facilities has increased its capability to produce products that meet the strict quality specifications required by the Clean Air Act (CAA), thereby increasing the country's local refinery production by 8.0 percent in 2005. The upgrading enabled Petron to reduce its product imports and consequently benefit from the relatively large spread, first time in years, between the crude and product prices in the international market.

### COMPETITION

The downstream oil industry has sustained a modest growth seven years after its deregulation. As of December 2005, there are 602 players (Table 5.1) engaged in the different downstream activities of the oil industry indicating a 66.0 percent increase from the 361 count recorded in 2004. Likewise, the total investment of new players stood at PhP 28.40 billion as of December 2005, up by 13.6 percent from the 2004 level of PhP 25.0 billion. On the other hand, the total market share of new players increased from 13.7 percent in 2004 to 15.3 percent in 2005. Meanwhile, the market share of the new players in the LPG sector was 43.1 percent in 2004 and 44.5 percent by the end of 2005.

Table 5.1. TOTAL NUMBER OF NEW PLAYERS PER ACTIVITY, 2005

Activity	No. of New Players
Liquid Fuel Bulk Marketing	66
LPG Bulk Marketing	9
Liquid Fuel Retail Marketing	506
Bunkering	17
Terminalling	4
Re-processing	-
<b>Total</b>	<b>602</b>

In 2005, the industry recorded a total of 3,369 gasoline stations, with almost 67.0 percent located in Luzon, 15.0 percent in Visayas and 18.0 percent in Mindanao (Table 5.2). On the other hand, the country has a total storage capacity of 25.9 MMB (Table 5.3).

Table 5.3. TOTAL COUNTRY STORAGE, 2005

Depots	Number	Capacity (MB)
<b>Majors</b>	<b>72</b>	<b>6,267</b>
<b>Others</b>	<b>47</b>	<b>2,115</b>
<b>Import/Export Terminals</b>	<b>3</b>	<b>8,382</b>
Subic-Olongapo*	1	2,334
Clark-Pampanga	1	386
SGEI-Tabangao, Batangas	1	290
<b>Refinery (Crudes &amp; Product)</b>		<b>14,477</b>
Petron-Limay, Bataan		8,959
Shell-Tabangao, Batangas		5,518
<b>Total</b>		<b>25,869</b>

\* Includes the available capacity

### PRICE

To ensure the reasonableness of domestic prices of petroleum products, the DOE continued to undertake daily monitoring of international prices such as those of benchmark crudes Dubai, Brent and WTI, and petroleum products using the Mean of Platts Singapore (MOPS) indications. Corresponding adjustments in domestic prices were estimated considering the movements in the international prices and the foreign exchange. The DOE-DOJ Task Force was convened, as necessary, to determine and rule on reports or suspicions of unreasonable rise in the domestic prices.

In terms of keeping the public abreast of price adjustments, the conduct of tri-media IEC drive was done on a continuing basis. The posting of retail pump prices per area in the DOE webpage provided the consumers with information on price movements and the adjustments effected by the oil companies. The posting of weekly Oil Price Monitor also provided a picture of the oil industry, both in the local and international markets.

To minimize the impact of oil price increases especially in the transport sector, the government enjoined

the assistance of the oil companies in implementing various support mechanisms for the different transport groups such as: putting up of diesel filling pumps at jeepney terminals (started in 2002) which provided lower diesel prices to members; and, the granting of discounts on diesel in retail stations. The latter was done through the designation of a "jeepney lane" (also serving buses) by about ten oil companies and their participating stations nationwide. This initiative which started in September 1, 2003 was temporarily discontinued in June 2004 upon the implementation of fare increase. However, this was once again offered beginning November 25, 2004 with the number of participating stations increasing to 219 and further to the current 366 stations.

The DOE also conducted its two-fold seminar on skills and management of gasoline stations, leading to the granting of financial assistance to new players in the retail trade, and resulting in the establishment of four stations, with locations outside Metro Manila and other urban centers. The "Gasoline Station Lending and Financial Assistance Program to New Industry Participants" is provided under R.A. 8479 or the *Downstream Oil Industry Deregulation Law* to promote retail competition.

Responding to the clamor of the transport sector for a steady supply of high quality fuel at a low cost, FilOil launched its "Kapakanan ng mga Tsuper ng Transportasyon (2T) sa Kabuhayan Program," a tripartite undertaking with the Liga ng mga Barangay sa Pilipinas and the Office of Transportation Cooperatives. This innovative program allows transport cooperatives to enjoy an added source of income and benefits for its members, through the FilOil Portagas Station, the first and only portable gasoline station in the Philippines and probably in the world.

## TAXATION

The past year also marked the first time that the petroleum sector was covered under the VAT system. To mitigate the impact of the new tax system – 10.0 percent VAT, the DOE advocated the reduction of excise taxes and import duties on petroleum crude and products. Mitigating measures now in place include the removal of the excise

tax on socially sensitive products such as diesel, kerosene and fuel oil. It has also lowered the excise tax of regular unleaded gasoline and reduced the import duty of crude and petroleum products to 3.0 percent from 5.0 percent. For LPG, primarily used by households, the VAT impact is significantly mitigated as it has now a zero-rated excise tax as well as import duty from the previous 3.0 percent. Table 5.4 shows a sample computation of the impact of the 10.0 percent VAT on the pump prices of petroleum products with corresponding mitigation measures.

**Table 5.4. IMPACT OF 10% VAT ON PUMP PRICES WITH MITIGATION MEASURES (SAMPLE COMPUTATION)**

Products	Pump Price (PP) before Nov 1, 2005	Rollback <sup>+</sup>	Mitigation		Total Reduction in Pre-VAT PP	New PP	10% VAT	Final PP	Nominal Increase	% Increase
	a	b	Excise c	Tariff <sup>**</sup> d	e=(b+c+d)	f=a+(e)	g=(f*0.1)	h=f+g	i=h-a	j=i/a
Unleaded	36.05	(0.60)	0.00	(0.52)	(1.12)	34.93	3.49	38.42	2.37	6.6%
Regular	34.57	(0.60)	(0.45)	(0.46)	(1.51)	33.06	3.31	36.37	1.80	5.2%
Diesel	32.95	(0.60)	(1.63)	(0.57)	(2.80)	30.15	3.02	33.17	0.22	0.7%
Kerosene	33.51	(0.60)	(0.60)	(0.57)	(1.77)	31.74	3.17	34.91	1.40	4.2%
Bunker	21.98	(0.60)	(0.30)	(0.35)	(1.25)	20.73	2.07	22.80	0.82	3.7%
LPG (P/cylinder)	464.00	(11.00)	0.00	(10.03)	(21.03)	442.97	44.30	487.27	23.27	5.0%

<sup>+</sup> Rollback of Php 0.60/li on all products; Php 1/kg or Php 11/cyl for LPG

<sup>\*\*</sup> Based on October 1-20, 2005 MOPS/CP<sup>+</sup>; Tariff reduced from 5.0 percent to 3.0 percent (3.0 percent to 0 percent for LPG)

Note: Prices may vary based on location, company and other factors

For the smooth implementation of R.A. 9337 or *The Reformed VAT Law* and its complementing issuances, the DOE closely coordinated with the Department of Finance (DOF) and its Bureau of Customs and Bureau of Internal Revenue, the Tariff Commission, and other key government offices, on one hand, and the oil industry players – refiners, importers, dealers/retail outlets, and LPG players, on the other hand. It also supported the DOF in providing reports/responses to the Supreme Court where the law was referred to for issues of constitutionality on some of its provisions. The players were also guided on the mechanism for calculation and implementation leading to the successful implementation of the law on November 1, 2005 where there was no undue increase in prices other than the impact of the mitigated VAT.

## STANDARDS FORMULATION AND ENFORCEMENT

The DOE-led TCPA pursuant to R.A. 8749, known as the *Philippine Clean Air Act of 1998* has covered activities for setting petroleum standards following strict time-bound and quality-specific targets under the CAA mandate and the DOE initiative on alternative fuels, which for 2003 onwards included the following:

### Conventional Fuels

- ❖ DPNS/DOE QS 006:2005 for Fuel Oils (Bunker) specification, cancels and replaces PNS 21:1997. This becomes an update of the previous standard to include latest test methods;
- ❖ PNS1131:2002/DOE 001:2002 for Unleaded Gasoline (ULG) standard, a revision of PNS 1131:2001 in response to quality improvements for ULG under the CAA, particularly the reduction of the Aromatics (35.0 percent) and Benzene (2.0 percent) maximum by volume content adopting the CAA requirement for 2003;

- ❖ PNS/DOE QS 001:2005 for Unleaded Motor Gasoline specification, cancels and replaces PNS 1131:2002/DOE 001:2002. Highlight of this standard is the reduction of sulfur limit to conform to the Euro II standard; and,
- ❖ PNS/DOE: 2004 for Diesel Oil standard, a revision of PNS 20:2000 in compliance with the reduction of Sulfur for Automotive Diesel (ADO) from 0.2 percent maximum to 0.05 percent maximum by weight by January 2004 provided under the 2004 CAA requirement. This is the last of the CAA-mandated fuel specifications. The same also provides for review of the specifications for Industrial Diesel Oil (IDO) every two years to take into account the developments in improving ambient air quality, supply security, sufficiency, stability and industry volatility.

#### **Alternative Fuels and Other Fuel-Related Products**

- ❖ DPNS/DOE QS 007:2005 for Anhydrous Bioethanol and Fuel Ethanol specifications for the Fuel Ethanol Program - for production of ethanol-blended gasoline for use as automotive spark ignition engine fuel;
- ❖ PNS/DOE QS 004:2004 for Liquefied Petroleum Gases specification is a revision of PNS 22:1990. It was made to highlight the use of LPG as motor fuel in support of the Philippine Government's effort to promote the utilization of alternative and clean fuel technology. Also, this standard made improvements on the properties of LPG not only as motor fuel but also its other uses;
- ❖ PNS/DOE QS 003:2003 for Two-Stroke (2T) Lubricating Oil Standard in response to the government's thrust to develop and utilize indigenous, renewable and environment-friendly alternative lubricants such as plant base plant-derived esters; and,
- ❖ PNS 2020:2003/DOE 002:2003 (100 percent CME of B<sub>100</sub> as Alternative Fuel Blend) to facilitate the introduction of CME as a potential blending component for conventional diesel fuels.

#### **Petroleum Product Facilities**

Guided by the government's pursuit for cleaner and safer environment, the DOE and the BPS of DTI constituted the Technical Committee on Petroleum Processes and Facilities (TCPPF) in 2003 to develop and formulate the following standards for retail outlets:

- ❖ PNS/DOE FS 1-1:2005 for Health, Safety and Environment;
- ❖ PNS/DOE FS:1-2:2005 for Underground Storage Tank;
- ❖ PNS/DOE FS 1-3:2005 for Piping Systems; and;
- ❖ PNS/DOE FS:1-4:2005 for Dispensing Pumps.

The standards were prepared to complement Department Circular No. 2003-11-010 *Providing for the Rules and Regulations Governing the Business of*

*Retailing Liquid Petroleum Products* which was promulgated in February 2005.

Subsequently, the TCPPF set up and convened a TWG to develop a standard for LPG Refilling Plant to cover the technical, design and safety requirements for the installation and operation of LPG refilling plant and bulk plants/terminals .

Also in the process of development is the corresponding PNS for Liquid Petroleum Product Portable Containers to introduce safe practices in the handling and transport by consumers of liquid petroleum products. A Department Circular for the transport of LPG in cylinders is also being proposed as a rejoinder to the DOE's concerns on the safety practices and discipline observed by various LPG transporters and/or haulers in the conduct of such business.

#### **LEVEL OF COMPLIANCE/ENFORCEMENT**

##### **Quality and Quantity Monitoring**

The strict compliance of the industry players with the standards of quality is consistently being monitored by the DOE through the conduct of regular/routine or on-the-spot or complaint-initiated inspections and sampling from the refineries, bulk plants, depots, terminals and gasoline stations nationwide. On-the-spot field tests and other confirmatory examinations are also being performed to detect any form of adulteration.

##### **Additive Registration**

Fuel additives are required to be registered per R.A. 8479 and R.A. 8749 prior to the introduction and use of such additives to ensure that substances do not contribute to harmful emissions. Permanent (full) registration are granted to those complying with all the documentary requirements as well as the criteria for additive registration, e.g., will not contribute to the increase of the regulated emissions, promote fuel efficiency, etc., thereby indicating that such additives may be used by the oil companies in their fuel formulation or sold as a value-enhancing product by independent marketers and suppliers. Meanwhile, a Provisional Registration, which is valid for a maximum of six months, is given for test marketing purposes only , provided substantial compliance to the other documentary requirements are met. Endorsement from the Chemical Review Committee of the Department of Environment and Natural Resources (DENR) for conformance of the additive to the requirements of the Toxic and Hazardous Wastes Act is a prerequisite to the permanent registration.



*The DOE is in the process of developing product standards in the operation of the LPG refilling plants.*

## POLICY

### *Creation of an Independent Review Committee (IRC) to review the Oil Deregulation Law (R.A. 8479)*

In the wake of successive oil price hikes, several sectors clamored for the review of R.A. 8479. As such, the DOE upon the directive of President G. M. Arroyo created a six-man IRC team pursuant to Department Orders 2005-02-001 and 2005-05-005 in February and May 2005 to review the law and give corresponding recommendations, taking into consideration the views and opinions of all affected sectors and the interests of both the consumers and the oil industry.

After intensive consultations with the various industry stakeholders, the IRC Report was formally turned over to the DOE on July 7, 2005. Among the salient findings and recommendations include: (a) oil product price increases are mainly due to peso devaluations and the increase in the international prices since the Philippines practically imports its oil requirements; (b) competition for market share clearly exists among the industry players (both major and new) and no concrete evidence of cartelization has been found; (c) there should be no change in the policy of the state -- meaning the deregulation of the oil industry should continue; and, (d) that the role of DOE should be expanded to enable it to enforce strictly the rules and regulations.

## DEVELOPMENT CHALLENGES

- Volatility of world oil prices triggered by a confluence of factors and events worldwide such as the increasing demand from giant economies like the United States, China and India; the recurring conflicts in the Middle East; the production losses in the Mexican Gulf brought about by the devastating hurricanes that engulfed several parts of the US as well as the rebel threats against Nigerian facilities
- The passage of the RVAT Law imposed VAT on previously exempt goods including petroleum products and their raw materials
- No tariff differential between crude oil and finished products
- Improvement in the quality and safety of LPG cylinders in circulation
- Measures/guidelines in promoting and supporting the alternative fuels program to ensure compliance with quality standard of pre-blended diesel/gasoline with bio-fuels

## ACTION PLAN

- Study the feasibility of establishing a National Petroleum Strategic Reserve by 2010 by putting in place the necessary fuel stockpile infrastructures and the actualization of oil discovery prospects
- Develop the Malampaya oil rim dedicating it to the country's national reserve
- Encourage infrastructure development through the provision of gasoline station lending and financial assistance program (GSLFAP) to new

players in the Liquid Fuels sector and consequently promote a healthy retail competition in cooperation with the Development Bank of the Philippines (DBP) and the Philippine Amusement and Gaming Corporation (PAGCOR)

- Diversify supply sources by strengthening bilateral supply agreements with other possible suppliers such as Indonesia, Russia, Angola, Kazakhstan, among others, in coordination with the existing local players and vigilant monitoring of the industry through reports of the players for more timely and accurate data on the country's supply and demand situation
- Develop/improve standards for products and facilities; enhance monitoring/enforcement of compliance with the standards.
- In the LPG sector, enhance consumer safety and welfare through the development of an LPG cylinder exchange program to address the growing proliferation of substandard and dilapidated LPG cylinders in the market and promote accountability and responsibility on the part of the brand owners to maintain their own cylinders in accordance with set standards and enforcement of standards/rules and regulation through appropriate policy intervention such as the Retail Rules for LPG and the proposed LPG Bill.
- Put in place quality standard and an inspection/sampling mechanism for diesel/gasoline pre-blended with bio-fuels

## B. DOWNSTREAM NATURAL GAS INDUSTRY DEVELOPMENT

### PERFORMANCE ASSESSMENT

Natural gas continues to become a major fuel in the country's energy mix and in particular for power generation due to the oil price spike, transmission line upgrade and its good properties as a fuel.

Natural gas consumption in 2004 by the 1,200-MW Ilijan, 1,000-MW Sta. Rita and the 500-MW San Lorenzo gas-fired plants in Batangas amounted to about 80,682 MMSCF with a combined generation of 12,386 GWh of electric power. The slight decrease in gas consumption vis-à-vis 2003 was brought about by the implementation of the Dasmariñas and Tayabas transmission lines upgrading program which previously restricted the higher dispatch of the three gas-fired power plants. Despite the constraint, natural gas-fired power plants provided for 32.0 percent of the total generation in Luzon and about 23.0 percent of total gross generation nationwide in 2004.

The completion of the transmission line upgrade in the early part of 2005, coupled with crude oil price reaching close to USD 60.0 per barrel led to higher dispatch or utilization of the natural gas-fired power plants. As a result, consumption of natural gas for the first six months of 2005 amounted to 50,242 MMSCF with a total generation of 7,985 GWh of electricity. These factors

made natural gas the primary fuel in the generation mix providing for 40.0 percent of the total generation in Luzon.

The government's demonstration program on the use of natural gas in the public transport sector continues to roll and has been expanded. DOE's demonstration vehicles from Ashok Leyland and Daewoo consumed a total of 207,581 SCF of natural gas supplied mainly by the San Antonio gas field of PNOC-EC in Isabela.

The entry of natural gas in industries started with PSPC's use of the fuel in its refinery during the second half of 2005. The refinery could consume as much as 1.3 BCF on its first year of use of natural gas.

The Batangas-Manila pipeline project continues to undergo economic re-evaluation with the government's decision to rehabilitate the retired Sucat power plant for early delivery of needed power. Additional supply of natural gas in the form of LNG remains a strong option for the immediate expanded use of natural gas. Parties interested in putting up LNG terminals on their own or in partnership continue to discuss with potential customers and direct buyers in the power generation sector.

Commercial use of CNG in public utility buses plying Batangas-Manila route is also expected to start soon with the operation of mother and daughter refueling system upon compliance with technical and safety standards.

## DEVELOPMENT CHALLENGES

- Availability of a natural gas infrastructure network i.e., transmission and distribution pipeline network
- Absence of an enabling legislation that will encourage investments in the initial infrastructure required for the industry, as well as in the expansion of the country's natural gas supply base
- Lack of industry standards in accordance with international technical practices and safety standards as well as Philippine environmental and social safeguard policies
- Institutional capacity development both in government and the industry

## ACTION PLAN

- Encourage putting up of critical gas infrastructure projects primarily in Luzon where demand concentration for natural gas is projected to be highest in the next ten years

### Transmission Pipelines

- ❖ 80-100 km. high pressure gas transmission pipeline from Tabangao, Batangas to Metro Manila (BatMan 1);
- ❖ 130-150 km. high pressure gas transmission pipeline from the Bataan peninsula to Metro Manila (BatMan 2);
- ❖ 40-km. undersea high pressure gas transmission pipeline from the Bataan peninsula to Metro Manila or Cavite province (BatCave);

- ❖ 35-km. high pressure gas transmission pipeline from Sucat to Piliia, Rizal province; and,
- ❖ 35-km. high pressure gas transmission pipeline from Rosario, Cavite to Binan, Laguna (RoBin).

### Distribution Pipeline

- ❖ 40-km. city gas pipeline along Metro Manila's main road artery (EDSA-Taft loop); and,
- ❖ Chain of distribution pipelines yet to be identified in synergy with the establishment of the potential industries that will convert to use natural gas.

### Related Facilities

- ❖ Mother stations for the receipt and distribution of CNG for the natural gas vehicles;
  - ❖ Network of gas refilling stations for NGV in Metro Manila and Batangas province; and,
  - ❖ LNG receiving terminals for bulk receipt and storage.
- Conduct investment promotional activities domestically and internationally to generate and establish strong partnerships and collaboration with key partners and stakeholders
  - Identify and develop market for natural gas i.e., industrial, commercial, transport, residential and agricultural sectors. Under this program, the conduct of market studies on the following by private groups has been undertaken, such as: (a) District Cooling and Power Supply Project in the Republic of the Philippines; (b) Ecozone Profiling; (c) Conversion to Natural Gas Firing of the Oil Fired Thermal Power Plants; and (d) Development of On-site Cogeneration Using Natural Gas for the Filinvest Corporate City. The additional power capacity requirement in Luzon, Visayas and Mindanao and transport of CNG via marine vessels can be tapped as potential market
  - Implement DOE Circular 2002-08-005 titled: "Interim Rules and Regulations Governing the Transmission, Distribution and Supply of Natural Gas" or Gas Rules issued on August 27, 2002 which is designed to maximize economic efficiency in the context of the development stage of the country's downstream gas industry, as well as to set out the responsibilities of the DOE and its relationship with other government agencies and the roles of private participants in the natural gas industry.
  - Implement a capacity building program for the DOE and the natural gas industry to effectively monitor the sector's development and properly implement the regulatory functions of the DOE. A multi-sectoral Natural Gas Institute will be created for the joint undertaking of institutional capacity development of the country's gas industry. Initially, the government, the industry and the academe will be tapped to put in place the Institute.

## C. ENVIRONMENTAL MANAGEMENT AND PROTECTION

### PERFORMANCE ASSESSMENT

In terms of protecting the environment, the DOE's mandate is to ensure that energy projects and activities will not have adverse effects on the environment. Along this line, the DOE continuously undertakes compliance monitoring in conjunction with multi-partite monitoring team activities while meeting its objective of helping the proponent comply with the environmental regulations and standards in a proactive manner.

### INTER-AGENCY COLLABORATION

The DOE actively participates in meetings/hearings/conferences concerning various international environmental conventions or protocols with the aim to assess environmental-related issues and concerns. Among these are: a) UNFCCC; b) Rotterdam Convention for Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; c) Montreal Protocol on Substances that Deplete the Ozone Layer; and, d) Stockholm Convention on Persistent Organic Pollutants.

Similarly, the DOE takes part in deliberations of different national environmental legislations with impact on the energy sector. Among these are H.B. 3253 (*An Act to Streamline the Environmental Impact Assessment System, Amending P.D. 1586, and For Other Purposes*), H.B. 982 (*An Act Creating the Department of Environmental Protection and Sanitation, Integrating the Different Government Agencies Related to Environmental Protection and Sanitation and For Other Purposes*), H.B. 1452 (*An Act Creating the Department of Environmental Protection and Sanitation, Integrating the Different Government Agencies Related to Environmental Protection and Sanitation and For Other Purposes*) and H.B. 3419 (*An Act Creating the Environmental Protection Agency of the Philippines, Thereby Amending Order 192 Appropriating Funds Therefore and For Other Purposes*).

### Committee for Energy Projects in NIPAS Areas (CEPNA)

The Committee which involves DOE and Department of Environment and Natural Resources (DENR) was established to identify and delineate all energy project areas within NIPAS coverage and formulate measures that will create or develop resource use complementation and harmonization towards sustainable development principles.

### CEPNA Initiatives

In the immediate term, the Committee will undertake the review of procedures provided under joint DENR-DOE A.O. No. 2002-01 to facilitate the resolution of concerns on the establishment of energy projects within the NIPAS coverage. In this A.O., the DENR and the DOE through CEPNA, agreed to delineate or segregate the said energy projects. Also included in the procedure is a process for screening energy projects in NIPAS areas

according to a flow chart or Protocol for Social Acceptability of Energy Projects.

At present, mapping of identified potential energy resources in proclaimed or proposed protected areas is being prepared to assist prospective investors and expedite the process of providing accurate and complete information.

### Inter-Agency Committee on Climate Change (IACCC)

As mandated by A.O. 11, the IACCC oversees all the government's initiatives on climate change to which the DOE is a member along with other Departments and NGOs. Regular monthly meetings are conducted to discuss developments on climate change including the Kyoto Protocol and CDM, projects and national communications. The DOE actively participated in discussions on Land Use, Land Use Change and Forestry, which were organized by DENR-EMB in July 2005.

### Philippine Council for Sustainable Development (PCSD)

Created on September 1, 1992 through E.O. 15, the PCSD is mandated to chart the country's environment and sustainable development initiatives. As a member of PCSD, the DOE fully supports the enhanced Philippine Agenda (PA) 21. PA 21 envisions a better quality of life for all Filipinos through the development of a just, moral and creative, spiritual, economically vibrant, caring, diverse yet cohesive society characterized by appropriate productivity, participatory and democratic processes, and living in harmony and within the limits of the carrying capacity of nature and the integrity of creation. Discussions on the enhanced PA 21 took place in June 2005.

### Environmental Impact Assessment Review Committee (EIARC)

As member of EIARC, the DOE takes part in the review and evaluation of environmental impact statement of project proponents in the energy sector. Currently, three projects are undergoing review, namely; (a) PNOC-EC Isabela Integrated Coal Mine-Mouth Power Plant; (b) Power Plant Expansion Project of Mindanao Energy Systems, Inc.; and, (c) 600-MW coal-fired power plant of GNPowder Ltd. Company.

### Philippine Efficient Lighting Market Transformation Project (PELMATP)

The PELMATP will accelerate integration of energy efficient lighting programs to the planned DOE activities, enhance private sector's involvement and appreciation of the benefits of energy efficient lighting, and ensure that environmental impacts associated with the use of the same are mitigated.

A major component of the PELMATP is lamp waste management. This aims to address the potential negative impacts of the widespread use of energy efficient lamps which consist mostly of mercury-containing fluorescent lamps. The project will enhance capacity of the government and energy efficient lamp consumers to handle, collect, treat and dispose lamp wastes properly to prevent threat/damage to public health and the

environment. Some of the activities under PELMATP include:

- ❖ Formulation of guidelines in managing mercury containing lamp wastes;
- ❖ Design of IEC programs and training modules on solid waste management with focus on lamp wastes for distribution to government and private organizations conducting IEC; and,
- ❖ Development of market for lamp recycling through increasing availability of recyclable lamps and ensuring demand for by-products after recycling as well as the provision of technical assistance to establish lamp waste recycling facilities.

### CDM INITIATIVES

As a major undertaking under this initiative, the country signed the first greenhouse gas emission purchase agreement (ERPA) for the 25-MW Northwind Power Bangui Bay Project under CDM. The wind project is funded by the Danish International Development Agency (DANIDA) and located in the foreshore of Bangui Bay, Ilocos Norte Province. It is expected to displace a significant amount of carbon dioxide (CO<sub>2</sub>) emissions annually. Likewise, PNOC-EDC is working on the ERPA accreditation of the 20-MW Nasulo Geothermal Project (Palimpinon II Optimization Project) and the 40-MW NLWPP – Phase I with the WB. In addition, another potential CDM project to be considered is the 40-MW Northern Negros Geothermal Project (NNGP) also of PNOC-EDC. At present, the Project Appraisal Document (PAD) and the Project Information Note (PIN) for the said project are already being prepared for submission to the Philippine Designated National Authority (PDNA) and WB. Likewise, being considered for possible ERPA accreditation are the indicative projects outlined in this Plan.

### DEVELOPMENT CHALLENGE

- Social acceptability of energy projects which could cause undue delays in project implementation

### CARBON DIOXIDE (CO<sub>2</sub>) EMISSIONS IN THE ENERGY SECTOR

The CO<sub>2</sub> emission in the energy sector comes mainly from the combustion of the conventional fossil fuels such as oil, coal, and natural gas.

In 2005, a total of 80.8 MMT of CO<sub>2</sub> emissions was released from energy use based on the Reference Case. This primarily came from oil and oil products (50.3 MMT or 62.2 percent), coal (22.8 MMT or 28.2 percent), and natural gas (7.7 MMT or 9.6 percent).

In this Plan Update, the average annual CO<sub>2</sub> emission from energy use for the entire planning period will be 93.7 MMT for the Reference Case and 91.8 MMT for the High Indigenous Case (Tables 5.5 and 5.6). The CO<sub>2</sub> emission for the High Indigenous Case in the Plan Update will record a decline of 9.0 percent compared to the Reference Plan with lower utilization of fossil fuels.

**Table 5.5. CO<sub>2</sub> EMISSIONS FROM ENERGY USE, Reference Case (MMT)**

Fuel	2005	2006	2010	2014
Oil and Oil Products	50.26	51.90	55.14	62.49
Natural Gas	7.74	7.84	10.40	15.88
Coal	22.81	22.89	27.05	27.39
<b>Total</b>	<b>80.80</b>	<b>82.63</b>	<b>92.59</b>	<b>105.77</b>

**Table 5.6. CO<sub>2</sub> EMISSIONS FROM ENERGY USE, High Indigenous Case (MMT)**

Fuel	2005	2006	2010	2014
Oil and Oil Products	50.94	48.25	56.13	62.61
Natural Gas	7.74	7.84	10.40	17.02
Coal	20.78	20.86	24.53	25.10
<b>Total</b>	<b>79.46</b>	<b>76.95</b>	<b>91.05</b>	<b>104.73</b>

While there are no country-specific standards or required reduction levels as yet, the various plans and programs of the energy sector are geared towards minimizing the effects of CO<sub>2</sub> emissions, more particularly the following:

- ❖ consumption reduction of fuel and electricity through energy efficiency and conservation initiatives;
- ❖ use of renewable energy sources such as hydro, solar, wind, and other renewable energy sources; and
- ❖ combustion efficiency improvement (e.g. combined-cycle units, combined heat and power (CHP) systems, etc).

Note: The computed CO<sub>2</sub> emissions for biomass are not included in the inventory total since it is assumed that it is absorbed in biomass regrowth (IPCC, 1997) and is thus taken up in the next growing cycle. Irrecoverable net CO<sub>2</sub> emissions from biomass sources are accounted for in the Land Use Change/Forestry sector.

### ACTION PLAN

- Pursue the development of an energy-environment database system on power projects to serve as DOE's monitoring mechanism and policy decision-making tool on energy-environment related issues. The database will feature environmental parameters such as emissions of sulfur oxide (SO<sub>x</sub>)/nitrogen oxide (NO<sub>x</sub>)/total suspended particulates (TSP)/particulate matter (PM) 10, effluents and other hazardous wastes and the rate of compliance of power projects with the set standards.
- Collaborate with energy project proponents and concerned LGUs in addressing social acceptability of the project
- Continue active participation of DOE in various inter-agency activities on environment issues

## D. STRATEGIC ALLIANCES WITH OTHER COUNTRIES

The Philippines continues to have an active role in the energy cooperation programs of various international organizations such as ASEAN, APEC and ACD particularly in pursuing the common goal of addressing issues in energy security. In this context, DOE continues to facilitate bilateral and multilateral undertakings to ensure diversified sources of energy supply, explore other energy options, and promote preparedness in times of emergencies such as supply disruption. As a mechanism, it has maintained and continuously pursued formal cooperation arrangements such as MOUs, MOAs, Memoranda of Intent, Memoranda of Cooperation, and other instruments with foreign counterpart agencies and institutions.

### BILATERAL COOPERATION

The Philippines continues to engage in bilateral cooperation with various other countries. Formal agreements have been forged in the following bilateral cooperation:

#### RP-Russia

The DOE and the Russian Ministry of Energy (MOE) is currently preparing for the First Philippines-Russia Energy Experts Meeting scheduled to be held during the first quarter of 2006 in Manila, Philippines. The MOU between DOE and MOE on Cooperation in the Field of Energy has already been drafted. The document will be reviewed in an inter-agency meeting under the flagship of the Philippine Department of Foreign Affairs (DFA), then sent to the Russian side for comments. The Republic of the Philippines and the Russian Federation, through the MOU, are exploring possibilities for the following:

- ❖ Russia to supply oil and oil products to the Philippines
- ❖ The Philippines to become a supply hub for Russian oil to serve East Asian markets

#### RP-China

DOE has invited the People's Republic of China through its National Development and Reform Commission (NDRC) to strengthen its energy cooperation with the Philippines. The MOU is a re-affirmation of China's role in enhancing the country's energy security especially in the area of coal supply.

#### RP-Venezuela

The Philippines is considering the possibility of sourcing crude oil and oil products from Venezuela and the provision of capacity building for DOE and PNOC in the field of oil and gas exploration, production, downstream facilities and transportation. An MOU for this purpose is currently being negotiated with Venezuela.

#### RP-Kingdom of Saudi Arabia (KSA)

The Philippines and KSA are slated to sign MOUs on Enhanced Oil and Gas Database and on Capacity Building in the Philippine Petroleum Industry following the agreements reached in a bilateral meeting between the energy leaders of both countries held in March 2005. The draft documents are now being reviewed.

#### RP-India

A Joint Working Group Meeting organized by DTI between the Philippines and India in September 2005 in Makati City, emphasized a mutual need to intensify the use of renewable sources of energy in the light of increasing prices of oil.

Along this line, DOE expressed its strong interest to revive the MOU on Cooperation on Renewable Energy with the Indian Ministry of Non-Conventional Energy Sources (MNES) that was forged in 1996 but has since expired in 1999. A new draft MOU is now with DFA for transmittal to MNES. India has highly developed technology for natural gas which could be utilized in the Philippines.

Also in September 2003, the DOE entered into a three-year MOU with GAIL (India) Limited to foster a mutually-beneficial relationship through joint cooperation in the development of the Philippine Natural Gas Industry.



Delegates of the 2<sup>nd</sup> ASEAN+3 Energy Security Forum held on January 20, 2005 in Manila.

#### RP-Thailand

In August 2004, the government has entered into a bilateral cooperation with Thailand through the Petroleum Authority of Thailand (PTT). This cooperation encompasses the following: (1) formulation of harmonized regional standards on ethanol; (2) rationalization of the ASEAN automobile industry (3) technical collaboration of PTT and Petron Philippines for the distribution and logistics of ethanol in the country; and (4) provision of technical assistance for the testing of ethanol-run vehicles.

### MULTILATERAL INVOLVEMENTS

The Philippines is also engaged in energy cooperation activities of regional groupings among which are the APEC, ASEAN, and the ACD.

### **APEC Initiatives**

The Philippines supports the implementation of the APEC Energy Security Initiative (ESI), which aims to enhance the capacity of APEC economies in preparing for energy supply disruptions, facilitating energy investments, using energy in more efficient manner, expanding energy choices, and capitalizing on technical innovations. These strategies are implemented through different activities. Initially, the Philippines actively participates in the following initiatives:

#### **Joint Oil Data Initiative (JODI)**

The JODI is intended to improve accuracy, coverage, timeliness, and transparency in the global market by making improved data available to participants. The objective of the exercise is to create a standardized and publicly accessible database which includes as many economies as possible and as large portion of world oil supply and demand as possible.

The DOE-Oil Industry Management Bureau (OIMB) is the designated Focal Point for JODI. The Bureau seeks to improve electronic data gathering and processing of monthly oil supply/demand data collection through the DOE Portal.

On June 21, 2005, the potential release date of the database was discussed in an inter-organization meeting at the IEA's headquarters in Paris.

#### **Real-Time Emergency Information Sharing System**

The real-time emergency information sharing system is an internet-based service which provides real-time communication in the form of a chat-room and data sharing in the form of bulletin board. The system also provides access to APEC Joint Oil Data. In February 2005, the DOE participated in the trial-run of the system.

### **ASEAN Initiatives**

The ASEAN has organized the Energy Security Forum in cooperation with China, Japan and Korea to work in formalizing a mechanism for regional consultation and coordination during periods of petroleum shortages and emergencies within the region. The Philippines is among the designated coordinating countries along with Myanmar and Japan. The forum is expected to promote information sharing through network and implement effective energy response measures/plans. It will likewise cooperate with the JODI of APEC.

#### **ASEAN + 3 Initiatives**

The ASEAN+3 energy cooperation on energy security done through individual or multilateral efforts aims to promote greater emergency preparedness, wider use of energy efficiency and conservation measures, diversification of types and sources of energy, and development of indigenous petroleum. It also addresses the need for effective dialogue and cooperation between ASEAN+3 and major energy producing countries both within and outside of the region.

In pursuit of these goals, a series of meetings/forums was undertaken to include the 1<sup>st</sup> Energy Security Forum and the 2<sup>nd</sup> Oil Stockpiling Forum held in Cebu, Philippines in February 2004. The Philippines is one of the coordinating countries for Energy Security Forum and Oil Stockpiling Forum. On the other hand, the Philippines also participated in the following activities: (1) 1<sup>st</sup> Natural Gas Forum in Shanghai, China; (2) 2<sup>nd</sup> Natural Gas Forum in Indonesia; (3) New and Renewable Energy Forum in Seoul, Korea; and, (4) 1<sup>st</sup> Oil Market Forum back to back with the 1<sup>st</sup> Oil Stockpiling Forum in Bangkok, Thailand.

#### **The Forum of the Heads of ASEAN Power Utilities/Authorities (HAPUA)**

The Philippines, through the NPC and TransCo, continues to be involved in the Forum of the HAPUA by designating point persons and actively participating in the eight working groups identified by member-countries. These working groups are Generation, Transmission, Distribution, Renewable Energy and Environment, Electricity Supply Industry (ESI) Services, Resource Development, Power Reliability and Quality, and Human Resources. The Philippines currently is the designated focal point for Working Group No. 5 on ESI Services, which initially identified three cooperation projects: "Sharing of ASEAN ESI Development/Restructuring Program", "Regional Energy Planning and Management", and "Charges, Tariff Structure and Design for the Industry".

#### **New ASEAN Petroleum Security Agreement**

The Philippines initiated the review of the 1986 ASEAN Petroleum Security Agreement (APSA) to address future exigencies. In concurrence, the 17<sup>th</sup> ASEAN Ministers on Energy Meeting (AMEM) held in Thailand on July 1999 tasked the ASEAN Council of Petroleum (ASCOPE) to spearhead the review. The new APSA is set for endorsement to the 24<sup>th</sup> AMEM on July 27, 2006 in Lao PDR and for signing during the 12<sup>th</sup> ASEAN Leaders' Summit in December.

### **ACD Initiatives**

The participation of energy producers and energy consumers in the ACD makes it an ideal platform to balance the interests of both. Established in 2002, the Philippines is joined by Indonesia, China, Bahrain, Qatar, and Iran as co-prime movers in the area of energy cooperation. Policy discussions have been undertaken several times on how ACD countries can cooperate with one another. The Joint Declaration of the ACD Energy Working Group, which was signed in Manila in 2003 contained pronouncements to pursue further cooperation in the various areas of energy- both at the policy and program levels. Despite the geographical diversity of the region in terms of resource endowment, member countries believe that these differences can serve as bases for forging strategic alliances and collaborative activities. On the other hand, the Qingdao Initiative on Energy endorsed during the Third ACD Ministerial Meeting in 2004 provided the framework on "follow-up actions for specific ways and areas of energy cooperation in Asia".

## E. CONSUMER WELFARE AND PROTECTION

The government continues to empower consumers by providing them with a wealth of choices, information and tools to stimulate their active participation in building an efficient and competitive energy market.

### PERFORMANCE ASSESSMENT

A continuing IEC campaign is waged in the different provinces of the country. Seminars covering various topics such as energy efficiency and conservation, consumer rights and obligations, electricity rates and oil pricing, energy safety practices and clean energy options were conducted in 2005. These were attended by more than 4,000 representatives from government, civil society, academe and professional organizations and from the industrial, commercial and residential sectors.

To gain full industry support of the reforms in the electric power sector, a partnership has been forged with the Institute of Integrated Electrical Engineers (IIEE) through an MOU to provide policy assistance to the government and to conduct a nationwide IEC campaign on the electric power reforms.

Apart from the IEC drives, the DOE through the Consumer Welfare and Promotion Office, also offers other types of assistance to consumers to include prompt delivery of information services to address specific consumer needs via the Enerxt and e-mail inquiries, promotion of major DOE programs and services, student research assistance, electric bill verification and other appropriate services to its growing number of clients.

In the oil industry side, the DOE in partnership with DTI, ensures fair trade practices by vigilantly monitoring the businesses engaged in retailing liquid fuels through conduct of inspections of gasoline stations and LPG establishments. Violations of the LPG Rules and Regulations range from under filling, illegal refilling to cylinder tampering and corresponding administrative fines were imposed by the DOE against these violators.



Spot inspection of gasoline stations is a continuing activity of the DOE as part of its commitment to look after consumer welfare and protection.

### DEVELOPMENT CHALLENGES

- Need to intensify IEC campaign to address oil deregulation and power industry issues

- Improvement in the delivery service through electronic means

### ACTION PLAN

- Strengthen mechanisms for continuous consultation and feedback between consumers and those at the top end of the decision-making chain
- Increase networking activities with the academe, professional organizations and civil society to strengthen consumer advocacy programs
- Reinforce monitoring activities to ensure compliance of businesses to energy standards
- Amend the 1992 Consumer Act of the Philippines to include energy in the provisions
- Develop appropriate responsibilities in the municipal/city levels to expedite resolution of issues within their areas of jurisdiction

## F. ENERGY INFORMATION MANAGEMENT

The DOE envisions the establishment of an effective Energy Information Management Program anchored on the underlying theme of “*One Database, One System, One DOE*”. The Program’s main objective is to provide timely, consistent, reliable and accurate energy data to serve the information needs of the DOE and its stakeholders.

To successfully implement the Program, the DOE has formulated the *Four Cs Strategy*, namely: Centralization, Computerization, Connectivity and Collaboration.

### PERFORMANCE ASSESSMENT

#### CENTRALIZATION

Guided by the “*One Database, One System, One DOE*” theme, there is a need to integrate all energy data, both in analog and digital formats. As an initial step, the DOE has expanded the facilities and data collection of the Energy Data Center (EDC), which originally served as the sole repository of all technical information on energy resource exploration and development. This two-storey building located within the DOE compound has environmentally controlled storage areas for technical data in various forms/media.

#### Petroleum Data

Almost 90.0 percent of the data housed at the EDC are on petroleum which was generated from exploration activities conducted as early as 1972 until the present. The petroleum data collection consists of geophysical (seismic, gravity and magnetic), geological, geochemical and well drilling information stored in reports, logs, maps and statistics in both analog and digital files. There is also a wide array of field samples, such as rocks,

cores, fluid samples and cuttings, taken from drillings, field samplings and other exploration areas.

### **Geothermal and Coal Data**

Data on geothermal and coal are sourced mainly from service contractors' exploration and production reports, technical and feasibility studies conducted in-house or by consultants. Some maps are also available as supplements to the reports.

### **Renewable Energy Data**

The renewable energy data collection of the Renewable Energy Management Division has been partly turned over to the EDC. These mainly consist of feasibility studies and reports on hydro, solar, wind, ocean and biomass.

## **COMPUTERIZATION**

With the advent of information technology, the DOE has established the following facilities to cater to various information needs of its stakeholders:

### **DOE Portal**

The DOE portal ([www.doe.gov.ph](http://www.doe.gov.ph)) is a virtual gateway to various information and services provided by the DOE. Compliant with Stage 3 of UN-ASPA Five Stages of E-government, the DOE portal is continuously evolving to cope with the data requirements of a dynamic energy sector.

### **DOE Intranet**

In order to attain a "paperless office" status within the planning period, the DOE intranet was created to serve as a network among DOE officials and employees for information sharing, communications, collaboration and support of various internal processes.

### **Energy Data Management System (EDMS)**

The existing energy resource database management system is currently being upgraded and expanded to include the whole spectrum of energy data that will cater to the analog data collection, storage, processing, and dissemination requirements of the entire sector.

### **Energy Geographic Information System (e-GIS)**

Currently, the e-GIS supports the promotion of indigenous energy resource exploration and development efforts through the following: (a) effective administration of concessions held by energy service contractors; (b) determination of frontier sites for further exploration and development work; (c) management of geologic and geo-scientific databases; and, (d) management of other geospatially related data such as the protected areas under the NIPAS and those classified as ancestral domain.

Another component of the e-GIS is a mapping capability for the downstream oil as well as power generation and distribution facilities.

## **Energy Data Digitization**

Existing analog data are currently being converted into computer-readable formats and will be made digitally available in the near future depending on the operational needs of the user.

Internally, the DOE has developed the *Computerized Attendance and Leave Monitoring System (CALMS)* which employs biometric technology for the daily time in/out of employees to generate daily time records and employee leave cards, among other reports. In coordination with the Commission on Audit, the DOE has also started implementing the *Electronic New Government Accounting System (e-NGAS)* which provides accurate, timely and standardized financial reports encompassing the various accounting processes from recording, to classifying, summarizing and communicating all financial transactions.

## **CONNECTIVITY**

To maximize the benefits of global information highway, the DOE Information and Communications Technology (ICT) architecture was upgraded in 2004. High-end servers and network devices were installed as well as high-speed Internet access was provided to enhance the DOE's local area network.

The existing network bandwidth of the DOE of 1 megabyte per second (Mbps) will be boosted to 1.5 Mbps starting January 2006.

On the network software side, industry standard and enterprise security management, database management systems and collaboration suites were procured as well, in support of the ever increasing network/internet requirements of the DOE and the energy sector.

## **COLLABORATION**

The success of the Program hinges on the mutual support and cooperation of the DOE and its stakeholders. Accordingly, the DOE has embarked on establishing strong linkages and collaborative partnerships with key organizations.

The DOE is working with the National Statistical Coordination Board (NSCB) on a comprehensive statistical framework to develop more accurate, reliable and timely energy data geared towards better policy formulation and dissemination.

It has also signed an MOU with government energy agencies on the establishment of the *e-library*, a TransCo-initiated project to develop a database on power. An information system on the government's rural missionary electrification program is also being implemented with NEA, NPC, PNOC and other relevant entities. Relatedly, a web-based information management tool for a comprehensive monitoring and evaluation of the implementation of electric power industry reforms, aptly named *Power Tracker* is now in place in partnership with other implementing agencies of the EPIRA such as ERC, NEA, NPC, PEMC, PSALM and TransCo.

On the other hand, under the UNDP-funded CBRED project, the DOE collaborates with renewable energy stakeholders through the Database Keepers Committee for the establishment of an information exchange on renewable energy. Likewise, under another UNDP-funded project called PELMATP, a website to facilitate information exchange on energy efficient lighting technology among stakeholders and ensure coherent sector-wide IEC is currently being developed.

### DEVELOPMENT CHALLENGES

- Need for an effective change management program for the DOE for the smooth transition from manual to computerized transactions
- Lack of standards in data collection in terms of form and content
- Prevention of data/report duplication
- Delayed submission of required reports by stakeholders
- Need to strengthen coordination and build stronger business relationships with stakeholders to gain support and cooperation
- Continuous capacity building for DOE to keep abreast with the fast developments in ICT

### ACTION PLAN

- Establish a personal computer-to-personnel ratio of 1:1 for the DOE in 2006
- Pursue the development of a comprehensive information policy that would address issues such as confidentiality, standard formats, collection, organization, storage, dissemination and distribution
- Enhance the EDMS to include both structured and unstructured statistical/digital data
- Transform the DOE portal into a Government to Government (G2G), Government to Business (G2B), and Government to Consumer (G2C) e-commerce system wherein transactions would be fully computerized
- Complete the *Energy Net*, a conglomeration of various players in the energy sector sharing data and information via the Internet, by 2007 (Figure 5.1)
- Develop an Internet-based e-GIS within the next five years
- Establish a *One-Stop Energy Information Center* that would handle the centralized collection, organization, storage and distribution of an integrated energy database

Figure 5.1. PROPOSED CONFIGURATION FOR THE ENERGY NET

