

DOE: Achieving Energy Sustainability

At a time of robust growth and development for most emerging economies, the current global call is now focused on attaining sustainable energy security to fuel economic development. Needless to say, most countries are now in the bandwagon for promoting sustainable energy in the context of energy security, poverty alleviation and environmental management. And the Philippines is not one to be left behind in this endeavor. In fact, the Department of Energy (DOE) has recently launched the 2012-2030 Philippine Energy Plan which will direct the country in creating a future with less carbon and one in which energy efficiency is a way of life and the use of alternative fuels and renewable energy as intelligent choices. Specifically, the thrusts of the Plan are as follows:



Figure 1. PEP 2012-2030 IEC in Bohol last 15 November 2012

- Expand energy access
- Promote a Low-Carbon Economy
- Climate proof the energy sector
- Develop Regional Energy Plans
- Promote investments in the energy sector
- Identify and implement energy sector reforms

Said policy thrusts are supported by specific quantifiable targets that will be realized by the end of 2030. Most prominent of which are specified below:

- a. Triple renewable energy capacity by 2030
- b. 90% household electrification by 2017 and 100% sitio energization by 2015
- c. 30% of all public utility vehicles will run on alternative fuels
- d. Implement higher biofuels blend
- e. 10% energy savings on the total energy demand

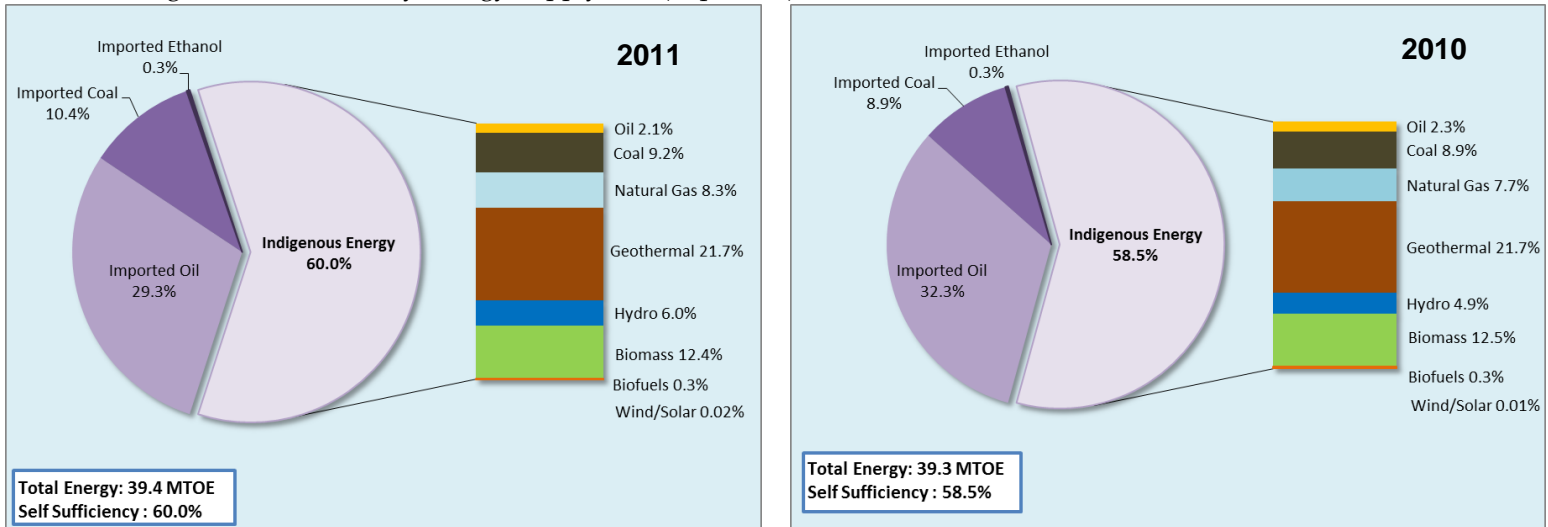
To tailor fit the energy plan and programs to regional challenges and perspective, the Department has placed on the drafting boards the regional energy plans for Mindanao, Visayas, and North and South Luzon. These plans will be developed in consultation with the respective Regional Development Councils (RDCs) and complement the regions' Regional Development Plans (RDP). By 2013, the Mindanao Energy Plan (MEP) will be presented to stakeholders in the six (6) regions of Mindanao for their comments and recommendations. The MEP will contain the policy and program framework for a sustainable solution to Mindanao's power supply problems.

And to illustrate the country's trend towards a low carbon economy, production data on the 2011 total primary energy mix shows renewable energy sources increasing its production levels in 2011, led by wind energy with 42.9 percent, followed by hydro and geothermal with 21.0 percent and 0.1 percent, respectively, while biomass and solar energy production declined by 0.8 percent and 3.4 percent, respectively. Meanwhile, natural gas production from the

Malampaya well went up by 8.0 percent in 2011. The mix also showed that although oil remained as the country's major energy source (accounting for 31.4 percent of the energy supply mix), its total supply dropped by 9.0 percent to 12.4 MTOE in 2011, from 13.6 MTOE in 2010.

The country's total primary energy supply mix for 2011 (Figure 2) showed the country's supply of energy reached 39.40 million tons of oil equivalent (MTOE) and 60 percent of which was harnessed from indigenous sources.

Figure 2. Total Primary Energy Supply Mix (in percent), 2010 and 2011



To provide a more sectoral discussion on the key accomplishments of the DOE, below is a short summary of how the Department has performed for the year 2012.

ENHANCED INDIGENOUS ENERGY DEVELOPMENT

Oil and Gas

- Oil, gas and condensate production recorded as of October 2012 were at 1.31 million barrels (MMB), 115.63 billion cubic feet (BCF) and 3.47 million barrels (MMB) respectively.
- The pursuit for exploration and development of the country's indigenous oil and gas resource has led government to offer prospective areas through the Philippine Energy Contracting Round (PECR). The DOE launched the 4th energy contracting round for petroleum in June 2011 and areas offered were mostly located within the prospective basins of Northwest Palawan, East Palawan, Sulu Sea and Mindoro Cuyo, as well as in the promising basins of Cagayan, Central Luzon and Cotabato. Twenty bid proposals have been received for 15 prospective areas and these bids were submitted in 27 April 2011 and 31 July 2011. Currently, the bids are still under the review and approval of

the DOE Secretary. To date, the DOE supervises and monitors 27 Service Contracts (SCs).

Coal

- As coal remains to be a leading contributor to the country's energy supply, the government continues to explore, develop and utilize the immense coal reserves of the country. As of October 2012, indigenous coal production (Run-of-Mine) already stood at 6.3 million metric tons (MMMT). Semirara Mining Corporation provided the biggest share with around 6.0 MMMT or 95.1 percent of the total coal production.
- Following the successful launching of PECR 4 for coal in December 2011 wherein 38 prospective coal areas were offered for bidding, the government targets to award new sets of contract in the years to come. During the opening of bids on 30 March 2012, the DOE accepted 57 proposals out of the 69 submitted proposals that complied with the required financial and technical documentation. Currently, the Review and Evaluation Committee has recommended 19 areas for coal operating contracts for review and approval of the secretary.
- In terms of the development of small-scale coal areas in the country, the DOE issued 21 small-scale coal-mining permits (SSCMPs) in Zamboanga Sibugay, two (2) in Surigao del Sur and one (1) in Albay during the first semester of 2012, bringing the total number of SSCMPs to 100 as of December 2012.
- Similarly, the government has aggressively intensified its campaign against illegal coal mining and trading activities in various parts of the country. Hence, the DOE issued *Department Circular (DC) No. 2012-05-0006* which sets the "*Guidelines on the Accreditation of Coal Traders and Registration of Coal End-Users*". The primary objective of the Circular is to prevent the proliferation of illegal coal mining and trading activities, irresponsible coal handling, stockpiling and transporting resulting in environmental impacts, and to address substantial loss of government revenues from unreported coal sales through these unlawful activities.

INVESTED IN CLEAN ENERGY

Renewable Energy

RE Policy Mechanisms

- The Renewable Energy Portfolio Standards (RPS) has already been formulated and is currently under final review. The RPS is the minimum percentage of generation from eligible RE resources provided by the generators, distribution utilities and electric suppliers necessary in the application of FiT on a per technology basis. Initial installation target for RPS until 2015 covers the following:
 - ❖ Solar- 50 MW
 - ❖ Wind - 200 MW

- ❖ Biomass – 250 MW
- ❖ Run-of-river hydro – 250 MW
- ❖ Ocean – 10 MW

Likewise formulated is the enabling rules for the Net Metering Program on RE, which was endorsed by the National Renewable Energy Board (NREB) to ERC on 20 April 2012. As provided by law, net-metering is a consumer-based renewable energy incentive scheme wherein electric power generated by an end-user from an eligible on-site RE generating facility and delivered to the local distribution utility (DU) may be used to offset electric energy provided by the DU to the end-user during the applicable period.

- The Energy Regulatory Commission (ERC) last 27 July 2012 has approved the initial Feed-in-Tariff (FiT) rates which shall apply to generation from RE sources as follows:
 - ❖ Solar – P9.68/kWh
 - ❖ Wind – P8.53/kWh
 - ❖ Biomass – P6.63/kWh
 - ❖ Hydro – P5.90/kWh

Further, guideline on the payment and collection of FiT Allowance has been submitted (April 2012) to ERC for review and approval.

Geothermal

- A total of five (5) Geothermal Service Contracts was signed on 9 March 2012 for the pre-development of geothermal areas in Misamis Oriental, Misamis Occidental, Zamboanga del Sur, Negros Occidental and North Cotabato with total potential capacity of 130 MW. In addition to these, three (3) new geothermal operating contracts (GOCs) were also awarded on 8 May 2012 for the operation of Palinpinon Geothermal Power Plant, Tongonan Geothermal Power Plant and Bacman Geothermal Power Plant.
- Waiting for signing and awarding for 2012 are four (4) new geothermal power projects (GPP) namely: (1) Negron Cuadrado GPP located in Zambales and Pampanga; (2) Iriga GPP in Albay and Camarines Sur; (3) Mariveles GPP in Bataan; and (4) East Mankayan GPP in Ifugao, Benguet and Mountain Province.
- A joint Department of Environment and Natural Resources (DENR)-DOE Technical Working Group (TWG) and Secretariat was created by virtue of Joint DENR-DOE Special Order Nos. 2011-12-0001 and 2012-12-0001 to address environmental and socio-cultural issues arising from the implementation of energy projects. Among the functions and responsibilities of the TWG is to harmonize policies and guidelines on the exploration, development, utilization, and conservation of natural resources for energy projects especially in protected areas.

Biomass

- Awarded three (3) Certificates of Registration for Own-use with total capacity of 14.96 MW. The 18 TPH Reciprocating Grate Steam Boiler located in Mariveles, Bataan is a 12 MW facility used for heating while Marcela Farm Biogas Power Generation Project located in Cortez, Bohol is a 0.56 MW facility used for power purposes. Likewise, the 2.4 MW Bayanihan Feed Products Multi-Fuel Biomass Power Plant located in San Leonardo, Nueva Ecija fully utilize its plant capacity for power uses.
- Issued one (1) Certificate of Accreditation for Manufacturers/Fabricators of Locally-produced biomass component. The Energetic System Industries Inc. located in Marilao, Bulacan is a local fabricator of biomass boiler accredited by DOE in September 2012.
- Evaluated 18 biomass project applications, of which 12 are for operating contracts and six (6) are for own-use.
- Inaugurated the 9.9 MW Biomass Power Plant of San Jose City i Power in Nueva Ecija which is targeted to be commissioned by December 2014.

Hydropower

- Awarded a total of 34 RE Service Contracts for Hydropower with total estimated capacity of 811.74 MW. This is broken down into: 18 hydropower service contracts (HSC) in Luzon with aggregate capacity of 724.90 MW; two (2) HSC in Visayas with a total capacity of 13 MW; and, 14 HSC in Mindanao with a total capacity of 73.8 MW.

Solar

- Twenty-six solar energy service contracts (SESC) were awarded with total estimated capacity of 271.72 MW. The financial commitments based on the work programs would reach PhP 154,164,062.00. On a per major island group, Luzon has 16 awarded SESC with a total capacity of 184.72 MW, Visayas with four (4) SESC having total capacity of 51.0 MW capacity, and Mindanao has six (6) with total capacity of 36.0 MW.

Wind

- Six (6) wind energy service contracts were awarded in 2012 with a total estimated capacity of 70 MW. These are located in Ilocos Norte, Cebu, Camarines Norte, Camarines Sur, Aklan and Antique. The financial commitments based on the work program is at PhP 36,923,000.00

Alternative Fuels and Technologies

Biofuels

- For full year 2012, the DOE accredited 13 biofuel producers, (9 of which are biodiesel producers and 4 are bioethanol) and issued 3 Certificates of Registration with Notice to Proceed to 3 bioethanol proponents.
- Endorsed 48 projects/companies to the Securities and Exchange Commission (SEC) for corporate registration and to the Board of Investments (BOI) for applicable incentives under the Biofuels Law.
- The total biodiesel production as of October 2012 stood at 110.74 million liters with total actual sales of 110.54 million liters, while for bioethanol the total production was about 24.51 million liters with total actual sales of 32.67 million liters¹.
- As of March 2012, the construction of Green Future Innovations Inc.'s bioethanol plant with an estimated annual production of 54 million liters in San Mariano, Isabela is already completed. Its target date for commercial operation will be in January 2013.
- To ensure the supply of bioethanol in the country, on 13 August 2012, the DOE accredited the Green Future Innovations, Inc. with total annual capacity of 54 million liters under Joint Administrative Order (JAO) 2008-1, Series of 2008.
- On 13 September 2012, the biofuels project was launched relative to the Memoranda of Agreement (MOA) with Mariano Marcos State University (MMSU) on "*Village Scale Production of MMSU Hydrous Ethanol as Feedstock for R&D in Biofuel Trials and Anhydrous Ethanol Production*" and with the Xavier University on "*Bioethanol Production Potential of Different Cassava Varieties under Northern Mindanao Condition and Development of a Pilot-scale Cassava Bioethanol Plant.*" Another MOA was also signed on 23 August 2012 with the University of the Philippines Visayas Foundation Inc. (UPVFI) on the project "*Bioethanol Production from Macroalgae and Socio-ecological Implications*".

Natural Gas Vehicle Program for Public Transport (NGVPPT)

- Currently, there are 41 operational compressed natural gas (CNG) public utility buses (PUBs) in the country plying the South Luzon routes, with terminals in Cubao and terminating as far as Batangas City. As of October 2012, sales of CNG to accredited buses reached a total of 110,376.66 Nm³.
- To provide legality on the franchise of the CNG daughter station, three (3) MOAs were signed on 11 April 2012 which provides for the: (1) take-over of the Philippine National Oil Company - Exploration Corporation (PNOC-EC) of the rights and obligations of Pilipinas Shell Petroleum Corporation (PSPC) under the CNG Pilot Project MOA and construction/operation of the second Daughter Station; (2) transfer of the Gas Supply

¹ The total actual sale of bioethanol is larger than its production due to the overrun of inventory of said fuel in the second semester of 2011.

Purchase Agreement (GSPA) between SC38 Consortium for the supply of CNG gas to CNG buses to PNOC-EC; and the Extension of the Pilot Phase Project up to 2018. Through the said agreements, it is foreseen that major legal barriers will be removed to allow more gains for NGVPPT in the near future.

- In May 2012, PNOC-EC has applied and was granted accreditation as Category IV refueling station program participant of NGVPPT to address the technical operation concerns on the lone and 1st CNG daughter station in Mamplasan, Biñan, Laguna.
- In coordination with DOE, the PNOC-EC proposed on putting up two (2) mobile CNG stations in Biñan, Laguna and Batangas City. For this reason, the extension of renewal of Fire Safety Compliance Certificates (FSCC) for CNG buses from required inspections within one (1) month to six (6) months was granted by the Bureau of Fire Protection (BFP) on 24 April 2012, while the extension of Unified Vehicle Volume Reduction Program (UVVRP) exemption was granted by Metropolitan Manila Development Authority (MMDA) on 02 July 2012. In addition, Department of Transportation and Communication (DOTC) has recently signified its preferential approval of franchise applications for CNG-fed buses except for routes that pass along Epifanio Delos Santos Avenue (EDSA).

Auto Liquefied Petroleum Gas (LPG) Repowering Program

- Currently, there are 19,052 taxis that were converted to run on AutoLPG. Thru the program, five (5) Philippine National Standards (PNS) were promulgated for AutoLPG. As of March 2012, there are 229 LPG refueling stations nationwide to cater the fuel needs of these retrofitted taxis. The program was able to generate 321 accredited autoLPG conversion shops.
- The DOE forged a MOA with the University of the Philippines Diliman (UPD) on 17 April 2012, and commissioned UP-National Center for Transportation Studies (UP NCTS) to conduct techno-economic viability of autoLPG fuel for public utility jeepneys (PUJ). The study, which started 23 September 2012, assumed a controlled route for vehicles to simulate the economics of using AutoLPG as fuel. The on-road test entailed pressure calibration activity for two (2) autoLPG refueling stations located on Congressional Road and Mindanao Avenue, both in Quezon City. The calibration was conducted by TWG members for the Program.

Electric Vehicle Program

- The Market Transformation through Energy Efficient Electric Vehicle Project aims to reduce the transport sector's annual petroleum consumption by 89 million liters per year and achieve 79% emission avoidance by shifting to 100,000 tricycles running on pure electricity. President Aquino approved the project on 22 March 2012.
- From 18 January to 17 February 2012, the DOE conducted the Nationwide Contest for the "Best E-trike Design" wherein 180 design entries were submitted. The three (3) winning designs were awarded by Sec. Almendras on 1 March 2012.

- To instill public awareness on the use of electric vehicles, several stakeholder consultations were conducted in 2012 by the E-Trike Team (DOE, Landbank of the Philippines (LBP), Department of Finance (DOF), Land Transportation Office (LTO) and Asian Development Bank (ADB) with the respective city officials and transport group/cooperatives of the following local government units (LGUs) : Puerto Princesa, Palawan, Bais City, Negros Oriental, Boracay Island, Malay Aklan, Cabanatuan City, Quezon City, Las Piñas City, and Taytay, Rizal.

ENSURED SUFFICIENT SUPPLY

DOWNSTREAM OIL INDUSTRY

Ensured Sufficient Supply

- Fourteen years after the implementation of the R.A. 8479, a total of 1,896 players (as of 3rd quarter of 2012) are engaged in various activities in the oil industry such as marketing, distribution and storage of petroleum products. A total accumulated investment of PhP 42.52 billion in various downstream oil projects is expected to provide additional jobs and greater accessibility to quality petroleum products as of end 2012.



Figure 3. Pump in a gas station

Inspection and Sampling of Petroleum Products

- The strict compliance of industry players to quantity and quality standards is consistently being monitored by the DOE through the conduct of regular/routine or on-the-spot and complaint-initiated inspection and product sampling for liquid-petroleum products at the refineries, depots/terminals and gasoline stations and LPG establishments nationwide. The DOE conducted inspection in the following:
 - ❖ 81 Depots
 - ❖ 1,394 LPG establishments
 - ❖ 1,104 Gasoline Stations
 - ❖ 1,437 Samples of LPP collected
 - ❖ 6023 LPG cylinders weighed & checked

Ensured Reasonable Price Adjustments

- Amidst the increases in oil prices and consistent with its statutory mandate to protect the public, the DOE has been closely monitoring actual oil price movements, both in the international and domestic market to prevent unreasonable adjustments and abuses. To ensure reasonable price adjustments, the DOE conducts the following:
 - ❖ Close monitoring of international prices and determining its estimated impact to domestic prices.

- ❖ Posting of oil pricing formulas in the DOE website.
- 2012 Review of Oil Deregulation Law.
 - The DOE spearheaded the creation of review committee/study on the implementation of the Oil Deregulation law, with closer focus on oil pricing. After the past two (2) independent reviews in 2005 and 2008, the Independent Oil Price Review Committee (IOPRC) was conducted in 2012 to determine if there is (a) accumulation of excessive profits; and (b) unfair pricing. The final report of said study was submitted to the DOE in August this year. Following were the major findings:
 - The IOPRC finds that the Oil Deregulation Law's goal of increased competition, and thus fair price (lower price than in an oligopoly), is being achieved.
 - Deregulation has resulted in increased responsiveness of local pump prices (represented by Metro Manila prices) to world oil prices (as represented by MOPS).
 - There is nothing extraordinary about the movements of local pump prices in the country.
 - Generally pump price responses to changes in world oil prices have been symmetrical.
 - Based on the gravity model, distance is an important factor in explaining regional pump price differences, at least for gasoline. Transport and handling costs play an important role in this, and the overall efficiency of the logistics sector is vital here. The government should, therefore, foster this efficiency by investing in the necessary infrastructure.
 - The oil companies' profits are reasonable. This conclusion is based on the results of its analysis of the ROE and IRR of oil companies and relating the same to the comparative ratio in other industries and risk-free government securities.
 - Oil deregulation resulted in a lower average ROE of three major oil companies.

Quality Standards (PNS) For Fuel and Facilities

- The DOE continues to conduct its standards-setting activities guided by international/regional standards and trends on fuel and fuel-related products. The following PNS for fuel and facilities were implemented and reviewed:
 - ❖ **PNS/DOE QS 004-2012 - Fatty Acid Methyl Ester (FAME) - Blended Diesel Oils (B2) - Completed/Promulgated on August 30, 2012**

This Standard is a revision of PNS/DOE QS 004:2009, a major improvement made is the introduction of Euro IV-PH grade (50 ppm Sulfur) for automotive diesel (ADO) to support the implementation of DAO No. 2010-23.

❖ PNS/DOE QS 008:2012 - E-Gasoline Fuel (multigrade) - Completed/Promulgated on July 13, 2012

This is a revision of PNS/DOE QS 008:2009 with major improvements made:

a) Upgrading the grades based on research octane number (91, 95 & 97 RON, minimum) to fit for purpose with the current vehicle fuel requirement alongside with the full implementation of the 10% ethanol blend mandate and;

b) Introduction of Euro IV-PH fuel grades with a maximum of 50 ppm Sulfur content in support to the implementation of Euro 4 emission limits in vehicles starting January 1, 2016 under Sec. 5.2 of DENR's Administrative Order (DAO) No. 2010-23.

Mitigation Measures

- The reliance of the country's basic service sectors on imported fuel means direct adverse consequences for consumers, especially the transport sector. Mitigating measures to help cushion the impact of high oil prices and provide immediate relief to particularly vulnerable sectors of society were considered as top priority. Some of these measures were implemented to enlighten the various transport groups:
 - ❖ Regular meetings with the transport leaders for updates on the oil price movement
 - ❖ Public Transport Assistance Program (PTAP) (as of 1st Quarter, 2012)
 - 119,233 distributed out of 157,342 Pantawid Pasada Cards generated/printed
 - Total of PhP 450 million(Special Allotment Release Order) released
 - Estimated 220,000 beneficiaries (DOTC)
 - ❖ Diesel Discount Scheme
 - The oil companies, in collaboration with the DOE, continued to offer price discounts on diesel fuel being sold in participating gasoline stations. For the first half of 2012, there are about 779 participating gasoline stations nationwide
 - ❖ Promoting Awareness on the Industry
 - Conduct of multi-sectoral IEC's (including the academe)
 - Website posting (weekly Oil Monitor, Prevailing Prices in MM, Visayas, Mindanao and price adjustments)

Information Education and Communication (IEC) Campaign for Downstream Oil

- Conducted aggressive IECs to empower consumers in making informed-choice in petroleum product purchases. The DOE conducted the following IECs:
 - ❖ Multi-Sectoral Advocacy Campaign on Downstream Oil Industry (Implementation of the DOE PIA Communication Initiatives) in the following areas: Puerto Princesa City, Iloilo City, Cagayan de Oro City, Ozamiz City, Dagupan City, Laoag City, Tuguegarao City, Naga City and Lingayen, Pangasinan.
 - ❖ “Ligtas na Paggamit ng Gas” or SAFE LPG Project IEC campaign, which is an implementation of the DOE-GAD Advocacy, in the following areas: Metro Manila, Quezon Province, Bohol, Batangas, Sorsogon, Albay, Camarines Sur and Camarines Norte
- LGU Capacity Building. Hands-on activities were included in the advocacy strategy of the DOE in order to empower and equip the Local Government Units in conducting pump calibration and sealing of dispensing pumps in gas stations. The activity is in partnership with the ITDI-DOST and a private sector partner. Lingayen and Naga were the two (2) pilot provinces where the same was conducted.

Downstream Natural Gas

Development of the Natural Gas Infrastructure

- During the 1st quarter of 2012, the World Bank provided Technical Assistance to the DOE in identifying an appropriate location for a Floating Storage Regasification Unit (FSRU) in Macajalar Bay in PHIVIDEC Industrial Authority in Tagoloan, Misamis Oriental due to its great marine characteristics allowing lowest cost terminal option in the area. Also, the area is Mindanao’s most concentrated industrial load as well as access to transmission.
- Petroleum National Brunei is keen on the proposed FSRU project in Mindanao in which a delegation from Petroleum Brunei and Brunei LNG Corporation together with PNOC and DOE conducted a visit in the proposed site in PHIVIDEC in October 2012. As a result of the visit, Petroleum Brunei and PNOC forged an agreement on 10 December 2012 to jointly

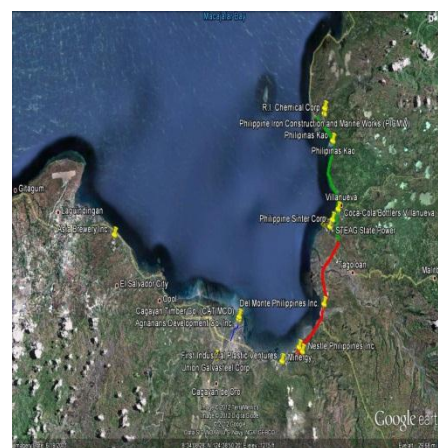


Figure 4. Proposed location of natural gas infrastructure project in Mindanao

implement investment opportunities in Liquefied Natural Gas (LNG), upstream and other opportunities in the country.

- In June 2012, the government through the DOE forged a Memorandum of Understanding (MOU) with Pilipinas Shell to conduct a technical feasibility study of an FSRU in Batangas. The feasibility study is targeted to be completed in the first quarter of 2013. However, Shell tied up the viability of the proposed FSRU project on the implementation of the Batangas-Manila Pipeline (Batman1).
- The PNOC is programmed to conduct detailed feasibility study for Batman 1 in 2013. On the other hand, PNOC-EC will replace the Mamplasan CNG Refuelling facility and put up a new one near the garage of KL Transport Depot in Biñan, Laguna and additional one unit CNG Refueling station in Port Area, Batangas City under the NGVPPT pilot project. Invitation to bid commenced in the second week of December 2012. The CNG refueling stations will be operational in July 2013.

Market Development Program

- In parallel to World Bank Technical Assistance, in May 2012, the Canadian Gas Services International (CGSI) was engaged to complete a Natural Gas Market Development Strategy for Mindanao. The activities covered under this project consisted of market demand assessment, identifying, analyzing and recommending options for distributing the natural gas in Mindanao, and identifying key policy and regulatory framework requirements to enable LNG application in the area.

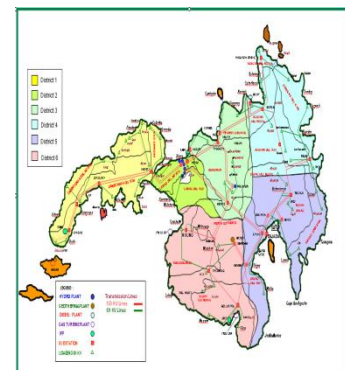


Figure 5. Proposed natural gas market in Mindanao

- A continuous conduct of in-house market profiling activities to various locators and industrial zones located along the route of the proposed Batangas-Manila pipeline aims to determine the profile of the ecozones in terms of current energy consumption, source of electricity supply, as well as the operational profile of the industry. A total of 107 industrial locators were surveyed with 88 survey returns under 8 ecozones. There are 20 ecozones in Batangas and Laguna which are the scope of the profiling.

Power Development

- The country's installed capacity as of September 2012 stood at 16,163 MW. Gross electricity generation for the same period reached 53,933 GWh. Generation in Luzon grid was registered 38,617 GWh, while Visayas and Mindanao recorded 8,610 GWh and 6,705 GWh, respectively.
- Total generation from coal-fired power plants as of September 2012 was at 20,746 GWh. For oil-based plants, total generation reached 2,480 GWh while generation from natural gas posted 15,129 GWh. On renewables, gross power generation from geothermal power plants reached 7,763 GWh while hydro plants was registered 7,667 GWh.

Electricity generation from wind and solar energy were pegged at 50 GWh and 1 GWh while electricity generation from biomass and landfill gas were recorded at 73 GWh and 24 GWh, respectively.

Mindanao Power Situation

- The DOE issued on 19 March 2012 DC No. 2012-03-0004 Directing Compliance with the Electric Power Industry Reform Act of 2001 (EPIRA) to address the power supply situation including the rationalization of the available capacities in the Mindanao grid.
- The DOE together with the power stakeholders participated in the Mindanao Power Summit on 13 April 2012. The Summit served as a venue to present the overview of the real Mindanao power situation, generate and discuss consensus attendant to the power problem and the corresponding immediate solutions, and assure the general public of definitive measures taken not just by the government but also by the power stakeholders.
- As an immediate solution to the looming power crisis in Mindanao, the DOE conducted two (2) public consultations for the Interim Mindanao Electricity Market (IMEM) on 22 October 2012 and 14 November 2012 in Cagayan de Oro City and Davao City, respectively. The IMEM aims to harness the available embedded power generators in Mindanao and create a market where electricity from private generators will be sold to areas that need electricity.



Figure 6. IMEM public consultation in Davao City last 14 November 2012

EPIRA Implementation

Retail Competition and Open Access (RCOA)

- The DOE issued on 09 May 2012 DC 2012-05-008 *prescribing the general policies for the implementation of the retail competition and open access*. Consistent with EPIRA, transition to RCOA should promote genuine competition, greater efficiency, customer choice, and the true cost of electricity.
- DOE issued on 24 February 2012 DC 2012-02-0002 *designating Philippine Electricity Spot Market (PEMC) as the Central registry Body (CRB)* assigned to undertake the development and management of the required systems and processes and information technology system that shall be capable of handling customer switching and information exchange among retail electricity market participants, as well as settlement of their transactions in the WESM.
- On 24 September 2012, the DOE and ERC issued a joint statement that set the initial implementation of RCOA on 26 December 2012 on a phase-in and partial

implementation program. The first six months of RCOA implementation is envisaged to be a transition period for all concerned parties to ensure a smooth transition to full RCOA implementation. Transition period covers the registration, discussion, trainings and simulations among suppliers, contestable customers and other stakeholders. During transition, distribution utilities shall continue to serve contestable customers in their respective franchise area, while contestable customers may enter into supply contracts with suppliers but such shall only take effect as the end of the transition period.

- RCOA trial run will be carried out in March 2013, while commercial transactions based on an interim development system will be engaged on 26 June 2013. On the other hand, the IT infrastructure is scheduled to be in place by the last quarter of 2013. In view of the commencement of RCOA, the ERC is finalizing the Transitory Rules for the Initial Implementation of Open Access and Retail Competition to ensure a smooth transition from the existing structure to a competitive environment, as well as promote the interests of all stakeholders in the electricity industry.
- Conducted public consultations on RCOA on the following dates and areas:

	Area	Date
Western Visayas	Iloilo City	October 9, 2012
National Capital Region	Makati City	October 16-17, 2012
Bicol Region	Naga City	October 19, 2012
Southern Tagalog Region	Lipa City, Batangas	October 30, 2012
Central Visayas	Cebu City	November 15, 2012
Central Luzon	Clark, Pampanga	November 21, 2012
Northern Luzon	Baguio City	November 23, 2012

- The DOE issued on 28 June 2012 DC 2012-06-0007 directing the National Electrification Administration (NEA) to develop a mechanism for ensuring the adequacy of and compliance by the electric cooperatives with the prescribed prudential requirements in the Wholesale Electricity Spot Market (WESM) and spearhead the collective petition thereof for the approval of the ERC.

Privatization

- On 09 October 2012, a Decision/Resolution was issued by the Supreme Court (G.R. Number 192088) on the petition filed by the Initiatives for Dialogue and Empowerment through Alternative Legal Services, Inc. (IDEALS), Freedom from Debt Coalition (FDC), AKBAYAN Citizen's Action Party (AKBAYAN) and Alliance of Progressive Labor for a temporary restraining order (TRO) and/or writ of preliminary injunction on the bidding conducted and Notice of Final Award issued by PSALM relative to the privatization of the Angat HEPP. The Supreme Court rendered the following dispositions in order, to wit:

- ✓ *The bidding conducted and the Notice of Award issued by PSALM in favor of the winning bidder, Korea Water Resources Corporation (K-WATER), are declared Valid and Legal;*
- ✓ *PSALM is directed to FURNISH the petitioners with copies of all documents and records in its files pertaining to K-Water;*
- ✓ *Section 6 (a), Rule 23, IRR of the EPIRA, is hereby declared merely DIRECTORY, and not an absolute condition in all cases where NPC-owned hydropower generation facilities are privatized;*

NPC shall CONTINUE to be the HOLDER of Water Permit No. 6512 issued by the National Water Resources Board. NPC shall authorize K-Water to utilize the waters in the Angat Dam for hydropower generation, subject to the NWRB's rules and regulations governing water right and usage. The Asset Purchase Agreement and Operation & Maintenance Agreement between NPC/PSALM and K-Water are thus amended accordingly. Except for the requirement of securing a water permit, K-Water remains BOUND by its undertakings and warranties under the APA and O&M Agreement;

- ✓ *NPC shall be a CO-PARTY with K-Water in the Water Protocol Agreement with MWSS and NIA, and not merely as a conforming authority or agency; and*
- ✓ *The Status Quo Ante Order issued by this Court on May 24, 2010 is hereby LIFTED and SET ASIDE."*

Collection and Utilization of Privatization Proceeds

- PSALM's privatization efforts generated a total of USD10.210 billion as of 31 October 2012. Of this amount, actual collection amounted to USD5.985 billion (Table 1).

Table 1. Privatization Proceeds Generation and Collection (as of 31 October 2012), in USD billion		
	Generated	Collected
Generating Assets	3.027	3.064*
Decommissioned Plants	0.004	0.004
Transmission Assets (TransCo)	3.950	2.074**
Appointment of IPPAs	3.229	0.843
Total	10.210	5.985
<i>*Includes collections of bid price components and interest based on APA/AA, forfeited performance bond and other collections not within the scope of APA/AA;</i>		
<i>** Includes Interest on Concession amounting to US \$0.782 billion.</i>		

Table 2. Privatization Proceeds Utilization (as of 31 October 2012), in USD billion	
Debt Prepayment	1.298
Regular Debt Service	3.186
BOT Lease Obligations	1.498
Other privatization-Related Expenses	0.054
Total	6.036
<i>The US\$0.051 billion difference in the Total Proceeds Collected and Total Proceeds Utilized came from interest income from placements of the privatization proceeds, forfeited performance bonds and other privatization collections</i>	

Universal Charge (UC) for Missionary Electrification (ME) and Environmental Charge (EC)

- Total UC-ME and UC-EC remittances to PSALM amounted to PhP26.100 billion as of 31 October 2012. Of this amount, PhP25.364 billion was disbursed by PSALM to the NPC-SPUG for missionary electrification and watershed rehabilitation and management in accordance with the provisions of the EPIRA. For the same period, total interest earnings from placements of UC funds amounted to PhP0.115 billion. This leaves the UC fund with a balance of PhP0.851 billion.

Divestment of Sub-Transmission Asset

- In October 2012, TransCo signed 101 sale contracts with 75 distribution utilities/electric cooperatives/consortia amounting to about PhP5.30 billion. These sales cover an aggregate length of about 3,700 1/ ckt-kms of subtransmission lines and about 33,000 sub-transmission structures and 850 MVA of substation capacity. Of the 101 sale contracts, 45 contracts with total sale price of PhP2.3 billion have been approved by the ERC as of October 31, 2012 posting in the ERC website. The rest of the sale contracts are for ERC filing, evaluation or approval.

INCREASED ENERGY ACCESS FOR HOUSEHOLDS

Expanded Rural Electrification

- The government is bent on providing electricity access to barangays, households and sitios throughout the country. As such, it has targeted the achievement of 100 percent barangay electrification by 2012, 90 percent household electrification by 2017 and 100 percent sitio electrification by 2015.
- The overall barangay electrification level as of 31 October 2012 stood at 99.98 percent. Of the total 41,974 barangays, only nine (9) are left to be provided with electricity access. Most of these unenergized barangays are in Mindanao and are located in the Autonomous Region for Muslim Mindanao (ARMM) particularly in the provinces of Maguindanao (6 barangays) and Tawi-Tawi (3 barangays).
- Household electrification level as of 30 September 2012 was at 77.6 percent. About 9,549,145 of the potential 12,305,500 are with connections².
- As for sitio electrification, the energization level has reached 72.54 percent as of 30 September 2012³ which means that 83,492 out of the potential 115,092 are with electricity services.

² Based on NEA's Status of Energization as of 30 September 2012. Figures only cover those under the franchise of electric cooperatives (ECs) and do not include those under private distribution utilities (DUs). NEAs data on HH connections covers residential, commercial, industrial, public building, etc. DOE data for HH electrification (based on 2010 Census) that concerns only the residential (including those covered by NEA and DUs) is at 70.18 percent as of 31 December 2011. This means that 14.41 million of the potential 20.53 million are with electricity leaving 6.12 million more to be energized.

³ Based on NEA's Status of Energization as of 30 September 2012

Benefits to Host Communities (Energy Regulations 1-94)

- The DOE, through Energy Regulations (ER) 1-94, ensures that communities hosting energy generating facilities as well as energy resource development projects are benefitted. Such mechanism employed by the Department has enabled communities to promote progress as well as development in their respective areas.

Approved projects under ER 1-94 from its onset in 1995 to October 2012 have totaled 5,602 which amount to PhP 5.59 billion. Most of the projects carried out are under EF as it comprises about 62 percent of the total number and has already amounted to PhP 3.06 billion (Table 3).

Type of Project	Number	Amount (in Billion)
Electrification	3,489	3.06
Development and Livelihood	1,119	1.14
Reforestation, Watershed Management, Health and /or Environment Enhancement	994	1.39
TOTAL	5,602	5.59

PROMOTED ENERGY EFFICIENCY AND CONSERVATION AS A WAY OF LIFE

- The DOE led the **inauguration of the Boni Tunnel Project** in Mandaluyong City (First Grid-Tied Solar Powered LED Lighting) on 15 May 2012 which involved the installation of solar-powered light emitting diodes (LED) in the tunnel. The project which has an estimated annual savings of 23,056 kWh or PhP 230,056 is in line with the Department's promotion on the use of energy-efficient lighting systems for improved energy security and mitigation of environmental impacts. The use of LEDs is ideal for lighting roadways due to its optical efficiency, distributing light in areas where it is most needed. Its socio-economic benefit includes lessening of criminality and vehicular accidents.

The project is a public-private partnership made possible through a MOA signed by and among the DOE, Department of Public Works and Highways (DPWH), MMDA, Mandaluyong City LGU, PNOC-Renewables Corporation (PNOC-RC), and Philips Electronics and Lighting, Inc. (Philips).

- In partnership with the United Nations for Industrial Development Organization (UNIDO)-Global Environmental Facility (GEF), an inception workshop was held on 23 March 2012 for the **Philippine Industrial Energy Efficiency Project (PIEEP)**. The project aims to promote industrial energy efficiency through the introduction of energy management and industrial energy systems optimization, capacity building of stakeholders - enterprises, equipment suppliers, engineering / energy service companies

and government planners in implementing system level efficiency improvements, and integration of energy efficiency into management systems of industrial enterprises through energy management standards. Through its 5-year project implementation, the PIEEP is expected to generate about 2,057,755 MWh of energy savings.

The Workshop was participated in by representatives from participating agencies and financial institutions such as DOST, Department of Trade and Industry (DTI), National Economic Development Authority (NEDA), LBP, Bank of the Philippine Islands (BPI), and the Development Bank of the Philippines (DBP). The banks explained in detail their commitment to support and fund industrial energy efficiency projects. Through the participation of industrial partners, industrial associations, professional organizations, and equipment vendors, energy service companies (ESCOs), and energy consultants, the Workshop served as a platform for forging partnerships in implementing energy efficiency projects.

- As part of the efficient lighting initiatives under the Philippine Energy Efficiency Project (PEEP), the DOE has completed the distribution of 3.6 million compact fluorescent lamps (CFLs) through the 188 congressional districts and 51 party list representatives. The only requirement to secure the free CFL is the presentation of the latest electricity billing by the consumers. Likewise, the PEEP has also allocated the dissemination of CFLs under the Department of Social Welfare and Development's (DSWD) National Poverty Reduction Strategy and Countryside Partnership which aims to bring better products and services to disadvantaged individuals, families and communities for an improved quality of life.
- In September 2012, a total of 223 households located in Antique (61), Aklan (29), Palawan (57) and Davao del Norte (76) were energized through the free installation of efficient technology demonstration package consisting of six (6) pieces of LED lamps, lockable battery, mounting structure, charge controller with built-in AM/FM radio and outlets for cellphone charger to be powered by photovoltaic solar home systems in lieu of kerosene and candles.

The initiative, under the Nationwide Residential Lighting Program component of the PEEP, is expected to save about PhP 535,200 in monetary values through the displacement of 10,704 liters of kerosene per year and 9,633 liters of oil annually. It will also reduce greenhouse gas emissions by 15,502 kilograms of carbon dioxide.

- The Philippines' Energy Efficiency and Conservation Program was the subject for the Asia-Pacific Economic Cooperation's (APEC) Peer Review on Energy Efficiency (PREE) held on 6-10 February 2012. The Program (PREE) is anchored on the Leaders Declaration (Sydney, 2007) which aims to work towards achieving an APEC-wide regional aspirational goal of energy intensity reduction of at least 25% by 2030 (base year 2005), encourage all APEC economies to set individual goals and action plans for improving Energy Efficiency, and review progress through the voluntary APEC Energy Peer Review Mechanism. The last component is the subject of the five-day visit from APEC member-economies in reviewing the Philippines' current energy efficiency scenario.

The objectives of the program centered on information sharing on Energy Efficiency performance and policies among member economies, providing opportunities for learning from other member economies, exploring how energy efficiency overall/sectoral goals and action plans could be effectively formulated, monitoring progress toward attaining energy efficiency goals, and providing recommendations for voluntary implementation.

- As part of its “Bright Now! Do Right. Be Bright campaign,” the DOE in partnership with ADB launched its “Watts Out!” TV Olympics to demonstrate the most energy efficient technologies available in the local television market. The activity sought the participation of Television (TV) manufacturers to display their most energy efficient 32 inch CCFL- and LED-backlit Liquid Crystal Display (LCD) models. The power consumption of each television was monitored during the course of event (16-22 August 2012). “Watts Out!” seeks to demonstrate the effect an appliance's power consumption can have on their monthly electricity bill.

In terms of energy savings from the implementation of various activities under the National Energy Efficiency and Conservation Program (NEECP), the country was able to save **4.79 MTOE** in fuel and electricity consumption and about half of which (2.67 MTOE) came from the implementation of the Energy Labeling Program for room air conditioners, refrigerators, compact fluorescent lamps, linear fluorescent lamps, circular fluorescent lamps and fluorescent lamp ballast.

PROMOTED INVESTMENTS FOR ENERGY INFRASTRUCTURES



Figure 7. Sec. Carlos Jericho L. Petilla delivering a message during the Energy Investment Forum in F1 Hotel last 6 December 2012

The Department of Energy (DOE) has successfully completed its Energy Investment Fora both in regional and national levels for 2012.

A Mindanao Energy Investment Forum was undertaken at the Grand Regal Hotel in Davao City on 20 June 2012. This regional Energy Investment Forum in Mindanao presented the development procedures as well as the updates on renewable energy and power projects that are critical in addressing current

power supply needs in the region. This activity also included a focused group discussion, networking session, and an Open Forum which discussed the different concerns, challenges and opportunities for the investors and stakeholders in the energy sector.

Likewise in the Visayas, an Energy Investment Forum was undertaken at the Cebu Parklane Hotel last 27 September 2012. This was initiated to provide stakeholders in the Visayas region an overview on the current energy situation and existing investment opportunities in the country.

On 6 December 2012, the 8th Energy Investment Forum was successfully conducted at F1 Hotel in Bonifacio Global City, Taguig. This activity served as the annual gathering of investors and energy stakeholders which provided presentations on energy regulatory framework, registration procedures and incentives available for energy projects, financing facilities accessible for a particular energy project, and a Private Sector Experience. The conduct of the 2012 energy investment in Davao, Cebu and Manila has gathered a total of 548 participants from representatives of different embassies, local and foreign chambers of commerce and industry, energy associations and other affiliates, financial and donor institutions, government agencies, media organization, energy family and other companies, developers and business development groups, electric cooperatives, government agencies and institutions, energy consultancy group, academe and non-government organizations.