DEPARTMENT OF ENERGY
2016 MAJOR ACCOMPLISHMENTS

Energy is the sector most responsible for economic development, a vehicle to create jobs and attract investments. Likewise, it is a sector requiring careful and decisive planning, clear policy development, deployment of new technologies, as well as advancement of reliable ones. In the country, it is recognized that each of the energy sub-sectors plays an important role in delivering diverse and reliable sources of energy. And often the work in the DOE is most effective when undertaken in collaboration with other agencies of government and private entities to ensure that challenges are addressed and expectations are met.

For 2016, the DOE has built on the progress of its various energy sub-sectors. Below are the highlights of accomplishments and activities of the Department that were completed and delivered as of 3rd quarter of the year.

UPSTREAM ENERGY DEVELOPMENT

- **Fossil Fuels**

One of the government's priorities to address energy security is to harness indigenous energy resources of the country to bring in additional investments as well as reduce reliance on imported fuels. Thus, the DOE regularly conducts Philippine Energy Contracting Rounds (PECR) for petroleum and coal. As of November 2016, the Department is monitoring the 22 petroleum service contracts (SCs) and 75 coal operating contracts (COCs), including the seven (7) COCs awarded in December 2014 as a result of the 5th PECR. Apart from these, 87 Small-Scale Coal Mining Permits (SSCMPs) as well as 47 Coal Traders and 147 Coal End-Users have also been administered and monitored.

For the first three quarters of the year, oil production reached 1.54 million barrels (MMB). Natural gas, the fuel which is being used for power generation that supplies about 50.0 percent of Luzon's power requirement, recorded at 107.51 billion cubic feet (BCF) while the associated condensate produced from the Malampaya field reached 3.18 MMB during the same period. Coal production, on the other hand, was seen at 8.4 million metric tons (MMMT).

Nido, Matinloc, North Matinloc and Galoc are the four (4) major oil producing fields in the country. Malampaya, on the other hand, is the main source of gas and condensate.

Moreover, much of the country's coal comes from Semirara which contributes 98.9 percent to the country's total coal production. It generated total production of 9.1 MMMT during the period. Likewise, the increase in the country's total coal production can also be attributed to the conversion of Coal Operating Contract holder No. 151 (Guidance Management Corp.) in October 2016 from exploration to development and production stage.

Continued processing and evaluation of SSCMP were also conducted to 49 applicants located in the provinces of Cebu, Masbate, Negros Occidental, Zamboanga Sibugay and Bislig, Surigao del Sur. More so, 77 Coal Traders were accredited and 15 Coal End-users were registered as of November 2016.

Fossil Fuels	Production (as of November 2016)	No. of Contracts Monitored
Oil (in MMB)	1.68	22 SCs
Gas (in BCF)	119.04	
Condensate (in MMB)	3.52	
Coal (in MMMT @10,000 BTU/lb)	9.2	75 COCs

- **Renewable Energy**

One way wherein the Department fulfilled its thrust of promoting clean energy is through the intensification of the National Renewable Energy Program (NREP). As of the first half of 2016, the total RESCs awarded was 724 with aggregate potential capacity of 14,498 MW, while total installed capacity was 4,132.5 MW.

RENEWABLE ENERGY SERVICE CONTRACTS AWARDED as of June 30, 2016						
Renewable Energy	Awarded Projects		Potential Capacity (MW)		Installed Capacity (MW)	
	Grid	Own-Use	Grid	Own-Use	Grid	Own-Use
Hydropower	398	-	8,037.04	-	822.00	-
Ocean Energy	7	-	26.00	-	-	-
Geothermal	41	-	610.00	-	1,906.19	-
Wind	55	1	1,180.80	-	426.90	0.01
Solar	144	16	4,399.71	4.29	538.45	3.22
Biomass	40	22	237.38	3.12	295.07	140.66
Sub-total	**685**	**39**	**14,490.93**	**7.41**	**3,988.61**	**143.89**
TOTAL	**724**		**14,498.34**		**4,132.50**	

Among the RE resources, hydropower has the most awarded projects with 398 having a potential capacity of 8,037 MW. This is followed by solar with 160 awarded projects, 144 of which is on-grid while 16 is own-use.

Giving way in the fulfillment of its targets are policy mechanisms promulgated by the DOE. Among the policy mechanisms that are in place are the Feed in Tariff (FIT) and the Net Metering Mechanism. The remaining policy mechanism that needs to be implemented includes the renewable portfolio standard and green energy option are expected to further boost the share of renewables in the country.

Under the FIT system, due to the energy stakeholders' interest in the development of wind energy, initial target for FIT system of 200 MW was increased to 400 MW. Of this adjusted target, 393.9 MW have been issued with certificate of eligibility by the DOE to ERC. Likewise, operating under the FIT system is solar which was increased to 500 MW in 2015 from the 50 MW initial target. As of June 30, 2016, a total of 526.95 MW was issued with certificate of eligibility by the DOE to ERC.

FEED IN TARIFF MONITORING as of June 30, 2016						
Resource	For Nomination/ Conversion		With Certificate of Confirmation of Commerciality		With Certificate of Endorsement to ERC	
	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)	No. of Projects	Capacity (MW)
Hydro			82	705.52	4	26.60
Wind	7	1,023.55	5	439.40	6	393.90
Solar	15	565.18	27	700.78	20	526.95
Biomass			6	50.35	12	105.05
Total	**22**	**1,588.73**	**120**	**1,896.04**	**42**	**1,052.50**

There are also policy issuances by the DOE to boost the development and utilization of RE in the county. The most recent circular issued by the DOE to support the development and utilization of renewables is DC No. 2015-07-0014 on 26 June 2015 prescribing the policy for maintaining the share of RE resources in the country's installed capacity through the holistic implementation of the pertinent provisions of RA 9513 on the FIT system, priority and must dispatch, among others.

- **Biofuels**

As of 31 October 2016, there were a total of 11 biodiesel and 10 bioethanol production facilities in the country. Biodiesel production reached 157.37 million liters with actual sales of 148.59 million liters, while bioethanol production reached 181.56 million liters with actual sales recorded at 184.65 million liters. On the other hand, to intensify the production of our local biofuels the DOE issued two Certificate of Registration with Notice to Proceed to Emperador Distillers, Inc. with total annual rated capacity of 66 million liters of bioethanol and Bio Renewable Energy Ventures, Inc. with total annual rated capacity of 75 million liters of biodiesel.

On April 11-15 and July 18-22, 2016, an actual on-road and performance testing using B2 for baseline data (2,000km) and B5 (initial – 2,000kms of 30,000kms) for brand new vehicles using higher biofuels blends (bioethanol/biodiesel) was conducted. Likewise, a MOA with Technological University of the Philippines (TUP) on the testing of 5% and 20% biodiesel blends for in-use vehicles, validation road test was being implemented.

DOWNSTREAM INDUSTRY

- **Oil**

The downstream oil industry has steadily grown with the continuous entry of investors in the country. From the passage of the Downstream Oil Industry Deregulation Act (Republic Act No. 8479) in 1998 until the first half of 2016, new industry players have already reached 260 (YTD March 2016) companies bringing investments of about PhP 51.12 billion in the 1st Semester of 2016.

For the period January to November 2016, DOE monitored/inspected a total of 2,456 liquid fuels (LF) retail outlets and 1,825 LPG establishments . A total of 1,335 Standards Compliance Certificate (SCC) were issued to haulers, auto-LPG, Marketer, retail outlets, dealers and refilling plants all over Luzon, Visayas and Mindanao while 783 Certrificate of Compliance (COC) were issued to liquid fuels retail outlets in Luzon and Visayas regions.

The DOE – Oil Industry Management Bureau (OIMB) have also formulated/amended technical standards covering products and facilities such as CME, B5 specifications, and Code of Safety Practice of Auto-LPG.

- **Natural Gas**

From January to June 2016, natural gas production reached 73,665 million standard cubic feet (MMSCF) while consumption was recorded at 70,533 MMSCF. The power sector remains as the largest or prevalent user of gas accounting for almost 98 percent (68,910 MMSCF) of the total consumption.

Some of the other DOE's accomplishments on the sector, among others, are as follows:

- Granted extension to the Provisional Permit for the construction of LNG terminal (Energy World Corp.) in Pagbilao, Quezon;
- Monitored the progress of the proposed Batangas-Manila Pipeline (BATMAN 1) spearheaded by PNOC (the Joint NEDA-ICC Cabinet Committee approved the Batangas-Manila Natural Gas Pipeline Project I for NEDA Board confirmation);
- Implemented Department Circular 2002-008-005 through the conduct of **8** inspections (January to November 2016) to the existing natural gas facilities to ensure operator's compliance on health, safety, security and environment during construction, operation and maintenance;
- Organized an inter-agency Health, Safety, Security, Environment Inspection Monitoring Team for a holistic approach of inspection to gas facilities; and

- The draft PNS for Natural Gas Quality has been promulgated by the Bureau of Product Standards.

POWER DEVELOPMENT

• Ensured Sufficient Supply

Philippine power demand-supply situation remained stable in the first quarter of 2016 despite the onset of strong El Niño which generally resulted in increased peak demand levels in the three grids. On the supply side, hydro capacities especially in Mindanao decreased. Several yellow and red alerts were declared by the system operator in Luzon and Visayas during the summer period of April to May 2016. However, the energy sector's El Niño Mitigation Measures alongside with the preparation for the 09 May 2016 National and Local Elections stabilized the power situation during the critical periods. These measures include the activation of the Interruptible Load Program (ILP), ensuring minimal forced outages, management of power plant maintenance schedules and optimization of hydro capacities specifically in Mindanao.

• Peak Demand

As of October 2016, Luzon reached new all-time system peak demand at 9,726 MW which occurred on 03 May 2016. For Visayas, system peak demand at 1,938 MW occurred on 18 October 2016, while system peak demand in Mindanao at 1,645 MW occurred on 25 October 2016.

• Installed and Dependable Capacities

The country's installed capacity for the first half of 2016 totaled 20,055 MW while dependable capacity stood at 17,925 MW. Among fuel sources, renewable energy power plants such as geothermal, hydro, wind, biomass and solar contributed the highest share in the installed capacity mix at 34.3% share or roughly 6,637 MW. This was closely followed by coal at 33.2% share (6,666 MW), oil-based plants at 18.2% share (3,646 MW) and natural gas at 14.3% share (2,872 MW).

On a per grid basis, Luzon grid had a total installed capacity of 14,348 MW while for the Visayas and Mindanao grids were recorded at 2,965MW and 2,742 MW, respectively. Correspondingly, dependable capacity for the same period stood at 13,109 MW for the Luzon grid, Visayas at 2,498 MW and Mindanao at 2,318 MW.

• Power Generation

Power generation for the first semester of 2016 grossed 42,700 GWh. Coal power plants remain the major source of electricity at 46% (19,695 GWh), followed by renewable energy (10,158 GWh) and

natural gas (10,141 GWh), both posted a 24 percentage share. Meanwhile, electricity generated from oil-based power plants reached only 6% or 2,705 GWh.

- **Capacity Additions**

From January to October 2016, 33 new power plants were commissioned to the three main grids having a total installed capacity of 1,638.7 MW and a dependable capacity of 1,428.9 MW. Additional capacities that went online during the period mainly comprised of coal and solar power plants which added 1,070 MW and 519.2 MW to the existing installed capacity. Other additional capacities are oil, biomass and hydro at 26.1 MW, 12 MW and 1 MW respectively.

On the other hand, various power plants under testing and commissioning stage include the 150 MW PEDC Expansion Project and the 60 MW First Toledo Solar Power Project in the Visayas and the 405 MW (3 units) FDC Misamis Coal Power Project and the 1.6 MW PTCI Biomass Power Project in Mindanao. These power generation facilities are targeted to commence commercial operations within the end of the year.

- **Committed and Indicative Power Projects**

As of October 2016, a total of 49 committed power projects and 142 indicative projects are expected to become online until December 2020. Capacities which will be coming in the pipeline are largely composed of coal power projects with 4,365 MW committed and 9,803 MW indicative capacities. On the other hand, there are 30 committed RE projects with an aggregate of 508 MW capacity and 113 indicative projects with 6,664 MW capacity that is programmed within the period.

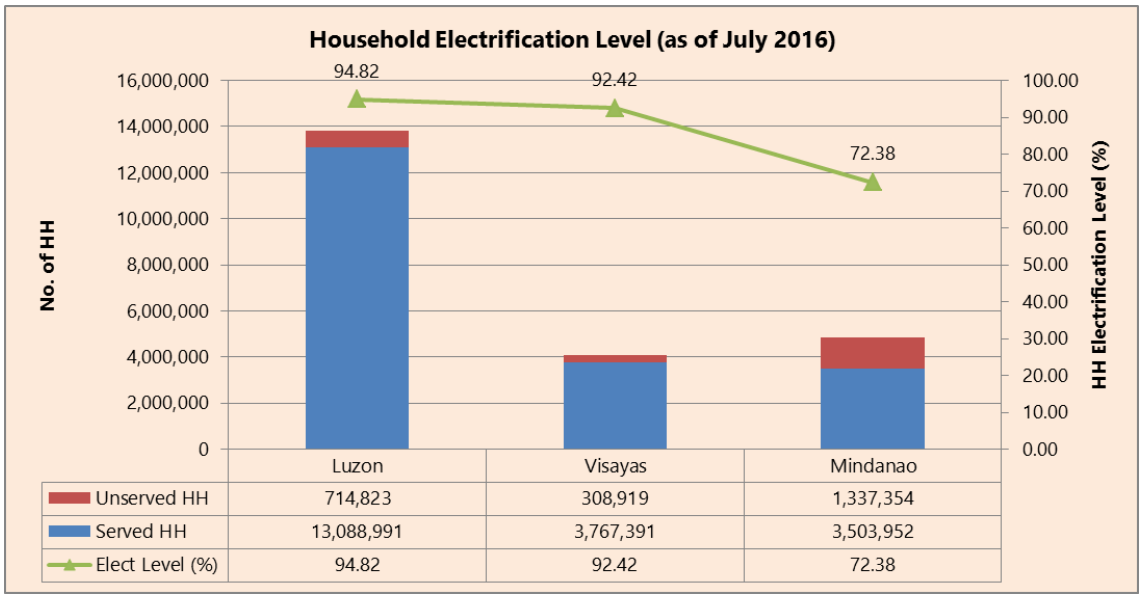
- **Other Initiatives**

From January to November 2016, the Department initiated the following activities to ensure sufficient and uninterrupted power supply in the country:

- Creation of the Inter-Agency Task Force on Securing Facilities (IATFSEF)
- Ensured adequate, stable and reliable power supply during the conduct of the 2016 Elections
- Continued implementation of the Interruptible Load Program (ILP)
- Spearheaded the restoration of power facilities damaged by calamities
- Management of power plant maintenance schedules
- Inauguration of newly commissioned power plants
- Forged partnership between the IIEE and PSME for the conduct of Technical Audit of Power Facilities
- Facilitated investigation on the 15 November Luzon Grid Significant Incident

ELECTRIFICATION

The country's household electrification level as of July 2016 stands at 89.6 percent. Households enjoying the benefits of electricity access have reached 20.36 million households (out of the potential 22.72 million). Among the country's major islands, Luzon has the highest household electrification level at 94.8 percent. Visayas closely follows at 92.4 percent while Mindanao has the lowest household electrification level at 72.4 percent. To attain the goal of 90 percent electrification of the total households in 2017, the government needs to provide electricity access to about 828,000 households.



	Luzon	Visayas	Mindanao
Unserved HH	714,823	308,919	1,337,354
Served HH	13,088,991	3,767,391	3,503,952
Elect Level (%)	94.82	92.42	72.38

ALTERNATIVE FUELS AND TECHNOLOGIES

- **Auto-LPG**

As of June 2016, the country has a total of 8,415 taxis running on auto-LPG. Monitoring was also done to 192 auto-LPG stations (125 are public and 67 are garage-based) as well as to 31 accredited Auto-LPG conversion shops. Relatedly, the joint administrative order (JAO) in establishing an Inter-Agency (DOE, DOTr, DTI, DOST, DOH, DENR and TESDA) Auto-LPG TWG is for publication and adoption by concerned national government agencies (NGAs). Such JAO will serve as a common platform to address issues and concerns pertaining to Auto-LPG.

In addition, through the Auto-LPG program, the DOE has successfully concluded three (3) targeted partnership with State Universities (University of Southeastern Philippines (USeP) in Mindanao, Cavite State University (CvSU) in Luzon, and Carlos Hilado Memorial College in Visayas) with fund transfer of

One Million Pesos (PhP 1M) each to establish an Auto-LPG Technical/Vocational Course in their University Curriculum.

Similarly, the DOE entered into MOA with Bureau of Fire Protection (DILG-BFP) with fund transfer of Two Million Pesos (PhP 2M) to develop the Alternative Fuel Vehicles (AFVs) Emergency Response Protocol. Said Protocol will establish the emergency responders' guidelines in case of fire and accidents involving AFVs.

On the other hand, with the objective of expanding utilization of LPG in transport sector, the University of the Philippines (UP), through a financial assistance from the DOE has completed the 2nd phase of performance testing for LPG-fed Jeepney and Electric-powered Jeepney and made the full analysis of the test results for the short route of jeepneys. UP will then proceed to the finalization and synthesis to complete performance testing of said AF Jeepneys.

- **Natural Gas Vehicle Program for Public Transport (NGVPPT)**

For NGVPPT, the DOE is undertaking continuous coordination with key stakeholders on the gas supply beyond 2018.

- **E-Vehicles**

Electric vehicles are already being used in some of the cities and provinces in the country.

In line with DOE's project on Market Transformation thru Introduction of Energy Efficient Electric Vehicles, about 3,000 units of e-trikes are expected to be delivered by this year (1,200 units by 3rd quarter and 1,800 units by 4th quarter of the year). A continuous activity is being done with LGUs, financial conduits and transport operators and drivers to address concerns over safety, range, anxiety, battery and after sales support on these e-trikes. More so, the DOE continuously conduct marketing and promotional activities for EVs nationwide.

ENERGY EFFICIENCY AND CONSERVATION

The government continues to implement various measures to ensure that there is sufficient and reliable power available for Filipinos. One of the most practical and less costly of these is the implementation of energy efficiency and conservation (EE&C) measures.

For over a decade, the Department has been implementing its National Energy Efficiency and Conservation Program (NEECP). And while significant progress had been obtained through this, a lot more still needs to be done to be able to address the persisting energy situation.

One of the programs under the DOE's National Energy Efficiency and Conservation Program or NEECP is the Government Energy Management Program (GEMP) wherein a total of 33 Certificates of Energy Savings were issued from 2015 until the first half of 2016. Energy audits and spot check inspections were likewise conducted to 179 government agencies and 17 commercial/industrial establishments, yielding total savings of 12,051,305 kWh during the period.

The deferred capacity realized from energy savings (2010-2015) reached 2,942 MW. And to recognize the energy efficiency initiatives of industries that significantly reduce energy consumption, the DOE annually holds the Don Emilio Abello Efficiency Awards. From 2010 to 2015, DOE has awarded 376 companies for reported generated savings of 523,967,591 liters of oil equivalent which translates to 136,755,541.25 kWh.

The Department also issued Department Circular No. 2016-04-0005 entitled "Philippine Energy Standards and Labeling Program." The policy enunciated in the Circular applies to all importers, manufacturers, distributors and dealers of PESLP-covered household appliances, lighting products, motor vehicles and other energy-consuming equipment.

Memorandum Circular No. 2016-06-0001 entitled *"Directing the Use of Energy Efficient Lightings in Roadways"* was also signed on 17 June 2016. Moreover, the Roadway Lighting Guidelines will be used as reference in the design and procurement to effectively implement the use of energy efficient lightings in roadways.

Following the "Energy Sense Save Cents", the new "EC Energy" campaign has been conceptualized and scheduled to be launched soon.

GOOD GOVERNANCE

- **ENERGY VIRTUAL ONE SHARED SYSTEM (EVOSS)**

Another notable accomplishment of the energy sector in pursuing transparency initiatives is the launching of the Energy Virtual One Shared System or EVOSS on June 2015.

The EVOSS is a web-based monitoring system that will facilitate the approval process of applications in the energy sector. It also contains a database of

processes, existing forms, fees, project related information and permits issued. This system likewise aims to trim down the time it takes for obtaining the necessary permits in starting an RE project in support of the current administration's objective of streamlining business processes.

Full implementation of the EVOSS is targeted by December 2016.