

## Highlights of the 2009-2030 Philippine Energy Plan

As the country faces the realities of growing energy demand, tight energy supply, limited foreign investments and critical power development issues, the Department of Energy is set to release the Philippine Energy Plan highlighting the plans and programs of the energy sector to fuel support for the economic growth of the country for the period 2009-2030. Specifically, the Plan will deal with the future of energy development which is very vital to the country's prosperity. The over-arching theme of PEP 2009-2030 is ensuring the best energy choices for a better quality of life

### Policy Thrusts

The plans and programs of PEP 2009-2030 are crafted to respond to the challenges that are confronting the energy sector at present and usher the change in the landscape of the country's energy future. In simple terms, the Plan will see to it that public policies on energy are at par with the changing needs of the energy sector.

As an overall guiding principle, the Plan is based on three broad policy thrusts:

- a. Ensuring energy security
- b. Pursuing effective implementation of energy sector reforms and,
- c. Implementing social mobilization and cross-sector monitoring mechanisms.

To realize these policy thrusts, the energy sector will see to it that necessary action plans will be set to motion within the 20-year planning period and these are summarized as follows:

#### *Ensure energy security*

- Accelerate the exploration and development of oil, gas and coal resources
- Intensify development and utilization of renewable and environment-friendly alternative energy resources/technologies
- Enhance energy efficiency and conservation
- Attain nationwide electrification
- Put in place long-term reliable power supply
- Improve transmission and distribution systems
- Secure vital energy infrastructure and facilities
- Maintain a competitive energy investment climate

### ***Pursue effective implementation of energy sector reforms***

- Monitor the implementation of, and if necessary, recommend amendments to existing energy laws
- Promote an efficient, competitive, transparent and reliable energy sector
- Advocate the passage of new and necessary laws

### ***Implement social mobilization and cross-sector monitoring mechanisms***

- Expand reach through Information, Education and Communication
- Establish cross-sector monitoring mechanism in cooperation with other national government agencies, academe, local government units, non-government organizations and other local and international organizations
- Promote good governance

## **ENERGY PLANS AND PROGRAMS**

Since the path to energy security cannot rely on one option only, the PEP has laid out essential and urgent steps to support the policy thrusts of the energy sector. Below are the clear, realistic and specific plans for the 20-year planning horizon.

### ***Exploration/Development of Conventional Fuels***

The country's conventional energy fuels – oil, gas and coal - will remain to be indispensable in meeting the country's energy demand even as the country pursues other alternative energy sources.

#### **Oil and Gas**

For fossil fuels like oil and gas, the target production level at the end of the planning horizon is 78.59 million barrels, 2,694 trillion cubic feet of gas and condensate of 87.58 million barrels. Service contracts which to date total to about 34 will increase to 117 by 2030. Assuming the realization of these targets, hydrocarbon resources will increase by 40 percent within the planning period. The country has 16 sedimentary basins and the majority of these are found in Luzon particularly in Palawan.

Among the action plans to realize these targets are the continuing conduct of the Philippine Energy Contracting Round (PECR) and the establishment of a *One*

*Stop Shop* to streamline government procedures and processing and provide assistance to potential investors in upstream energy projects. PECR is the government mechanism to bid out prospective areas for exploration and development. In the case of natural gas, the continuing inventory of other potential sources will be pursued to explore and develop a natural gas supply base. .

## Coal

Indigenous coal production will increase to a high 250 percent with the entry of more investors through the PECR or energy contracting round mechanisms and the conversion of existing coal operating contracts from exploration to development stage. Nearly 42 percent of in-situ reserves will come from the Visayas as well as the bulk of production levels that will come from the large coal mines located mostly in Region VI. Luzon, in particular North Luzon will have less than 10 percent contribution and these are mostly found in Region 2.

Currently, the country imports around 75.4 percent of the domestic coal requirements.

Apart from the conduct of PECR, the coal sector will heighten its information dissemination activities in terms of gaining social acceptability of coal projects. The R&D efforts, on other hand, will focus on improving existing technologies for pollution control and policies will be put in place to institutionalize the use of clean coal technologies to address environmental challenges.

## **GOING FOR CLEAN AND GREEN ENERGY**

### Renewable Energy

Renewable energy development was given a tremendous boost with the passage of the Renewable Energy Act of 2008. Since its signing, a total of 206 contracts had been signed and counting. The target is to double the RE-based installed capacity for power generation at the end of the planning horizon from its 2008 level of 5,300 MW.

Now on its final phase of deliberation among the various TWGs and Sub-committees of the National Renewable Energy Board are the various policy and regulatory mechanisms to speed-up the implementation of the law. These include the mechanisms on Feed-in-tariff, Renewable Portfolio Standard and Net Metering. **FIT** refers to the RE policy that offers guaranteed payments on a fixed rate per kwh for RE generation, excluding any generation for own use; **RPS** is market-based policy that requires electricity suppliers to source an agreed portion of their energy supply from eligible RE resources; **Net Metering** a system

in which a distribution grid user has a two-way connection to the grid and is only charged for his net electricity consumption and is credited for any overall contribution to the grid.

Among the plans and programs which will be done in collaboration with DOE's state university-based Renewable Energy Centers and other local research institutions is the updating of DOE's existing RE database as well as the continuing conduct of promotional activities on renewable energy particularly ocean energy projects which could be in the form OTEC, wave, marine and tidal.

In the case of geothermal, a comparatively more advanced RE resource, the targeted installed capacity will increase from 1,972 to over 3,000 MW at the end of the planning horizon to boost the country's leadership in geothermal energy development worldwide.

Currently, among the major islands, Visayas has the highest installed capacity with 964 MW.

Given the targets of the geothermal sector, there will be a continuing conduct of PECR to secure geothermal investments (there are 21 geothermal prospects under PECR). Existing service contractors will also be encouraged to undertake expansion and optimization projects.

R&D efforts, on the other hand, will be exerted to develop low enthalpy geothermal resources as well as the non-power applications of geothermal.

### Alternative Energy

#### *Biodiesel*

The country has made significant strides on the use of alternative energy for transport. With a favorable policy environment in place, the Plan targets to increase biodiesel blend from 2 percent to as high as 20 percent at the end of the planning horizon. This would result to significant fuel displacement of 102 million liters in 2009 to 1,885 million liters in 2030.

#### *Bioethanol*

For bioethanol, the targeted blend is 20 percent from the existing 5 percent or the accelerated E10 that can be seen in the pumps. This will displace 1,340 million liters in 2030 from the current 169 million liters of fuel displacement.

The realization of the biofuel target blends will consider factors such as supply availability (but not in conflict with food security targets), infrastructures availability and competitiveness and rational pricing.

Among the plans and programs of the biofuels sector with the active participation of the inter-agency National Biofuels Board is to partner with the academe and research institutions on the conduct of durability tests for higher biofuel blends for vehicles and viability studies for other potential feedstock. With the use of higher biofuel blends, standards will be formulated to ensure safety-compliant products. Its expanded utilization such as in marine transport will also be pursued.

### *Compressed Natural Gas*

The government's program on CNG is covered under the Natural Gas for Vehicle Program for Public Transport. Under its pilot phase, the target is to have all of 200 buses commercially operating by end of 2010. There are currently 34 buses running on CNG from Southern Tagalog or Calabarzon area to Manila. By 2030, about 10,000 buses nationwide will be fuelled by natural gas. With the onset of the required policy support in the medium-term and the coming on stream of the critical infrastructure facilities, CNG buses are seen to increase commercial operation in Luzon and Visayas by 2015 and 2020 in Mindanao. Over 7,000 units are projected to run in the entire Luzon within the planning horizon.

### *Auto-LPG*

In terms of the use of Auto-LPG, the DOE will ensure that safety standards are formulated to regulate the use of LPG in other modes of transport such as 2/4 stroke motorcycle engines, motorized bancas and other diesel engines. The DOE will also enhance its policy direction on the use of LPG and intensify its campaign on its safe utilization and codes of practice among others.

Currently, there are 15,000 taxis converted nationwide running on LPG from less than 14,000 only in 2008.

### *Other Alternative Fuels (Nuclear)*

Worldwide, there is a revival of interest in nuclear energy as an alternative energy source. And along this line, the Secretaries of DOE and DOST jointly created an inter-agency Task Force to exactly determine the feasibility of considering nuclear energy as a long term option in the country. As priority activities in the near term, the Task Force is set to validate the results of the BNPP feasibility study which is the major deliverable of an MOU or Memorandum of Understanding between NPC and KEPCO. It will also undertake site safety review of the BNPP. The results of the survey currently being conducted as part of the ongoing nationwide PEP IEC campaign will partly form the basis of a public communication plan that can be used for future IECs. A study on the competitiveness of nuclear power as against other fuel sources will also be conducted and meanwhile, as the country prepares for the possible entry of

nuclear power, the DOE is capacitating its manpower through various training programs.

### ***Promoting Responsible Use of Energy***

The government is developing opportunities to make realistic changes in the way the country uses its energy resources. Energy conservation programs and technologies will help Filipinos become efficient consumers of energy.

For the energy efficiency program, the Plan aims to achieve 10 percent energy savings on the total annual demand of all economic sectors.

The passage of an Energy Efficiency Bill will be critical in realizing this target apart from the continuing implementation of the National Energy Efficiency and Conservation Program with the goal of instilling energy efficiency as way of life. The Department is currently implementing the *Philippine Energy Efficiency Project* with assistance from ADB that include among others the implementation of lighting retrofits of selected government buildings, distribution of CFLs to consumers nationwide, the establishment of mercury waste management plant for fluorescent lighting and the establishment of ESCOs as an emerging industry. The DOE will also expand the coverage of standards and labeling program to even include new models of passenger cars and light duty vehicles. Green building technology will also be promoted with our partners in the construction and real estate sectors.

Other programs for implementation are the monitoring of efficiency performance of power generation utilities and electric distribution facilities, promotion of aviation fuel efficiency enhancement, retrofit of commercial and industrial establishments and voluntary agreement program on the rationalization of tricycle operation.

### ***Ensuring Developments in the Power and Electrification Sectors***

As early as the 2003 update, the PEP identified 2008 as a possible critical period for both the Visayas and Mindanao. While the DOE campaigned hard for these investment opportunities in the area through local and even foreign investment roadshows, the investment opportunities did not seem that attractive. In the Visayas, a total of about 610 MW have been committed and part of it is now contributing to the grid. As a result, the island for now has enough reserve capacity to meet its requirement. In the case of Mindanao, only 200 MW of the identified additional 500 MW capacity requirement was realized.

The lack of private sector interest to put up the identified additional capacities in Mindanao, due to various reasons including regulatory uncertainties,

bureaucratic delays, social acceptability, creditworthiness of offtakers and even peace and order situation in some areas, led to the current crisis being experienced now in the island. This is further compounded by the worst ever episode, in 20 years, of El Niño that hit the country starting last quarter of 2009. As of early March 2010, El Niño rendered the 900 MW of hydro capacities in Mindanao to almost nothing. This being the case, Mindanao has been declared under a state of calamity.

With government being prevented by law to put up new power plants, the private sector in Mindanao has agreed to supply the grid from their imbedded capacities and put up emergency capacities for the grid until the end of El Niño. On the other hand, government continues to advocate for the various programs on demand side management in the island so as to help reduce the peak load and demand for power.

Given the critical periods in the respective major grids of the country, between 2009-2030, the Plan provides a list of projects that will come on stream at various timelines. This will include committed projects as essentially having financial closure already and indicative projects as being in various stages of development, which could be in feasibility study phase for example. A 600 MW coal fired plant is a committed project for Luzon and year of availability is in 2012. While for Visayas, two committed coal power plants for this year will bring in 328 MW of additional capacity. Additionally, four additional power projects will come in by 2011 with an additional capacity of 325 MW. For Mindanao Region, the Sibulan Hydropower plant (42.5 MW) is expected to come onstream this year, the Cabulig Hydropower Project (8 MW) by 2011 and the Mindanao Geothermal Project (50 MW) by 2014.

### *Rural Electrification*

The legacy of the Arroyo administration is to attain 100 percent barangay electrification. This is close to full realization as the country's barangay electrification level now stands at 99.5 percent. To date, there remains 22 areas yet to be energized which are either in far-flung locations, hard to reach or the last mile areas or there are incidence of peace and order. Majority of these problematic areas are in Mindanao.

Within the planning horizon, the PEP envisions a 90 percent household electrification level through the DOE and the National Electrification Administration-led Expanded Rural Electrification Program which also includes other attached agencies of DOE such as the Philippine National Oil Company, National Power Corporation and industry players.

## *Pursuing Reforms in the Power and Downstream Oil and Gas Industries*

### *Privatization of Power Sector Assets*

The Power Sector Assets and Liabilities Management Corporation with its mandate of undertaking the disposal of NPC's generation and transmission assets has successfully bid out 24 operating or generating plants and 5 decommissioned plants. Privatization level has reached 81.3 percent. It is now working on the remaining pre-conditions that will lead to the implementation of open access and retail competition which are the privatization of the remaining NPC generation assets and completing the appointment of IPP Administrators from the current 44 percent to the 70 percent level as required by the EPIRA. The remaining sub-transmission assets had to be divested also to qualified distribution utilities. Examples of these assets are the step-down transformers, sub-stations and overhead lines which are the main grid's link to the distribution facilities.

### *Downstream Oil Industry*

The Department's role in implementing a deregulated downstream oil industry environment is to strictly ensure that consumers are safe and protected when it comes to the petroleum products that they consume: thus the setting of product and facility standards with relevant government institutions; the collaboration with industry players on mitigating the impact of oil price increase and ensuring a competitive playing field among industry players remain continuing programs of the DOE. The Presidential Task Force on the Security of Energy Facilities and Enforcement of Energy Laws will continue to play important role in safeguarding consumer welfare against various industry malpractices.

### *Downstream Natural Gas Industry*

The DOE will re-file during the next Congress the Natural Gas Industry Bill that will encourage the private sector to participate in the strategic infrastructures build-up that will transport natural gas from its source to the end users. The DOE will also facilitate the inclusion of incentives for natural gas in the Investment Priorities Plan. The Department is also closely monitoring the natural gas supply developments in other economies to learn from their experiences and even explore the possibility of entering into cooperation undertakings.

The way forward program in terms of market development is among others to evaluate the techno-economic aspects of related technologies for fuel shift to natural gas; promotion of on-site or small scale power generation using marginal gas fields and conduct of potential gas market profiling.

## **Using Energy in an Environmentally Responsible Manner (Climate Change Adaptation Measures)**

The country, like the rest of the world, is facing a moment of decision in terms of using energy in a more environment-friendly way. Fully aware on the role and responsibility of the energy sector in helping mitigate the impact of climate change, the Plan is introducing the pursuit of adaptation strategies, among which are as follows: the conduct of impact and vulnerability assessments of energy systems such as power generation, transmission and distribution, fuel production and transport in the immediate term, integration of structural adaptations into the design of energy infrastructures to include modification of engineering design practices and integration of climate change adaptation to energy policies, plans and programs including laws and regulations.

### **Social Mobilization**

The plans and programs to realize the third policy thrust which is to implement social mobilization are already incorporated in all the energy sector plans and programs and these are expanding reach thru IEC, promoting good governance. The DOE however, would need to strengthen its collaboration and linkages with partners at both the national and local levels to help ensure that national plans and programs such as the Philippine Energy Plan will find its way into the regional, provincial and even municipal plans. Only then can national plans like PEP truly make a difference in transforming the lives of the Filipino people.