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ARTICLES

Philippine industrial policy?
Why not? **Manuel F. Montes**

Industrial policy and
complexity economics **Josef T. Yap
John Faust M. Turla**

Mapping feasible routes
towards economic
diversification and industrial
upgrading in the Philippines **Annette O. Balaoing-Pelkmans
Adrian R. Mendoza**

Industrial policy for
innovation: why does it
matter? **Rafaelita M. Aldaba
Fernando T. Aldaba**

Exploring the prospects of
services-led development
for the Philippines **Ramonette B. Serafica**

Natural gas and transitioning
to renewable fuels:
considerations from
industrial policy **Dante B. Canlas
Karl Robert L. Jandoc**

How might China-US
industrial policies affect
the Philippines?: a
quantitative exercise **Ma. Joy V. Abrenica
Anthony G. Sabarillo**

COMMENTS

Felipe M. Medalla, Raul V. Fabella, Hal Hill,
Emmanuel S. de Dios, Mead Over, Ramon L. Clarete,
Gonzalo Varela



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- iv Preface
- 1 Philippine industrial policy? Why not?
Manuel F. Montes
Comment, *Felipe M. Medalla*
- 24 Industrial policy and complexity economics
Josef T. Yap
John Faust M. Turla
Comment, *Raul V. Fabella*
- 55 Mapping feasible routes towards economic diversification
and industrial upgrading in the Philippines
Annette O. Balaoing-Pelkmans
Adrian R. Mendoza
Comment, *Hal Hill*
- 82 Industrial policy for innovation: why does it matter?
Rafaelita M. Aldaba
Fernando T. Aldaba
Comment, *Emmanuel S. de Dios*
- 114 Exploring the prospects of services-led development
for the Philippines
Ramonette B. Serafica
Comment, *Mead Over*
- 144 Natural gas and transitioning to renewable fuels: considerations
from industrial policy
Dante B. Canlas
Karl Robert L. Jandoc
Comment, *Ramon L. Clarete*
- 171 How might China-US industrial policies affect the Philippines?:
a quantitative exercise
Ma. Joy V. Abrenica
Anthony G. Sabarillo
Comment, *Gonzalo Varela*

Comment on “Natural gas and transitioning to renewable fuels: considerations from industrial policy”

Ramon L. Clarete*

University of the Philippines

The paper articulates correctly the unlikely rise of renewables (REs) to a dominant role in the energy mix of the Philippines in the next few years or more. Committed to meet its obligation to reduce greenhouse gases (GHG) by 12 percent by 2040, the Department of Energy (DOE) has targeted a 35 percent share of REs by 2030. Through a moratorium of new coal fired plants, authorities have conveyed to producers that the share of coal must be reduced.

REs account for nearly a fourth of the country’s electricity production. Geothermal and hydropower plants generate 80 percent of their electricity. Contributions from both sources, however, have recently slowed down or declined. After the largest geothermal plant was installed in Leyte, recent capacities are significantly smaller. Hydropower output growth was observed to have declined recently.

Solar and wind power are observed to have the stronger growth among the REs. DOE plans to double solar power’s share in the energy mix to 5.6 percent and to quadruple that of wind power to nearly 12 percent of the country’s energy mix by 2030. However, until technology would have made solar power farms more efficient, including their improved storability and their lower displacement of other uses of space, producers may find the current target in the next five years challenging. Additionally, infrastructure investments are needed to overcome grid integration problems of both solar and wind power plants.

The paper correctly calls for a transitional need of fossil fuels, citing natural gas and not coal to move the energy mix to a lower carbon footprint and keeps the country energy secure. Natural gas has 60 percent lower carbon footprint and does not leave by-products harmful to our health and to the environment.

Gas-fired plants are no strangers to the country since the discovery of the Malampaya offshore gas field in northeast Palawan. The country has five gas-fired plants, generating about a fifth of the country’s electricity. First Gen owns four natural gas-fired power plants, producing nearly 2,000 megawatts. These are the Santa Rita (1000 MW), San Lorenzo (400 MW), Avion (97 MW) and San Gabriel (450 MW) power plants. Santa Rita, San Lorenzo, and San Gabriel deliver

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baseload power, while Avion capitalizes on the growing demand for peaking power in the Luzon grid. The fifth, called the Ilijan plant which is in Batangas, is owned by the National Power Corporation.

The paper fails to mention that the indigenous natural gas option has a serious problem. The Malampaya gas field's reserves are expected to start declining in 2024. It may continue to provide gas for three more years or so as geologists had advised DOE. Except for these, the Malampaya gas field is ready for decommissioning.

The country does not have a new indigenous gas field to replace Malampaya. The DOE has called for investors to explore another offshore gas field in the West Philippine Sea. But investors are apparently taking their time to respond to this need because offshore exploration is significantly more costly and because of China which mistakenly claims ownership of the West Philippine Sea.

With the exhaustion of Malampaya's gas reserves, the gas-fired plants have recently started importing liquified natural gas (LNG). Last year, the country completed its capacity to receive and re-gasify LNG to be fed to the five gas-fired plants. The capacity of the two LNG import terminals is 8.2 MTPA, and last year the country began importing LNG at about 0.6 MTPA.

It may still take more years before actual LNG imports could fill up the combined capacity of the two LNG terminals commissioned last year. More such terminals are going to be constructed to feed the nearly 2,000 MW gas fired plants of the country.

The outlook of LNG import trade is positive. The Philippines started to join other East Asian countries, like Japan and China, in importing LNG from the Middle East and North America. The imports last year were transacted in spot markets, but long-term import contracts are likely through the years.

Notwithstanding the downsides of LNG, the country has no other choice but import LNG. LNG is more costly than coal because of liquefaction and regasification. Liquefaction cost can range from USD two to four per one million British thermal units (MMBTU) and transport cost is significant at about 60 percent more than the cost of LNG in exporting countries.

The other disadvantage is that the country is vulnerable to the fluctuation of gas prices in the world market. With indigenous gas, the price of gas is protected from such price volatilities.

Another idea is exploring onshore natural gas sources, particularly in Southern Philippines. I talked to Gilbert Clarete, a graduate of the University of the Philippines in electrical engineering. He migrated to the US then to Canada. He has a long experience in exploring and mining oil and natural gas in both countries. He informed me that Lake Buluan meets the geological characteristics of an area that may have natural gas underneath in commercial quantities. Lake Buluan is in Sultan Kudarat in the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM).

Exploration costs can be significantly less expensive compared to offshore exploration in the West Philippine Sea. The explorer may drill a wildcat/exploratory well of about 5,000 feet deep, say in Lake Buluan. Findings of brine from the well at 5,000 feet deep can be analyzed by companies such as Schlumberger. With its office in nearby Indonesia, the company can bring their sensors to measure a few indicators to verify if natural gas is available. If verified, a geologist may then analyze the indicators to determine the amount of reserves. The whole exploration cost can run to just in few million pesos.

It is possible that drilling may yield a lack of commercial supply of natural gas. But the exploration cost is relatively low compared to the benefit the explorer/developer obtains if gas supply is verified in commercial quantities. This onshore gas can be highly competitive. Being onshore, the gas can be transported to the gas plants without need of liquefaction and regasification. The gas-fired plant can be near the gas field to reduce transport costs. Being indigenous, it is protected from price volatilities of fossil fuels.

Screening curve analysis may likely place onshore natural gas to be everywhere below that of other fossil fuels, such as LNG or even coal. That would make the gas fired plants with onshore gas as fuel take on base load role in the energy mix.

But the country does not yet have a ready onshore natural gas field. In the meantime, LNG imports have a significant role in transitioning to an energy mix with lower carbon footprint.

Lastly, the paper calls for a carbon tax on coal to incentivize the shift to natural gas. But I have another idea, as the carbon tax will raise the price of electricity. The other intervention is a subsidy on LNG imports and in exploration of onshore natural gas fields.



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