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IEEFA.org

Prospects Improve for Energy Transition in the Philippines

More transparent bidding, pricing and risk avoidance gaining ground

Executive Summary

Globally, we see that the power sector is undergoing a complex and long-term transformation due to accelerated technological change and shifting consumer preferences for clean energy. The result has been more cost-effective renewable power solutions that are now delivering lower electricity prices. Unprecedented change in technology options creates a unique opportunity to future-proof fast-growth power markets. The new economics of clean power solutions mean that investors in generating assets should be required to stress-test their investment decisions to address a new market scenario where renewable energy claims a rising share of demand growth. With falling costs of storage and more affordable technology, this can happen more rapidly.

February 2013 marked the beginning of a new era in the Philippines with unsubsidized wind farms producing energy at a lower price than new coal and new gas-fired power plants.[1] Since 2013, we have seen systematic deflationary trends for renewable energy with record-low pricing for wind and solar compared to fossil fuel and nuclear power. New technology options, such as battery storage combined with wind and solar, can now provide dispatchable power flexibly, potentially cutting costs and improving national energy security. Today, there is an unprecedented opportunity to redesign the market to attract lower prices and more investment. The key is to move away from legacy market management decisions that have resulted in excessive reliance on imported coal and diesel units with open-ended imported fuel obligations. Not only are these options increasingly uncompetitive, they carry ongoing foreign currency (FX) and commodity price risks—all of which result in a heightened overall stranded asset risk.[2]

"Today there is opportunity to redesign the energy market to attract lower prices and more investment."

Government planners, regulators, investors and developers are at a crossroads, facing choices about whether to double down on coal-fired electricity or

[1] BloombergNEF. Liebreich: Six Design Principles for the Power Markets of the Future. 24 May 2017.
[2] IEEFA. Carving out Coal in the Philippines: Stranded Coal Plant Assets and the Energy Transition. 12 October 2017.

instead choose a more prudent course rooted in renewables and gas. There are three key trends to consider in order to understand the current outlook and how prospects have improved for the energy transition in the Philippine power sector:

1—Fuel price pass-throughs have inflated prices and are a key driver of the transition: The Philippines have electricity prices amongst the highest in South East Asia and is considered relatively high compared to global standards, at roughly USD0.20 per kilowatt-hour (kWh) or Philippine Peso (PHP) 10 per kWh. This is due to reliance on imported fossil fuels, high financing costs, and uncompetitive market structures which have stifled innovation.

For example, a 167.4MW coal plant was expected to deliver PHP3.96 (USD0.08) per kWh based on a 2016 Power Supply Agreement (PSA) price. However, on average, the coal plant delivered PHP2 per kWh above the agreed price, sometimes reaching PHP7.11 per kWh. This variance in price is currently permitted under market rules under the "pass-through provision" which allows fluctuations in fuel price and FX rates to be passed onto consumers and industry. As a result, from May 2018 to May 2019, the unpredictability of coal prices led to consumers paying over PHP788.7 million (equivalent to USD15 million) compared to what was originally estimated.

If renewables enter the market, they have the potential to cut wholesale power prices by 30% and could dramatically change the structure of the market. For example, the feed-in-tariff (FiT)[3] and prioritized dispatch have led to reductions in wholesale electricity spot prices by PHP1.47 per kilowatt-hour (kWh) for consumers, which led to savings or avoided costs of PHP44.3 billion from November 2014 to October 2015.[4]

2—Real competition may be coming soon: New catalysts for change are coming, not from the marketplace, but from legal challenges which have validated the government's intention to spur competition through transparent bidding to reduce electricity prices for consumers and industry. More retail competition is in the cards and the role of grid operators can also be forced to change as they may be barred from passing on fuel price and FX risk.

This is as a result of a challenge by consumer groups in 2017 to the Energy Regulatory Commission (ERC) focused on the transparency and

[3] The FiT has been subject to criticism because of fixed pricing set by the Department of Energy. IEEFA considers the right regulatory framework for the FiT is to ensure the least-cost price for consumers via reverse auctions. To enable this, there must be a level playing field, including technology-neutral procurement and no pass-throughs that could result in higher prices than agreed upon. IEEFA believes that the government should guard against abuse of market power and anti-competitive agreements such as price fixing without a bidding system. The FIT via reverse auctions is a competitive way forward to encourage lowest price options for consumers and industry.

[4] This savings is applied to spot transactions of 30.2 TWh from November 2014 to October 2015, which led to savings or avoided cost of PHP44.3 billion. The FiT programme cost approximately PHP25.6 billion. This means that the net effect is PHP18.7 billion of savings or avoided cost.

competitiveness of the process used to sign PSAs from 30 July 2015 onward. On 6 May 2019, the Supreme Court of the Philippines ruled in favor of the consumer groups,[5] effectively voiding all PSAs that were submitted after 7 November 2015, including the 3.5GW Meralco coal pipeline, mainly backed by large corporate players including Meralco-owned subsidiaries and affiliates.

3—Watch Meralco: The best way to monitor current trends is to track how Meralco — the owner of the country's largest distribution franchise in Metro Manila and also an independent power producer (IPP) investor — adapts to market pressures. Meralco could emerge as a big winner or a damaged laggard.

"Meralco could emerge as a big winner or a damaged laggard."

These three major trend-setters have the potential to reshape the economics of power in the Philippines. The timing is highly sensitive because of the financial risk associated with the 3.5GW pipeline of new coal-fired capacity. Not only could changing economics impose losses on investors, they could blight the main Luzon grid with stranded assets that would pre-empt market innovation and burden the economy for decades to come. Making smarter policy decisions about the true cost of long-lived power asset investments like Meralco's 3.5GW coal pipeline could be crucial to the competitive potential of the Philippines economy. One important reform would be to analyze the risk profile of take-or-pay imported fuel agreements. They represent fixed long-term obligations that should be balanced against the Philippines' unique potential to benefit from newer technologies that are just coming to market. In a sign that insiders see the risk, Meralco has already changed its procurement style to better manage the company's risk profile.

According to the Department of Energy, there are outstanding commitments of 4.8GW in coal projects slated for target commercial operation by 2019.[6] This leads to a potential for up to USD9.5 billion in stranded asset risk, with a broader risk beyond 2019 of 10,423MW (equivalent to USD20.9 billion).[7] Given the real risk that these bets could go wrong, it is critical to ask policymakers who they think will pay for such losses? As things stand now, it appears that the cost of these questionable commercial decisions will be borne by households, industry, or investors, including local Philippine banks. This may place an added burden on Philippine households and industry consumers who already pay subsidies for diesel plants via the Universal Charge for Missionary Electrification (UCME) at a cost of over USD250 million per annum. Households and industry are expected to pay a subsidy of USD293.2 million for import-

[5] Business World. SC requires bidding for all power supply agreements. 7 May 2019.
[6] Private Sector Initiated Power Projects (Luzon) Committed as of 31 December 2018; (Visayas) Committed as of 31 December 2018; Private Sector Initiated Power Projects (Mindanao) Committed as of 31 December 2018.
[7] IEEFA. The Philippine Energy Transition. Building a Robust Power Market. Ahmed, S.J. March 2019.

diesel plants in 2019.[8] This liability is also expected to grow if the country maintains its import fossil fuel strategy instead of pursuing more affordable renewable energy and storage options.

[8] Energy Regulatory Commission. Petition from the National Power Corporation (NPC). 3 August 2018.

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The Philippines Stands on the Brink of a Coal Import Trap With Continued High Prices and Long Tail Risks for the Financial System.

Global Power Markets are Re-Calculating Coal Risk

Despite a long history of controversy, the Philippines power sector is only now waking up to the stranded asset crisis that has been rumbling global markets. In 2014, Mark Carney, governor of the Bank of England and chairman of the G20 Financial Stability Board, warned investors of the stranded-asset risk inherent in fossil fuel projects.[9]

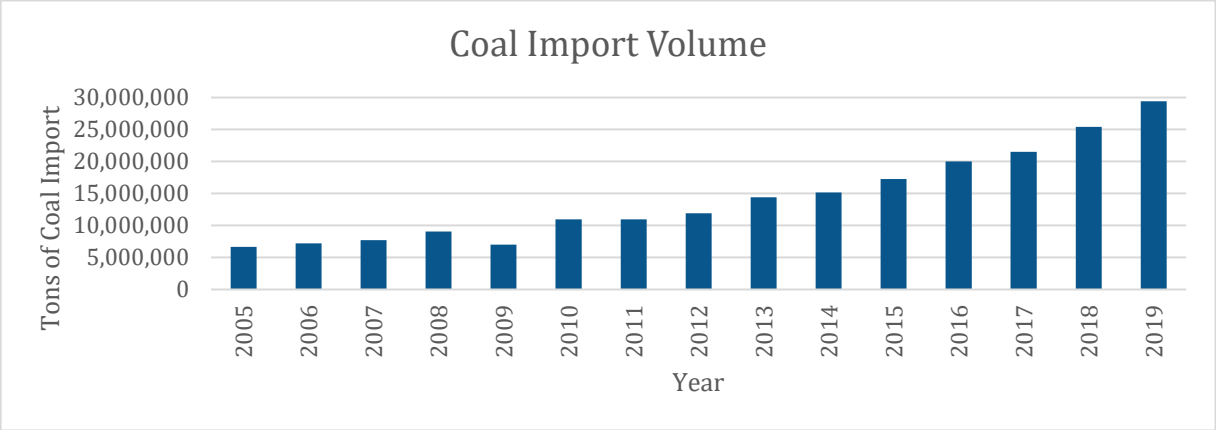
With the energy transition to cheaper technologies gathering pace, the likelihood of exposure to billions of dollars in additional stranded assets is impossible to ignore, particularly for fuel-importing countries. That's because the projects involve long-term fossil fuel import contracts which result in higher levels of FX debt with associated currency and inflation risks.

"The Philippines power sector is only now waking up to the stranded asset crisis that has been rumbling global markets."

This risk is very tangible to Philippines power sector policymakers. In less than 10 years, the Philippines nearly tripled its thermal coal imports, [10] growing from 11 million tons imported in 2011 to 29.4 million tons expected for 2019. In 2018, the Philippines' thermal coal imports reached 25.4 million tons, with a 18% year-on-year increase from 21.5 million tons in 2017 (refer to Figure 1).

[9] The Guardian. Bank of England investigating risk of 'carbon bubble'. 1 December 2014.
[10] Dry Cargo International. Assocarboni Discloses 2018 Coal Data. 26 March 2019.

Figure 1: Coal Import Volume from 2005 to 2019



Source: Department of Energy, Assocarboni[11]

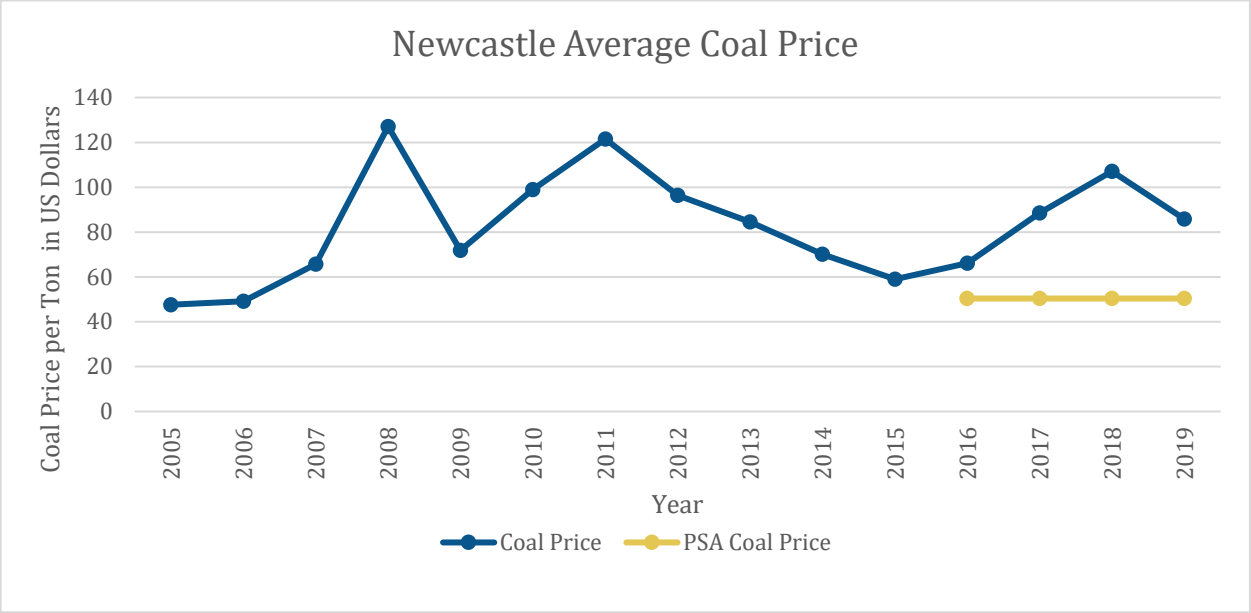
The PSA between the utility and the Independent Power Producer (IPP) stipulates that fuel cost adjustments charged to ratepayers are indexed against the Australian Newcastle Coal Price Index, a price benchmark for seaborne thermal coal in the Asia-Pacific region. For example, 1200MW coal plant Atimonan One Energy, part of the 3.5GW Meralco pipeline, assumes a price of USD50.38 per ton of coal based on the globalCOAL Monthly Index for Newcastle (NEWC Index).[12] That outlook was published before coal prices doubled between May 2016 and December 2016, from USD51.20 per ton to USD100.69 per ton. Average prices from 2017 to 2018 have been USD 88.52 and USD107.02. The January 2019 price was USD98.56, February 2019 was USD95.42, March 2019 was USD93.12, and April 2019 was USD86.77. Figure 2 illustrates average Newcastle coal prices from 2005 to 2019.

"The pass-through clause allows fuel price increase and foreign exchange costs to be passed along to consumers."

The PSA pass-through clauses allow changes in fuel cost and foreign exchange fluctuations to be unfairly handed down to consumers who cannot manage the risk in a cost competitive way. By contrast, coal IPPs have resources and expertise to hedge their fuel and foreign exchange risk at competitive rates.

[11] Founded in 1897, Assocarboni is an association, with more than 80 member companies, the only association representing the entire coal value chain from coal mining groups to electricity and steel producers, cement manufacturers, shipping firms, etc.
[12] NEWC: globalCOAL NEWC Index Methodology. September 2019.

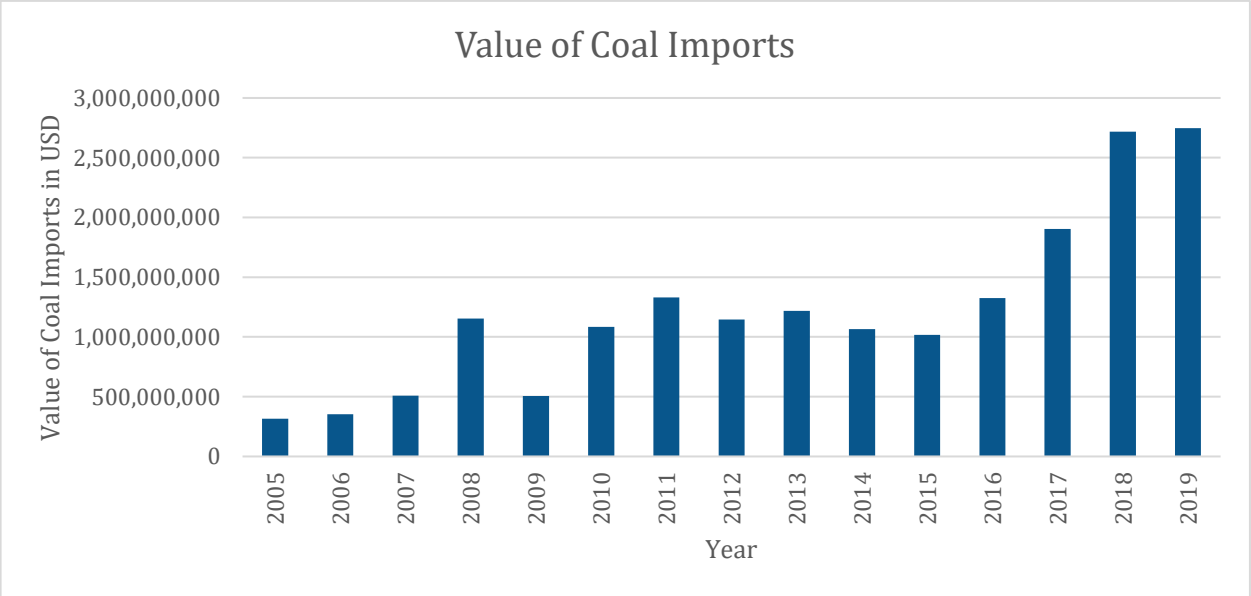
Figure 2: Average Newcastle Coal Price from 2005 to 2019



Source: International Coal Report; Coal Week International; Coal Week; Bloomberg; IHS McCloskey Coal Report; World Bank.2019 price includes January to April average.

The impact of coal imports on the trade balance is now material in ways that require an entirely different level of financial oversight. The value of coal imports in 2005 was USD317.0 million and tripled to over USD1.0 billion in 2010. In 2016, the value of coal imports climbed to over USD1.3 billion and to over USD1.9 billion in 2017. In 2018, coal imports reached over USD2.7 billion and are expected to reach USD2.75 billion in 2019, refer to Figure 3.

Figure 3: Value of Coal Imports



Source: IEEFA calculation based on coal import volume and average Newcastle coal price.

The Philippines' surging imported fuel and subsidy bill is particularly hard to reconcile with the new era of technology dynamism that is reshaping the global power sector. Recognition of the technology shift is increasingly evident in the decisions of leading global financial institutions. Over 100 globally significant financial institutions have commitments to divest from or reduce exposure to oil and thermal coal companies and projects, including 40% of the top 40 global banks and 20 globally significant insurers. Every two weeks, a bank, insurer or lender announces new restrictions on coal. In the first eleven weeks of 2019, there were seven new announcements of banks and insurers divesting from or reducing exposure to coal.[13]

Despite global trends, governments in South East Asia, in particular, are still being pressed to continue supporting fossil fuels through sovereign guarantees (specifically, in Vietnam and Indonesia), market structures that lack transparency and do not incentivize lowest cost options, and power purchase agreements that protect fossil fuel interests. At the same time, fossil fuel projects in South East Asia are often subsidized by Chinese, Japanese, and South Korean credit agencies that are under pressure to support exports of fossil fuel-generating equipment before the market disappears.

"Despite global trends, governments are being pressured to continue supporting fossil fuels through market structures that lack transparency."

How is this policy-market mismatch possible? It is still the case that far too many South East Asian finance ministries, planners, regulators and financial sector players lack up-to-date policy guidance and often underestimate fossil fuel risk. While most global banks have shifted their policy stance, many local banks do not incorporate stranded-asset risk assessments in project finance underwriting, either by negligence or by design. Often, they rely on outdated assumptions that all risks related to volatile fuel costs will be transferred to ratepayers and/or taxpayers without any political or market risk. Coal debt, for example, is becoming less liquid with banks restricting lending to coal projects and investors becoming more cautious about this asset class.

Coal Plant Price Sensitivity Analysis

Historically, generation prices passed to consumers and industry in the Philippines fluctuate and are above the Power Supply Agreement (PSA) price. What's surprising is that although the potential new rules governing the Philippine power sector clearly imply that there could be more risk for high-cost IPPs, this has not stopped potential project sponsors or Meralco from rushing to add new coal-fired capacity. Specifically, the Supreme Court ruled that PSAs of distribution utilities (DUs) submitted after 7 November 2015,

[13] IEEFA. Over 100 Global Financial Institutions Are Exiting Coal, With More to Come. Buckley, T. 27 February 2019.

including the 3.5GW Meralco coal pipeline, are void for failure to conduct the Competitive Selection Process (CSP).

In an innovation which promises to improve the power market, the Energy Regulatory Commission (ERC) CSP includes a "Fixed Bid Price" which is inclusive of fuel cost and other variable charges. This means that the future PSA prices listed in Figure 4 below are fixed and thus the risk of fuel price and foreign exchange fluctuations will be absorbed by project sponsors and investors rather than passed on to the unsuspecting consumer who is unable to manage risk. The new ERC CSP offers better economics because it does not penalize consumers who have no role in risk assessment and management. By contrast, previous PSAs allowed pass-through charges of fuel costs and other supplemental payments (as seen in Appendix 1).

Figure 4: 7 PSA Agreements by Independent Power Producers

Name and Term of PSA	Capacity (MW)	PSA Capacity		PSA Price	Project Sponsors	Scheduled Operation	Location (Mostly Luzon*)	Status
Redondo Peninsula Energy Inc. (RPE) Term: 20 years	300MW	225MW		3.7207	47% of the total subscribed capital is owned by Meralco PowerGen Corporation ('PowerGen'), a wholly-owned subsidiary of Meralco, and 3% of its total subscribed capital was owned by the Meralco Pension Fund	2019	Sitio Naglatore, Barangay Cawag, Municipality of Subic (Luzon Grid)	Financing agreements executed in December 2016 for PHP50 billion / USD1.2 billion
Atimonan One Energy (A1E) Term: 20 years and 6 months	2x600MW	1200MW		3.7587	A1E was wholly-owned by Meralco PowerGen Corporation ('PowerGen'), a wholly-owned subsidiary of Meralco.	2021	Municipality of Atimonan (Luzon Grid)	Funded (paid commitment fee to senior term loan lenders) and Construction Phase USD3 billion
St. Raphael Power Generation Corp. (SRPGC) Term: 20 years and 4 months	2x350MW	Up to 400MW		3.7549	Meralco PowerGen Corporation ('PowerGen'), a wholly-owned subsidiary of Meralco and Semirara Mining and Power Corporation owned by the Consunji Group	2022	Calaca, Batangas (Luzon Grid)	99.29% constructed as of March 31, 2019 PHP96 billion (USD1.92 billion)
Global Luzon Energy (GLEDC) Term: 20 years	2x335MW	600MW		3.582	Ayala group's AC Energy Holdings Inc. and Therma Power Inc.—a unit of Aboitiz Power Corp, and Nauru-based Power Partners Ltd. Co.	2022	Brgy. Luna, La Union (Luzon Grid)	Financial close December 17, 2015, USD1 billion Anticipated operation by 2019
Mariveles Power Generation Corp. (MPGC)	4x150MW	Up to 528MW		3.5195	Subsidiaries of SMC Global Power Holdings Corp. (SMC Global), the subsidiary of San Miguel	2020	Sitio Lusong, Barangay Biaan, Mariveles,	Finalized permits; seeking financing USD2.4 billion

Term: 21 years					Corporation (SMC) engaged in the construction and operation of various power projects.		Bataan (Luzon Grid)	
Central Luzon Pemiere Power Corp. (CLPPC) Term: 21 years	4x150MW	Up to 528MW		3.5195	Subsidiaries of SMC Global Power Holdings Corp. (SMC Global), the subsidiary of San Miguel Corporation (SMC) engaged in the construction and operation of various power projects.	2021	Pagbilao, Quezon (Luzon Grid)	Finalized permits; seeking financing USD2.4 billion
Panay Energy Development Corp. (PEDC) Term: 20 years	2x82MW + 1x150MW	Up to 70MW		3.8466	Global Business Power Corp of GT Capital Holdings - a joint venture among Beacon PowerGen Holdings Inc. (56%), JG Summit Holdings Inc. (30%) and Meralco PowerGen (14%)	2016	Brgy. Ingore, La Paz, Iloilo (Visayas Grid)	Funded and Operational PHP35.6 billion (USD712 million)
Total	**4,384MW**	**3,551MW**		**~USD12.632 billion (PHP631.6 billion)**				

*Source: PSA Agreements, Energy Regulatory Commission, Supreme Court of the Philippines [G.R. No. 227670, May 03, 2019] *According to the Department of Energy, the Luzon system requires a regulating reserve equivalent to 4% of peak demand, or 361.88MW*

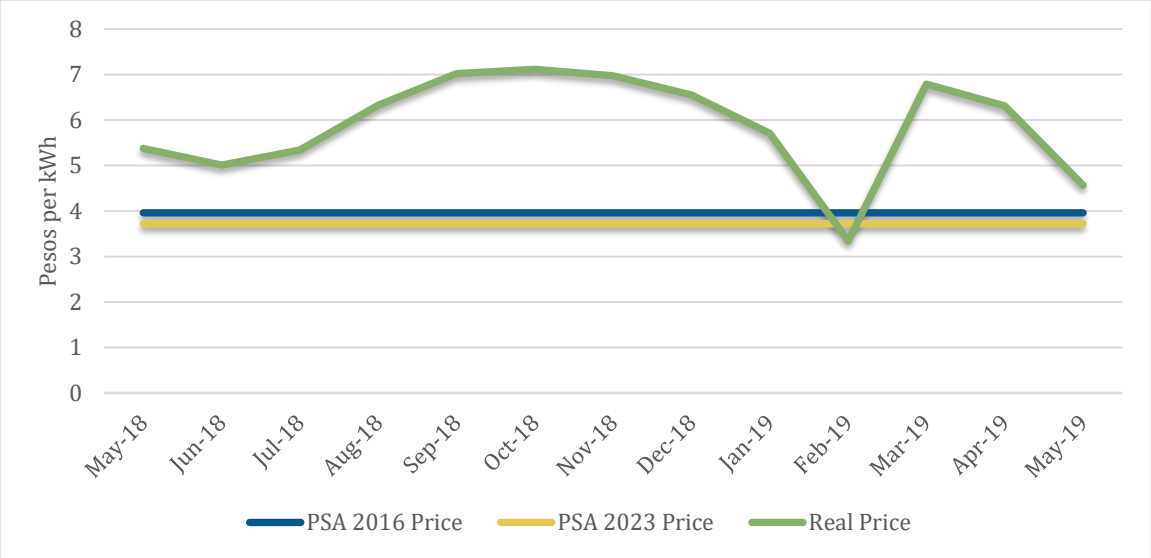
The importance of this change should not be underestimated. To put this new policy into context, it is helpful to look at how much fossil fuel and operating risk could be passed through to consumers under the old policy regime. The contracted 167.4MW coal-fired power plant operated by Panay Energy Development Corporation (PEDC) provides a clear introduction to the risks that are passed on to consumers and industry through increased generation costs (refer to Figure 5) amounting to PHP788.7 million (USD15 million).

Figure 5: Case Study – 167.4MW Coal Plant (Panay Energy Development Corporation)

PEDC, a subsidiary of Global Business Power Corp of GT Capital Holdings, which is a joint venture with Beacon PowerGen Holdings Inc. (56%), JG Summit Holdings Inc. (30%) and Meralco PowerGen (14%), signed a deal in 2016 to deliver coal-fired power at PHP3.96 (US$0.08) per kilowatt hour (kWh) to Meralco. The plant has been in operation since 2010, beginning with the first two units at 82MW each completed in 2010 and 2011,[14] respectively. The third additional unit of 150MW was completed in 2016.[15]

The graph illustrates an overview of the delivered price to consumers (real price) versus the 2016 PSA price of PHP3.96 and the anticipated 2023 PSA price of PHP3.7207. On average, PEDC's delivered price to consumers was PHP2.0 per kWh above the agreed PSA rate, reaching Php7.11 per kWh. This variance in price is currently permitted under market rules through the pass-through provision which allows fluctuations of fuel price and foreign exchange rates to be passed onto consumers and industry. As a result, from May 2018 to May 2019, the unpredictability of the coal price has led to consumers paying over PHP788.7 million (equivalent to USD15 million). Note: The new ERC ruling by the Supreme Court highlighted in Figure 11 to conduct the Competitive Selection Process (CSP) for all PSAs of distribution utilities (DU) submitted after 7 November 2015 may mean that pass-through is on longer permitted.

Import Coal Plant Delivered Price



Source: Meralco Website, 2018-2019

Source: PSA Agreements, Energy Regulatory Commission, Meralco Website 2018-2019

Given that all PSAs signed on or after July 30, 2015 will have to go through a "Fixed Price Bid" under CSP, any fluctuations in fossil fuel costs or foreign exchange is now the responsibility of the plant operator and not automatically passed onto customers. In practice, the old model PSA price was nothing more than an estimate. As a result, the switch to the Fixed Bid Price element has very important implications for project sponsors, funders, and power system policymakers attempting to navigate new capacity decisions in the Philippine

[14] Global Business Power. Our Power Plants. 2019.
[15] Global Business Power. 150-MW coal plant up by August 2016 – GBPC. 22 December 2015.

power market. However, should the ERC fail to implement CSP, the risk will be borne by consumers and industry through higher electricity prices.

Based on IEEFA's analysis, the implications include the following: In the event that the coal plant operator is unable to manage or hedge variable costs, such as changes in fuel price, unanticipated start-up and shutdown costs, and changes in foreign exchange, the implications for project sponsors and investors can be damaging. Based on IEEFA estimates, Figure 6 outlines the risk of failure to manage or hedge in Philippine Peso (PHP) and US Dollar (USD) terms the 3.5GW pipeline.

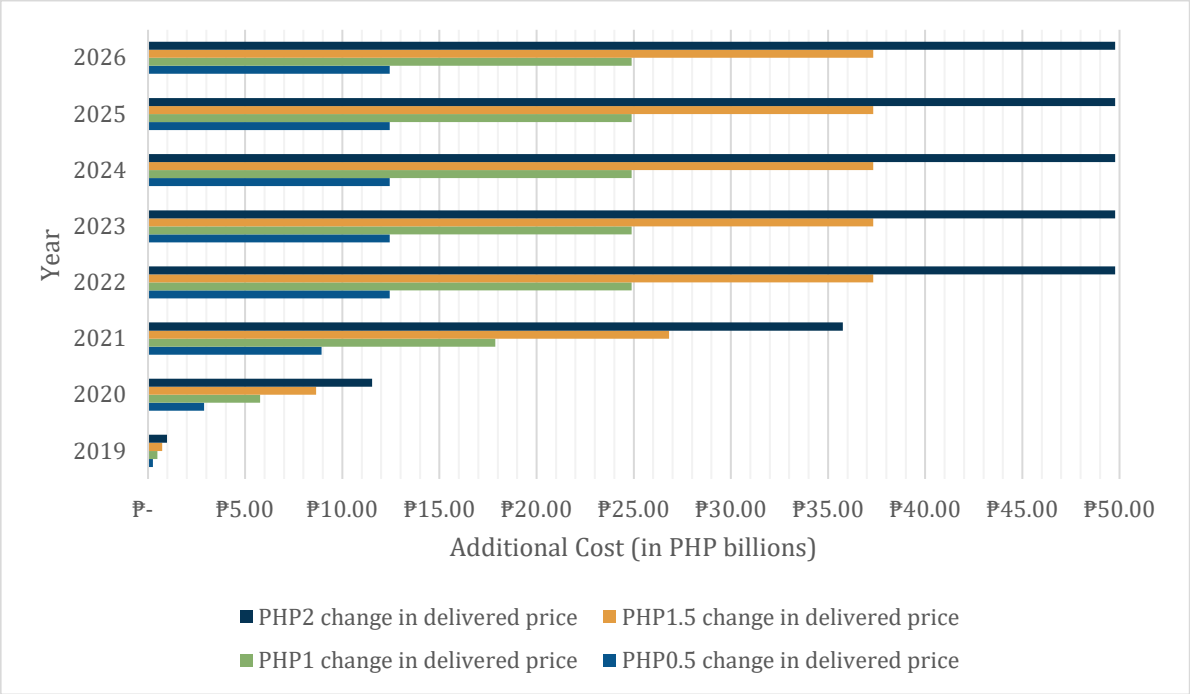
Figure 7 shows a summary of the potential additional risk costs. A PHP0.5 to PHP2 change in delivered price can increase costs for consumers by PHP12.4 billion to PHP49.7 billion per annum.

Figure 6: Implications of Inability to Hedge Fluctuations in Variable Cost (in millions)

	Operational	2019	2020	2021	2022	2023	2024	2025	2026
Redondo Peninsula energy Inc. (RPEI)	2019 - delayed		₱1,577	₱1,577	₱1,577	₱1,577	₱1,577	₱1,577	₱1,577
Atimonan One Energy (A1E)	2021			₱8,410	₱8,410	₱8,410	₱8,410	₱8,410	₱8,410
St. Raphael Power Generation Corp. (SRPGC)	2022				₱2,803	₱2,803	₱2,803	₱2,803	₱2,803
Global Luzon Energy (GLEDC)	2022				₱4,205	₱4,205	₱4,205	₱4,205	₱4,205
Mariveles Power Generation Corp. (MPGC)	2020		₱3,700	₱3,700	₱3,700	₱3,700	₱3,700	₱3,700	₱3,700
Central Luzon Pemiere Power Corp. (CLPPC)	2021			₱3,700	₱3,700	₱3,700	₱3,700	₱3,700	₱3,700
Panay Energy Developemt Corp. (PEDC)	2016	₱491	₱491	₱491	₱491	₱491	₱491	₱491	₱491
Total		₱491	₱5,768	₱17,877	₱24,885	₱24,885	₱24,885	₱24,885	₱24,885
0.5 PHP change in delivered price	Losses in PHP	₱245	₱2,884	₱8,939	₱12,443	₱12,443	₱12,443	₱12,443	₱12,443
1 PHP change in delivered price	Losses in PHP	₱491	₱5,768	₱17,877	₱24,885	₱24,885	₱24,885	₱24,885	₱24,885
1.5 PHP change in delivered price	Losses in PHP	₱736	₱8,651	₱26,816	₱37,328	₱37,328	₱37,328	₱37,328	₱37,328
2 PHP change in delivered price	Losses in PHP	₱981	₱11,535	₱35,755	₱49,771	₱49,771	₱49,771	₱49,771	₱49,771
0.5 PHP change in delivered price	Losses in USD	$5	$57	$175	$244	$244	$244	$244	$244
1 PHP change in delivered price	Losses in USD	$10	$113	$351	$488	$488	$488	$488	$488
1.5 PHP change in delivered price	Losses in USD	$14	$170	$526	$732	$732	$732	$732	$732
2 PHP change in delivered price	Losses in USD	$19	$226	$701	$976	$976	$976	$976	$976

Source: IEEFA calculations based on PSA information

Figure 7: Summary of Additional Costs



Source: IEEFA calculations based on PSA information

In light of the court ruling and pending regulatory changes, Philippine banks are now reassessing new coal power deals and are justifiably unwilling to take the risk. For coal projects, Philippine banks are relying on China EPC guarantees and loans from China Development Bank for projects such as the 660MW Mariveles and the 3x135 MW plant in Mindanao to render them "bankable." This means that in order for coal projects to close financing in the Philippines, they may increasingly require commitments from sovereign-backed lenders that can take on this level of risk.

For countries such as China, this could have implications for the central government in terms of what the state owns and owes. There have been some suggestions that Chinese-backed projects have tried to negotiate guaranteed capacity fee payments that would pass the risk of their decisions about uneconomic capacity onto Philippine consumers. This would be in contrast to prevailing market trends. Meralco's PSAs have a carve-out provision which is effectively a curtailment clause which absolves Meralco from buying power they do not require and thus its consumers from paying for electricity they are not consuming. Refer to Figure 10 for further details.

"There is concern that Chinese-backed projects are seeking guaranteed fees to pass uneconomic capacity risk onto Philippine consumers."

Figure 10: Carve-Out Clause in PSAs (Curtailment Clause)

A carve-out clause/curtailment clause exempts the distribution utility, in this case Meralco, from the consequences of reducing contracted capacity from coal-fired power plants. Below is an example of this clause from the Atimonan One Energy (A1E) PSA.

Section 10.3.1 of the PSA states that "subject to the provisions of the Section 10.3.2 below, Meralco shall, from time to time, be entitled to a reduction in the Contract Capacity and Associated Energy equivalent to the reduction in the demand of its captive customers by reason of the enforcement of Retail Competition and Open Access, the Renewable Energy Law and other Laws and Legal Requirements."

Section 10.3.2 states that "Meralco shall give a written notice to the Power Supplier of such reduction at least five (5) Days prior to the first Day of the next Billing Period. Upon receipt by Power Supplier of such written notice, Meralco shall cease to have any rights and obligations under this Agreement in respect of such Reduction in Contract Capacity and Associated Energy."

Source: Atimonan One Energy (A1E) PSA

Increased Retail Competition—Implications and Opportunities

Meralco's carve-out provision can be interpreted as a proactive response to the increased Retail Competition and Open Access (RCOA) mandated by Republic Act No. 9136, or the Electric Power Industry Reform Act of 2001 (**EPIRA**), which can affect all players in the market. Though the implementation is 10 years delayed, the persistently high retail electricity prices in the country may drive its implementation to reduce rates. More retail competition on the horizon in the Philippines means the role of grid operators could also be forced to change as they may be barred from passing on fuel price and FX risk to consumers.

The Impact of Retail Competition and Open Access (RCOA)

To understand the challenge facing policymakers and investors in the Philippines, it's important to understand how new and lower cost technology options and current market rules, including retail competition, may collide in ways that could result in a revaluation of power assets and thus could affect the debt servicing of interest and principal payments.

There is both risk and opportunity associated with the RCOA guidelines, introduced in 2011. Under the RCOA, large industrial consumers can choose not to be supplied by their distribution utility (such as Meralco); they can opt to buy electricity from a retail energy supplier. This can be attractive because RCOA enables fast access to cheap power through bypassing the Energy Regulatory Commission (ERC) approval process. For example, large industrial consumers will be able to benefit from lower priced renewable energy such as rooftop solar. RCOA could also cause a reduction in contracted capacity required by distribution utilities like Meralco. As discussed previously, for new

IPPs, such as the players offering Meralco projects for the 3.5GW pipeline, there will be a 'carve-out' clause in the PSA, raising the risk of curtailment.

IPPs can try to manage their exposure to the carve-out/curtailment clause in two ways: by using the spot market (WESM) and through retail energy suppliers such as MPower, a subsidiary of Meralco. However, selling into the retail market may likely not provide coal-fired power plants as much certainty with regard to capital cost-recovery because supply contracts have shorter durations. As a result, if wholesale market prices trend down with the addition of renewables, new coal-fired IPP market entrants may struggle to cover their costs, resulting in stranded asset risk.

"RCOA enables fast access to cheap power through bypassing the Energy Regulatory Commission (ERC) approval process."

Implication of the Supreme Court Decision to Protect Consumers

In November 2016, the consumer group, Alyansa para sa Bagong Pilipinas, Inc. (ABP) filed a petition/complaint against the commissioners of the ERC for failure to protect consumers from high electricity rates. It called on the Supreme Court to direct the ERC to void the PSAs of distribution utilities submitted after 7 November 2015, including the 3.5GW Meralco coal pipeline, for failure to conduct the Competitive Selection Process (CSP). Figure 11 illustrates a timeline of delays on the side of the regulator. Moreover, the petition requests that the Supreme Court order the ERC to implement the CSP. In May 2019, the Supreme Court ruled in favor of ABP which means that the 3.5GW Meralco coal pipeline is effectively paused and subject to competition under terms that include the Fixed Bid Price discussed in the previous section.

The impact of this decision on the financing of projects in the 3.5GW pipeline is clear. All PSAs on or after 30 July 2015 should not be bankable for project financing because the nullification of these contracts means there will not be consistent or guaranteed cash flows.

Figure 11: Timeline of Failure to Conduct a Competitive Selection Process

2001: Section 43 of Republic Act No. 9136, or the Electric Power Industry Reform Act of 2001 (**EPIRA**), includes a description, in broad strokes, of the functions of the Energy Regulatory Commission (**ERC**): "The ERC shall **promote competition**, encourage market development, ensure customer choice and **discourage/penalize abuse of market power** in the restructured electricity industry."

2001: Section 2 of the EPIRA declares it a state policy to "**ensure the affordability of the supply of electric power**."

2001: Section 45 of the EPIRA mandates the ERC to enforce safeguards to "**promote true market competition and prevent harmful monopoly and market power abuse**."

[14 years later]

11 June 2015: DOE issued the 2015 DOE Circular entitled "**Mandating All Distribution Utilities to Undergo Competitive Selection Process (CSP) in Securing Power Supply Agreements (PSA)**."

Section 3. Standard Features in the Conduct of the CSP. After the effectivity of this Circular, all DUs shall procure PSAs only through CSP conducted through a Third Party duly recognized by the ERC and the DOE.

Section 3. Mandates CSP, or competitive public bidding, whenever DUs secure PSAs. The 2015 DOE Circular took effect on 30 June 2015 upon its publication in two newspapers of general circulation. Section 3 expressly states that "*[a]fter the effectivity of this Circular, all DUs shall procure PSAs only through CSP*

June 2015: The CSP Guidelines fixed a new date of effectivity for compliance with CSP. This is the first instance of the ERC unilaterally fixing a different date from 30 June 2015, **in effect postponing the date of effectivity of the CSP from 30 June 2015 to 7 November 2015 or delaying it by 130 days.**

15 March 2016: The ERC, for the second time, unilaterally postponed the date of effectivity of the CSP. The ERC issued an ERC Clarificatory Resolution, **which restated the date of effectivity of the CSP Guidelines from 7 November 2015 to 30 April 2016 or by 175 days.** This allowed DUs to enter into contracts during the period of postponement to avoid the mandatory CSP.

Source: Supreme Court of the Philippines [G.R. No. 227670, 03 May 2019]

The Supreme Court ruling offered a frank critique of market practices. The Court pointed to the fact that "competitors are legally barred within the franchise areas of distribution utilities. Facing no competition, distribution utilities can easily dictate the price of electricity that they charge consumers."[16] As a result, the Supreme Court recognized the importance of competitive bidding because the "power cost purchased by distribution utilities is entirely passed on to consumers, along with other operating expenses of distribution utilities."[17] This highlights the lack of incentives to procure the least cost and has the propensity to create a moral hazard problem because the entire cost is passed onto customers. To protect consumers and industry from high electricity prices, the Supreme Court identified that the State must regulate "the acquisition cost of electricity that distribution utilities can pass on to consumers."[18]

[16] Philippine Supreme Court. Alyansa Para Sa Bagong Pilipinas, Inc. vs. Energy Regulatory Commission. 3 May 2019.
[17] Ibid
[18] Ibid

The Supreme Court also cited the positive record of transparent competitive public bidding for power purchases by distribution utilities to ensure least-cost generation charges in the United States, Europe, Latin America, India and other developing countries. The transparency mechanism is an auction. In India, for example, auction terms have limited fuel-price pass-throughs of up to 30% instead of 100%. In some cases, power generator proposals are also being presented with fuel hedging contracts which reduce exposure to fuel-cost volatility. Such contracts are already widely used by airlines, cruise lines and trucking companies, and can certainly be replicated by the electric power industry. Other markets that have successfully conducted auctions are Chile, Brazil and Peru. A noteworthy auction market in South East Asia is in neighboring Cambodia, which ran an auction for a National Solar Park with a delivered price of USD0.0387, the lowest in ASEAN.[19]

"The Supreme Court recognized the rights of consumers and the need for transparent contracts, pricing and bidding."

According to the International Renewable Energy Agency (IRENA),[20] fifty countries held auctions in 2017 and 2018 to secure electricity through renewable technologies, with half of these nations doing so for the first time. At the beginning of 2018, IRENA's analysis[21] of auction and PPA data suggests that the global weighted-average cost of electricity could fall to USD $0.049 (PHP 2.45) per kWh for onshore wind and USD $0.055 (PHP 2.75) per kWh for solar PV in 2020. The potential value for onshore wind in 2020 has dropped a further 8%, to USD 0.045 (PHP 2.25) per kWh, while solar PV drops 13%, to USD 0.048 (PHP 2.40) per kWh.

Renewable Energy Can Cut Wholesale Power Prices by 30%

What are the implications of the Court ruling for the outlook for renewables in the Philippines? The Philippine government first recognized the importance of renewable energy in the power sector via the Renewable Energy Act of 2008 with mechanisms such as the feed-in-tariff (FiT) system22 to jump start investment. The FiT policy mechanism was used to encourage deployment of renewable electricity technologies via a 20-year guaranteed purchase contract (PPA) from government as well as prioritized dispatch.23 Typically, purchase

[19] Phnom Penh Post. EDC launches tender offer for solar project. 21 February 2019.
[20] IRENA. Renewable Energy Auctions. June 2019.
[21] IRENA. Renewable Power Generation Costs. May 2019.
[22] Philippines Department of Energy. Framework for the Implementation of Must Dispatch of Renewable Energy Resources. 20 March 2015.
[23] "Must Dispatch" is facilitated in the Wholesale Electricity Spot Market (WESM) by qualified and registered renewable energy plants, whether or not under the FiT system such as wind, solar, run-of-river hydro, or ocean energy, according to the preference in

contracts via PPAs are signed between the utility company and the IPP. The FiT program has been subject to criticism because of the perceived high fixed price during the first phases. Despite concerns about the level of FiT pricing, it has contributed to a reduction in the wholesale electricity spot market and has reduced electricity rates for all ratepayers (both industry and the public).

Specifically, the Philippine Electricity Market Corporation (PEMC) conducted a study24 on the impact on energy costs of the FiT program. It concluded: the Wholesale Electricity Spot Market (WESM) price would have been PHP5.02 per kWh if there had been no FiT-qualified renewable energy plants in the system. With FiT-qualified renewable energy plants, the WESM price is PHP3.55 per kWh. This means that the FiT effectively reduced market prices by PhP1.47 per kWh, equivalent to 30%. In the study, this savings is applied to spot transactions of 30.2 TWh for the November 2014 to October 2015 period, leading to savings or avoided cost of PHP44.3 billion.

"The FiT effectively reduced market prices by PhP1.47 per kWh, equivalent to 30%."

The FiT programme costs approximately PHP25.6 billion. This means that the net effect is PHP18.7 billion of savings or avoided cost during the same period because of the existence of the FiT. This is equivalent to a rate reduction of PHP0.0866 per kWh for ratepayers. Refer to Figures 8 and 9 for an illustration of the savings or avoided costs of the FiT. This also means that the programme benefitted Meralco through lowered prices when Meralco would purchase from the WESM and thus translated to lower electricity prices for consumers. For example, in July 2019, 11.1% of the power was purchased from WESM by Meralco.

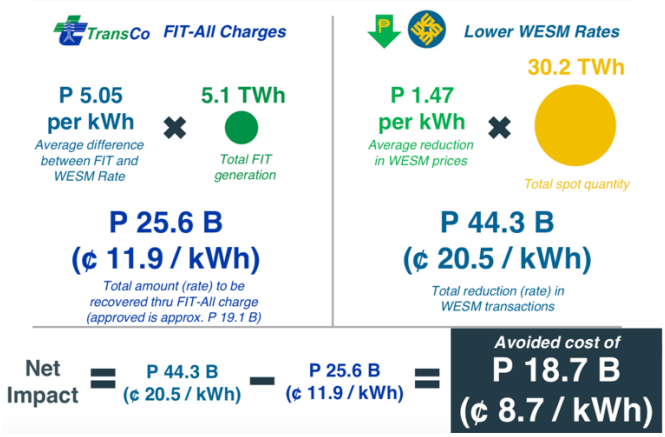
dispatch schedule whenever generation is available; "Priority Dispatch" means giving preference to biomass plants under the FiT system.

[24] Philippine Electricity Market Corporation. Feed-In Tariff and Merit Order Effect. 7 November 2017.

Figure 8: Merit Order Effect

Source: Philippine Electricity Market Corporation, 2018.

Figure 9: Savings Results of the Merit Order Effect with the Feed-in-Tariff



Source: Philippine Electricity Market Corporation, 2018.

Meralco – Big Winner or Damaged Laggard?

Meralco sits at the center of any reforms in the Philippine market. As a result, the two key trends to watch are: (1) The Philippines has high electricity prices due to reliance on imported fossil fuel and uncompetitive market structures that have stifled innovation, and (2) new catalysts for change are coming from legal challenges that validate the government's intention to spur competition in order to reduce electricity prices for consumers and industry. This means more retail competition and the role of grid operators like Meralco may be forced to change in terms of how they procure power in a market where they are barred from passing on fuel price and FX risk to consumers.

"Meralco may be forced to change how they procure power since they are barred from passing on fuel price and FX risk to consumers.

For investors, the best way to monitor the impact of these two trends is to track how Meralco adapts to market pressures. They could emerge as a big winner or a damaged laggard.

Meralco's Power Supply Needs

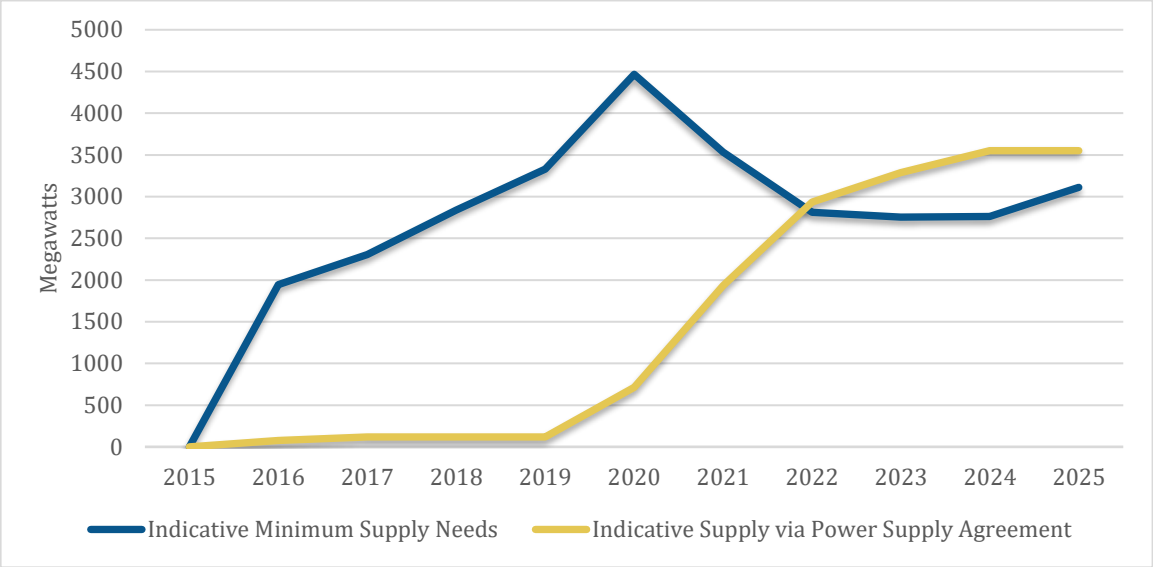
Meralco has vertically integrated across the power sector, dominating the distribution and retail sectors, and is formally entering the generation sector with three coal power plants in its pipeline through subsidiaries. Meralco has sales of 39,583 GWh energy (output) sales, accounting for 75% of the Luzon grid and 55% of the entire country.[25] Meralco serves 25% of the Philippine population in an area from which 50% of Philippine GDP is sourced.

According to Meralco's Power Supply Procurement Plan (PSPP), which is the firm's supply acquisition plan to ensure cost-effectiveness in the delivery of power to consumers and industry, the PSPP was submitted to the Department of Energy to ensure consistency with the Distribution Development Plan (DDP).[26]

The annual average growth rate of demand from 2016 to 2025 is forecast to be 3.72% which leads to indicative supply minimum needs of up to 3,109.55MW by 2025 and a demand for bilateral contracts equivalent to 3,551MW by 2025 (refer to Figure 12). This is the foundation of the ~3.5GW coal procurement plan referred to above. The difference between the indicative minimum supply needs and intended supply purchased from PSAs is 441.5MW, which is likely the minimum reserve to manage peak demand.

[25] Department of Energy. Efforts Towards Supply vs Demand and Disaster Resilience. 8 August 2017.
[26] Department of Energy. Distribution Development Plan 2016-2025. 3 May 2018.

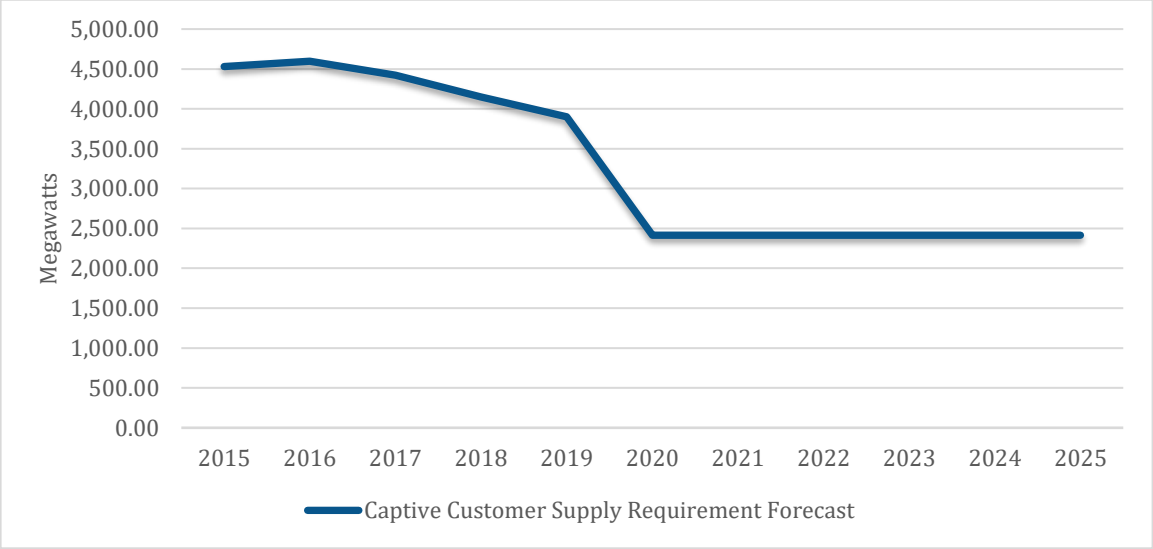
Figure 12: Meralco's Indicative Supply Needs



Source: 2016-2025 Distribution Development Plan, Department of Energy

Meralco's captive customers are effectively their guaranteed customer base because they cannot buy power from an alternative power provider. Contested customers are end-users with freedom of choice to buy from outside the distribution utility. Effectively, due to the implementation of RCOA, there is a risk of losing contested customers. Figure 13 shows a reduction in the captive customer supply requirement forecast from 3.9GW in 2019 to 2.4GW in 2020, remaining flat until 2025.

Figure 13: Meralco's Captive Customer Supply Requirement Forecast



Source: 2016-2025 Distribution Development Plan, Department of Energy, submitted by Meralco.

Figure 14 is a snapshot of Meralco's current captive customers in terms of residential, commercial, industrial and others. As noted in Figure 13, this is expected to decrease with the advancement of retail competition.

Figure 14: Meralco Captive Customers

Customer Classification	Captive Customer Connection	Sales (MWh)
Residential	5,295,458	11,116,664
Commercial	472,322	12,535,211
Industrial	9,570	5,253,633
Others	4,495	188,221
Total	**5,781,845**	**29,093,729**

Source: 2016-2025 Distribution Development Plan, Department of Energy

In late 2018, Meralco president and chief executive officer, Oscar S. Reyes, recognized that energy efficiency is one of the reasons why demand growth for electricity compared to the country's gross domestic product (GDP) is declining.[27] While GDP growth in the Philippines is above 6%, Meralco's electricity demand growth rate is 3.72%. For investors and developers, it is important to assess the further impacts of energy efficiency on the demand of captive customers. Moreover, in response to the Retail Competition and Open Access (RCOA), which breaks geographical monopolies by allowing retail competition in electricity to a contestable market composed of medium to big-ticket electricity consumers, Meralco has created its own local retail electricity supplier unit, MPower, that will allow it to sell power to retail customers both within and outside their franchise area.

In other words, large consumers with demand of 1MW per month and above for the first phase, and 750-999kW per month for the second phase, can buy power from suppliers outside of their local franchise area. This is attractive for commercial and industrial ratepayers who are looking to reduce electricity costs. Procuring lower cost alternatives such as renewable energy can also be blended with other supply and can offer firmer prices. The number of contestable customers is projected to grow as the RCOA policy is implemented. Figure 15 highlights that MPower is currently serving 7,526,041 MWh per annum outside the utility company-provided power supply.

Figure 15: Contestable Customers and System Loss

Customers Served by Retail Energy Supplier (RES)	360
Sales for Customers Served by RES	7,526,041 MWh
System Loss	2,534,635 MWh (6.47%)

Source: 2016-2025 Distribution Development Plan, Department of Energy

This trend can accelerate as the minimum power use threshold per month is reduced. As a result, investors will need to develop new scenarios to ensure

[27] Business World. Meralco expects electricity demand to ease in 2019. 26 November 2018.

their debt costs are recoverable in the event that there are more contestable customers and thus a reduction in demand for power from the utility company.

What's Next for Investors?

Meralco, other distribution utilities and power asset investors may have already realized that the energy transition inflection point has been reached in the Philippines market and renewable energy is already competitive enough to occupy a rising share of demand growth. With falling costs of storage and low-cost gas, this may now accelerate more rapidly.

The 3.5GW coal pipeline secured by Meralco is partially financed, and some projects now need to seek additional funding due to increasing costs. The total estimated cost of these projects is equivalent to PHP630 billion (US$12.6 billion) for 3.5GW. However, due to the Supreme Court decision that effectively cancels all PSAs after 7 November 2015, Meralco has withdrawn the PSAs. In August 2019, Meralco issued three procurement requests to source 2.9GW of generation capacity through auction using a two-part electricity tariff composed of fixed and variable elements with a minimum of 200MW per bid with "high efficiency, low emission technology." The procurement types are as follows:

1. 1.2 GW for 10 years with existing assets.
2. 500MW for 5 years for mid-merit (between baseload and peak generation) by December 2019.
3. 1.2GW capacity auction should be in operation by 2024.

This is a clear signal that Meralco has changed its procurement style to better manage the risk profile of coal plants; specifically, open-ended imported fuel commitments that carry ongoing foreign currency and commodity price repercussions—all of which can result in heightened stranded asset risk.[28] However, it is important that the variable element is limited so that consumers are not left with a risk they cannot manage.

"Meralco is changing its procurement style to better manage the risk profile of coal plants.

Since the first half of 2018, lithium-ion battery prices have fallen by 35%, offshore wind prices by 24%, onshore wind prices by 10% and photovoltaic solar by 18%. This cost-competitiveness means batteries and gas co-located with solar or wind projects are competing (without subsidy) with coal plants

[28] IEEFA. Carving out Coal in the Philippines: Stranded Coal Plant Assets and the Energy Transition. 12 October 2017.

for 'dispatchable power' – meaning deliverable whenever the grid needs it. Considering the implication of falling prices for renewable energy, storage and gas, it is likely that these technologies will generate winning bids, assuming Meralco has used its procurement guidelines to better manage its risk profile.

What's Next for the Philippines and China?

The Philippines is currently seeing a shift in the national discourse on investment opportunities and understanding the risks posed by imported fossil fuels. During the 4th State of the Nation Address in July 2019, President Rodrigo Duterte stated: "I trust Secretary Cusi shall fast-track the development of renewable energy sources and reduce dependence on traditional energy sources, such as coal." Moreover, the Securities and Exchange Commission is looking at driving more investment in the Philippines.
Commissioner Ephyro Luis Amatong has stated that "providing investors with a new lens with which to view the Philippines – as a sustainable investment destination – is an opportunity that must be seized." On the risk side, we see the view of the Bangko Sentral ng Pilipinas, the central bank, as highlighted by the Managing Director of Policy and Specialized Supervision Sub-Sector, Lyn Javier, "this transition will require a reallocation of capital and may result in stranded assets."

Given the shifts in understanding and market dynamics, it is important for China and the Philippines, together, to understand the size and nature of their future coal and other fossil fuel assets and obligations that are exposed to stranded asset risk. By identifying these risks beforehand so they do not negatively impact China's or the Philippines' balance sheets at an early stage means that both countries can mitigate these risks early on rather than waiting and dealing with the consequences.

Appendix 1

Power Supply Agreement Prices for the Meralco Pipeline

Plant	Redondo Peninsula energy Inc. (RPEI)			
Year	2021			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	14,913.2468		225,000	3,355,480,530.00
B. Fixed O&M Payment (MFOM)				
US Dollar Portion (USD/kW-yr)	19.2828	1.000000	225,000	199,880,684.10
Peso Portion (PHP/kW-yr)	1,870.1836	1.000000	225,000	420,791,310.00
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.022		1,576,800,000	1,595,887,404.73
D. Variable O&M Payment (MVOM)				
Peso Portion (Php/kWh)	0.1572	1.000000	1,576,800,000	247,872,960.00
E. Excess Energy Payment (MEEP)				
Peso Portion (Php/kWh)	-			
F. Interconnection Facilities Payment (MIFP)				
Capital Recovery (Php/kW-yr)	403.4155		225,000	90,768,487.50
Fixed O&M (Php/kW-yr)	174.6456	1.000000	225,000	39,295,260.00
G. Reimbursable Cost Payment (RCP)				
Real Property Tax				1,854,823.00
Lease Fees				75,000,000.00
Start-Up and Shutdown Costs				
Supplemental Payments				38,473,920.00
Commissioning Energy Charges				
Replacement Power				
Total Payment				6,065,305,379.33
Effective Rate at Plant Gate				3.8466

Plant	Atimonan One Energy (A1E)			
Year	2021			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	14,486.0000		1,200,000	17,383,200,000.00
B. Fixed O&M Payment (MFOM)				
US Dollar Portion (USD/kW-yr)	30.3644	1.000000	1,200,000	1,678,665,489.60
Peso Portion (PHP/kW-yr)	1,594.3749	1.000000	1,200,000	1,913,249,880.00
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.0207		8,409,600,000	8,011,098,700.79
D. Variable O&M Payment (MVOM)				
Peso Portion (Php/kWh)	0.1114	1.000000	8,409,600,000	936,829,440.00
E. Excess Energy Payment (MEEP)				
Peso Portion (Php/kWh)	-			
F. Interconnection Facilities Payment (MIFP)				
Capital Recovery (Php/kW-yr)	204.0530		1,200,000	244,863,600.00
Fixed O&M (Php/kW-yr)	10.5123	1.000000	1,200,000	12,614,760.00
G. Reimbursable Cost Payment (RCP)				1,428,791,040.00
Total Payment				31,609,312,910.39
Effective Rate at Plant Gate				3.7587

Plant	St. Raphael Power Generation Corp. (SRPGC)			
Year	2021			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	14,984.0250		400,000	5,993,610,000.00
B. Fixed O&M Payment (MFOM)				
US Dollar Portion (USD/kW-yr)	34.137	1.000000	400,000	629,076,636.00
Peso Portion (PHP/kW-yr)	967.8230	1.000000	400,000	387,129,200.00
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.9999		2,803,200,000	2,803,010,234.20
D. Variable O&M Payment (MVOM)				
Peso Portion (Php/kWh)	0.0995	1.000000	2,803,200,000	278,918,400.00
E. Reimbursable Cost Payment (RCP)				
Real Property Tax				293,278,000.00
Lease Fees				
Start-Up and Shutdown Costs				
Supplemental Payments				140,713,210.00
Total Payment				10,525,735,680.20
Effective Rate at Plant Gate				3.7549

Plant	Global Luzon Energy (GLEDC)			
Year	2023			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	14,161.1520		600,000	8,496,691,200.00
B. Fixed O&M Payment (MFOM)				
US Dollar Portion (USD/kW-yr)	40.7040	1.000000	600,000	1,125,139,968.00
Peso Portion (PHP/kW-yr)	1,797.8880	1.000000	600,000	1,078,732,800.00
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.0225		4,204,800,000	4,360,915,141.63
D. Excess Energy Payment (MEEP)				
Peso Portion (Php/kWh)				
E. Replacement Energy (REP)				
Peso Portion (Php/kWh)				
F. Commissioning Energy Charge (CEC)				
Peso Portion (Php/kWh)				
Total Payment				15,061,479,109.63
Effective Rate at Plant Gate				3.5820

Plant	Mariveles Power Generation Corp. (MPGC)			
Year	2021			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	1,022.8652		528,000	6,304,789,497.60
B. Fixed O&M Payment (MFOM)				
Peso Portion (PHP/kW-yr)	238.1533	1.000000	528,000	1,508,939,308.80
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.0246		3,700,224,000	4,190,005,919.45
D. Variable O&M Payment (MVOMP)				
Peso Portion (Php/kWh)	0.2702		3,700,224,000	1,014,711,766.02
E. Other Payments				
Replacement Energy Payment (REP)				
Start-Up Charge Payment (SCP)				
Supplemental Payment (SP)				4,625,280.00
VAT Payment (VAT)				
Total Payment				13,023,071,771.87
Effective Rate at Plant Gate				3.5195

Plant	Central Luzon Premiere Power Corp. (CLPPC)			
Year	2023			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	1,022.8652		528,000	6,304,789,497.60
B. Fixed O&M Payment (MFOM)				
Peso Portion (PHP/kW-yr)	238.1533	1.000000	528,000	1,508,939,308.80
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.0246		3,700,224,000	4,190,005,919.45
D. Variable O&M Payment (MVOM)				
Peso Portion (Php/kWh)	0.2702		3,700,224,000	1,014,711,766.02
E. Other Payments				
Replacement Energy Payment (REP)				
Start-Up Charge Payment (SCP)				
Supplemental Payments (SP)				4,625,280.00
VAT Payment (VAT)				
Total Payment				13,023,071,771.87
Effective Rate at Plant Gate				3.5195

Plant	Panay Energy Developemt Corp. (PEDC)			
Year	2023			
Billing Component	Base Rate	CPI Adj Factor	Billing Determinant	Amount in Php
A. Capacity Payment (MCP)				
Peso Portion (Php/kW-yr)	12,431.0835		70,000	870,175,845.00
B. Fixed O&M Payment (MFOM)				
US Dollar Portion Escalating (USD/kW-yr)	28.9021	1.000000	70,000	93,206,382.29
Peso Portion Escalating (PHP/kW-yr)	2,821.9067	1.000000	70,000	197,533,469.00
C. Fuel Payment (MFP)				
US Dollar Portion (USD/kWh)	0.0269		490,560,000	607,801,780.31
D. Variable O&M Payment (MVOM)				
Peso Portion (Php/kWh)	0.0025	1.000000	490,560,000	56,500,248.00
E. Replacement Energy Payment (REP)				
Peso Portion (Php/kWh)				
F. Line Rental Adjustment (LR)				
Peso Portion (Php/kWh)				
Total Payment				1,825,217,724.60
Effective Rate at Plant Gate				3.7207

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