Energy & Transport

CREST Center for Renewable Energy and Sustainable Technology

Zero Carbon Analytics

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Increasing gas imports will raise electricity prices in the Philippines

Key points:

- According to the Philippine government's energy plans, LNG imports will rise 508% between 2025 and 2029 as the domestic gas supply dwindles – a six-fold increase.
- LNG imports will cost an estimated USD 3.9 billion (PHP 218 billion) from 2025 to 2029, approximately USD 841 million (PHP 47 billion) more than domestic gas would cost over the same period.
- The LNG import facilities set to begin operating between 2025 and 2029 will cost approximately USD 1.5 billion (PHP 83.7 billion) to build, bringing the total estimated cost of meeting gas demand over the period to USD 5.4 billion (PHP 301.5 billion).
- Costly LNG imports and expensive new facilities could raise generation costs by 11%–24%, pushing up electricity bills for households and industrial consumers.
- The cost of renewables, such as solar and onshore wind, is falling below that of gas in the Philippines. Relying on renewables for power would likely result in cheaper electricity than imported LNG.
- The Philippines has enough renewable energy potential to meet its future electricity demand.
- Shifting to renewable power is a vital step towards decarbonisation, as energy accounts for almost 60% of the Philippines' emissions.

The Philippines plans to increase gas imports as domestic supply wanes

The only domestic source of gas in the Philippines is the Malampaya gas field, located offshore the Island of Palawan in the western Philippines. The country's Department of Energy predicted that the field's supply would run out in 2024, while other sources say it could deplete by 2027. The country has no other operational gas fields, and there is a risk that all 10 GW of existing and upcoming gas plants in the Philippines will have to run entirely on imported gas as of 2025.

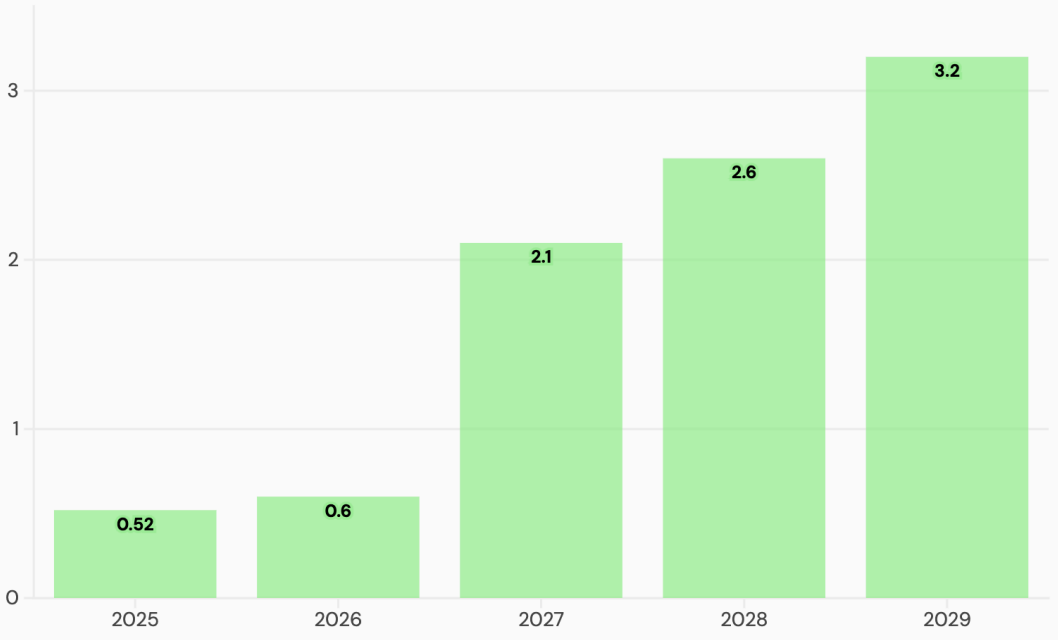
Despite this, the government's 2023 Philippines Energy Plan (PEP) foresees that the share of gas in electricity generation will rise from 16% in 2022 to 24% in 2040, and nearly 35% in 2050.

The planned growth in gas use will partially rely on imports of liquified natural gas (LNG), a type of gas that is cooled into liquid form for easy transport, to compensate for the waning domestic supply. According to the PEP's reference scenario, LNG imports are forecast to rise 508% between 2025 and 2029 – a six-fold increase (see figure 1).[1]

[1] Zero Carbon Analytics analysis, Philippines Department of Energy (2023), Philippine Energy Plan 2023 – 2050 Volume I, available via Department of Energy, accessed on June 4 2025.

Fig. 1. LNG imports in the Philippines set to increase six-fold between 2025 and 2029

Million tons per annum (mtpa)



Source: Philippines Energy Plan, BP • The figures above reflect the net imported gas figures from the PEP's reference scenario. The original figures for gas imports in the PEP were in million tons of oil equivalent (MTOE) which were converted to million tons per annum (mtpa), using BP's approximate conversion factors.

Relying on imported gas will be expensive for the Philippines

Our calculations find that annual LNG import costs are set to triple in the Philippines between 2025 and 2029, from USD 348.2 million to USD 1.12 billion per year (see Figure 2).

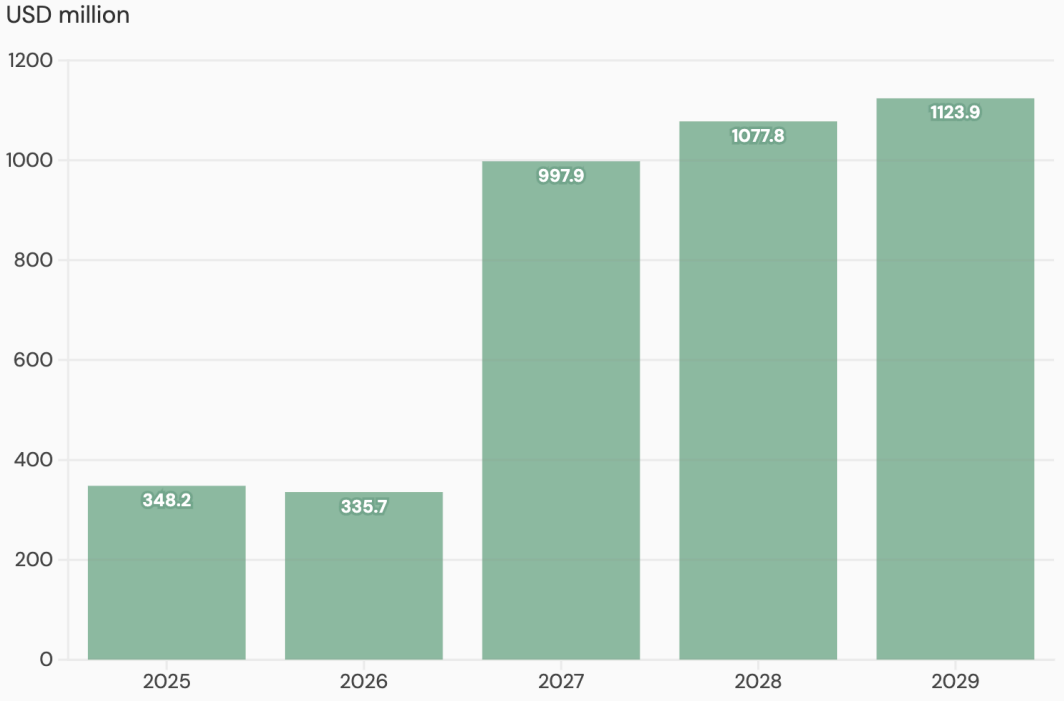
LNG imports will cost an estimated USD 3.9 billion (PHP 218 billion) in total over the period,[2] approximately USD 841 million (PHP 47 billion) more than domestic gas.[3] As an annual average, imported LNG will cost 46% more per year than domestic gas.[4]

[2] Zero Carbon Analytics analysis of Bloomberg JKM data (LNG Japan/Korea Marker (JKM) prices – the prices of LNG delivered to Japan, Korea, Taiwan and China). We used the futures prices as a proxy for forecasted spot prices.

[3] Zero Carbon Analytics analysis, Ateneo Center for Economic Research and Development (2023), The cost structure of electricity in the Philippines and other Asian countries: A Comparative Note, available via Ateneo Center platform, accessed on June 4 2025. This calculation is based on the cost of domestic gas in 2021, which was USD 7.24/MMBtu.

[4] Zero Carbon Analytics analysis, Ateneo Center for Economic Research and Development (2023), The cost structure of electricity in the Philippines and other Asian countries: A Comparative Note, available via Ateneo Center platform, accessed on June 4 2025.

Fig. 2. LNG import costs in the Philippines set to triple between 2025 and 2029



Source: Zero Carbon Analytics analysis, Philippines Energy Plan, Bloomberg • These figures were calculated by multiplying the amount of gas imports per year with the average LNG Japan/Korea Marker (JKM) prices from Bloomberg Terminal. LNG import costs refer to the cost of LNG imports excluding production costs.

Global LNG prices are predicted to settle at USD 14 to 15 million British thermal units (MMBtu) in 2025, having fallen from record levels since 2022.

However, LNG prices have historically been volatile in Asia. After Russia's invasion of Ukraine in 2022, spot LNG prices in Asian markets averaged USD 34 MMBtu, more than double the average of the previous year. This contributed to countries including Bangladesh and Pakistan facing blackouts, as they could not afford to buy enough LNG to meet energy demand. Between 2021 and 2023, monthly LNG prices were three times higher than those of coal on average.

LNG imports have been expensive for the Philippines in the past. According to the Institute for Energy Economics and Financial Analysis (IEEFA), the Philippines' first two LNG shipments cost nearly USD 90 million (PHP 5.1 billion) in 2023.

New LNG import facilities will cost billions

The country is also planning to build new LNG import facilities that could bring in 21 million tons per annum (mtpa) of LNG – nearly half of Southeast Asia's total planned import capacity. Five LNG import terminals are in development as of June 2025, and two started operating in 2023.[5]

[5] While Independent Commodity Intelligence Services (ICIS) states that four terminals are in development, according to Offshore Energy, FirstGen is also developing an onshore terminal in Batangas as an addition to its FirstGen Batangas FSRU, which is seen as an interim solution.

Building the facilities needed for this new LNG supply will cost billions of dollars. Our calculations find the total estimated construction cost for upcoming terminals is approximately USD 1.5 billion (PHP 83.7 billion).[6] This does not include shipping costs, the operating costs of the terminals, pipeline transportation costs, the cost of LNG-fired power plants – or the cost of the fuel itself.

Many terminals in the Philippines are floating storage and regasification units (FSRU), which are floating tanks that can hold LNG and convert it back to gas. While FSRUs have cheaper upfront construction costs than terminals built on land, they cost more to run, as charter rates can range from USD 80 thousand to 120 thousand per day.

While domestic gas would be cheaper than LNG imports, developing new gas fields is time-intensive and still expensive. Estimates vary, but sources state that it can take between 5 and 15 years to develop a gas field, including exploration, evaluating supply and construction. Drilling a well that has oil and gas reserves can cost between USD 3 to 7 million, while exploring a site and finding it is not suitable for extracting oil and gas can cost USD 5 to 20 million. Sourcing gas that is further offshore can increase prices, which may be the case for the Philippines as it looks to explore gas in the South China Sea.

According to IEEFA, domestic gas prices are tied to international oil prices, which would still leave the country exposed to volatility in global markets.

Plus, the cost of abating or offsetting gas-related emissions from production, transport, and use could increase with time, as the government is considering developing a carbon tax and has announced that it is working with the World Bank on a carbon pricing strategy.

Costly gas imports will raise generation costs and electricity bills

Generation costs, or the costs of producing electricity, increase when more expensive fuels are used. Our calculations show that the increased cost of gas from LNG imports will cause generation costs to rise between 11% and 24% between 2025 and 2029.[7,8]

The increasing costs of generating electricity from gas will likely be passed on to consumers. The generation charge on consumers' electricity bills is calculated by finding the weighted average of the utility's power generation sources, such as coal, oil, gas and renewables. If the price of gas rises, it will push up the final generation charge.

Generation costs can already account for over half of the price of electricity in the Philippines. According to Meralco documents, generation costs comprised an average of 56% of electricity bills for non-lifeline consumers – those who do not qualify for a subsidised rate for low-income households – in April 2025.

Furthermore, the Department of Energy mandated in 2023 that all distribution utilities in Luzon, the country's largest and most populous island, source a certain proportion of their power from gas-fired generation facilities. Obliging utilities to rely on increasingly costly

[6] Zero Carbon Analytics analysis of multiple government and corporation sources. This is an approximate figure. Details of calculations and full source list can be found in Annex 1.
[7] Zero Carbon Analytics analysis, Lazard (2024), Lazard LCOE, available via Lazard platform, accessed on June 20 2025.
[8] This is likely a conservative estimate, based on analysis that assumes that fuel costs account for between 24% and 51% of the LCOE in gas power generation. In reality, aggregate fuel costs comprised about 93% of generation costs for Meralco, one of the Philippine's major utilities, in 2018.

gas prevents companies from seeking cheaper alternatives and increases the likelihood of generation charges on bills rising.

The industrial sector is likely to see lower final electricity prices than consumers, as is already the case. Industrial consumers with high electricity demands connect directly to high-voltage lines, avoiding the cost of the low-voltage distribution lines that typically carry electricity from transformers to customers' electricity meters. Industrial consumers in Luzon are also charged less for generation costs compared to consumers.

The Philippines is already impacted by high electricity prices

The Philippines has some of the highest electricity prices in Asia, having the third-highest average electricity price in the region from 2023 to 2025, behind Singapore and Japan. It also ranked third in the region for industrial electricity rates in December 2021, again behind Japan and Singapore.

In 2024, gas-fired power only accounted for 14% of Philippine electricity generation, and 30% of Luzon's, pointing to other factors behind the high prices. These include:

- High reliance on other imported fossil fuels like coal and diesel for generation
- Inefficient coal plants and delays in building new power plants.
- Fragmented grid infrastructure with issues integrating renewables. The fact that the country is spread out over 7,000 islands makes transmission expensive.
- A lack of government subsidies for electricity generation.
- The depreciation of the Philippine peso against the dollar – 98% of long-term agreements with independent power producers are bought and sold in dollars.
- Limited competition in the generation market.
- Policies that allow generation companies to directly pass on fuel costs and foreign exchange rate fluctuations to consumers. Generation costs are also passed to consumers under a formula set by the Energy Regulatory Commission, which regulates the electricity industry.

Limited power distribution to rural areas and reliance on diesel generators means that Filipinos living in these regions face higher electricity prices. This, combined with overall high electricity prices, makes affording electricity challenging for low-income households and may lead to households not being able to meet basic electricity needs. In one study, more than 80% of surveyed households relied on other sources of energy apart from electricity for cooking, lighting, and other services.

High electricity prices have knock-on effects on industrialisation and development:

- High electricity prices can cause early deindustrialisation, as the country switches from less power-intensive sectors and more labor-intensive ones. This pattern has been seen in the past: Between 1984 and 2001, when electricity prices were high, machinery and other subsectors with low electricity costs grew fastest, while power-intensive subsectors, such as textiles and chemicals, grew more slowly.
- Increasing electricity prices can decrease the productivity and profits of small to medium-sized enterprises (SMEs), which contribute around 40% of the country's GDP. High power prices limit the competitiveness of SMEs in the Philippines.
- Expensive electricity could impact foreign direct investment (FDI), which has remained relatively low in the Philippines compared to neighboring countries. Anecdotal accounts show that foreign business leaders have been hesitant to invest in the country due to high electricity prices.

Renewables are a cheaper and cleaner option than gas for the Philippines

Modeling shows that an energy system in the Philippines powered by 100% renewables could be more cost-competitive than the current fossil fuel-based system, which will reduce the future cost of electricity.

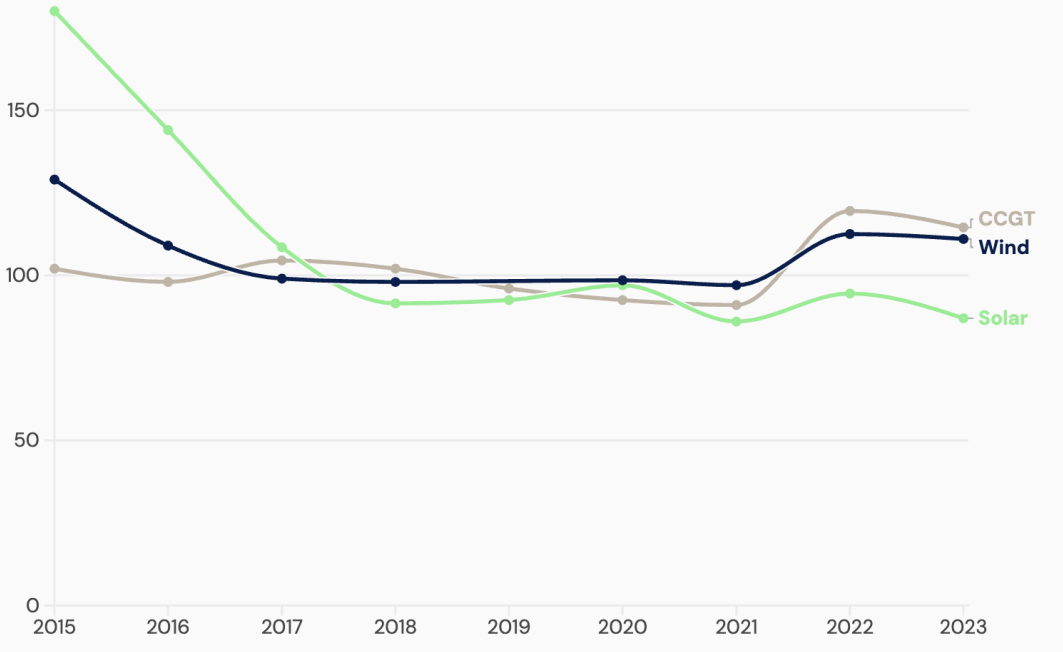
Solar and onshore wind have become cheaper than gas in the Philippines in recent years, both in terms of upfront costs and generation. Initial costs for solar PV and offshore wind in the Philippines are expected to fall by approximately 40% and 30%, respectively, by 2040, whereas the upfront costs of gas will fall by less than 10%. Globally, 81% of new renewables projects were cheaper than fossil-powered alternatives in 2023.

BNEF data shows the levelised cost of electricity (LCOE), which measures the average cost of generating electricity over an energy project's lifetime, for solar and onshore wind has fallen below that of gas in the Philippines.[9] In 2023, the LCOE of solar power was USD 87/MWh, and USD 111/MWh for onshore wind, while the LCOE of combined cycle gas turbines (CCGT) was USD 114.5/MWh (see figure 3).

The LCOE of solar has fallen thanks in part to lower solar module costs and increased competition. Both the LCOE and installation costs of renewables, especially solar, are projected to continue to decrease until 2030 due to economies of scale.

Fig 3. LCOE of solar, wind and combined cycle gas turbines (CCGT) in the Philippines from 2015 to 2023

USD/MWh



Source: Zero Carbon Analytics analysis, BloombergNEF's Historical LCOE Viewer • LCOE refers to levelised cost of energy, or the average cost of generating electricity over an energy project's lifetime. The figures for each year are the average of prices from the first and second half of the year. CCGT refers to combined cycle gas turbines.

[9] Zero Carbon Analytics analysis, BNEF (2025), LCOE Data Viewer, available via BNEF platform, accessed June 5 2025.

Renewables will likely lead to cheaper electricity

Renewables' falling costs have already resulted in high savings for the Philippines. The country saved approximately USD 78 million by relying on solar in 2022, even though solar represented just 1.7% of power generation.

Using cost-competitive fuels like solar and wind, alongside energy storage, can help achieve cheaper electricity prices. As deploying renewables gets cheaper, the LCOE of the power system declines and average electricity prices will fall, as LCOE reflects the "core overall cost of electricity". Unlike fossil fuels, renewables do not have ongoing fuel costs – once the technology is installed, you do not have to pay for sun or wind.

While feed-in tariffs make up a small portion of consumers' electricity bills, such policies can lead to a larger supply of cheaper electricity sources in the long run. Renewables have previously cut wholesale power prices by 30%, as feed-in tariff policies for renewables, which guarantee renewable energy producers a fixed price for their electricity above the market rate, reduced electricity rates for both industry and consumers.[10] The implementation of feed-in tariff policies also led to over 1400 MW of new installed capacity for renewables in the Philippines between 2014 and 2021.

One study found that consumers enrolled in the Green Energy Option Program (GEOP) who volunteered to buy their electricity directly from renewable power plants saved a total of PHP 71.7 million (approximately USD 1.24 million) since 2021.

The Philippines can meet its power needs with renewables

As well as being cheaper, renewables can help the Philippines meet future energy demand. The country could generate almost 3500 TWh of renewable power annually – enough to meet future electricity demand and phase out fossil fuels.

Past growth in renewables has been slow, but there has been a steady increase in recent years. The Philippines saw a rise in renewable capacity between 2018 and 2023,[11] thanks in part to feed-in tariffs, a Green Energy Auction program expected to increase private financing and reduce costs through competitive bidding, and a Renewable Portfolio Standard, which requires electricity suppliers to source some of their energy supply from renewables.

Current government policies indicate that renewables will generate more electricity in the next few years. Even the PEP's reference scenario forecasts that, despite growing shares of gas, solar and wind will account for an estimated 19.7% of electricity generation in 2030. By 2040, this share will increase to 34.6%, and by 2050 solar and wind will take up more than a third of the generation mix. If the government achieves the targets in its clean energy scenario, the share of gas will fall to 14.9% and that of solar and wind will increase to 40.4% by 2040.

Small-scale renewables infrastructure is also ideal for those living in more remote areas in the Philippines, helping to meet the power demand of smaller rural communities.

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[10] Specifically, in the Philippines, Wholesale Electricity Spot Market (WESM) prices would have been PHP 5.02 per kWh if there were no renewable plants eligible for feed-in tariffs in the system. As such plants were available, the wholesale price became PHP 3.55 per kWh, meaning that the feed-in tariff for renewables reduced wholesale prices by PHP 1.47 per kWh, equivalent to 30%. This led to savings of approximately PHP 44.3 billion, or USD 2.1 billion.

[11] Zero Carbon Analytics analysis, International Renewable Energy Agency (2024), Renewable capacity statistics 2024, available via IRENA platform, accessed June 4 2025.

Decarbonisation is an added benefit of renewables

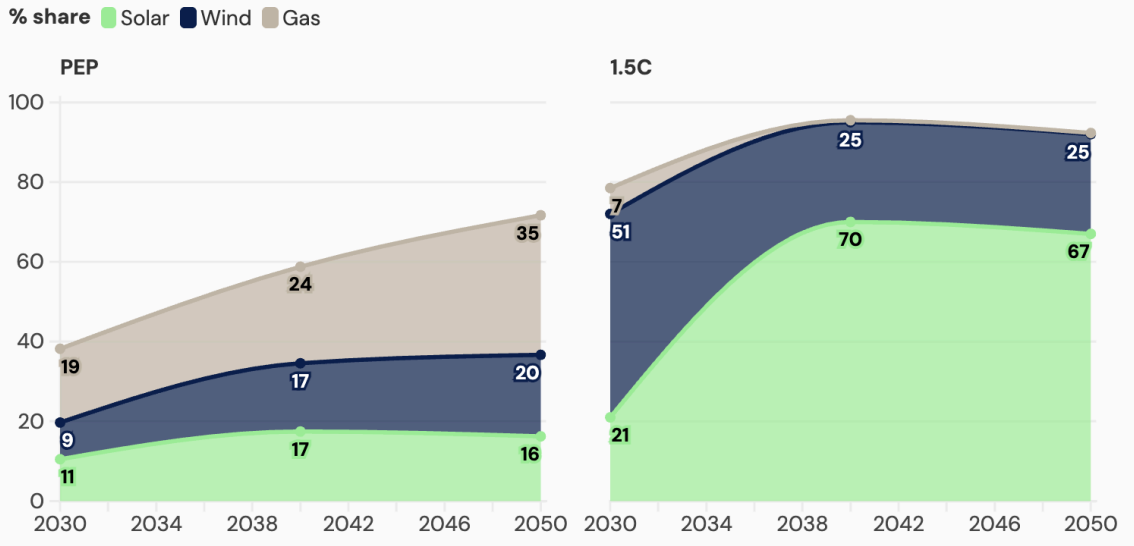
Increasing solar and wind generation in the Philippines is a critical step towards decarbonisation. The energy sector is the country's biggest source of emissions, producing 59% of its total emissions in 2022.

While some governments label LNG a "transition fuel" – a step on the path to decarbonisation – LNG is actually highly polluting. LNG is mainly composed of methane, which traps 80 times more heat than CO2 emissions over the first 20 years. One study estimates that LNG could produce 33% more greenhouse gas emissions than coal.

Aligning with a 1.5°C scenario will require a much larger share of renewables and a much smaller share of gas in the generation mix than is set out in current plans. According to Climate Analytics, wind and solar must generate 72% of the Philippines' electricity by 2030 and 93% by 2050, compared to the 36.7% share from solar and wind by 2050 foreseen in the PEP reference scenario (see Figure 4).

Gas would need to be almost completely phased out by 2040 in a 1.5°C-aligned scenario, decreasing from 6.5% to below 1% of the generation mix between 2030 and 2040. In other words, both domestic and imported gas must be phased out in the Philippines by 2040 for the country to be in line with 1.5°C.

Fig 4. Solar, wind and gas in the Philippines Energy Plan vs. a 1.5C-aligned scenario



Source: Philippines Energy Plan, Climate Analytics • Climate Analytics says the share of gas is below 1% between 2030 and 2040, and below 0.4% until 2050. The figures on the graph are approximate.
For the 1.5C graph, while the share of wind seems to drop in 2040, this may be due to the total amount of electricity generated increasing over time, not an actual drop in wind generation.

Long-term demand for gas in the Philippines is uncertain

Growth in renewables means long-term demand for LNG is uncertain. Meralco's power supply procurement plans show that less power is required than the 10.9 GW planned in the current LNG-to-power pipeline, and other major utilities do not have plans to procure big volumes of fossil fuel baseload power by 2030.

If governments meet all their climate pledges, gas demand in Southeast Asia is projected to peak in 2035 and decline almost 40% between 2035 and 2050.[12] In that scenario, renewables would supply nearly 90% of Southeast Asia's electricity by 2050. Even according to current and developing policies, renewables are set to supply over half of Southeast Asia's electricity by 2050.[13]

Renewables are an opportunity for the Philippine government

As more gas imports are likely to increase electricity prices, the Philippines government should aim to lessen its reliance on LNG and instead increase the share of renewables in electricity generation. As well as lowering costs for consumers, shifting to renewables could boost energy security by decreasing dependence on a fuel that has historically seen insecure supply and volatile prices, support energy access in rural areas, and help to decarbonise the Philippine economy.

To address high electricity prices in the Philippines, experts say that power producers should be free to use the most cost-competitive fuel sources, such as renewables, in line with distribution utilities' legal mandate to source power that costs the least for consumers. Fossil fuels used in generation could be subject to pollution taxes, incentivising phase-out.

However, renewable energy growth remains slow in the Philippines, with lengthy permitting processes and a feed-in tariff program that remains relatively small. Recent developments are also promoting more gas. The Philippine Natural Gas Industry Development Act, which was signed into law in January 2025, will increase public investments in both domestic and imported gas. As the cost of renewable power falls, the Philippine government should ensure policy support for renewables to avoid being locked-in to costly LNG.

[12] According to the IEA's Announced Pledges Scenario (APS), in which governments meet all of their climate-related announcements on time and in full.
[13] According to the IEA's Stated Policies Scenario (STEPS), which reflects current and developing policies.

Annex I

Our calculations find that the total estimated construction cost for terminals slated to be built between 2025 and 2029 is USD 1.5 billion, or PHP 83.7 billion (see page 3-4). This takes into account that initial costs for facilities are paid when construction is complete.

This is an approximate figure, as public information for two of the planned LNG terminals only revealed figures for the entire LNG project – both the terminal and gas plant. The following sources were used to calculate this figure:

- Department of Environment and Natural Resources (2021), Ilijan LNG Project Environmental and Social Performance Report, accessed on May 27, 2025.
- GEM Wiki (n.d.), FGEN Batangas FSRU, accessed on May 27, 2025.
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