In the past decade, the Philippines has expanded significantly its coal fleet. In the power industry alone, 16 new coal plants and 1 new unit for an existing coal plant started commercial operations adding approximately 4.45 GW of coal capacity. Recent years have also seen a swift rise in proposed fossil gas power projects, currently totalling approximately 8GW. As for the transport sector, oil remains as the dominant fuel, with negligible advancement in the utilization of biofuels and electric vehicles.

Overall, the country has deepened its dependence on fossil fuels, increasing its coal and oil imports and further undermining its energy self-sufficiency. Conversely, the development of renewables has lagged considerably, with decreasing shares for renewables in both energy and power mixes.

Towards the end of the decade, there has been key policy and legal developments in the energy sector and power industry—carbon taxes were increased; seven coal power supply agreements worth 3.5GW were denied; the Department of Environment and Natural Resources (DENR) is being sued in the Supreme Court for being remiss in regulating emissions of coal power plants; all policy mechanisms under the Renewable Energy Law have been issued implementing rules and regulations; and the Department of Energy (DOE) is auctioning off 2GW of renewables generation capacity under a new policy mechanism called Green Energy Tariff Program.

The full impact of these key developments are expected to turn the tide in favor of renewables and to end coal expansion in the energy sector for the new decade. Here are the fast facts.
Since 2000, the Philippines’ coal fleet has been expanding at an alarming rate. With the steepest growth rate among all energy sources, coal supply has more than tripled from 4,624 KTOE to 16,349 KTOE, and coal's share in the total energy supply mix has more than doubled from 12% to 27%.

At 27% of the total energy supply mix, coal is currently the second largest source of energy for the country. In terms of total energy consumption, oil remains as the dominant fuel, especially for the Transport Sector. The Transport Sector has the largest energy consumption among the five economic sectors, 96% of which is fuelled by oil.
There has been negligible advancement in the utilization of biofuels and electric vehicles. This does not come as a surprise since the pioneering Public Utility Vehicle (PUV) Modernization Program of the Department of Transportation (DOTr) was met with heavy criticism.

A few lawmakers have criticized the DOTr for its hodge-podge planning.iii

**Across all economic sectors, only the industry sector consumes coal as its largest and primary fuel.** For the rest of the economic sectors except for the residential sector, electricity is the largest energy source, closely followed by oil. For the commercial sector, 48% of its energy consumption is fueled by oil, mostly diesel, fuel oil, and LPG. The agriculture, forestry, and fishery sector has a low consumption, but 47% of which is likewise fueled by oil. Only the residential sector relies heavily on biomass, most probably used for their cooking needs.

The DOE does not consider electric power as an economic sector. Rather, it is subsumed under the five economic sectors as ‘electricity’. For the purpose of accurately reflecting coal expansion in the Philippines, electricity in all sectors has been consolidated under ‘Electric Power’ and reflected as a separate bar in Figure 4.

In the power industry, coal capacity has increased faster than any other fossil fuel or renewable capacity. Since 2010, 15 new coal plants and 1 new unit of an existing coal plant started commercial operations adding approximately 4.45 GW of coal capacity.

**Currently, coal has the biggest share in the installed capacity of power plants in the country at 38%, or approximately 9.32 GW.** 68% of the country’s total coal capacity is in the Luzon Islands, where majority of the population is likewise located.

Thus, in the past decade, coal expansion was mostly driven by the industry sector and the power industry. For both Industry and Power, coal is currently the largest source of energy. Any further coal expansion will most likely come from the Power Industry. By 2025, should there be no delays or cancellations of all proposed committed coal plants (proposed coal plants that have secured financial closing), the country’s coal capacity will increase to 13.49 GW. **However, it should be noted that since 2018, there has been no construction of new coal power plants.**
*Assuming that all proposed projects (indicative and committed as of July 2019) will push through without delay or cancellation.
More than a decade ago, the Renewable Energy Law was enacted. Among its declared objectives is to accelerate the exploration and development of renewable energy resources to achieve energy self-reliance or self-sufficiency. The rationale is that while the country increases its dependence on fossil fuels, it conversely decreases its energy self-sufficiency due to the increasing need to import oil and coal to meet the country’s increasing fossil fuel demands.

This remains a sound policy a decade later. Despite expanding local extraction and production of coal, our reliance on fossil fuel imports still increased to augment our energy needs.

Domestic coal production has almost doubled in the last decade. 2018 saw the highest recorded coal production at 11,755 MMT, 99% of which were produced from just one coal mining site in Semirara, Antique, and the remaining 1% from coal production in Cebu, Albay, Surigao del Sur, Negros, and small-scale mines.

Despite doubling coal production, there has been no positive consequence to the country’s self-sufficiency since almost half of domestically produced coal, which is considered low-grade, are exported to a handful of nations in Asia. Approximately 97.82% are exported to China, and the remaining to India, Thailand, and Taiwan.

For its domestic consumption, the Philippines imports most of its coal from Indonesia. In 2018, Indonesia imported approximately 89.53% or 23,285 MMT of the country’s total coal imports. Australia, China, Vietnam, Russia, Taiwan, S. Korea, South Africa, Malaysia, and the USA imported the remaining 11.47%.

As for oil imports, there has been a rapid increase over the past decade. Diesel, gasoline, and LPG in particular are among the highest.
The Renewable Energy Law likewise failed to achieve its second objective—to reduce the country’s dependence on fossil fuels and thereby minimizing the country’s exposure to price fluctuations in the international markets. viii

The development of renewables lagged considerably compared to fossil fuels in the past decade. While fossil fuel supply in the total energy mix almost doubled since 2000, renewables barely increased from 18,391 to 19,715 KTOE. In terms of share in the total energy supply mix, renewables decreased even further from 42% to 34%. ix

**FIG 8. FOSSIL FUELS SUPPLY V. RENEWABLES SUPPLY (KTOE), 2000, 2010, 2018**

![Graph showing fossil fuels vs renewables supply]

Traditional renewables remain as the dominant sources of renewable energy for the country, led by geothermal, followed by biomass then hydropower. Although there were significant additional supply from variable renewable energy sources (VRES) such as solar and wind, these were insufficient to overtake traditional renewables in the energy mix. Solar and wind combined comprises less than 1% of the total energy supply mix in 2018.

In the power industry, traditional renewables are likewise still the main renewable source of electricity. In 2019, hydropower has the largest installed capacity among renewables at 3.7 GW, with over 95% of which, or approximately 3.5 GW, comes from large-scale hydroelectric power plants, and the remaining 5% coming from small, mini, and micro hydroelectric power plants. The second largest renewable source of electricity is geothermal at 1.94 GW installed capacity.

Despite still being the dominant source of renewable power, there has been negligible increase in traditional renewable energy power plants in the past decade. In fact, geothermal capacity has even decreased. One of the many reasons is the growing opposition to proposed large-scale hydropower plants and geothermal power plants due to their harmful environmental impacts.

**FIG 9. ENERGY SUPPLY MIX BY FUEL TYPE (KTOE), 2010 V. 2018**

![Energy supply mix chart]

2010

- Coal, 7301, 17.13%
- Natural Gas, 3028, 7.38%
- Oil, 13609, 33.15%
- Geothermal, 8538, 20.80%
- Hydro, 1943, 4.73%
- Biomass, 6679, 16.27%
- Wind, 5, 0.01%
- Biodiesel, 101, 0.25%
- Bioethanol, 114, 0.28%

2018

- Coal, 16349, 27.40%
- Natural Gas, 3601, 6.04%
- Oil, 19994, 33.51%
- Geothermal, 8973, 15.04%
- Hydro, 2336, 3.92%
- Biomass, 7668, 12.85%
- Solar, 107, 0.18%
- Bioethanol, 364, 0.61%

Among the proposed power projects which faced strong opposition in the past decade are the Baroro Hydropower Project in La Union and the Northern Negros Geothermal Power Plant in Negros Occidental.

Meanwhile, there has been a drastic increase in VRES installed capacity. Compared to 2010, solar capacity has increased 89,900% more, from 0.001 GW to 0.9 GW. Wind capacity is 1,203% more than in 2010, from 0.033 GW to 0.43 GW. However, when totaled, VRES still has the lowest installed capacity.
The total VRES projects is still expected to increase exponentially, in light of 5.0 kWh/m2 per day of solar potential, and 76.6 GW of wind potential, over 14 GW of proposed VRES projects as of 2019, and the new Green Energy Tariff Program, which will auction off at least 2 GW of renewable energy capacity to the lowest bidders.

**FIG 10. RENEWABLE INSTALLED CAPACITY IN GW, 2010 V. 2019**

![Diagram showing renewable installed capacity in GW, 2010 vs. 2019](image)

**FIG 11. GENERATING CAPACITY (GW) OF PROPOSED RENEWABLE ENERGY PROJECTS AS OF 2019**

![Diagram showing generating capacity (GW) of proposed renewable energy projects as of 2019](image)

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**RISING FOSSIL GAS**

**Fossil gas is only consumed by the industry sector and power industry among all economic sectors.** For the industry sector, fossil gas is among the fuels with the least energy supply at 59 KTOE. Conversely, fossil gas is a top fuel for the power industry, ranking fourth at 14% next to coal (38%), oil (18%), then hydropower (15%).

Currently, there are 8 existing fossil gas power plants in the country, with a total installed capacity of 3.453 GW. Though construction of new natural gas power plants are declining, the proposed fossil gas power plants (both committed and indicative) are increasing swiftly since 2016, from a total of 2.05 GW in 2016 to 7.77 GW in 2019. Should these projects proceed accordingly, fossil gas capacity may increase by 289% or up to 9.1677 GW. This is expected since some experts have proposed fossil gas as a transition fuel or a viable and attractive option to coal, which has externalities that today mean stranded-asset risk.
Towards the end of the decade, new policy measures to disincentivize fossil fuels and incentivize renewables were put in place, and favorable court rulings in coal litigations. The full impact of these key developments are expected to turn the tide in favor of renewables and to end coal expansion in the energy sector for the new decade.

**Imposing Higher Carbon Taxes**

At the start of 2018, the first package of the Tax Reform for Acceleration and Inclusion (TRAIN) Law came into effect. One of the measures under the law is an increase in carbon taxes, specifically the excise tax on domestic and imported coal, and on petroleum products.

For domestic and imported coal, there will be an increase from PHP 10.00/metric ton to PHP 50.00/metric ton by 1 January 2018, PHP 100.00/metric ton by 1 January 2019, and PHP 150.00/metric ton by 1 January 2020. For petroleum products, excise tax rates vary depending on the product, ranging from as low as PHP 0.05-5.35/liter or kg to PHP 1.00-10.00/liter or kg.

**Table 1. Original and Revised Specific Taxes on Petroleum Products**

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<tr>
<td>Lubricating oils (per liter) and greases (per kg)</td>
<td>Php 4.50</td>
<td>Lubricating oils (per liter) and greases (per kg)</td>
<td>Php 8.00</td>
<td>Php 9.00</td>
<td>Php 10.00</td>
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<td>Processed gas (per liter)</td>
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<td>Waxes and petrolatum (per kg)</td>
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<tr>
<td>Denatured alcohol (per liter)</td>
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<td>Denatured alcohol (per liter)</td>
<td>8.00</td>
<td>9.00</td>
<td>10.00</td>
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<tr>
<td>Naphtha, regular gasoline and other similar products of distillation (per liter)</td>
<td>4.35</td>
<td>Naphtha, regular gasoline, PYROLYSIS GASOLINE and other similar products of distillation and (per liter)</td>
<td>7.00</td>
<td>9.00</td>
<td>10.00</td>
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<td>Leaded premium gasoline (per liter)</td>
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<td>UNLEADED premium gasoline (per liter)</td>
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<td>10.00</td>
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<tr>
<td>Aviation turbo jet fuel (per liter)</td>
<td>3.67</td>
<td>Aviation turbo jet fuel, AVIATION GAS (per liter)</td>
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<tr>
<td>Kerosene (per liter)</td>
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<td>Kerosene (per liter)</td>
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<td>5.00</td>
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<td>Liquefied Petroleum Gas (per liter)</td>
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<td>Asphalt (per kg)</td>
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<tr>
<td>Petroleum coke (per metric ton)</td>
<td></td>
<td>Petroleum coke (per metric ton)</td>
<td>2.50</td>
<td>4.50</td>
<td>6.00</td>
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Many environmental groups supported the increase in carbon taxes, and even pushed for higher excise tax rates, in order to accurately reflect the actual cost of carbon by integrating the cost of the pollution into a fuel’s price. The intention was to disincentivize high-carbon technologies, and to reduce emissions and develop new low-carbon technologies.\textsuperscript{xvii}

However, based on a study conducted by the Philippine Institute for Development Studies on the environmental benefits of TRAIN’s coal and petroleum taxes, \textit{the increase in carbon taxes did not reduce carbon emissions}. In a scenario taking into account carbon taxes, other excise taxes, value added tax broadening, changes in personal income tax, and the unconditional cash transfer, TRAIN made more people poorer, negatively affected productivity of most industries, increased prices of most products, and increased our carbon emissions.

**Strictly Enforcing Competitive Selection Process for Power Supply Agreements**

On July 2019, the Supreme Court ruled with finality that all power supply agreements (PSAs) executed after 30 June 2015 should undergo competitive selection process.\textsuperscript{xviii} The three-year legal battle sprung from interventions of coal-affected communities and environmental groups before the Energy Regulatory Commission, praying for the denial of seven coal PSAs between the Manila Electric Company (MERALCO), the biggest distribution utility in the country, and seven coal generation companies.

![Fig 14. Contract Capacity Under the 7 PSAs vs. 6 PSAs (GW)](image)

The seven PSAs were dubbed as sweetheart deals since they did not go through the mandatory competitive selection process—a bidding process which ensures that a distribution utility buys electricity at least cost from generation companies. Moreover, all seven PSAs were executed between MERALCO and MERALCO subsidiary or affiliated coal companies.

Had the seven PSAs been approved, it would have added 3.5 GW of coal capacity, and locked MERALCO electric consumers into buying costly electricity from coal power plants for the next 20 to 25 years. To meet the demand, MERALCO has since conducted competitive selection process and submitted new six PSAs, this time significantly reducing capacity to be contracted from coal power plants to less than 640 MW only.

All of these PSAs have “carve-out clauses”,\textsuperscript{xx} which allow MERALCO to assign, transfer, and reduce contracted capacity and associated energy to another affiliate or by reason of the enforcement of Retail Competition and Open Access (RCOA), the Renewable Energy Law, other laws and legal requirements.\textsuperscript{xx} A carve-out clause will prevent stranded contract costs for MERALCO and electric consumers, and will possibly further reduce the contracted capacity from coal to be distributed to MERALCO consumers.

As a consequence of the Supreme Court decision, 90 PSAs were also affected and required to undergo competitive selection process.
PENDING LITIGATION AGAINST THE DENR FOR IMPLEMENTING THE PHILIPPINE CLEAN AIR ACT

In 2017, residents from communities where coal power plants operate, together with environmental groups, sued the DENR for being remiss in implementing the Philippine Clean Air Act. Since the enactment of the law in 1999, the DENR has not updated the National Ambient Air Quality Standards and Emission Standards for Stationary Sources, such as coal plants, except for particulate matter (PM). Thus, the petitioners prayed for the court to order DENR to immediately review and update these standards.

The prayers also include an order for DENR to install proper ambient air monitoring equipment, and delineate and designated attainment and non-attainment areas, at least in areas with existing and proposed coal power plants. This case has been elevated to the Supreme Court and is still pending resolution today.

In the meantime, air pollution caused by coal power plants has become a national issue as a new study by Air Visual revealed that the country’s air quality has gotten worse over the years. Average PM2.5 pollution levels in Air Visual sites increased from 14.6 µg/m³ in 2018 to 17.6 µg/m³ in 2019, which are way above the safety limit set by the WHO is 10 µg/m³. In light of this new report, environmental groups have also demanded for a moratorium on all Permits to Operate Air Pollutant Installations, especially for proposed coal power plants until the Ambient Air Quality Guideline Values, and Standards and Emission Standards are updated, and a strict validating system of self-monitoring reports from coal power plants. xxii

FULL IMPLEMENTATION OF THE RENEWABLE ENERGY LAW

In the same 2017 case, the DOE was likewise sued for being remiss in implementing the Renewable Energy Law. At the time, it has been almost a decade since the enactment of the law, and yet there are still policy mechanisms that have not been issued implementing rules and regulations. The Court of Appeals found the DOE remiss in performing its duty under the law, and ordered it to issue rules and regulations for the remaining policy mechanisms within six months.

Since then, all policy mechanisms under the law have been issued implementing rules and regulations. Recent policy mechanisms include Renewable Portfolio Standards and the Green Energy Option. The Renewable Portfolio Standards for both on-grid and off-grid areas is a market-based policy that requires electric power industry participants, including suppliers, to source an agreed portion of their energy supply from eligible renewable energy sources.xxviii Meanwhile, the Green Energy Option is a mechanism to empower end-users to choose renewable energy in meeting their energy requirements. xxvii

At the start of the decade, renewable energy players and electric consumers are expected to receive incentives and benefits from the full effectiveness of all policy mechanisms under the law.

AUCTIONING OFF 2GW OF RENEWABLE CAPACITY

In addition to policy mechanisms under the Renewable Energy Law, the DOE is also adopting a new program called the Green Energy Tariff Program. The program has no implementing rules and regulations yet.

Under the draft rules, a framework is set that will allow the DOE to facilitate the procurement by distribution utilities, retail electricity suppliers, and end-users of electric supply from renewable energy projects through a competitive selection process.xxvii Initially, the DOE will bid out 2 GW of renewable energy capacity to encourage developers to put up RE projects and fast-track the development of cleaner power generation, and to ensure least-cost electricity for consumers. Should the program push through, an additional 2 GW renewable energy capacity will displace electricity which may be contracted from coal.
5 Ibid., page 7
8 Ibid.
9 Ibid.
11 DOE’s List of Committed and Indicative Private Sector Initiated Power Projects in Luzon, Visayas, and Mindanao as of October 2019
13 DOE’s List of Existing Power Plants in the Luzon, Visayas, and Mindanao grids as of June 2019.
14 DOE’s List of Existing Power Plants in the Luzon, Visayas, and Mindanao grids as of June 2019. DOE’s List of Committed and Indicative Private Sector Initiated Power Projects in Luzon, Visayas, and Mindanao as of October 2019
17 Ibid.
20 See Article 8 of the Power Supply Agreements.
22 Department of Energy, Department Circular No. DC2009-05-0008, Rules and Regulations Implementing Republic Act No. 9513, (bbb)
23 Ibid., Sec. 3(v).