FINDING AN OFT-FORGOTTEN SOLUTION TO THE PERSISTENT ENERGY PROBLEM: AN INTRODUCTION TO THE PHILIPPINE ENERGY EFFICIENCY AND CONSERVATION LAW*

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ABSTRACT

Known for its susceptibility to power supply crises and for having one of the highest electricity rates in Asia, the Philippines has lagged behind its neighbors in ASEAN and the rest of the world in addressing its energy-related problems over the past three decades. With the passage in 2019 of Republic Act No. 11285, or "the Energy Efficiency and Conservation Law," Congress laid down the groundwork for retrofitting its approach to these problems. However, at a time when public knowledge is not sufficiently equipped to distinguish between energy efficiency and other green alternatives such as renewable energy, this paper seeks to introduce the basic concepts and legal policies involved in the field of energy efficiency and conservation.

> *"Amid leaky buildings and wasteful practices, we discovered that energy was, and is, the lifeblood of our economies and vital to our way of life."*
> —Shirley Hansen, Pierre Langlois and Paolo Bertoldi[1]

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[1] SHIRLEY HANSEN, PIERRE LANGLOIS & PAOLO BERTOLDI, ESCOS AROUND THE WORLD: LESSONS LEARNED IN 49 COUNTRIES 2 (2009).

I. INTRODUCTION

A. An Old, Persistent Energy Problem

The Philippines has one of the most expensive power rates in Asia[2] and the world.[3]

The steep cost of power in the Philippines is due to a number of factors, which include: (a) reliance on imported fuel for power generation; (b) the country's scattered geography; (c) inefficient transmission and distribution systems in some areas; (d) a regulatory framework that contains a complex margin of protection mechanisms for supply and transmission companies; and (e) debt and cost recovery issues for legacy infrastructure.[4] There is also the issue of the country's energy supply being insufficient to meet the country's energy demand.[5]

This demand is only expected to grow. Globally, it is predicted that energy consumption will increase between 30 to 50% over the next 20 years.[6] In the Philippines, some projections expect energy consumption to double between 2009 to 2030, with a yearly increase of 4.79% in average electricity demand until 2030.[7]

Recent experiences, however, show that the country's energy supply may not be ready to meet such demand.

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[2] Lenie Lectura, *Average electricity price in PHL 2nd highest in Asia – think tank*, BUSINESS MIRROR, Aug. 7, 2018, *available at* https://businessmirror.com.ph/2018/08/07/average-electricity-price-in-phl-2nd-highest-in-asia-think-tank/ (last accessed May 30, 2020).

[3] ASIAN DEVELOPMENT BANK [hereinafter "ADB"], THE PHILIPPINE ENERGY EFFICIENCY PROJECT: LIGHTING UP THE PHILIPPINES IN AN EFFICIENT WAY 113 [hereinafter, "ADB Energy Efficiency Project"], *available at* https://events.development.asia/system/files/materials/2015/10/philippine-energy-efficiency-project-lighting%c2%a0-philippines-efficient%c2%a0way.pdf (last accessed May 30, 2020).

[4] *Id.*

[5] *Id.*

[6] Richard Newell, Robert Stavins & Todd Gerarden, *Assessing the Energy-Efficiency Gap*, *in* ADDRESSING THE ENERGY-EFFICIENCY GAP: FACULTY RESEARCH WORKING PAPER SERIES, HARVARD KENNEDY SCHOOL 1 (2015). The paper, written in 2015, projected that growth shall be 30%-50% over the next 25 years.

[7] ADB, *supra* note 3, at 113.

In 2014, the Philippines was rocked with the threat of a looming energy crisis.[8] It was reported that the island group of Luzon was expected to have an energy shortage of between 400 megawatts to 1,000 megawatts from March to May 2015.[9] At worst, this crisis was projected by the Department of Energy (DOE) to cause seven weeks of rotating blackouts during the country's hot summer months in 2015.[10]

The threat of the crisis was so great that then-Philippine President Benigno S. Aquino III sought a congressional grant of emergency powers in order to implement a supply-side solution: the ability to contract additional generating capacity of around 600 megawatts,[11] reportedly expected to be met by diesel generators.[12] Ultimately, however, the 16th Congress did not grant such emergency powers.[13] Instead, the problem was addressed through an Interruptible Load Program through which customers with large loads like commercial establishments were encouraged to run their own generator sets instead of drawing power from the grid.[14]

While such measures appeared to have averted an energy crisis, this incident only revealed a symptom of a greater problem. As noted by Alexander Ablaza, the President of the Philippine Energy Efficiency Alliance:

> [T]he Philippines has been among the countries in the Asian region visited by cycles of energy crisis–from the oil embargo of

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[8] Trefor Moss, *Philippines Power Crisis: The Battle to Keep the Lights On*, THE WALL STREET J., *available at* https://www.wsj.com/articles/philippines-power-crisis-the-battle-to-keep-the-lights-on-1410989402 (last modified Sept. 17, 2014).

[9] Christian V. Esguerra, *Aquino wants emergency powers to solve power crisis,* INQUIRER, Sept. 12, 2014, *available at* https://newsinfo.inquirer.net/637309/aquino-wants-emergency-powers-to-solve-power-crisis (last accessed May 30, 2020).

[10] *DOE warns of 7-week rotating brownout in 2015,* RAPPLER, Sept. 25, 2014, *available at* https://www.rappler.com/business/industries/173-power-and-energy/70176-rotating-brownout-2015 (last accessed May 30, 2020).

[11] Esguerra, *supra* note 9.

[12] *Supply shortages lead to rolling power outages in the Philippines*, U.S. ENERGY INFORMATION ADMINISTRATION [hereinafter "EIA"], Mar. 6, 2015, *available at* https://www.eia.gov/todayinenergy/detail.php?id=20252 (last accessed May 30, 2020).

[13] *See Congress adjourns, no additional powers for Aquino*, RAPPLER, Sept. 27, 2014, *available at* https://www.rappler.com/business/industries/173-power-and-energy/70309-congress-adjourns-no-emergency-powers (last accessed May 30, 2020); *see also* Trinity Audio, *Sen. Santiago says emergency powers won't solve energy issue,* GMA NEWS ONLINE, Feb. 23, 2015, *available at* https://www.gmanetwork.com/news/money/companies/441938/sen-santiago-says-emergency-powers-won-t-solve-energy-issues/story/ (last accessed May 30, 2020).

[14] *ILP Rules amended to include more participants*, RAPPLER, Mar. 18, 2015, *available at* https://www.rappler.com/business/industries/173-power-and-energy/87263-ilp-rules-amended (last accessed May 30, 2020).

> the 1970s and the recurrent power supply shortages from the 1990s (the worst power crisis of the country so far)–to the recent episodes of power supply deficiencies in 2006, 2010 and 2014-2015 that unnerved many end-users across power grids.[15]

More recently, during the first quarter of 2019, observers noted that the Luzon grid has been dealing with continuously thinning reserves.[16] One cause for these recurrent, thinning reserves is the lack of available power plants. Data from the DOE and the Energy Regulatory Commission ("ERC") show that by the end of 2018, out of the 126 power plants in Luzon, up to 72% of these plants were at least 16 years or older.[17] As noted in one report, older plants require more frequent maintenance and repairs and are prone to unscheduled outages. In turn, these powerplant outages have delayed the entry of new generation capacity, in part causing the thinning of reserves.[18]

However, to sustainably resolve this problem moving forward, the solution cannot be limited to just building more greenhouse gas-emitting power plants. The Philippines also joins the rest of the world in dealing with the urgent and serious problem of climate change.[19]

In the midst of climate change, the world is experiencing "a tremendous increase in carbon dioxide in the air, melting icecaps, a consequent rise in seal levels, frigid cold and extreme heat."[20] As an archipelago surrounded by seas and ocean waters, the Philippines is under threat. As expressly recognized by jurisprudence, "[t]he Philippines is one of the countries most directly affected and damaged by climate change."[21]

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[15] Myrna M. Velasco, *Energy efficiency: From 'head schratcher' to alluring lifestyle choice*, MANILA BULLETIN, Sept. 25, 2018, *available at* https://business.mb.com.ph/2018/09/25/energy-efficiency-from-head-scratcher-to-alluring-lifestyle-choice/ (last accessed May 30, 2020).

[16] Hannah Viola, *Commentary: The real deal behind Philippines' power crisis*, PHILSTAR GLOBAL, Apr. 13, 2019, *available at* https://www.philstar.com/other-sections/news-feature/2019/04/13/1909737/commentary-real-deal-behind-philippines-power-crisis (last accessed May 30, 2020).

[17] Mark Amoguis, *Power underwhelming: Why are there power outages?*, BUSINESS WORLD, June 17, 2019, *available at* http://www.investphilippines.info/arangkada/power-underwhelming-why-are-there-power-outages/ (last accessed May 30, 2020).

[18] *Id.*

[19] *See generally,* Richmond C. Sta. Lucia, *Green Is In: Legal Considerations on Renewable Energy Development in the Philippines*, 89 PHIL. L.J.181, 182-186 (2015); Zabal v. Duterte, G.R. No. 238467, Feb. 12, 2019 (Leonen, *J., dissenting*).

[20] Zabal v. Duterte, G.R. No. 238467, Feb. 12, 2019 (Leonen, *J., dissenting*).

[21] Saguisag v. Ochoa, Jr., G.R. No. 212426, 777 Phil. 280, 699 (2016).

Very clearly, then, the country's response to our energy problems is also fundamentally intertwined with our environmental response. The goal should be to find a feasible and pragmatic solution that addresses both the country's energy security needs and the need to minimize carbon emissions to ensure sustainable development.[22]

B. An Oft-Forgotten Solution

One possible solution involves renewable energy. With the passage of the Renewable Energy Act of 2008,[23] renewable energy projects have emerged as an important supply-side solution[24] to the country's energy problems, promoting energy generation through (a) hydropower; (b) solar energy; (c) wind energy; (d) biomass; and (e) geothermal energy.[25] In the long run, a shift to renewable energy sources may be expected to dramatically reduce greenhouse gas emissions.[26] However, this cannot be the only solution we should pursue given that renewable energy is only expected to compose at least 30% of the country's total power generation capacity by 2030.[27]

Another possible solution that is oft-forgotten is the demand-side[28] focused projects on energy efficiency and conservation.[29] Experiences of other countries such as the United States have shown that energy efficiency is a practical and viable solution that can address some of our energy problems in the near to medium term by stabilizing or reducing energy demands at a lower cost as compared to a supply-side solution.[30]

As one study finds, "[g]lobally, energy efficiency represents about 40% of the greenhouse gas reduction potential that can be realized at a cost

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[22] For a brief discussion on the theories of sustainable development, *see generally,* Darwin Angeles, *The State of Philippine Law on Geothermal Power: Policies, Projects, Implications,* 87 PHIL. L.J. 415, 462-466 (2013).

[23] Rep. Act No. 9513 (2008).

[24] These shall refer to energy generation related solutions or interventions.

[25] *See* Sta. Lucia, *supra* note 19; Angeles, *supra* note 22.

[26] Ann Carlson, *Energy Efficiency and Federalism,* 107 MICH. L. REV. FIRST IMPRESSIONS 63, 65 (2008).

[27] Danilo V. Vivar, *Philippines Country Report' in* ENERGY OUTLOOK AND ENERGY SAVING POTENTIAL IN EAST ASIA 2016 273-296, 293 (Shigeru Kimura & Han Phumin eds. 2016).

[28] These refer to energy consumption related interventions or solutions.

[29] *Part 3, Challenges in Energy and the Philippine Energy Plan,* at 184, JAPAN INTERNATIONAL COOPERATION AGENCY WEBSITE, *available at* https://openjicareport.jica.go.jp/pdf/11915501_03.pdf.

[30] Carlson, *supra* note 26.

of less than €60 per metric ton of carbon dioxide equivalent."[31] Locally, a report prepared by the World Bank notes that "[i]n order for the Philippines to sustain its economic growth at a reasonable cost while also meeting its global commitments to climate change mitigation and environmental sustainability, a focus on energy efficiency is therefore critical."[32]

Yet, for many, little is currently known about energy efficiency and conservation in the Philippines. Due to the decades of delayed adoption of a comprehensive legal framework governing energy efficiency and conservation in the Philippines, so little is known of the possible impact of energy efficiency to the country on both energy and environmental law. In a 2013 survey, Dean Antonio G.M. La Viña dissected the failures, progress, and the future of a wide range of laws and regulations which have had an impact on the Philippine environment after more than 100 years of environmental law in the Philippines in.[33] While the topics discussed ranged from clear environmental protections, such as those afforded by the Clean Air Act, to the more distant, such as those under the Indigenous People's Rights Act, and even to the procedural remedy of Continuing Mandamus, energy efficiency and conservation, in its obscurity, found no mention.[34]

Hopefully, this is about to change. In 2019, Congress passed Republic Act No. 11285 or "the Energy Efficiency and Conservation Law" ("EE&C Law"), laying down the groundwork for retrofitting the Philippine government's approach to addressing these energy problems.

The goal of this paper is to contribute to the discussion in order to elevate energy efficiency and conservation from its status as an oft-forgotten solution. The succeeding sections shall discuss (a) the basics of energy efficiency conservation; (b) the legal history of the energy efficiency and conservation law in the Philippines; (c) the key features of the EE&C Law; and (d) some notes and observations moving forward.

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[31] Noah Sachs, *The Limits of Energy Efficiency Markets in Climat Change Law,* 2016 U. ILL. L. REV. 2238, 2239 (2019), *citing* MCKINSEY & CO., ENERGY EFFICIENCY: A COMPELLING GLOBAL RESOURCE 2 (2010).

[32] DILIP LIMAYE, YURIY MYROSHNYCHENKO, JASNEET SINGH & RAYMOND A. MARQUEZ, THE PHILIPPINES OPTIONS FOR FINANCING ENERGY EFFICIENCY IN PUBLIC BUILDINGS (2018).

[33] Antonio G.M. La Viña, *After More Than 100 Years of Environmental Law, What's Next for the Philippines?* 88 PHIL. L. J. 195 (2014).

[34] *Id.*

II. UNDERSTANDING ENERGY EFFICIENCY AND CONSERVATION

A. What is Energy Conservation and Energy Efficiency?

In simple terms, energy conservation refers to any behavior that results in the use of less energy. For instance, turning off the lights when leaving the room and recycling aluminum cans are both ways of conserving energy.[35] Thus, the EE&C Law defines "energy conservation" as follows:

> Energy conservation refers to the reduction of losses and wastage in various energy stages from energy production to energy consumption through the adoption of appropriate measures that are technologically feasible, economically sound, environmentally friendly, and socially affordable[.][36]

In contrast, energy efficiency means using less energy to provide the same level of energy.[37] To illustrate, using technology that requires less energy to perform the same function such as using a light-emitting diode ("LED") light bulb or a compact fluorescent light ("CFL") bulb, which requires less energy than an incandescent light bulb, is an example of energy efficiency.[38] Thus, the EE&C Law defines "energy efficiency" as follows:

> Energy efficiency refers to the way of managing and restraining the growth in energy consumption resulting in the delivery of more services for the same energy input or the same services for less energy input[.][39]

Accordingly, energy efficiency can include any number of policy strategies, including (a) setting strict standards for buildings; (b) reducing transmission line leakage; and (c) improving the efficiency of consumer and commercial products such as air conditioners and computers.[40]

Improving the efficiency of energy use has been globally recognized as one of the most cost-effective ways to gain increased energy security,

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[35] *Use of Energy Explained*, EIA, *available at* https://www.eia.gov/energyexplained/use-of-energy/efficiency-and-conservation.php (last accessed May 30, 2020).

[36] Rep. Act No. 11285 (2019), § 4(i).

[37] *Use of Energy Explained*, *supra* note 35.

[38] *Id.*

[39] Rep. Act No. 11285 (2019), § 4(k).

[40] Carlson, *supra* note 26, at 63.

improve industrial profitability, assure greater competitiveness, and reduce the overall impact on climate change.[41]

For instance, in the United States, which first passed its federal National Conservation Policy Act in 1978,[42] the U.S. Environmental Information Agency ("EIA") has reported that energy efficiency programs, which necessarily include improving the efficiency of consumer and commercial products, have by far been the largest demand-side management effort in the United States, successfully decreasing overall electricity demands by increasing energy efficiency.[43] This comes as no surprise in countries like the United States, where close to 85% of commercial and residential emissions come from appliances and lighting.[44]

However, this result is not exclusive to developed countries. In the developing country of Bangladesh, one study found that the efficiency improvement of home appliances could reduce electricity demand in the residential sector by about 28.8%, while the inclusion of energy-saving behavior as a demand response strategy in homes along with the energy efficiency and conservation policy may achieve a maximum demand reduction of up to 50.7%.[45]

In fact, the Philippines has also yielded a similar result. Even prior to the passage of the Energy Efficiency & Conservation Law, the Philippine Government and the Asian Development Bank ("ADB") completed a successful energy efficiency project in 2013.[46] In January 2009, a USD 31.1 million loan was financed by the ADB for an energy efficiency project to be executed by the DOE. The project involved: (a) the retrofitting of 135 government buildings, almost 4,000 public parks, and streetlights with energy-efficient lighting systems; (b) the distribution of 8.6 million compact fluorescent lamps nationwide; and (c) the establishment of a green labeling system for buildings.[47] The retrofitting for the project began in September

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[41] Hansen et al., *supra* note 1, at 13.

[42] Carlson, *supra* note 26, at 66. The said law mandated the imposition of energy efficiency standards for thirteen appliances.

[43] *Demand-side management programs save energy and reduce peak demand*, EIA, *available at* https://www.eia.gov/todayinenergy/detail.php?id=38872 (last accessed May 30, 2020).

[44] Carlson, *supra* note 26.

[45] Imran Khan, *Energy Saving Behavior as a demand-side management strategy in the developing world: the case of Bangladesh*, 10 INT'L J. ENERGY & ENVTL. ENG'G. 493, 502 (2019).

[46] Rehan Kausar, *Case Study – Energy Efficiency: Making It Work Nationwide*, DEVELOPMENT ASIA, *available at* https://development.asia/case-study/energy-efficiency-making-it-work-nationwide (last accessed May 30, 2020).

[47] *Id.*

2012 and was completed in June 2013. The retrofitted government office buildings reduced the cumulative lighting load by about 2.72 megawatts (34%) or 9.6 gigawatt hours, per year, saving almost a third of the buildings' average energy consumption, with the average level of illumination also improved by 50%.[48] With the development of the Green Building Rating System for the project, by its completion, 32 government buildings were certified for sustainability.[49]

The 2009 project was a huge success, and one of its key lessons was that such success was due to the existence of an enabling government framework for this particular energy efficiency project.[50] It would take one more decade before a legal framework that may be used for all types of energy efficiency projects would become available through the EE&C Law. Yet with its passage, some estimates indicate that households, small businesses, buildings, industries, public facilities, and other energy end-use sectors may collectively save up to 37.8 trillion pesos in avoided energy purchases by 2040, with effective implementation.[51]

B. Is Energy Efficiency and Conservation the Same as Renewable Energy?

Based on the definition of energy efficiency and energy conservation, it should be clear that despite its similarities with renewable energy as a technologically-driven but environmentally-friendly solution to the country's energy problems, energy efficiency is *not* the same as renewable energy. For contrast, under the Renewable Energy Act, "renewable energy resources" are defined as follows:

> "Renewable Energy Resources" (RE Resources) refer to energy resources that do not have an upper limit on the total quantity to be used. Such resources are renewable on a regular basis, and whose renewal rate is relatively rapid to consider availability over an indefinite period of time. These include, among others, biomass, solar, wind, geothermal, ocean energy, and hydropower conforming with internationally accepted norms and standards on dams, and other emerging renewable energy technologies[.][52]

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[48] *Id.*

[49] *Id.*

[50] *Id.*

[51] Lenie Lectura, *P37.8-trillion energy savings eyed in efficiency law*, BUSINESS MIRROR, Feb. 22, 2019, *available at* https://businessmirror.com.ph/2019/02/22/p37-8-trillion-energy-savings-eyed-in-efficiency-law/ (last accessed May 30, 2020).

[52] Rep. Act No. 9513 (2008), § 4.

With its focus on the renewable nature of the resources required to generate energy, it is clear that the primary concern of renewable energy is in energy generation. Hence, it is classified as a supply-side solution. In contrast, energy efficiency's focus is in managing the consumption and use of energy despite having the same energy input, thus making it a demand-side solution.

It must be pointed out, however, that while energy efficiency and renewable energy are not the same, the use of certain renewable energy resources may, by definition, fall under the scope of both energy efficiency and energy conservation. Given that energy conservation pertains to the reduction of losses and wastage in various energy stages from production to consumption, it is important to recognize that in terms of energy production, renewable energy technologies are actually more efficient than their fossil fuel counterparts. [53] An industrial energy consumer which develops a renewable energy project exclusively for its own use in order to consume less energy from the grid is also considered as engaged in an energy efficiency project. Further, modern renewable energy may be used to mitigate the consumption of electricity. For instance, in terms of heating, capitalizing on renewable energy resources such as through the use of geothermal heat pumps, has been shown to be significantly more energy efficient compared to conventional boilers.[54]

However, while it is important to note that there are synergies between the two types of technologies, one must bear in mind the distinctions, especially because they are governed by different laws: (a) the Renewable Energy Act for renewable energy; and (b) the EE&C Law for energy efficiency.

C. What are Energy Service Companies?

Globally, energy efficiency projects are implemented by service providers known as Energy Service Companies ("ESCOs") through energy performance contracts. However, how ESCOs are defined varies from one country to another. In the book, *ESCOs Around The World: Lessons Learned in 49 Countries*, authors Shirley J. Hansen *et al.* adopted this definition:

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[53] DOLF GIELEN, DEGER SAYGIN, NICHOLAS WAGNER, KSENIA PETRICHENKO & ARISTEIDIS TSAKIRIS, SYNERGIES BETWEEN RENEWABLE ENERGY AND ENERGY EFFICIENCY: A WORKING PAPER BASED ON REMAP 2030 4 (2015).

[54] *Id.* at 8.

> "[E]nergy service company" (ESCO) [is] a natural or legal person that delivers energy services and/or other energy efficiency improvement measures in a user's facility or premises, and accepts some degree of financial risk in so doing. The payment for the services delivered is based (either wholly or in part) on the achievement of energy efficiency improvements on the meeting of the other agreed upon performance criteria[.][55]

Hansen *et al.* took the position that at its core, the nature of an ESCO is that it guarantees energy savings performance. Thus, they adopted the following definition for "energy performance contracting":

> "[E]nergy performance contracting" (EPC) [is] a contractual arrangement between the beneficiary and the provider (normally an ESCO) of an energy efficiency improvement measure, where investments in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement.[56]

Through such energy performance contracts, ESCOs typically offer a broad range of retail energy services, which include:

a. engineering feasibility studies, audits and investment grade audits;
b. equipment acquisition and installation;
c. load management;
d. supply and power marketing;
e. facilities management and water management;
f. risk management;
g. automated meter reading;
h. indoor air quality services;
i. energy information management;
j. training and awareness services;
k. sustainability support and environmental compliance;
l. measurement and verification of savings; and
m. guaranteed results.[57]

These indicate that the energy efficiency and conservation industry is a highly technologically-advanced industry which necessarily involves the use of modern science and engineering.

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[55] Hansen et al., *supra* note 1, at 7.
[56] *Id.* at 7.
[57] *Id.* at 8.

Broadly, the *animus* of these definitions has been adopted by the Philippine Congress in defining ESCOs under Philippine law. Under the EE&C Law, ESCOs are defined as follows:

> Energy Service Company (ESCO) refers to a juridical entity that offers multi-technology services and goods towards developing and designing energy efficiency projects, delivering and guaranteeing energy savings, and ensuring cost-effective and optimal performance. Their services include energy supply and management, energy financing, technical engineering expertise and consultancy, equipment supply, installation, operation, maintenance and upgrade, and monitoring and verification of performance and savings. Their goods include lighting, motors, drives, heating, ventilation, air conditioning systems, building envelope improvements, and waste heat recovery, cooling, heating, or other usable forms of energy control systems[.][58]

D. How are Energy Efficiency Projects Financed?

Globally, there are two dominant savings-based models for financing energy efficiency projects: the (a) guaranteed and (b) shared savings models.

1. Guaranteed Savings

Over 90% of energy performance contracts in North America are currently structured for guaranteed savings, with the owner typically accepting debt through third party financing.[59] The significant characteristics of a guaranteed savings financing model are as follows:

a. The amount of *energy saved* is guaranteed, as long as the operation remains similar to the period preceding the project implementation;
b. The value of energy saved is guaranteed to meet debt service obligations down to a stipulated floor price;
c. Owners carry the credit risk;
d. Risks to owners and ESCOs are less than with shared savings;
e. Less of the investment package goes to financing costs; and

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[58] Rep. Act No. 11285 (2019), § 4(r).
[59] Hansen et al., *supra* note 1, at 10.

f. Tax-exempt institutions, in countries that provide for this tax provision, can use their legal status for much lower interest rates.[60]

2. Shared Savings

The primary characteristics of the shared savings model, which is commonly used in Europe, and to a lesser extent, in North America include:

a. Customer and ESCO share a predetermined percentage on the split of energy *cost* savings;
b. ESCOs carry both the performance risk and credit risk;
c. Financing for the customer is often off balance sheet;
d. Equipment, which is often leased is "owned" by the ESCO for the duration of the contract (ownership is usually transferred to the owner at contract end);
e. Increased risks, such as uncertainty of energy prices, cause the cost of money to be higher;
f. Unless special safeguards are implemented, customers have greater payment exposure if energy prices or savings increase; and
g. As all the project costs are recognized as a service, they are fully deductible in many countries for the duration of the agreement.[61]

Notably, the EE&C Law does not specify, limit, or restrict the types of financing contracts that ESCOs may enter into. Hence, for private contracts, ESCOs are free to adopt such financing models under their right to freedom of contract.[62]

For government contracts, the EE&C Law provides some leeway for the adoption of such savings-based financing models by allowing government agencies and local government units ("LGUs") to enter into different financial arrangements for energy efficiency projects through other modalities:

> Section 11. Government Energy Efficiency Projects.—*Government agencies and LGUs are authorized to enter into different financial arrangements for energy efficiency projects following the procedures laid down in any of the following measures:* Republic Act No. 9184, otherwise known as the "Government Procurement Reform Act"; Republic

[60] *Id.* at 9-10. (Emphasis supplied.)
[61] *Id.* at 9.
[62] CIVIL CODE, art. 1306.

> Act No. 6957, otherwise known as "An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector, and For Other Purposes," as amended by Republic Act No. 7718; Republic Act No. 7160, otherwise known as the "Local Government Code of 1991"; the 2013 NEDA [National Economic and Development Authority] Joint Venture Guidelines, as may be amended in the future; the applicable LGU charter; related laws, rules, regulations; *and other modalities.*[63]

This is further clarified under the Implementing Rules and Regulations of the EE&C Law ("EE&C Law IRR"), which states:

> Section 47. Financial Arrangements.—Government energy efficiency projects may be pursued through different financial arrangements and modalities following the procedures laid down in any of the following measures: Republic Act No. 9184, otherwise known as the Government Procurement Reform Act; Republic Act No. 6957, otherwise known as BOT Act, as amended by Republic Act No. 7718; Republic Act No. 7160, otherwise known as the Local Government Code of 1991; the 2013 NEDA Joint Venture Guidelines, as may be amended from time to time; the applicable LGU charter; related laws, rules and regulations; and other modalities.
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> *The IAEECC [Inter-Agency Energy Efficiency and Conservation Committee] shall include savings-based services and payment as through additional modality for pursuing government energy-efficiency projects and shall adopt relevant guidelines, in coordination with relevant government agencies and stakeholders, for this purpose.*
>
> *Such modalities shall include Government agencies and LGUs being able to repay ESCOs undertaking energy efficiency projects through applicable repayment schemes based on the cost savings to be generated from the projects and other sources,* in accordance with the guidelines issued by the DBM [Department of Budget and Management] on multi-year contracts and other applicable laws.[64]

While these provisions present a deviation from the standard provisions applicable to government contracts, it may be argued that an

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[63] Rep. Act No. 11285 (2019), § 11 (Emphasis supplied.)

[64] DOE Dep't Circ. No. DC2019-11-0014, § 47 [hereinafter "EE&C Law IRR"]. (Emphasis supplied.)

express legislative intent[65] to include such additional modalities is further supported by an imprimatur of constitutionality,[66] given that these financing modalities are essential components of energy efficiency and conservation contracts that are designed to utilize technology[67] to serve both the consumer and the energy sector, while at the same time protecting the environment.[68]

E. What other benefits can be expected from energy efficiency and conservation projects?

Apart from the direct benefits gained by consumers in energy savings, the reduction in the energy demand, and the environmental benefits of energy efficiency and conservation projects, these are also known to generate numerous jobs.

As advocated by the International Energy Agency ("IEA"), energy efficiency can easily be tapped as part of the country's economic stimulus program in light of the downturn caused by the global COVID-19 pandemic, due to its global track record as a job-intensive industry.[69] Energy efficiency and conservation has generated 3.3 million jobs in the United States and Europe alone.[70] As recommended by the IEA, stimulus policies may present various employment-generating opportunities for energy efficiency projects in: (a) building construction; (b) technology replacement; and (c) infrastructure projects.[71]

Such a call is supported by Section 18 of the EE&C Law, which highlights the importance of energy efficiency and conservation in the

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[65] Mandanas v. Ochoa, Jr., G.R. No. 199802, July 3, 2018. The principle of "*[v]erba legis non est recedendum* (from the words of a statute there should be no departure)" is applicable.

[66] For a discussion on the theory of constitutional imprimatur, *see* Efren II R. Resurreccion, *Charting the Waters of Constitutional Construction: A Function-Based Framework for Appreciating our Constitutional State Policies*, 90 PHIL. L.J. 1, 48-50, *citing* VICENTE SINCO, PHILIPPINE POLITICAL LAW: PRINCIPLES AND CONCEPTS 116 (1962).

[67] CONST., art. XIV, § 10. "Science and technology are essential for national development and progress[.]".

[68] CONST., art. II, § 16. "The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature."

[69] *Energy efficiency and economic stimulus,* INTERNATIONAL ENERGY AGENCY [hereinafter "IEA"], Apr. 8, 2020, *available at* https://www.iea.org/articles/energy-efficiency-and-economic-stimulus (last accessed May 30, 2020).

[70] *Id.*

[71] *Id.*

construction, improvement, or renovation of buildings and key infrastructure projects:

> Section 18. Energy Performance for Buildings.—To ensure appropriate and effective implementation of energy efficiency and conservation for new and existing buildings for commercial and industrial use such as hospitals, educational facilities, exhibition centers, government offices, and military facilities, the LGUs shall implement the following measures in accordance with building permit issuances:
>
> (a) New building construction shall comply with the minimum requirements as specified in the Guidelines on Energy Conserving Design on Buildings issued by the DOE, in consultation with the DPWH [Department of Public Works and Highways] which may be revised to reflect new and emerging energy efficiency and conservation technologies: *Provided*, That state-owned buildings and facilities shall comply with the GEMP [Government Energy Management Program] and such other guidelines issued by the IAEECC; and
>
> (b) Retrofit of buildings shall also comply with the minimum requirements as specified in the Guidelines on Energy Conserving Design on Buildings issued by the DOE, in consultation with the DPWH, which may be revised to reflect new and emerging energy efficiency and conservation technologies: *Provided*, That state-owned and leased buildings and facilities shall comply with the GEMP and such other guidelines issued by the IAEECC.

The rapid integration of energy efficiency and conservation into the Guidelines on Energy Conserving Design on Buildings and the implementation of such guidelines can be expected to play a vital role in employment generation.

III. THE LEGAL HISTORY OF ENERGY EFFICIENCY AND CONSERVATION IN THE PHILIPPINES

The road to passing the EE&C Law in 2019 was not easy. While the rest of the world had a four-decade head start in legislating energy efficiency policies,[72] local efforts to propose a legal framework for modern energy

[72] Carlson, *supra* note 26, at 66.

efficiency and conservation languished in Congress for almost 30 years. It was reported that by the time the Philippines passed the EE&C Law, it was the last country in the ASEAN to enforce energy efficiency and conservation through legislation, falling behind its neighbors in attracting investments in the energy efficiency and conservation sector through financial incentives.[73]

The legislative journey towards energy efficiency began in 1980 through Batas Pambansa Blg. 73 (the "EnCon Law") which was meant to take effect for only a period of five years.[74] Crafted as a response to the uncertainty of oil supplies, the EnCon Law sought to institutionalize energy conservation to enhance the availability of energy supplies.[75] Crafted as a true energy conservation measure, the EnCon Law sought to regulate energy consumption behavior by (a) barring the importation, manufacture and assembly of certain gasoline-powered motor cars; (b) limiting the use of neon and electric lights for commercial advertising to three hours; and (c) prohibiting the use of government vehicles for purposes other than official business.[76] It also established the beginnings of an energy efficiency policy by requiring the Ministry of Energy:

> To set standards of energy consumption for oil-powered or electric-driven machinery, equipment, appliances, devices, and vehicles imported into, manufactured, assembled or sold in the Philippines for domestic use, in consultation with the Ministry of Industry and the Ministry of Trade, taking into account the technical and economic limitation involved.[77]

Prior to the expiration of the EnCon Law in 1985, Batas Pambansa Blg. 872 was approved, extending the effectivity of the EnCon Law for another 5 years.[78]

Upon the expiration of the extended EnCon Law in 1990, the Philippines effectively lost its only energy efficiency and conservation legislation. At around the same time, during the 8th Congress, several House

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[73] *Editorial: Energy Efficiency and Conservation,* PHILIPPINE ENERGY EFFICIENCY ALLIANCE, Mar. 15, 2019, *available at* https://www.pe2.org/news/editorial-energy-efficiency-and-conservation (last accessed May 31, 2020).

[74] Batas Blg. 73 (1980), § 5.

[75] § 1.

[76] § 3.

[77] § 4.

[78] Batas Blg. 872 (1985), § 2.

Bills were filed to propose a legal framework for the country's energy efficiency and conservation policy.[79] However, such bills failed to pass.

In 2004, the Arroyo administration passed Administrative Order No. 110, directing the institutionalization of a GEMP (the "GEMP Order"), primarily regulating energy efficiency and conservation in public sector. The GEMP Order established the goal of reducing the government's monthly consumption of electricity and petroleum products by at least 10% through its implementation for three years starting January 2005.[80] The GEMP Order effectively highlighted the importance of energy surveys and audits of public buildings as part of its compliance measures, and mandated the designation of an Energy Conservation Officer for each government entity.[81]

In 2005, Administrative Order No. 126 was passed as an energy conservation measure in consideration of the rising prices of oil in the world market. Under this regulation, as part of the GEMP, the following energy conservation measures were adopted: (a) the limitation on the use of government vehicles, aircraft and watercraft only for purposes of official business[82] and (b) the limitation on the use of air conditioning facilities, preventing its use during the months of August until February and limiting the use of air conditioning units to between 9:00 a.m. to 4:00 p.m.

Recognizing the tangible amount of savings that may be realized throughout the implementation of the GEMP, Administrative Order No. 110-A was issued in 2006 by the Arroyo administration, which expanded the available uses of energy savings by the government under the GEMP Order, including the purchase of shuttle buses and service vehicles for employees.[83]

Then in 2008, the Implementing Rules and Regulations issued by the DBM further emphasized certain key energy efficiency and conservation measures, including: (a) requiring the adoption of a policy for government entities to purchase and use appliances and equipment selected only from

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[79] *See* Alexander Ablaza, *A New Era for Energy efficiency in the Philippines: What you should know about the Energy Efficiency & Conservation Act*, PHILIPPINE ENERGY EFFICIENCY ALLIANCE, June 2019, at slide 7, *available at* https://meralcomain.s3.ap-southeast-1.amazonaws.com/documents/presentation/2019-07/ra11285_eec_act_primer.pdf?null= (last accessed May 31, 2020).

[80] Adm. Order No. 110 (2004), § 1.1.

[81] § 1.3.

[82] Adm. Order No. 126 (2005), § 2.

[83] Adm. Order No. 110-A (2006), § 1.

the list of DOE-certified efficient products;[84] (b) requiring the adoption of energy efficiency concepts in the procurement practices of government;[85] and (c) requiring the adoption of a policy on the periodic review of the effectiveness of the energy efficiency and conservation programs to include, but not be limited to the phased-in replacement program for lighting in existing or renovated government facilities.[86]

However, while the GEMP Order and related measures reintroduced the government and the public sector to the concept of energy efficiency and conservation, there remained no clear legal framework on energy efficiency and conservation for the private sector. Despite the government's familiarity with the concept of energy efficiency and conservation, no bill establishing a comprehensive energy efficiency and conservation law was filed until the 15th Congress.

Then in 2010, Senator Edgardo J. Angara initiated a renewed push for modern and comprehensive energy efficiency by filing Senate Bill No. 2027. Similar bills were subsequently filed by Senators Sergio Osmeña III (Senate Bill No. 3321) and Teofisto Guingona III (Senate Bill No. 3325) in 2012. All three bills reached only the first reading and did not progress beyond the committee level. Meanwhile, no counterpart bill was filed in the House of Representatives.

During the 16th Congress, two House Bills were filed proposing a comprehensive legal framework for energy efficiency and conservation: (a) House Bill No. 04393 authored by Representative Reynaldo Umali; and (b) House Bill No. 5053 filed by Representative Henedina Abad. Two counterpart bills were also filed in the Senate: (a) Senate Bill No. 167 authored by Senator Osmeña III; and (b) Senate Bill No. 1085 filed by Senator Guingona III. However, these bills did not progress beyond the committee level in both chambers of Congress.

It was not until the 17th Congress when the comprehensive energy efficiency and conservation bills earned a credible opportunity to be passed as law.

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[84] Adm. Order Nos. 103, 110, 110-A & 126 Rules & Regs. (2008) Directing the Institutionalization of a Government Energy Management Program [hereinafter, "GEMP Order IRR"]. § 1(1), r. III.

[85] § 1(4), r. III.

[86] § 1(5), r. III.

In the House of Representatives, four House Bills were initially filed: (a) House Bill No. 182 principally authored by Representative Eric Olivarez; (b) House Bill No. 1220 principally authored by Representative Umali; (c) House Bill No. 2388 principally authored by Representative Abad; and (d) House Bill No. 6642 principally authored by Representative Luis Raymund Villafuerte. After successful committee hearings from 2017 to 2018, a substitute bill, House Bill No. 8629 (the "House EE&C Bill") was created, with 61 co-authors. This bill eventually passed the House of Representatives with a vote of 199-0-0 on third reading.

In the Senate, only one comprehensive energy efficiency and conservation bill was filed: Senate Bill No. 30 principally authored by Senator Loren Legarda and co-authored by Senator Maria Lourdes S. Binay. Committee deliberations in 2017 led to the consolidation of this bill with Senate Bill No. 525 or the "Government Buildings Energy Cost Reduction Bill," filed by Senator Antonio Trillanes IV. The consolidated Senate Bill No. 1531 (the "Senate EE&C Bill") passed the Senate with an 18-0-0 vote on third reading in 2018.

However, there were key differences between the House EE&C Bill and the Senate EE&C Bill which required reconciliation through the bicameral conference committee. One observable difference involved the proposed incentives provision for energy efficiency projects.

The Senate EE&C Bill primarily sought to tie the fiscal incentives for energy efficient projects to Executive Order No. 226 or the Omnibus Investments Code:[87]

> Section 24. Fiscal Incentives.—Upon certification by the DOE, Energy Efficient Projects as defined in this Act shall be included in the annual investments priorities plan of the BOI and shall be entitled to the incentives provided under Executive Order No. 266 [*sic*] or the "Omnibus Investment Code of the Philippines" and other applicable laws.[88]

Taking its cue from the Renewable Energy Act,[89] the House EE&C Bill sought to introduce its own distinct set of incentives which were not primarily tied to the Omnibus Investments Code, thus the House EE&C Bill provided:

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[87] Exec. Order No. 226 (1987).

[88] S. No. 1531, 17th Cong., 2nd Sess. § 24 (2017).

[89] Rep. Act No. 9513 (2008), § 15.

Section 20. Fiscal Incentives.—During the first fifteen (15) years from the approval of this Act, energy efficient projects as defined herein shall be included in the Strategic Investments Priorities Plan (SIPP) of the government. The application by a project proponent for registration of an energy efficiency project shall be duly acted upon by the BOI on the basis of the endorsement issued by the DOE. A duly certified energy efficiency project shall also be entitled to receive a certificate of entitlement from the Fiscal Incentives Review Board. A proponent of an energy efficiency project, whether Filipino or foreign-owned, as duly endorsed by the DOE, shall be entitled to the following incentives:

(a) Income Tax Holiday – For the first six (6) years of its commercial operations, the duly certified energy efficiency project proponent shall be exempt from income taxes levied by the national government.

Additional investments in the project shall be entitled to additional tax exemption om the income attributable to the investment: *Provided,* That the development of new energy efficiency projects shall be treated as a new investment and shall therefore be entitled to a fresh package of incentives; *Provided further,* That the entitlement period for additional incentives shall not be more than three (3) times the period of the initial availment of the Income Tax Holiday.

(b) Zero Percent Value-Added Tax Rate – The selling price, renumeration or consideration received by a project proponent for an energy efficiency project shall be subject to zero percent (0%) value-added tax (VAT), pursuant to the National Internal Revenue Code (NIRC) of 1997, as amended.

All energy efficiency project proponents shall be entitled to zero-rated value added tax on its purchases of local supply of goods, properties and services needed for the development, construction and installation of its plant facilities.

This provision shall also apply to the whole process of developing energy efficiency projects including the services performed by subcontractors and contractors.

(c) Tax and Duty Exemption on Imported Capital Equipment. – Within the first ten (10) years upon the issuance of an endorsement by the DOE, the importation of technologically energy-efficient machinery, equipment, vehicles, spare parts, and materials shall be to the extent of one hundred percent (100%) of the customs duties and national internal revenue tax payable thereon: *Provided,* That the

> machinery, equipment, vehicles, spare parts, and materials are directly and actually needed and used exclusively for energy efficiency projects.
>
> The fiscal incentives shall be available to all proponents of duly certified energy efficiency projects for a period of fifteen (15) years from the approval of this Act. At the end of such period, the Fiscal Incentives Review Board may suspend or cancel the grant of such incentives upon a joint recommendation by the DOE and the BOI that the incentives are no longer required in order to ensure the financial viability of energy efficiency investments.[90]

It appears that the House of Representatives sought to address multiple concerns in support of the young energy efficiency and conservation industry.

First, there was a palpable concern that in order to promote investment in the energy efficiency and conservation industry, ESCOs which may be 100% fully foreign-owned should have access to the full and complete fiscal incentives available for energy efficiency projects. This concern may be due to the fact that under Article 32 of the Omnibus Investments Code, as a rule, only Philippine citizens or corporations that are at least 60% Filipino-owned are qualified to be a registered enterprise for the purpose of availing incentives.[91] As an exception to this rule, foreign-owned corporations may be eligible to qualify as a registered enterprise only if it meets these additional requirements:

a. It proposes to engage in a pioneer project which is found by the Board of Investments ("BOI") to be not readily or adequately filled by Philippine nationals; or if the applicant is exporting at least 70% of its total production;[92]

b. It obliges to attain the status of a Philippine national within 30 years from the date of registration;[93] and

c. That the pioneer area it will engage in is not one that is within the activities reserved by the Constitution or by Philippine law to Philippine citizens.[94]

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[90] H. No. 8629, 17th Cong., 3rd Sess. § 20 (2018).
[91] Exec. Order No. 226 (1987), art. 32(1).
[92] Art. 32(1).
[93] Art. 32(1).
[94] Art. 32(1).

While requirement (c) is clearly reasonable for all industries, requirements (a) and (b) may appear to be more onerous to the foreign investors that the country seeks to attract to the developing industry.

Second, there was an apparent anticipation of the government's planned adoption of incentive rationalization laws. This is evidenced by the use of terms "Strategic Investment Priorities Plan" and "Fiscal Incentives Review Board" which do not currently hold any major legal significance under Philippine taxation and incentives framework, but are intended to play key roles in the then pending tax incentive rationalization bills.[95]

At that time, the government's proposed incentive rationalization legislation was embodied in House Bill No. 8083 or the "Tax Reform for Attracting Better and High-quality Opportunities" or "TRABAHO" Bill, which passed the House of Representatives on third reading on September 10, 2018.[96] Briefly, the TRABAHO Bill proposed a uniform set of tax incentives for all industries which were generally lower and for shorter periods than those that were currently available under various laws including the Omnibus Investments Code.

The incentives provision of the House EE&C Bill shows that House of Representatives sought to address any fears or doubts from investors on the possible immediate rationalization of the incentives being offered for this new industry, by adopting the language and mechanisms provided in the TRABAHO Bill and by making its legislative intent expressly known in providing that "[t]he fiscal incentives shall be available to all proponents of duly certified energy efficiency projects for a period of fifteen (15) years from the approval of this Act."[97]

Ultimately, the House and the Senate agreed on the following language for the incentives provision:

> Section 25. Fiscal Incentives.—Upon certification by the DOE, energy efficiency projects, as defined in this Act, shall be included

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[95] *See* H. No. 8083, 17th Cong., 3rd Sess. (2018).

[96] *See* H. No. 8083. The incentive rationalization plan was rebranded as the "Corporate Income Tax and Incentives Rationalization" or "CITIRA" Bill in the 18th Congress, *see* H. No. 4157, 18th Cong. *and* S. No. 1357, 18th Cong., In 2020, the government again rebranded this plan as the "Corporate Recovery and Tax Incentives for Enterprises" or "CREATE", *see Package 2: Corporate Recovery and Tax Incentives for Enterprises Act (Create)*, DEPARTMENT OF FINANCE, *available at* https://taxreform.dof.gov.ph/tax-reform-packages/p2-corporate-recovery-and-tax-incentives-for-enterprises-act/ (last accessed May 31, 2020).

[97] H. No. 8629, 17th Cong., 3rd Sess. § 20 (2018).

> in the annual investment priorities plan of the BOI and shall be entitled to the incentives provided under Executive Order No. 226, otherwise known as the "Omnibus Investments Code of 1987", as amended, and any other applicable laws for ten (10) years from the effectivity of this Act: Provided, That after the aforementioned period, the inclusion of energy efficiency projects in the annual investment priorities plan shall be reviewed and may be extended by the BOI: Provided, further, That *energy efficiency projects shall be exempt from Article 32(1) of Executive Order No. 226.*[98]

The Senate prevailed in anchoring the available incentives on the Omnibus Investments Code. However, the House also succeeded in providing for the eligibility of fully foreign-owned ESCOs to the incentives without additional requirements, by exempting energy efficiency projects from compliance with the additional incentive qualification requirements for foreign-owned corporations provided under Article 32(1) of the Omnibus Investments Code. On March 12, 2019, the enrolled bill for the EE&C Law was signed by the Senate President and Speaker of the House. It was transmitted to the Office of the President two days later.[99]

On April 12, 2019, President Rodrigo Duterte signed Republic Act No. 11285, completing the 28-year legislative journey of the EE&C Law from the 8th Congress to the 17th Congress.[100] By November 22, 2019, its Implementing Rules and Regulations were issued by the DOE.[101]

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[98] (Emphasis supplied.)

[99] *Legislative History, Energy Efficiency and Conservation Act,* 18TH CONGRESS, SENATE, *available at* https://www.senate.gov.ph/lis/bill_res.aspx?congress=17&q=SBN-1531 (last accessed May 31, 2020).

[100] *Id; Press Release: Bicam Oks Energy Efficiency and Conservation Act,* 18th CONGRESS, SENATE, Jan. 17, 2019, *available at* https://www.senate.gov.ph/press_release/2019/0117_gatchalian1.asp; Mario Casayuran, *Legislation to reward energy efficiency and conservation,* MANILA BULLETIN, Jan. 17, 2019, *available at* https://news.mb.com.ph/2019/01/17/legislation-to-reward-energy-efficiency-and-conservation/.

[101] EE&C Law IRR, § 47.

IV. THE ENERGY EFFICIENCY AND CONSERVATION LAW

A. Overview of the EE&C Law

The EE&C Law was enacted in order to "establish a framework for introducing and institutionalizing fundamental policies on energy efficiency and conservation, including the promotion of efficient and judicious utilization of energy, increase in the utilization of energy efficiency and renewable energy technologies, and the delineation of responsibilities among various government agencies and private entities."[102]

The EE&C Law has designated the DOE as the lead implementing agency.[103] DOE is responsible for the creation, update, and development[104] of the National Energy Efficiency and Conservation Plan ("NEECP"), which refers to the national comprehensive framework, governance structure, and programs for energy efficiency and conservation with defined national targets, feasible strategies, and regular monitoring and evaluation.[105]

Further, the EE&C Law requires the DOE to develop Minimum Energy Performance ("MEP") standards, prescribing a minimum level of energy performance for the commercial, industrial, and transport sectors, as well as energy-consuming products including appliances, lighting, electrical equipment, machinery, and transport vehicles, that must be met or exceeded before they can be offered for sale or be used for residential, commercial, transport, and industrial purposes.[106]

To aid DOE in the implementation of EE&C Law, the same also strengthened DOE's Energy Utilization Management Bureau ("EUMB"), and reorganized it into the following divisions: (a) Alternative Fuels and Energy Technology Division; (b) Energy Efficiency and Conservation Program Management; (c) Energy Efficiency and Conservation Public Sector Management Division; and (d) the Energy Efficiency and Conservation Performance Regulation and Enforcement Division.[107]

However, fully cognizant of the need to institutionalize energy efficiency and conservation as a national way of life,[108] the EE&C Law also

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[102] Rep. Act No. 11285 (2019), § 3.
[103] § 5.
[104] § 5(a).
[105] § 4(z).
[106] §§ 4(w), 14.
[107] § 29.
[108] § 2(a).

recognizes the need for a multi-agency approach to energy efficiency and conservation. Hence, the following agencies have also been given key responsibilities in its implementation:[109]

a. the BOI;
b. the Climate Change Commission;
c. the Commission on Audit ("COA");
d. the Commission on Higher Education;
e. the DBM;
f. the Department of Education;
g. the Department of Finance ("DOF");
h. the Department of Environment and Natural Resources ("DENR");
i. the Department of Interior and Local Government ("DILG");
j. the DPWH;
k. the Department of Science and Technology ("DOST");
l. the Department of Trade and Industry;
m. the Department of Transportation ("DOTr");
n. the Governance Commission for Government-Owned or Controlled Corporations ("GOCCs");
o. Government Financial Institutions ("GFIs");
p. the Insurance Commission;
q. the NEDA;
r. the National Competitiveness Council;
s. the Philippine Statistics Authority ("PSA"); and
t. the Technical Education and Skills Development Authority ("TESDA").

LGUs are also directed to develop and implement their own local energy efficiency and conservation plan ("LEECP") as part of their local development plans.[110]

The law further requires that "[a]ll energy end users shall use every available energy resource efficiently and promote the development and utilization of new and alternative energy efficient technologies and systems, including renewable energy technologies and systems across sectors."[111]

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[109] § 6.
[110] § 7.
[111] § 8.

B. Role of Private Sector

1. Responsibilities of Establishments

The EE&C Law imposes certain specific responsibilities on "designated establishments" and reportorial requirements for other covered establishments. The thresholds for designated establishments are to be periodically reviewed and adjusted by the DOE.[112] However, establishments are currently classified as follows:

Classification	Annual Energy Consumption in the Past Year	Energy Professional Hiring Requirement	Reporting Requirement
Type 2 Designated Establishment[113]	more than 4,000,000 kWh	Certified Energy Manager ("CEM")[114]	Yes
Type 1 Designated Establishment[115]	500,000 kWh to 4,000,000 kWh	Certified Energy Conservation Officer ("CECO")[116]	Yes
Other Establishments[117]	100,000 kWh or higher but less than 500,000 kWh	N/A	Yes

[112] § 19.

[113] § 19.

[114] § 4(b). "Certified Energy Manager (CEM) refers to a licensed engineer who obtains a certification as a CEM after demonstrating high levels of experience, competence, proficiency, and ethical fitness in the energy management profession, and who shall be chosen by Type 2 designated establishments to plan, lead, manage, coordinate, monitor, and evaluate the implementation of sustainable energy management within their organizations[.]"

[115] § 19.

[116] § 4(a). "Certified Energy Conservation Officer (CECO) refers to a professional who obtains a certification as a CECO after demonstrating high levels of experience, competence, proficiency, and ethical fitness in the energy management profession, and who shall be responsible for the supervision and maintenance of the facilities of Type 1 designated establishments for the proper management of energy consumption and such other functions deemed necessary for the efficient and judicious utilization of energy under this Act[.]"

[117] § 22.

"Establishments Not Covered"	less than 100,000 kWh	N/A	No

TABLE 1. Classification of Establishments.

As establishments with high electricity consumption, *Type 2* and *Type 1* Designated Establishments have the following obligations:

a. Integrate an energy management system policy into the business operation based on ISO 50001 or any similar framework;
b. Set up programs to develop and design measures that promote energy efficiency, conservation, and sufficiency that may include installation of renewable energy technologies;
c. Set up annual targets, plans, and methods of measurements and verification for the implementation of energy efficiency and conservation projects;
d. Keep records on monthly energy consumption data and other energy-related data;
e. Improve average specific energy consumption in accordance with the annual reduction targets to be established by the DOE in the NEECP;
f. Submit an annual ECCR [Energy Consumption and Conservation Report][118] to the DOE by the 15th of April of every year;
g. Conduct an energy audit once every three (3) years, by engaging either a certified energy auditor or an accredited ESCO and submit an energy audit report to the DOE upon completion of the energy audit;
h. Employ a CECO[119] for Type 1 designated establishments, and a CEM[120] for Type 2 designated establishments: *Provided*,

[118] § 4(j).

[119] § 50. To qualify as a CECO, the applicant must meet the following qualifications: (a) must have at least 2 years of continuous hands-on experience in the installation, operation, and maintenance of energy-consuming machines and equipment in facilities with energy consumption for Type 1 Designated Establishments, proof of which shall be submitted to the DOE; and (b) must pass the certification examination and assessment of TESDA prescribed for CECO.

[120] § 51. To qualify as a CEM, the applicant must meet the following qualifications: (a) must be a licensed engineer; or a graduate of a 4 year course or its equivalent with at least 3 years of continuous hands-on experience in the installation, operation, and maintenance of energy-consuming machines and equipment in facilities with energy consumption for Type 2 Designated Establishments, proof of which shall be submitted to the DOE; (b) must pass the certification examination and assessment for the development of the DOE in consultation with the relevant government and industry stakeholders; and (c) as a continuing

That the CECO And CEM may be chosen from within the organization or hired through external recruitment; and

i. Duly notify the DOE on the appointment or separation from the service of their respective CECOs/CEMs within ten (10) working days from the effectivity of these personnel action.[121]

"Other Establishments" are required to submit an annual energy consumption report to the DOE, while the EE&C Law does not impose any specific obligations on "Establishments Not Covered."

For *Type 1* and *Type 2* dedicated establishments, the dedicated CEM/CECO hired by the company shall be responsible for the following:

a. Manage the energy consumption of facilities, equipment, and devices;
b. Administer the following:
   (1) Implementation and improvement of energy efficiency measures;
   (2) Conduct of regular energy audit;
   (3) Energy monitoring and control, and
   (4) Preparation of periodic energy consumption and energy conservation program reports; and
c. Fulfill other responsibilities as indicated in this Act [and the EE&C Law IRR].[122]

2. Certification of ESCOs and Energy Auditors

The EE&C Law directs the DOE to facilitate the certification of ESCOs. ESCOs applying for certification are required to demonstrate their technical and managerial competence to design and implement energy efficiency projects, including:

a. energy audits;
b. design engineering;
c. providing or arranging project financing;
d. construction management;
e. operations and maintenance of energy efficient technologies; and
f. verifying savings.[123]

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qualification, must undergo energy efficiency and conservation seminars conducted by the DOE or any third-party institution duly approved by the DOE.

[121] § 20.

[122] § 21.

[123] § 13.

To this end, The DOE is required to strengthen the existing ESCO certification system in order to develop this service sector and to provide the market with a source of technically and financially-capable entities that can assist in the delivery of energy efficiency-related projects.[124]

The EE&C Law similarly requires the certification of energy auditors. "Energy Auditors" refer to "individuals or entities certified by the DOE who have proven credibility and competence to conduct an energy audit. [125] The DOE, in consultation with TESDA, and the relevant stakeholders have been tasked to develop guidelines for this certification.[126]

3. Compliance with MEP

All manufacturers, importers, distributors, and retailers of energy-consuming products are also required to comply with the MEP, subject their energy-consuming products to energy performance testing, and submit the respective product information to the DOE. Thus, the EE&C Law prohibits manufacturers, importers, distributors, and retailers from selling, leasing, or importing any energy-consuming product unless the product complies with the MEP and the product or its package is labeled in accordance with the EE&C Law.[127]

C. Role of Public Sector

Drawing from the success of previous government efforts, the EE&C Law institutionalizes the GEMP which has been defined as "the government-wide program to reduce the government's monthly consumption of electricity and petroleum products through electricity efficiency and conservation, and efficiency and conservation in fuel use of government vehicles, among others[.]"[128]

Thus, the EE&C Law created the IAEECC, an entity chaired by the Secretary of the DOE and composed of the Secretaries of DBM, DOF, DOTr, DOST, DILG, and DPWH, and the Director-General of NEDA for the evaluation and approval of government energy efficiency projects.[129]

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[124] § 13.
[125] § 4(t).
[126] EE&C Law IRR, § 54.
[127] Rep. Act No. 11285 (2019), § 14.
[128] § 4(t).
[129] § 9.

The DOE is tasked with leading the efforts to ensure compliance with GEMP in accordance with the strategic direction provided by IAEECC.[130]

The DOE and the PSA have also been tasked with the development and maintenance of the National Energy Efficiency and Conservation Database ("NEECD").[131] The NEECD refers to:

> A centralized, comprehensive, and unified database on national energy consumption, the application and use of energy efficient and renewable energy technologies, and other critical and relevant information to be used for evaluation, analysis, and dissemination of data and information related to energy efficiency and conservation[.][132]

Further, the DOE, with the assistance of the ERC and the Philippine Economic Zone Authority, has also been tasked to pursue a demand-side management program for the electric power industry for the reduction of energy consumption.[133] This program is to be implemented through effective load management intended to result in the decrease of power demand and the migration of power demand from peak to off-peak periods.[134] It may also be implemented through the adoption of such measures undertaken by distribution utilities to encourage end users to properly manage their loads to achieve efficiency in the utilization of fixed infrastructure in the systems.[135]

D. Financing Energy Efficiency Projects

1. Government Energy Efficiency Projects

As discussed in Part II.D, the EE&C Law, particularly its IRR, has laid down the groundwork to accommodate the savings-based financing models typical for global energy efficiency and conservation projects. Pertinent provisions of the EE&C Law IRR state:

> Section 46. Scope.—Government agencies including all departments, bureaus, offices, agencies, branches and instrumentalities or political subdivision, GOCCs, including its subsidiaries or other self-governing board or commission of the

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[130] § 5(d).
[131] § 5(c).
[132] § 5(y).
[133] § 24.
[134] § 24.
[135] § 24.

> Government and LGUs, state universities, and colleges are *authorized to enter into different financial arrangements for energy efficiency projects.*
>
> Section 47. Financial Arrangements.—Government energy efficiency projects may be pursued through different financial arrangements and modalities following the procedures laid down in any of the following measures: Republic Act No. 9184, otherwise known as the Government Procurement Reform Act; Republic Act No. 6957, otherwise known as BOT Act, as amended by Republic Act No. 7718; Republic Act No. 7160, otherwise known as the Local Government Code of 1991; the 2013 NEDA Joint Venture Guidelines, as may be amended from time to time; the applicable LGU charter; related laws, rules and regulations; and other modalities.
>
> *The IAEECC shall include savings-based services and payment as through additional modality for pursuing government energy-efficiency projects and shall adopt relevant guidelines, in coordination with relevant government agencies and stakeholders, for this purpose.*
>
> *Such modalities shall include Government agencies and LGUs being able to repay ESCOs undertaking energy efficiency projects through applicable repayment schemes based on the cost savings to be generated from the projects and other sources,* in accordance with the guidelines issued by the DBM on multi-year contracts and other applicable laws.[136]

The provisions laying down the responsibilities of the COA and DBM lend further support to the efforts to finance such government energy efficiency and conservation projects:

> Section 9. Commission on Audit (COA).—The COA shall recognize government energy efficiency projects, consistent with government accounting and auditing rules.
>
> *In conducting its audit, the COA shall also consider the long-term cost savings that would result from government energy efficiency projects.* The COA shall issue necessary auditing guidelines that will support procurement of government energy efficiency projects over traditional cost efficiency procurement, such as inclusion of minimum energy efficiency standards in the Terms of Reference pursuant to Republic Act No. 9184, otherwise known as the Government Procurement Reform Act.

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[136] EE&C Law IRR, §§ 46-47. (Emphases supplied.)

> Section 11. Department of Budget and Management (DBM).—*The DBM shall give due preference to funding government energy efficiency projects*, as defined under the Act and the EEC-IRR, and incorporate energy efficiency as a factor in evaluating the annual performance of government agencies.
>
> The DBM, through its Procurement Service, shall adopt and incorporate the DOE-certified specifications and/or ratings in its procurement of common-use supplies and equipment to assist government entities in acquiring energy efficient supplies and equipment.[137]

2. Financial Assistance to All Energy Efficiency Projects

The financial support granted under the EE&C Law and its implementing rules and regulations is also not limited only for government projects. As an incentive, financial assistance through concessional loans are emphasized under Section 27 of the EE&C Law:

> Section 27. Financial Assistance.—GFIs and other financial institutions shall, in accordance with and to the extent allowed by the enabling provisions of their respective charters or applicable laws, provide concessional financial packages for the development, utilization, and commercialization of renewable energy and energy efficiency projects as duly recommended and endorsed by the DOE.[138]

This support for financing energy efficiency and conservation projects is further supplemented by the various provisions of the EE&C Law IRR. For instance, the following provisions of the EE&C Law IRR specifically recognize the role of energy efficiency and conservation in national development, promote the granting of loans issued at concessional rates, and ensure the availability of compatible guarantee products to mitigate credit risks in order to attract private sector investments:

> Section 22. Government Financial Institutions (GFIs).—The GFIs shall set aside lending funds for energy efficiency projects at concessional rates of interest to attract private sector investments. The GFIs shall, in collaboration with the Insurance Commission, ensure the availability of compatible guarantee or insurance

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[137] §§ 9 & 11. (Emphases supplied.)
[138] Rep. Act No. 11285 (2019), § 27.

> products that would mitigate credit risks associated with energy efficiency investments in small and medium-sized enterprises and performance risks related to energy efficiency solutions developed by ESCOs, engineering companies, and other technology providers.
>
> Section 23. Insurance Commission (IC).—The IC shall, in collaboration with the GFIs, ensure the availability of compatible guarantee products that would mitigate the credit risks associated with energy efficiency investments in small and medium-sized enterprises and performance risks related to the energy efficiency solutions developed by ESCOs, engineering companies, and other technology providers.
>
> Section 24. National Economic and Development Authority (NEDA).—The NEDA shall recognize the role of energy efficiency and conservation in national development.[139]

E. Fiscal and Non-Fiscal Incentives

1. Fiscal Incentives

As discussed in Part III, the fiscal incentives under the EE&C Law are anchored on the incentives provided under the Omnibus Investments Code. However, as a prerequisite to availing such incentives, an energy efficiency project, whether new or existing, must first be certified as such by the DOE and registered with the BOI. [140]

The fiscal incentives available under the Omnibus Investments Code include:

a. Income Tax Holiday – full exemption from income taxes levied by the National Government for 6 years for pioneer firms and 4 years for non-pioneer firms;[141]
b. Tax and duty exemptions on imported machinery, equipment, and spare parts;[142]
c. Exemption on wharfage dues as well as export tax, duty, and impost fees;[143]

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[139] EE&C Law IRR, §§ 22-24.
[140] § 71.
[141] INVEST. CODE, § 39(a).
[142] § 39(c).
[143] § 39(n).

d. Tax credit on domestic capital equipment;[144]
e. Tax credit for taxes and duties on raw materials; [145] and
f. Additional 50% deduction on taxable income for labor expenses within the first five years from registration.[146]

2. Non-Fiscal Incentives

In addition to the fiscal incentives, the following non-fiscal incentives shall also be available:

a. Provision of awards and recognition for innovations in energy efficiency and conservation best practices, and successful energy efficiency projects and energy efficient products; and
b. Provision of technical assistance from government agencies in the development and promotion of energy efficient technologies.[147]

F. Energy Performance and Energy Labeling

1. Energy-consuming products

Through the EE&C Law, the legal framework is now in place for the DOE to prescribe energy labels for all energy-consuming products, devices, and equipment. Similarly, mandatory energy efficiency rating and labeling systems shall also be developed for identified energy-consuming products, such as room air conditioners, refrigeration units, and television sets, to promote energy efficient appliances and raise public awareness on energy saving.[148] In support of these responsibilities, the DOE has also been authorized by the EE&C Law to select energy-consuming products and their models for examination, testing, and verification.[149]

Once in place, manufacturers, importers, suppliers, distributors, and retailers engaged in selling such products, devices, and equipment must ensure the appropriate displaying of such energy labels, and provide information that shall assist consumers to make informed decisions on such

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[144] § 39(d).
[145] § 39(k).
[146] § 39(b).
[147] EE&C Law IRR, § 73.
[148] Rep. Act No. 11285 (2019), § 15.
[149] § 15

products.[150] At minimum, the energy efficiency label is required to reflect the energy efficiency rating of the product, the monthly energy consumption based on a specified hour of daily usage, the brand name and product model, and the year the energy rating was issued.[151]

2. Motor Vehicles

For motor vehicles, the EE&C Law requires vehicle manufacturers, importers, and dealers to comply with fuel economy performance labeling requirements to be set by the DOE with the assistance of the DENR and the DOTr.[152] Vehicle manufacturers, importers, and dealers shall also be required to provide technical information on the fuel economy rating of the engine which will allow the consumers to make an informed decision in choosing the vehicles for their use.[153]

3. Buildings

As discussed in part II.E., in relation to the construction, improvement, or renovation of buildings and key infrastructure projects, the development of standards to ensure the energy efficiency of such projects shall fall upon the DOE and the DPWH. Section 18 of the EE&C Law highlights the importance of energy efficiency and conservation:

> Section 18. Energy Performance for Buildings.—To ensure appropriate and effective implementation of energy efficiency and conservation for new and existing buildings for commercial and industrial use such as hospitals, educational facilities, exhibition centers, government offices, and military facilities, the LGUs shall implement the following measures in accordance with building permit issuances:
>
> (a) New building construction shall comply with the minimum requirements as specified in the Guidelines on Energy Conserving Design on Buildings issued by the DOE, in consultation with the DPWH, which may be revised to reflect new and emerging energy efficiency and conservation technologies: *Provided*, That state-owned buildings and facilities shall comply with the GEMP and such other guidelines issued by the IAEECC; and

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[150] § 15
[151] § 15
[152] § 17.
[153] § 17.

(b) Retrofit of buildings shall also comply with the minimum requirements as specified in the Guidelines on Energy Conserving Design on Buildings issued by the DOE, in consultation with the DPWH, which may be revised to reflect new and emerging energy efficiency and conservation technologies: *Provided,* That state-owned and leased buildings and facilities shall comply with the GEMP and such other guidelines issued by the IAEECC.

G. Penalties

Finally, subject to the due process guidelines laid down under the EE&C Law,[154] the DOE is empowered to impose administrative fines and penalties ranging from PHP 10,000.00 to PHP 1,000,000.00 for any violation of the EE&C Law.[155]

On the other hand, the commission of the following prohibited acts may result in criminal liability which may lead to a penalty of imprisonment of one to five years, or a fine of PHP 100,000.00 to PHP 100,000,000.00 or twice the amount of costs avoided for non-compliance, whichever is higher, or both, upon the discretion of the court:[156]

a. Failing to comply with energy labeling;
b. Removing, defacing, or altering any energy label on the energy-consuming product before the product is sold to the first retail purchaser or leased to the first lessee;
c. Failing to provide accurate information or the provision of false or misleading energy information as required to be submitted under the EE&C Law;
d. Selling, leasing, or importing energy-consuming products that do not comply with the MEP;
e. Failing or willfully refusing to appoint or designate a CECO or CEM;
f. Willfully refusing to submit to an on-site inspection;
g. Failing or willfully refusing to submit any of the reports required herein;
h. Failing to comply with issued orders of the DOE in the discharge of its enforcement powers; and
i. Violating any provision of the IRR, codes, and guidelines issued in accordance with the EE&C Law.[157]

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[154] § 31.
[155] § 32.
[156] § 33.
[157] § 30.

V. THE WAY FORWARD

After a three-decade journey, the passage of the EE&C Law presents a vital opportunity to confront and address our persistent energy problems. Now is the right time to recall the benefits of energy efficiency and conservation. Perhaps when coupled with the growth of the renewable energy industry, we may find the pragmatic solution that addresses both the country's energy security needs and the necessity of minimizing carbon emissions.

The fact remains, however, that the Philippines lags behind its ASEAN neighbors and the rest of the world in making progress in this field. With the legal framework and, consequently, the Philippine energy efficiency and conservation industry still in infancy, vigilance is required to ensure that we are able to meet our goals. The need to encourage the industry's growth is important. Policy makers are encouraged to promote the preservation of incentives from the ever-looming threat of reduction and rationalization.

To effectively utilize this solution, the first step is to recall how energy efficiency and conservation works. A review of the EE&C Law reveals its goal of adopting a multi-agency approach that engages both the government and the private sector in adopting energy efficiency and conservation as a national way of life. Our success will depend on our ability to successfully implement this goal.

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