BUSINESS OPPORTUNITIES UNDER THE ENERGY EFFICIENCY AND CONSERVATION ACT

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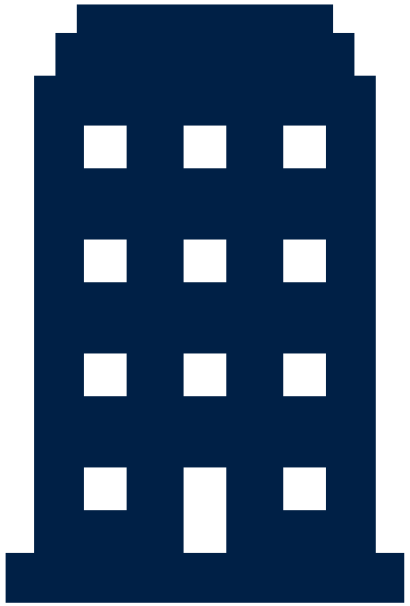
Department of Energy

REPUBLIC ACT 11285

ENERGY EFFICIENCY AND CONSERVATION ACT

The EE&C Act institutionalizes energy efficiency and conservation, enhance the efficient use of energy, and grant incentives to energy efficiency and conservation projects.

ENERGY SERVICE COMPANY (ESCO) AS A NEW BUSINESS MARKET



Energy Service Company (ESCO)

ESCO are partners in compliance with the EEC Act, as they offer multi-technology services and goods towards developing and designing EE projects, delivering and guaranteeing energy savings, and ensuring cost-effective and optimal performance.

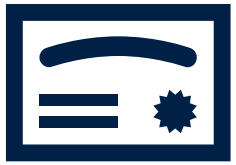
Services offered by ESCO:

- *Energy audit (detailed and investment grade)*
- *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*

DOE Department Circular DC2020-09-0018

Guidelines in the Administration, Classification and Certification of Energy Service Company (ESCO)

Section 4 of DC2020-09-0018 ***allows full foreign-owned ESCO*** *to register with the DOE given that they are duly registered with the* ***Securities and Exchange Commission or the Department of Trade and Industry*** *or licensed as a branch office by the Securities and Exchange Commission, in compliance with the applicable laws of the Philippines, including Republic Act No. 11232 or the Revised Corporation Code and Republic Act No. 7042 or the "Foreign Investment Act"*



22 *Registered ESCOs to DOE as of June 2021*

ENERGY SERVICE COMPANY (ESCO) AS A NEW BUSINESS MARKET

Registered[1] Energy Service Company (ESCO) as of June 2021

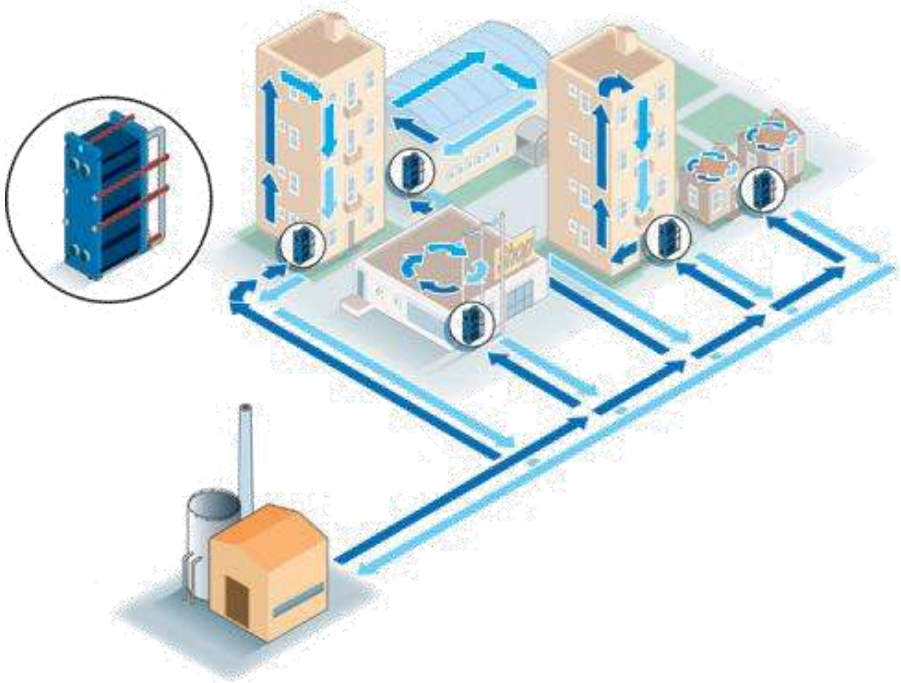
List of Energy Service Companies (ESCO)

(As of June 2021)

1. *Energy Integrated Systems and Support Services Inc*
2. *Tri-Sky Link Sales and Services, Inc.*
3. *Santos Knight Frank, Inc.*
4. *"Engie Services Philippines*
5. *Design Science Inc.*
6. *Meralco Energy, Inc.*
7. *Tekno Centrix Corporation*
8. *Wisenergy, Inc.*
9. *Concepcion Carrier Air Conditioning Company*
10. *Filairco, Inc/Trane Philippines*
11. *Beyond Energy Solutions & Technology, Inc.*
12. *Total Renewable Energy Efficiency Solutions Corp.*
13. *Edward Marcs Philippines, Inc*
14. *Azbil Philippines Corporation*
15. *Digital Marketing*
16. *Upgrade Energy Philippines, Inc.*
17. *PNOC-Renewables Corporation*
18. *Greenergy Development Corporation*
19. *Buskowitz Finance Incorporated*
20. *Enercon Systems International Philippines Corp.*
21. *EP Solutions, Inc.*
22. *Alpha Centauri Electrical Services*

[1]Under this DC2020-09-0018, an ESCO shall be required to be registered to the DOE and shall be classified either as Registered ESCO or Certified ESCO.

District Cooling System (DCS)



- *Centralized cooling network which utilizes chilled water as the main coolant that will be distributed to more than one facility*
- *Cleaner system with less emission and little to no use of refrigerant*
- *Large scale multi-energy system which can be integrated to several energy sources (including renewable energy)*

Business Opportunities on District Cooling System Development

- *The introduction of energy efficient chillers to Philippine Market*
- *Collaborations between overseas investors, local real estate developers, and electricity utilities*
- *Huge market potential with the current booming infrastructure industries*

ENERGY SERVICE COMPANY (ESCO) AS A NEW BUSINESS MARKET

EE PROJECTS BY ENERGY SERVICE COMPANIES

(As of April 2021)

Total Investment Cost of

₱689.05M

on EE projects of undertaken by the registered Energy Service Companies in 2020.

Total Energy Savings of

₱209.8M[1]

based on the kWh per year saving of the ESCO EE projects

Project Name	Project Cost in Million Pesos (₱)	Energy Saving (kWh/year)
Office Building Air-cooled Conversion	77.0	2,565,696
Chilled Water Plant Retrofit	47.5	1,939,798
Water-cooled Packaged A/C System Retrofit	101.5	2,674,736
Replacement of Centrifugal Water-Cooled Chiller	19.0	635,000
Chilled Water Plant and BMS Retrofit	258.0	5,212,000
Conversion of Air-cooled Chiller Plant to Water-cooled Chiller Plant	34.51	4,380,000
Industrial Refrigeration Retrofit	56.0	2,564,640
Replacement of standard efficiency motors (SEM) with high efficiency motors (HEM)	82.16	3,010,200.00
Lighting System Retrofit	13.38	330,341.52
Total	**₱689.05M**	**23,312,411.52 kWh/year**

Note: The above-mentioned Sample EE Projects were undertaken by Energy Service Companies (ESCOs) with the corresponding investment cost and equivalent energy savings.

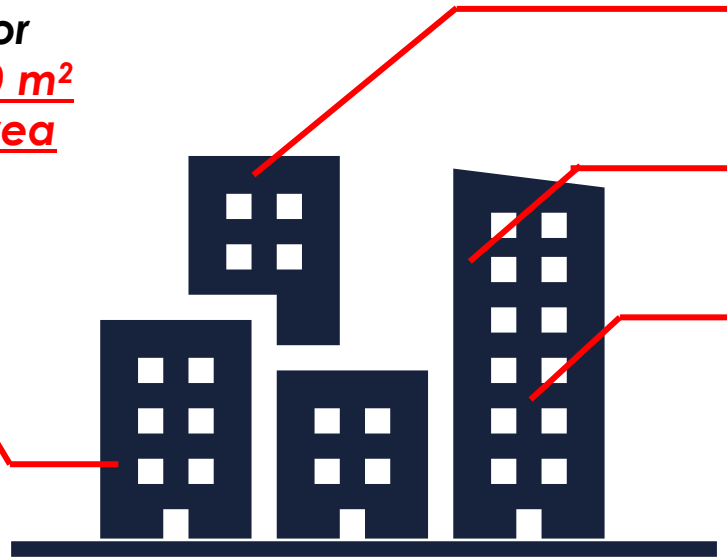
[1] *23,312,411.52 kWh x Php9/kWh = ₱209,811,703.68 of energy savings. Rate Assumption: ₱9/kWh*

ENERGY CONSERVING DESIGN FOR BUILDINGS

DEPARTMENT CIRCULAR NO. DC2020-12-0026
Adoption of the Guidelines on Energy Conserving Design of Buildings

To encourage and promote the energy conserving design of buildings and their services to reduce the use of energy with due regard to the cost effectiveness, building function, comfort, health, safety, and productivity of the occupants.

Electrical loads of at least 112.5 kVA or with at least 10,000 m² total gross floor area

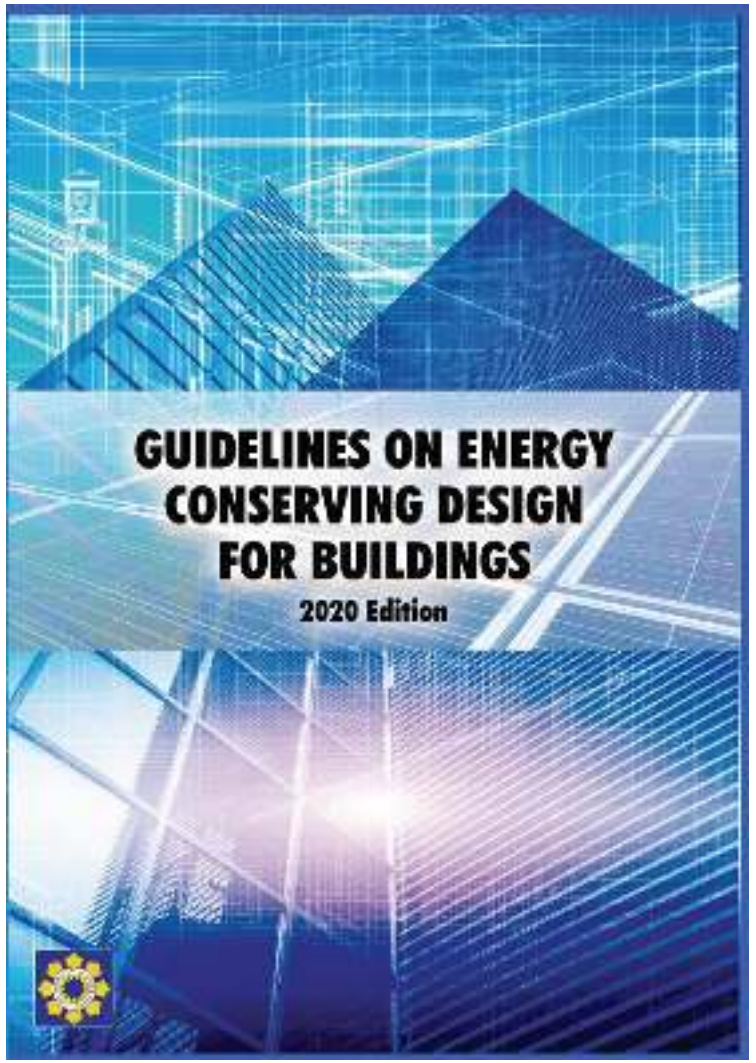


Building Envelope

Electrical Systems

Mechanical Systems

Energy Efficient Buildings will boost the demand for energy efficient materials and technologies that will help to meet the requirements under the guidelines.



ENERGY CONSERVING DESIGN FOR BUILDINGS

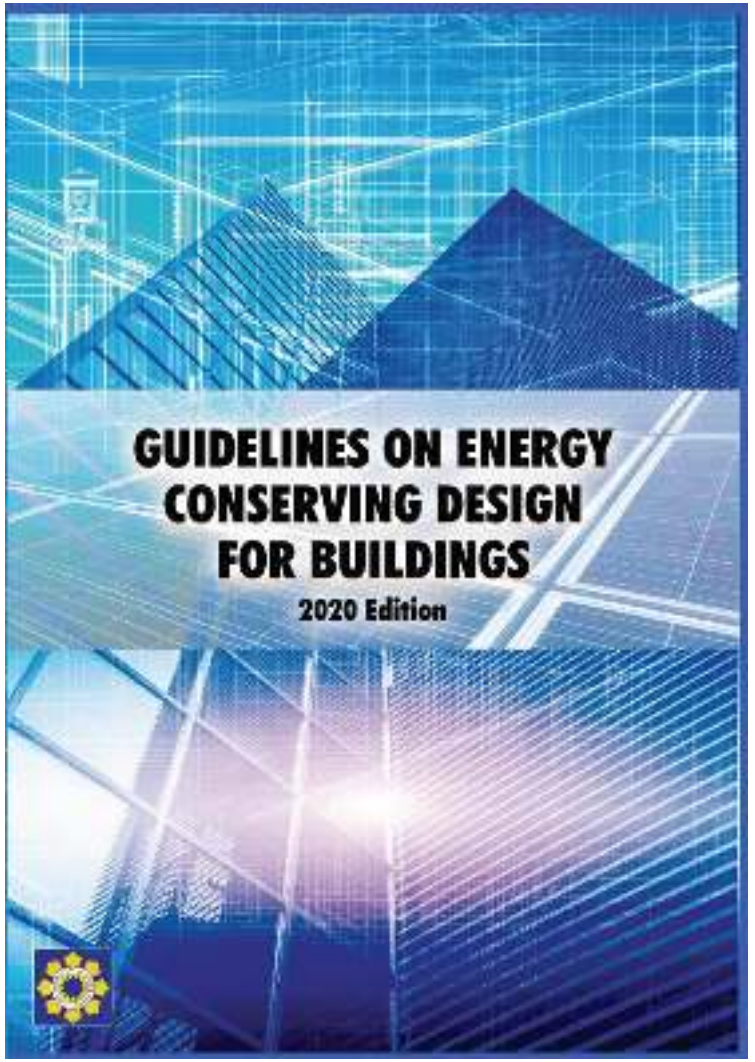
COVERAGE/APPLICATION

Application:

New buildings and their systems and any expansion and/or modification of existing buildings or systems with designed connected electrical loads of at least 112.5 kWA or has at least 10,000 m^2 Total Gross Floor Area (TGFA)

Exemption:

Areas with industrial/ manufacturing process.



Section III. Application and Exemption.

Building Envelope requirements are mandatory for air-conditioned buildings but recommendatory for non-air-conditioned ones.

Business Opportunities

- *Construction project development*
- *Construction site management*
- *Interior Designing*
- *Supply of Construction Materials*
- *Supply of Equipment and Systems*

ENERGY CONSERVING DESIGN FOR BUILDINGS

RENEWABLE ENERGY (RE) SYSTEMS AND EQUIPMENT

- Covered buildings shall source, initially, a minimum of one percent (1%) of their projected annual energy requirements to reduce demand for commercial power through the installation of any or a combination or all of the following:

    - RE Power Supply Systems
    - Solar Water Heaters
    - Solar Cooling Systems
    - Solar-Powered Lighting Systems
    - Any other similar system or equipment

- Availing of the Green Energy Option Program by a Building shall also satisfy the above stated requirement


Energy Efficient
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FOR ENERGY EFFICIENCY AND SECURITY
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doe.gov.ph
Department of Energy

Designated Establishments

Refers to a private entity identified as energy intensive industries.

Annual Energy Consumption*

Other DE	*At least 100,000 kWhE but less than 500,000 kWhE*
Type 1 DE	*500,001 kWhE but less than 4,000,000 kWhE*
Type 2 DE	*4,000,001 kWhE and above*

Memorandum Circular No. MC2020-05-0001
Directing All Designated Establishments under Commercial, Industrial and Transport Sectors to Submit Energy Consumption Reports

Sectors under Designated Establishments:

- ***Commercial***
- ***Industrial***
- ***Transport***

**kWhE – to read as Kilowatt-Hour Equivalent*
** Combination of Fuel and Electricity*

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*kWhE – to read as Kilowatt-Hour Equivalent
* Combination of Fuel and Electricity

Business Opportunities under Designated Establishments

- *Energy Management System*
- *Energy Efficiency Projects and Measures*
- *Building Management Systems/Technology*
- *Building Cooling enhancements/improvements*
- *Energy Audit*

ENDORSEMENT OF EE PROJECTS TO BOI FOR FISCAL INCENTIVES

This Department Circular shall establish the guidelines, rules and procedures in the endorsement of energy efficiency projects to the BOI for registration in order to grant fiscal incentives to the proponents for the said project.

Department Circular No. DC2021-05-0011
Guidelines on the Endorsement of Energy Efficiency Projects to the Board of Investments (BOI) Fiscal Incentives

Simple Energy Efficiency Projects - involves new installation, upgrading or retrofitting of a specific equipment or devices in the system such as but not limited to lighting retrofit, automated lighting control system or smart control system, HVAC upgrades, boiler replacement, and other similar devices or equipment within a system.

Complex Energy Efficiency Projects - involves new installation, retrofitting or upgrading of system or a combination of systems. This includes Demand Side Management (DSM) Projects or any other innovative DSM schemes with the intention to lower down overall demand consumption in the grid, which project were being implemented by an electric distribution utility or ESCO.

FISCAL INCENTIVES FOR ENERGY EFFICIENCY PROJECTS

ENERGY EFFICIENCY PROJECTS - *designed to reduce energy consumption or costs by any improvement, repair, alteration, or betterment of any building or facility, or any equipment, fixture, or furnishing to be added to or used in any building, facility, or vehicle including the manufacturing and provision of related services.*

Project Application → *20 Days Processing Time* → DOE Endorsement to BOI

EVALUATION CRITERIA. *EE projects should meet 15% savings threshold measured at the boundary in order to access the following rates of Income Tax Holiday (ITH).*

Annual Energy Savings at the Project Boundary	ESCO or TPPD Rate of ITH	Self-Financed Amount of ITH
Less than 15%	*0% but registration shall not be cancelled*	*None, but registration shall not be cancelled*
15% to 20%	*50%*	*30% of cost installed EE&C equipment*
More than 20% and up to 25%	*75%*	*40% of cost installed EE&C equipment*
More than 25%	*100%*	*50% of cost installed EE&C equipment*

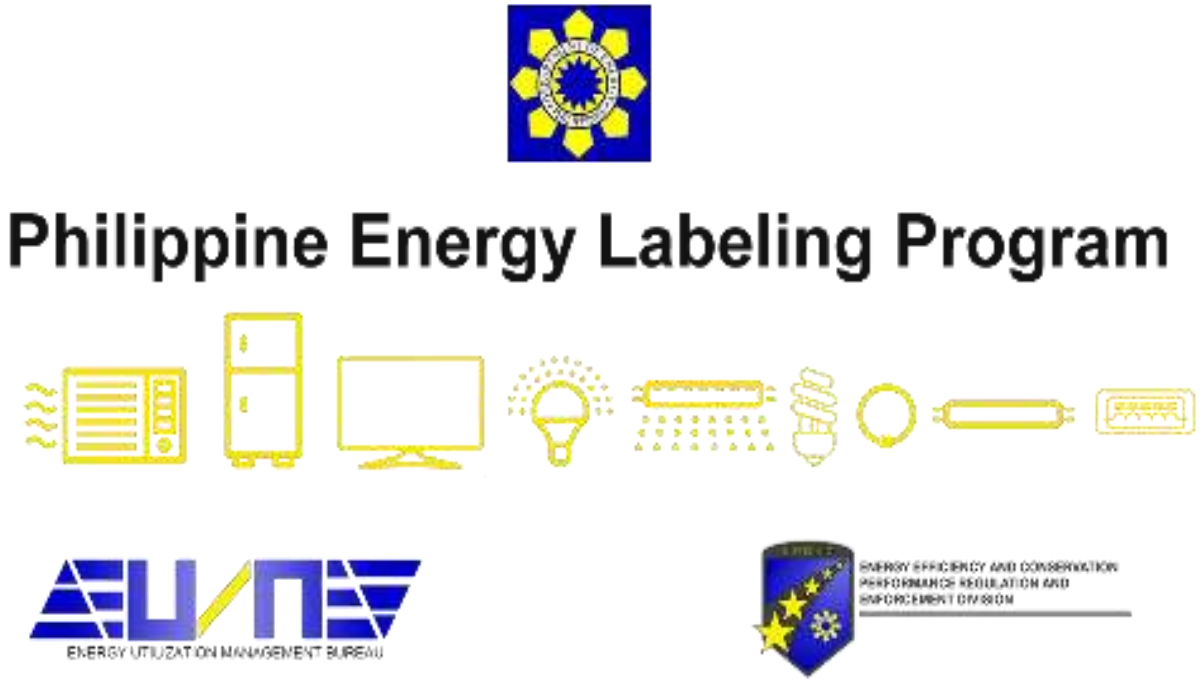
BOI MC 2021-001 GENERAL POLICIES AND SPECIFIC GUIDELINES TO IMPLEMENT THE 2020 INVESTMENT PRIORITIES PLAN

***All registered EEC projects shall be granted with Pioneer Incentives**, if the said EEC Project or Enterprise is registered as a Pioneer Project or Enterprise in accordance with E.O. 226.*

PHILIPPINE ENERGY LABELING PROGRAM (PELP)

- The Philippine Energy Labeling Program aims to initiate market transformation and promote energy efficiency and through the regulation of energy consuming products.

- Initial coverage includes air conditioners, refrigerating appliances, television sets and lighting products.



COVERAGE

Air Conditioner

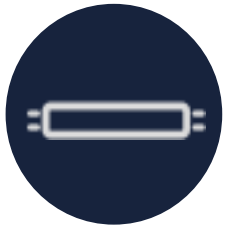
✓ *ACU - Cooling capacity: up to 50,000 kJ/hr. or 14kW*

* ***Refrigerators***

✓ *Net volume capacity of 113 liters up to 600 liters*

Televisions

✓ *Screen size up to 1,524 mm (60 inches) with tuner*



Compact Fluorescent Lamps (CFL)

✓ 3 - 60 W with E27 and E14 base

Linear Fluorescent Lamp

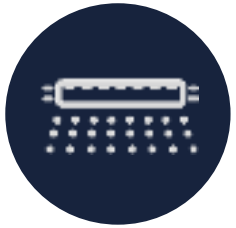
✓ 10 - 65 W (halophosphate), 14 - 65 W (Triphosphor), 14 - 35 W (Triphosphor T5)

Circular Fluorescent Lamp

✓ 14 - 40 watts, 230 V

Lamp Ballasts (BAL)

✓ Electromagnetic and electronic ballasts (up to two (2) lamps) for fluorescent lamps



Light Emitting Diode (LED) Lamps

Non-directional LED*

✓ E27 and E14 base

Linear LED*

✓ double-capped linear LED lamps with (1) G5 and G13 caps or (2) caps

IMPORTATION OR DISTRIBUTION OF ENERGY EFFICIENT PRODUCTS

Requirements:

- Company must comply with local business registration requirements
- Products must comply with the prescribed Minimum Energy Performance for Products (MEPP)
- Company and products must be registered under the PELP System

PELP REGISTRATION

PHILIPPINE ENERGY LABELING PROGRAM (PELP)

RESPONSIBILITIES
(Manufacturers, Importers, Distributors and Retailers)

Attach Energy Label

Cooperate during the conduct of enforcement, monitoring, and verification activities.

Exhibit energy label in all publications

(e.g., TV and newspaper ads, leaflet/brochures, online trading activities, etc.)

Submit annually information on the inventory of sales of ECPs

INTER-AGENCY ENERGY EFFICIENCY AND CONSERVATION COMMITTEE

Composition of IAEECC

Created pursuant to Section 9 of the Act to evaluate and approve government energy efficiency projects and to provide strategic direction in the implementation of the GEMP

GOVERNMENT ENERGY MANAGEMENT PROGRAM (GEMP)

Coverage of GEMP

GEMP

- Foreign Service Posts
- Local Government Units (LGUs)
- Government Owned and Controlled Corporations (GOCC)
- Judicial branch
- Constitutional Commission
- National Government Agencies
- State Universities and Colleges (SUC)
- Legislative Branch

GOVERNMENT ENERGY MANAGEMENT PROGRAM (GEMP)

Overall Goal of GEMP

GEMP

=

10%

Reduction on monthly consumption of fuel and electricity

IAEECC Resolution No. 1, s. 2020

Directing All Government Agencies, including the Local Government Units (LGUs) and Foreign Service Posts, to Comply with the Government Energy Management Program (GEMP), Ordering the Department of Energy to Conduct Energy Audits and Spot checks, and Submit Proposed Improvements to the GEMP

- ✓ **Designation of Energy Efficiency and Conservation Officer and Energy Efficiency and Conservation Focal Person**
- ✓ **Setting the thermostat of AC units to 24 degrees Celsius**
- ✓ **Conduct of energy audit, surveys, technical analysis, and other research activities**
- ✓ **Improvement of Government Energy Management Program**
- ✓ **Submission of Monthly Electricity and Fuel Consumption Report**

IAEECC Resolution No. 2, s. 2021

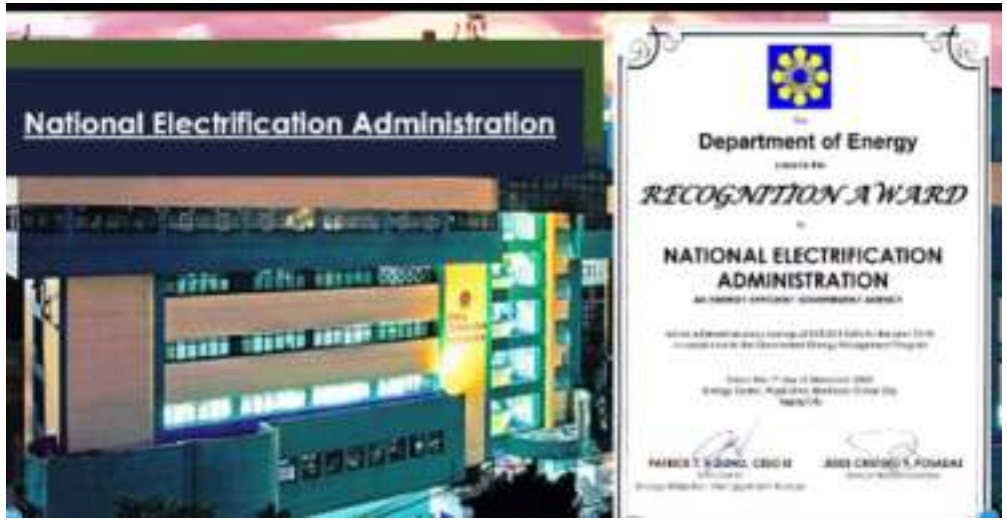
Directing All Government Entities, including the Local Government Units (LGUs) and Foreign Service Posts, to Use Energy Efficient Light Emitting Diode (LED) Lamps in Government Buildings and Facilities as a Requirement for Compliance to the Government Energy Management Program

- ✓ **Compliance with the Implementing Guidelines of the PELP for Lighting Products of the Department Circular No. DC2020-06-0015**
- ✓ **Observance of the Use of the Energy Efficient LED Lamps with a minimum of 80 lumen per watt (lm/W) for non-directional and 90 lm/W for linear type**
- ✓ **Government entities shall ensure that only energy efficient LED lamps that are compliant with the MEPP will be installed or used in their construction and retrofit projects**

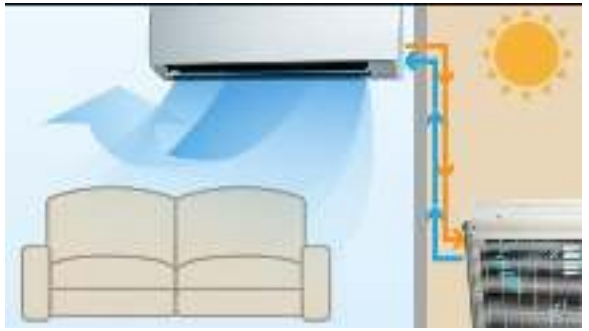
ROLE OF GOVERNMENT ENTITIES

1. *Establish the Energy Efficiency and Conservation Office*
2. *Designate an Energy Efficiency and Conservation Officer*
3. *Designate an Energy Efficiency and Conservation Focal Person*
4. *Develop and Implement the Local Energy Efficiency and Conservation Plan - (LGU)*
5. *Develop and Submit the approved Energy Efficiency and Conservation Program*
6. *Submit monthly electricity and fuel consumption reports.*
7. *Submit Annual Inventory (ACU, Lighting Fixtures, Other Office Equipment)*

INCENTIVES AND RECOGNITIONS



EE&C Best Practices



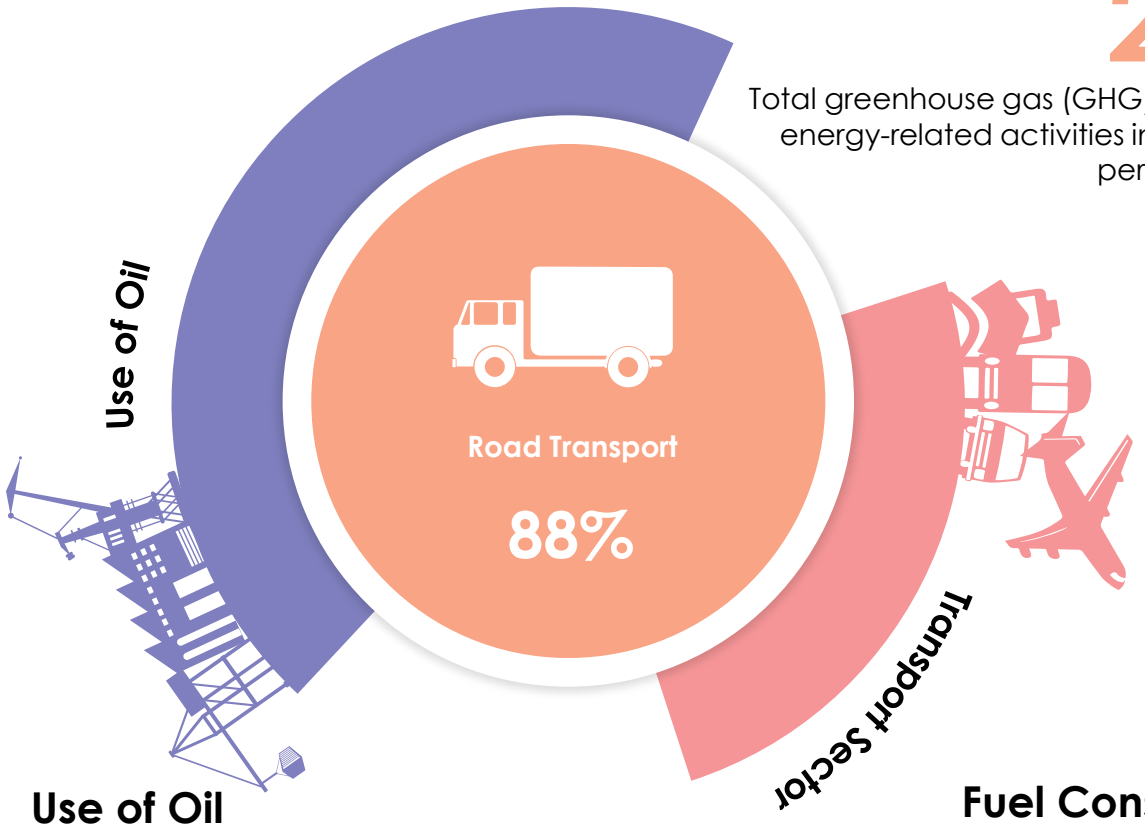
MINIMUM ENERGY PERFORMANCE IN THE TRANSPORT SECTOR

Total Final Energy Consumption

Greenhouse gas emission

28%

Total greenhouse gas (GHG) emissions from energy-related activities increased by 4.1 percent from 2017.



Use of Oil

49%

Oil products

Fuel Consumption

36%

Transport Sector

POLICIES AND ISSUANCES

R.A 11285 – *Energy Efficiency and Conservation Act*

- *MEP level for electrical equipment, machinery, and transport vehicles*

DOE DC 2019-11-0014 – *Implementing Rules and Regulations of the R.A. 11285*

- *Energy labeling for transport vehicles*
  - *Fuel economy rating scale*
  - *Fuel economy label*

DOE DC 2020-10-0023 – *Prescribing Policy Framework for the Development of the Fuel Economy Rating, Fuel Economy Performance and Related Energy Efficiency and Conservation Policies for the Transport Sector and Other Support Infrastructures*

Projects/Initiatives for EV and EV Charging Stations

Non-Project Grant Aid (NPGA) for the Introduction of Japanese Advanced Products and Its System (Next-Generation Vehicles Package)

Market Transformation through the Introduction of Energy Efficient Electric Vehicles (E-Trike) Project

Charging Stations for EV

1. Office of the President
2. Department of Energy
3. Department of Science and Technology

Projects/Initiatives for EV and EV Charging Stations

- *Demonstration of Fast EV Chargers*
- *Development of Emergency Response Protocol for alternative fueled vehicles (AFVs), which will be adopted by the regional BFP sub-units to respond on the issues and concerns including EVs*
- *Development of certification protocol for the Minimum Energy Performance (MEP) for Electric Vehicle Charging Station (EVCS)*
- *Development of TESDA-aligned Electric Vehicle Technician Course Module with a National Certification Level II (NC II)*
- *Research and Development of fuel cell powered vehicles*
- *Promotional Activities – Information, Education and Communication Campaign*

ELECTRIC VS CONVENTIONAL VEHICLES SCENARIO

No. of EVs vs Conventional Vehicles Registered (2010-2019)

11,950

Electric Vehicles (0.09%)

12,713,355

Conventional Vehicles (99.91%)

ELECTRIC VS CONVENTIONAL VEHICLES SCENARIO

Global Activity to Phase Out Internal Combustion Engine Vehicles

7.2million

2019 World BEV stock

36.0%

Global electric vehicle stock grows annually, reaching to 245 million vehicles in 2030. (excluding two/three wheelers)

26.0 Million

Passenger EV sales will jump from 1.7 million in 2020 to 26 million in 2030

28.0%

The electric vehicle share of total vehicles sales will increase up to 28% in 2030

Philippine Energy Plan 2018-2040

Clean Energy Scenario

10.0%

penetration rate for electric vehicles for road transport (motorcycles, cars, jeepneys) by 2040

5.0%

aggregate energy savings from oil and electricity by 2040

Alternative Fuel Vehicles to be mainstreamed in the transport sector.

- Deploy applicable AFET for transport and non-transport sector

Source: https://www.automotiveworld.com/news-releases

DOE Issuances on EV and EVCS

DC2017-11-0011

➢ *Retail outlets may install electric vehicle charging facilities, provided that safety controls are in place for the operation of the EVCS.*

DC2020-02-0003

➢ *DUs may establish/facilitate the establishment of charging stations. Private and government instrumentalities can install charging stations under a non-regulatory pricing and market-based environment.*

DC2020-10-0023

➢ *Provides the development and operation of EV and EVCS to be structured for safe operation and adoption of this technology.*

Proposed Department Circular on EVCS

Scope: Covers activities related to the development, establishment, use, supply, distribution, and the operation of EVCS

➢ *EVCS classifications compliant to the requirements of PNS*

➢ *EVCS Dedicated Locations*

➢ *EVCS Energy Label and Marking Requirements*

➢ ***Endorsement to the DTI-BOI for the availment of fiscal incentives as provided under EO 226***

Incentives for EV related projects

Tax Reform for Acceleration and Inclusion (TRAIN)

- *Excise Tax Incentives*
  - *Pure Electric Vehicles (EV) shall be exempt from the excise tax on automobiles. Hybrid Vehicles shall be subject to fifty percent (50%) of the applicable excise tax rates on automobiles.*

Omnibus Investment Code (Executive Order 226)

- *Manufacture of electric vehicles and parts & components, Operation of Charging/Refueling Stations for Alternative Energy Vehicles*
- *Income Tax Holiday of 3-6 Years*
- *Importation of Capital Equipment*

Memorandum Order No. 50 Series of 2020 (The 2020 Investment Priorities Plan)

- *Include Charging/Refueling Stations for Alternative Energy Vehicles*

Senate Bill 1382 and proposed House Bill 4075

Electric Vehicle and Charging Stations Act

1. *Promote cleaner and more efficient mode of transportation system.*
2. *Accelerate the adoption and mainstreaming of electric vehicles (EVs) and EV support infrastructure.*
3. *Mandatory 5% EV share in Corporate and Government Fleets to be EV with a timeframe until the entire fleet be electrified.*
4. *Dedicated Parking Slots for EV in Private and Public Buildings and Establishments.*
5. *Open access installation of charging stations in gasoline stations.*

Investment Opportunities in EV and EVCS

1. *Construction of electric vehicle charging stations particularly in parking areas, establishments and offices.*
2. *Establishment of service shops for EVs*
3. *Establishment of testing laboratories for the safety and efficient operation of EVs*
4. *Manufacture of EV and EV batteries*
5. *Programs/Projects for spent lithium-ion batteries as energy storage for power and other applications*

THANK YOU