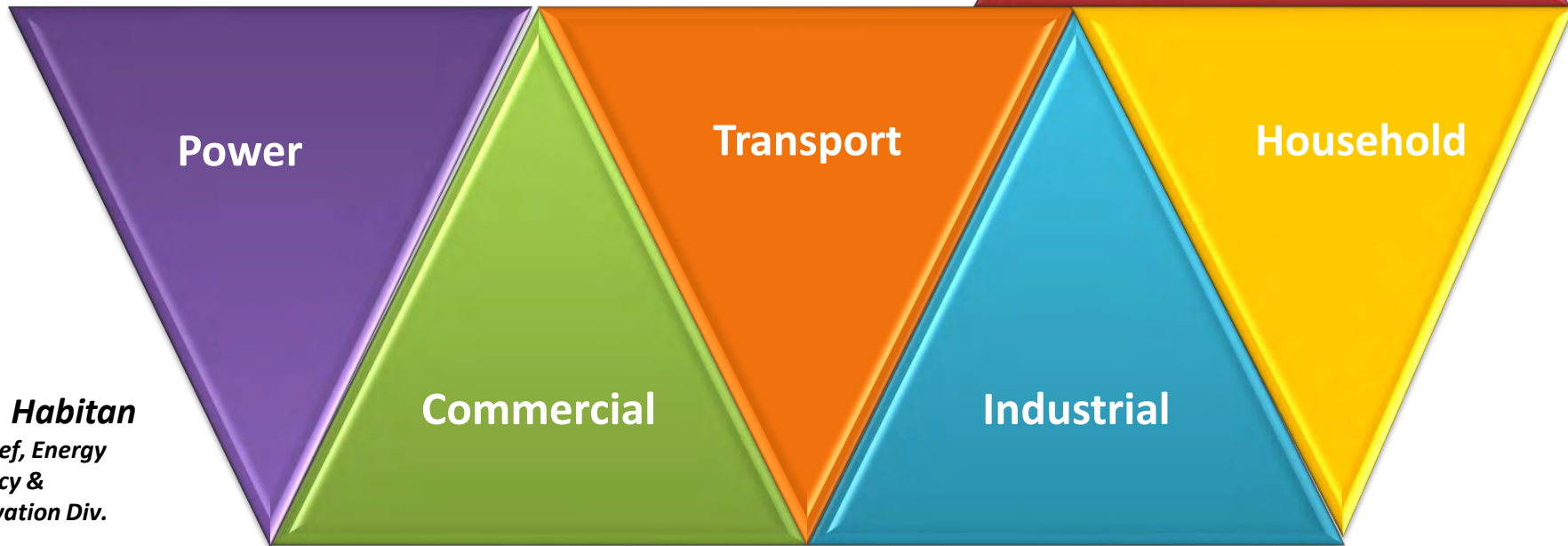


*Mainstreaming & Integration of Energy Efficiency & Conservation at the **LGU** Level*



Art P. Habitan
OIC-Chief, Energy
Efficiency &
Conservation Div.



The Many Benefits of Energy Efficiency & Conservation

IMPACTS OF ENERGY EFFICIENCY IMPROVEMENTS

Energy

- .Energy Savings
- .Energy Delivery
- .Energy Security

Economic

- .Energy Prices
- .Public Budgets
- .Employment
- .Disposable Income
- .Poverty Alleviation
- .Industrial Productivity
- .Asset Values
- .Resource Management
- .Health and Well-being

Environmental

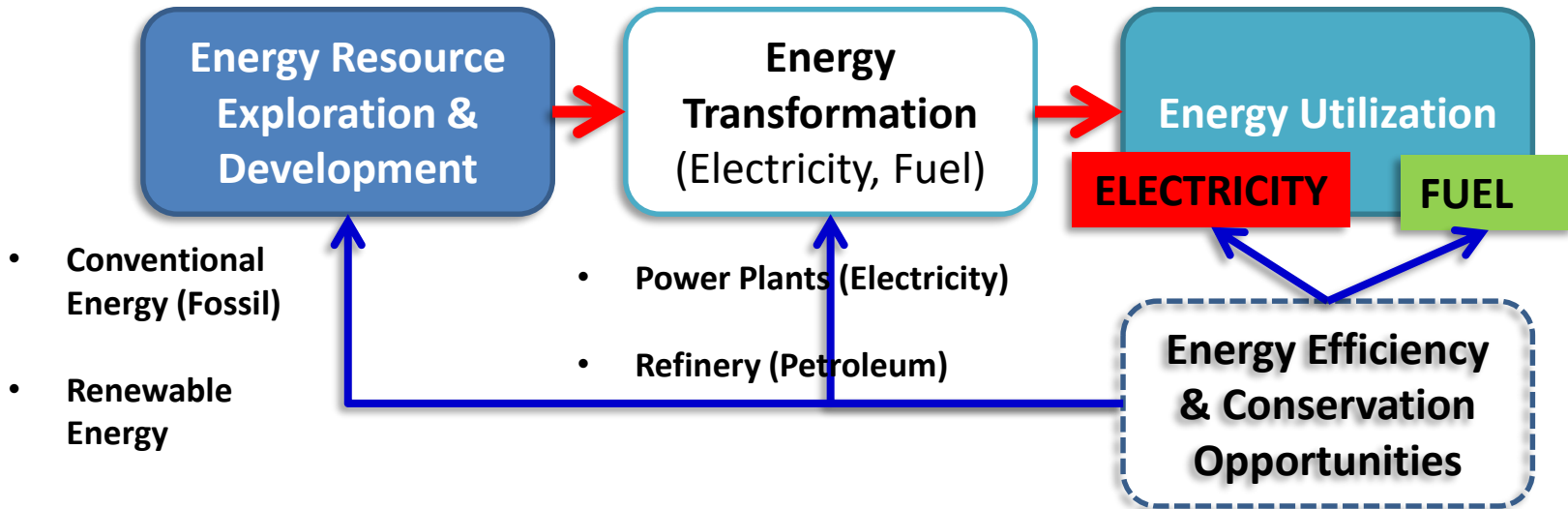
- .GHG Emission
- . Local Air Pollution

Energy 101

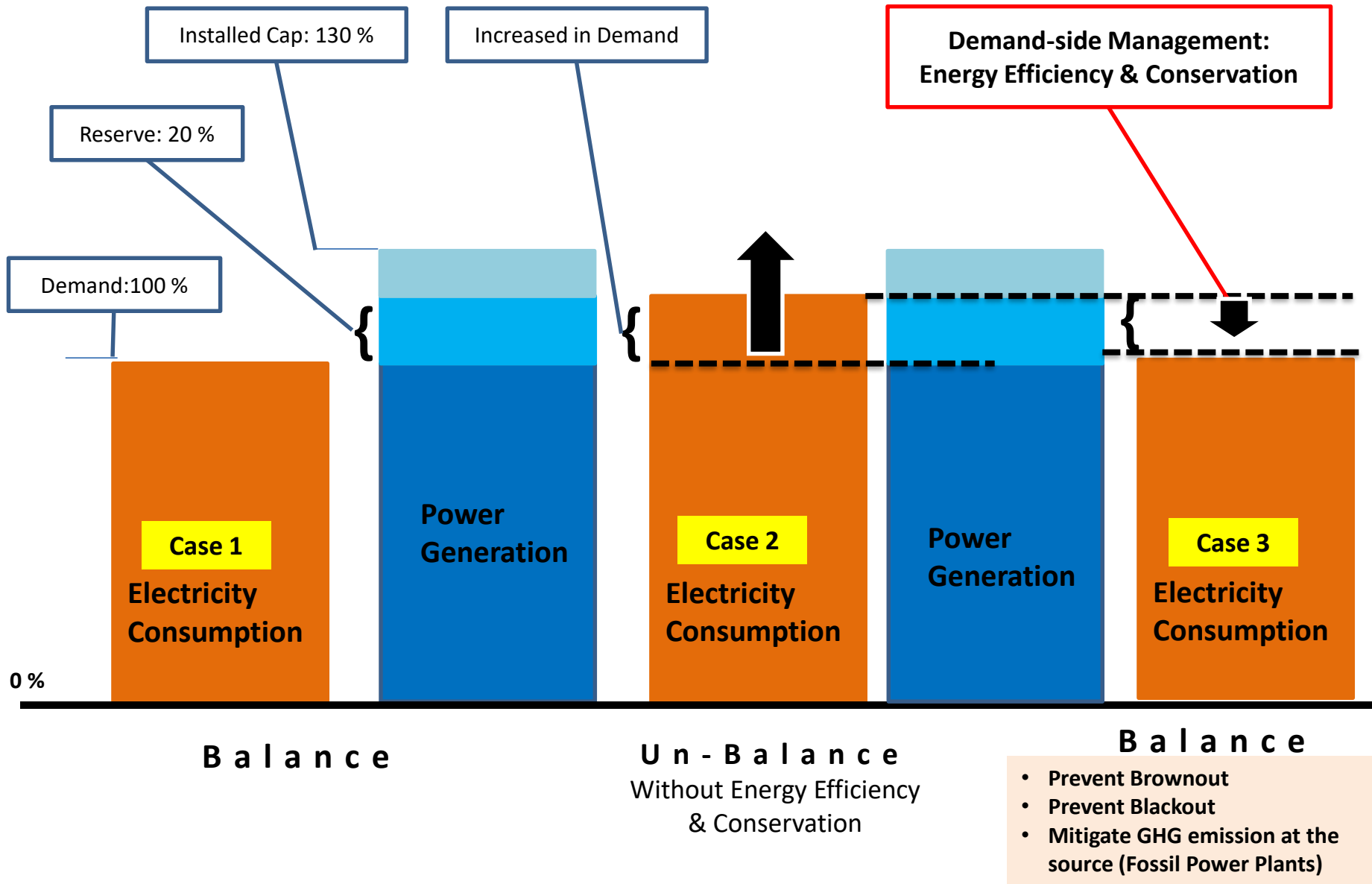
UPSTREAM

DOWNSTREAM

UTILIZATION



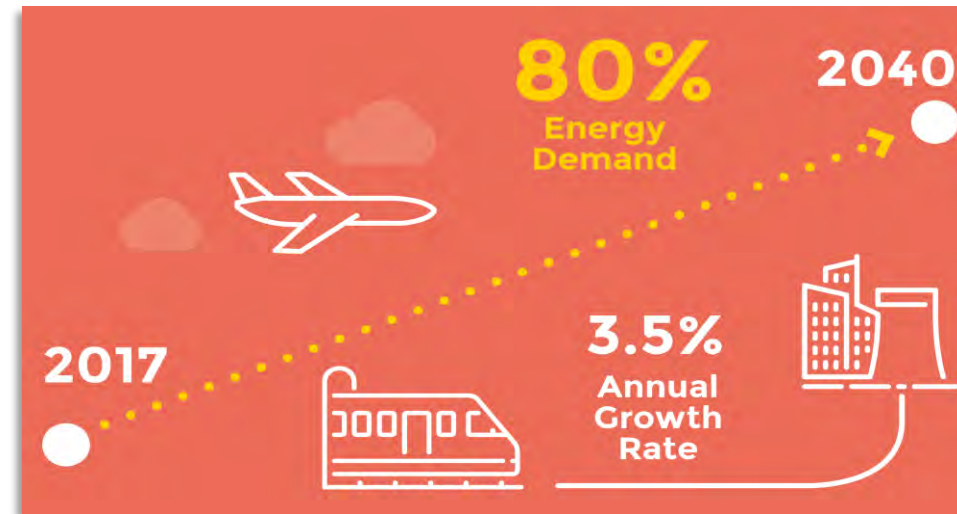
PRINCIPLE Of Energy Efficiency & Conservation



CHALLENGES:

- “Stable, Secured, Resilient, and Affordably Price Energy”

- “Energy-Efficient Philippines”



CHALLENGES!

Secured

Sufficient Power Supply

Stable

Availability of Power 24/7; Power Quality Standard; Smart Grid

Resilient

Electric facilities be able to withstand all forms of calamities and Electrical faults

Affordability

Affordable price of electricity to all consumers



DOE's National Energy Efficiency & Conservation Program

GOVERNMENT

.Government Energy Management Program (GEMP)

.Mainstreaming & Integration of Energy Efficiency & Conservation at the LGU Level

COMMERCIAL

.Development of Minimum Energy Performance in Building (MEP)

INDUSTRIAL

.Energy Management System Program (ISO 50001)

.Energy Service Company (ESCOs)

HOUSEHOLD

.PESLP: Standard & Labeling Program (MEPs for Home Appliances & Devices)

TRANSPORT

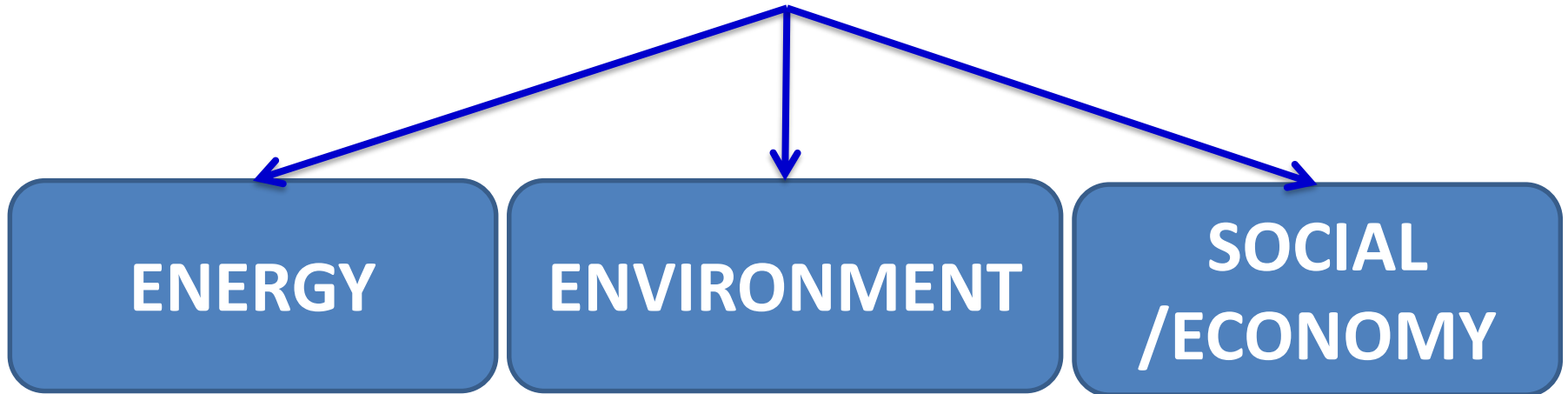
.PESLP: Standard & Labeling Program (VFEL for Passenger Cars)

POWER

.Performance Assessment and Audit of Power Plants, Transmission and Distribution Facilities

.Smart Grid

LOCAL GOVERNMENT UNITS (LGU)



- Sustainable supply of electricity and fuel
- Energy Cost
- Off-grid Island
- Other Off-grid areas

- Zoning
- Urban Planning
- Rivers, Waterways (Biodiversity)
- Waste Management
- Pollution

- Housing
- Healthcare
- Employment
- Education
- Other Socio-economic needs
- Infrastructures
- Investments



DOE

- ✓ Energy Efficiency Roadmap 2017-2040
- ✓ Energy Efficiency & Conservation Policies
 - Department Circular
 - Administrative Orders
 - Executive Orders
 - Republic Act
- ✓ National Energy Efficiency & Conservation Program (NEECP)
- ✓ Energy Efficiency & Conservation Programs, Activities, and Projects

LGU

- ✓ Land Use Development Plan
- ✓ Local Investment Plan
- ✓ Local Climate Change Action Plan
- ? Local Energy Efficiency & Conservation Action Plan



DOE

Development of Energy Efficiency & Conservation Policy and Program

1. 2017-2040 Strategic Directions



2. 9-Point Energy Agenda



3. 2017-2040 Energy Efficiency Roadmap



4. Develop Cross-Sector Policies



5. Programs, Activities & Projects



Strategic Directions 2017 – 2040



Nine-Point Energy Agenda

DOE's Nine-Point Energy Agenda



ACCESS TO BASIC ELECTRICITY FOR ALL FILIPINOS BY 2020



FACILITATING THE COMPLETION OF TRANSMISSION PROJECTS BY 2020



PRO-CONSUMER DISTRIBUTION FRAMEWORK FOR AFFORDABILITY, CHOICE AND TRANSPARENCY



ADOPTING A TECHNOLOGY NEUTRAL APPROACH FOR AN OPTIMAL ENERGY MIX



STREAMLINING DOMESTIC POLICY TO CUT RED TAPE



IMPROVING THE SUPPLY OF POWER THAT IS RELIABLE, TO MEET DEMAND NEEDS BY 2040



DOE TO DELIVER ON PSALM PRIVATIZATION



DEVELOPING LNG NEEDS FOR THE FUTURE IN ANTICIPATION OF THE MALAMPAYA DEPLETION



PROMOTING EFFICIENT USE OF POWER AMONG CONSUMERS THROUGH AN IEC



2017-2040 ENERGY EFFICIENCY & CONSERVATION ROADMAP

OVERALL OBJECTIVE BY 2040

SHORT-TERM
(2017-2019)

MEDIUM-TERM
(2020-2022)

LONG-TERM
(2023-2040)

INDUSTRY DEVELOPMENT

- Conduct market demand scoping
- Advocate the legislation of the EE&C bill
- Establish cross-sectoral energy performance and rating systems
- Create business tool kit for ESCOs
- Collaborate with stakeholders for expanded financing models for EE&C Projects
- Conduct Information, Education and Communication (IEC) campaign on EE practices
- **Mainstream EE&C at LGU level**
- **EE in the Power Sector**
- **Smart Grid**

STRENGTHENING

- Create enabling mechanisms for private sector participation
- Enhance Demand Side Management mechanisms
- Integrate EE&C in the learning and education system
- **Mainstream & Integrate EE&C at LGU level**

SUSTAINING

- Institutionalize EE&C Knowledge Management System
- Develop advanced EE&C R&D capacity

- *Providing market signals*
- *Strengthening policies, programs and institutional structures*
- *Mobilizing and rationalizing private sector participation*

Government
Transport
Industrial
Residential
Commercial
Power

MEASURABLE REDUCTION IN ENERGY INTENSITY AND CONSUMPTION PER YEAR VERSUS BUSINESS AS USUAL (BAU)



EE&C POLICIES



DOE

- ✓ Energy Efficiency Roadmap 2017-2040
- ✓ Energy Efficiency & Conservation Policies
 - Department Circular
 - Administrative Orders
 - Executive Orders
 - Republic Act
- ✓ National Energy Efficiency & Conservation Program (NEECP)
- ✓ Energy Efficiency & Conservation Programs, Activities, and Projects

LGU

- ✓ Land Use Development Plan
- ✓ Local Investment Plan
- ✓ Local Climate Change Action Plan
- ❑ ? Local Energy Efficiency & Conservation Action Plan



COMMERCIAL, INDUSTRIAL, TRANSPORT SECTORS:

- [Department Circular 93-03-05](#) - Energy Consumption Monitoring for Energy Intensive Sectors

GOVERNMENT BUILDINGS:

- [Administrative Circular 2004-110, 110-A, 126](#) – Government Energy Management Program (GEMP)

BUILDINGS & INDUSTRIAL SECTORS:

- [Department Circular 2008-09-0004](#) - ESCO Accreditation Program

ALL SECTORS:

- [Department Circular 2014-08-0014](#) – Enjoining all Electricity User-Consuming Sectors to Implement Demand-side Management Program and Other Energy Conservation Measures

RESIDENTIAL & TRANSPORT SECTOR:

- [Department Circular 2016-004-0005](#) - Philippine Energy Standard and labelling Program [Home Appliances and Motorized Vehicles]



1. GOVERNMENT ENERGY MANAGEMENT PROGRAM

- **Administrative Order 110** as amended

Government Energy
Management Program
(GEMP)

**Government
Building Sector**



Directing the Institutionalization of the Government Energy Management Program (GEMP).

Goal:

To **reduce Electricity and Fuel Consumption by 10%** in reference to its average consumption in FY 2004 and FY 2005, respectively.

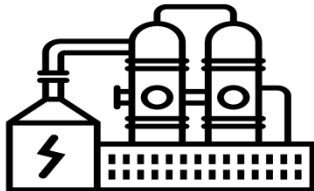
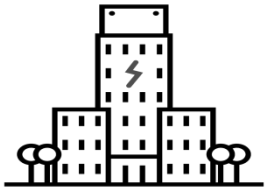


2. ENERGY SERVICE COMPANY (ESCO)

- DC 2008-09-0004

ESCO Accreditation Program

Buildings & Industrial Sectors



An **Energy Service Company (ESCO)** is a commercial business providing a broad range of energy solutions including designs and implementation of [energy savings](#) projects, [retrofitting](#), [energy conservation](#), energy infrastructure outsourcing, [power generation](#) and [energy supply](#), and risk management.

Common Energy Efficiency Projects in Buildings:

1. Retrofitting of Lighting System
2. Retrofitting of Airconditioning system
3. Installation of Solar Rooftop PV

Performance Guarantee Contract:

1. Warranty and Maintenance throughout the Project Period
2. Energy Savings + Peso saving



3. PHILIPPINE ENERGY STANDARD & LABELING

- **DC 2016-004-0005**

Philippine Energy Standard and labelling Program [Home Appliances and Motorized Vehicles]

Household appliances & Motor Vehicles

“To ensures that consumers have the right information they need to make the right choices when they purchase household appliances, lighting products, electric devices and motor vehicles”

Declaring compliance of Importers, Manufacturers, Distributors and Dealers of Electrical Appliances and other Energy Consuming Products with the Philippine Energy Standard and Labeling Program (PESLP) as a policy of the Government.



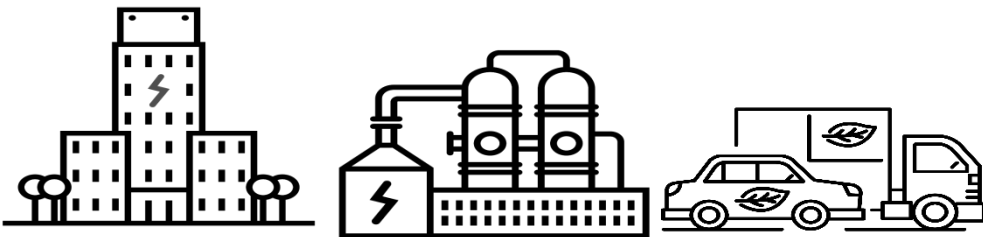
4. MINIMUM ENERGY PERFORMANCE PROGRAM (MEP)



Proposed Department Circular

Philippine Minimum Energy Performance (MEP)

**Commercial,
Industrial, &
Transport Sectors**



Directing the compliance of Commercial, Industrial and Transport establishments with the Philippine Minimum Energy Performance (MEP) Program as a Policy of the Government

To serve as:

- Reference Energy Consumption Benchmark or Energy Performance of a Building, Industrial, and Transport Sector

Users:

- Building / Plant Facility Engineers
- Architects
- Building Facility Administrators

Goal:

To save on Energy Consumption and Energy Cost



NATIONAL EE&C POLICIES TRANSLATING TO ENERGY EFFICIENCY PROGRAMS, ACTIVITIES, AND PROJECTS IMPLEMENTATION



Industrial Sector

- Philippine Industrial Energy Efficiency Project (PIEEP)
- Energy Audit
- Awareness Campaign (IEC)
- Energy Consumption Monitoring
- ESCO Promotion Program*



Transport Sector

- Standard & Labelling Program (Passenger Cars and Light Duty Vehicles)
- Awareness Campaign (IEC for Drivers)
- Energy Consumption Monitoring



Building Sector

- Energy Audit
- Awareness Campaign (IEC)
- ESCO Promotion Program*
- Energy Consumption Monitoring
- Government Energy Management program



Residential Sector

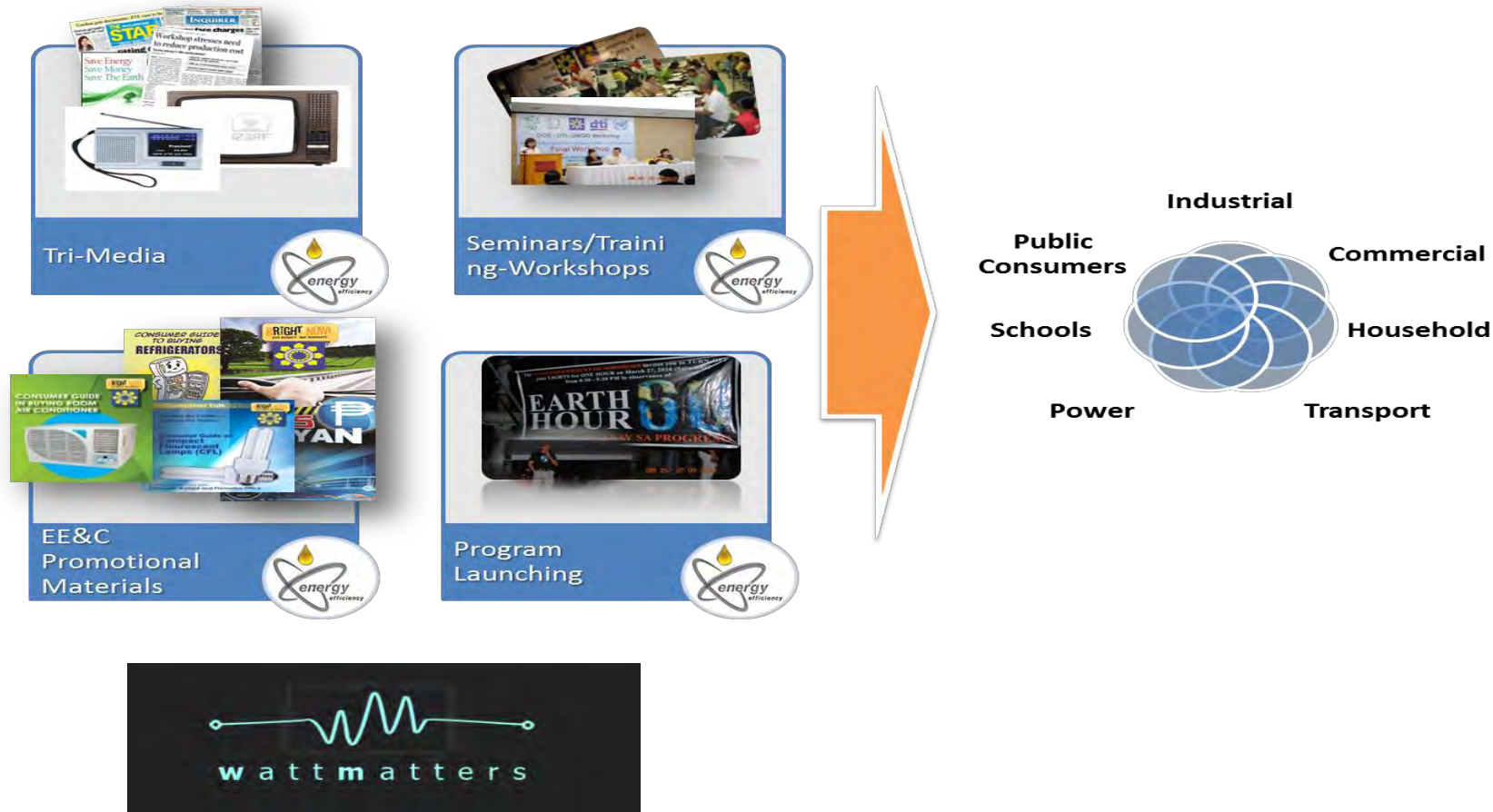
- Standard & Labelling program for Household Appliances
- Awareness Campaign (IEC)
- Energy Consumption Monitoring

* - ESCO cut across Industrial & Building Sector



Information, Education and Communication (IEC) Campaign

NEECP: Programs, Activities and Projects



Recognition Award Program: Don Emilio Abello Energy Efficiency Award

Annual recognition given to companies with significant energy savings achieved thru the implementation of EE&C technologies & measures



FY 2016 Generated Saving:
70.73 million liters of oil equivalent (LOE) and monetary savings of Php 2.46 billion and more than 138.7 million kilograms of avoided carbon dioxide from 80 commercial and industrial establishments



Energy Efficiency & Conservation Bill: LGUs Role and Responsibilities

CONGRESS OF THE PHILIPPINES
SEVENTEENTH CONGRESS
Second Regular Session



SBN 1531

SENATE

S. No. 1531

PREPARED AND SUBMITTED JOINTLY BY THE COMMITTEES
ON ENERGY; WAYS AND MEANS; PUBLIC SERVICES AND
FINANCE, WITH SENATORS LEGARDA, BINAY,
TRILLANES IV AND GATCHALIAN, AS AUTHORS THEREOF

AN ACT INSTITUTIONALIZING ENERGY EFFICIENCY AND
CONSERVATION, ENHANCING THE EFFICIENT USE
OF ENERGY, GRANTING INCENTIVES TO ENERGY
EFFICIENCY AND CONSERVATION PROJECTS, AND
FOR OTHER PURPOSES



7 (l) *Energy Efficiency and Conservation Office (EECO)*
8 refers to the office to be established in local government units
9 mandated to oversee and monitor the implementation of each
10 local government unit's Local Energy Efficiency and
11 Conservation Plan;

Creation of an **ENERGY
EFFICIENCY &
CONSERVATION OFFICE**

12 (m) *Energy Efficiency and Conservation Officer (EEC*
13 *Officer)* refers to the head of the EECO responsible for
14 overseeing the implementation of the Local Energy
15 Efficiency and Conservation Plan at the local government

Creation of an **ENERGY
EFFICIENCY &
CONSERVATION OFFICER**



15 (y) National Energy Efficiency and Conservation
16 Coordinating Officer (NEECCO) refers to the person
17 appointed by the league of LGUs from among all the EEC
18 Officers of different local governments who shall be
19 responsible for integrating all the Local Energy Efficiency
20 and Conservation Plans;

Appointment of the
**NATIONAL ENERGY
EFFICIENCY &
CONSERVATION
COORDINATING OFFICER**



15 (i) Department of the Interior and Local
16 Government (DILG) – The DILG shall, in coordination
17 with the DOE, be responsible in ensuring compliance of
18 all LGUs in implementing the provisions of this Act;

The **Role of the DILG**



1 SEC. 7. *Role of LGUs.* – The LGUs through their
2 respective EECOs and Planning and Development
3 Offices/Units, with the assistance of the DOE and in
4 coordination with the DILG, shall develop and implement
5 their respective LEECP and incorporate these in their
6 local development plans.

7 Furthermore, the LGUs shall assist the DOE in
8 monitoring compliance with the obligations of designated
9 establishments under this Act for input in the NEECD.

The **Role of the LGUs**

- *LEECP – Local Energy Efficiency & Conservation Plan*
- *NEECD – National Energy Efficiency & Conservation Database*



7 SEC. 17. *Energy Performance for Buildings.* – To
8 ensure appropriate and effective implementation of
9 energy efficiency and conservation for new and existing
10 buildings for commercial and institutional use such as, but
11 not limited to, hospitals, educational facilities, exhibition
12 centers, government offices and military facilities, the LGUs
13 shall implement the following measures in accordance with
14 building permit issuances:

15 (a) New building construction shall comply with the
16 minimum requirements as specified in the Guidelines on
17 Energy Conserving Design on Buildings issued by the
18 DOE, in consultation with the DPWH: *Provided, That*
19 state-owned buildings and facilities shall comply with the

Responsibilities of the LGU

1 GEMP and such other guidelines issued by the
2 Committee; and
3 (b) Retrofit of buildings shall also comply with the
4 minimum requirements as specified in the Guidelines on
5 Energy Conserving Design on Buildings issued by the
6 DOE, in consultation with the DPWH: *Provided, That*
7 state-owned and leased buildings and facilities shall
8 comply with the GEMP and such other guidelines issued
9 by the Committee.

Proposed Energy Efficiency Policies and Programs for the LGUs

Menu of Proposed Policy Ordinance / Program	Explanation
<input type="checkbox"/> Internal Policy: Adoption of Energy Management System or a Demand-side Management Program	<ul style="list-style-type: none"> Covers all Public Buildings owned by the LGU including Parks, recreational facilities, Roadways and Streets i.e., Adoption of Energy Efficient Lighting such as LED, Inverter type Aircon, High Efficiency Motors, etc.
<input type="checkbox"/> Green Building Code (referral code of the National Building Code)	<ul style="list-style-type: none"> Compliance for New Construction, building upgrade and Retrofit Buildings
<input type="checkbox"/> Smart City / Low Carbon Model Town	<ul style="list-style-type: none"> Accelerate Low Carbon Governance implementation
<input type="checkbox"/> Building Energy Efficiency Standards	<ul style="list-style-type: none"> Compliance to the Sets of EE Standards in Buildings: i.e., air leakage, thermal resistance/insulation, ventilation, etc.
<input type="checkbox"/> Financial Incentives for Renewable and Energy Efficiency Projects	<ul style="list-style-type: none"> Promote implementation of RE and EE project upgrades (i.e.; Solar PV, Solar water heater, District Cooling System, Cogeneration System, etc.)
<input type="checkbox"/> Green Energy Program / Green Procurement Program	<ul style="list-style-type: none"> Fiscal or Non-Fiscal Incentives for the installation of RE Energy System in Buildings (Malls, Hotels, Industries); Use of Certified ECO-Label Products
<input type="checkbox"/> Small Business Energy Efficiency Program	<ul style="list-style-type: none"> Program that offer technical and financial assistance to SMEs to identify and install energy efficient technologies in their facilities
<input type="checkbox"/> Commercial and Industrial Energy Efficiency Program	<ul style="list-style-type: none"> Program that shall offer Technical and/or Financial assistance program to help businesses to be more competitive through Energy Efficiency Improvements

2018-2019 ACTION PLAN (DAVAO CITY)

(Series of actions to reach the milestone target)

SECTOR	PROGRAM / PROJECT (Milestone Targets)	Proposed Policy/Ordinance (Regulations)
<u>LGU</u> a) Buildings	<ul style="list-style-type: none"> Ensure energy efficient system (electrical, mechanical, etc.) 	<ul style="list-style-type: none"> Adoption of Energy Efficient Standards and Green Procurement Program
	<ul style="list-style-type: none"> Retrofitting of all city government buildings 	<ul style="list-style-type: none"> Creation of energy conservation committee and appointment of Enercon Officer for every Department
	<ul style="list-style-type: none"> Development of new Civic Center 	<ul style="list-style-type: none"> Included in the Green City Initiative
b) Parks & Other Recreational Facilities	<ul style="list-style-type: none"> Opening of more parks and open spaces 	<ul style="list-style-type: none"> Included in the Green City Initiative

2018-2019 ACTION PLAN (DAVAO CITY)

(Series of actions to reach the milestone target)

SECTOR	PROGRAM / PROJECT (Milestone Targets)	Proposed Policy/Ordinance (Regulations)
Residential	<ul style="list-style-type: none"> • Raise awareness on Energy Efficiency and Conservation (thru tri-media) • Rainwater Harvesting Compliance 	<ul style="list-style-type: none"> • Ordinance requiring electrical fixture and appliance dealers to display Energy Efficiency on their items • Rainwater Harvesting Ordinance already existing but has yet to be implemented across all Sectors
Commercial Buildings	<ul style="list-style-type: none"> • Green Building compliance 	<ul style="list-style-type: none"> • Adoption of the Green Building Code thru an Ordinance
Industrial Establishments	<ul style="list-style-type: none"> • Reduction of carbon emission for industrial plants and manufacturing industry 	<ul style="list-style-type: none"> • Energy Management System Ordinance
Transport	<ul style="list-style-type: none"> • Utilization of energy efficient mass transport system (LRT, High priority bus system) 	<ul style="list-style-type: none"> • Included in the City Transport And Management Plan
Others	<ul style="list-style-type: none"> • Efficient solid waste Management program • Waste to Energy project 	<ul style="list-style-type: none"> • Low Carbon Footprint Policy/ Green City Initiative

2018-2019 ACTION PLAN (BALAMBAN, CEBU)

(Series of actions to reach the milestone target)

SECTOR	PROPOSED POLICY	CONTROLLING MECHANISM	INCENTIVES
Local Government Buildings, Parks & other recreational facilities	<ul style="list-style-type: none"> • Administrative Circular (Internal): Promote the use of Energy Efficient Lighting Technology in all Public Streets, Parks, Recreational facilities, and public buildings own by the Provincial / City / Municipal government • Designation of an Enercon Officer 	<ul style="list-style-type: none"> • Monitoring and Verification (Submission of quarterly Energy Consumption Report) 	<ul style="list-style-type: none"> • Recognition Award
Residential (New Construction)	<ul style="list-style-type: none"> • Ordinance on the Promotion of Minimum Energy Performance Standard for Household Appliances 	<ul style="list-style-type: none"> • Building Permit 	<ul style="list-style-type: none"> • Recognition Award
Commercial Buildings	<ul style="list-style-type: none"> • Green Building Ordinance • Energy Efficient Building Ordinance • Ordinance on the use of Solar PV and other RE energy sources 	<ul style="list-style-type: none"> • Special Building Permit 	<ul style="list-style-type: none"> • Reduction on annual Real Property Tax or Business Permit payment
Industrial	<ul style="list-style-type: none"> • Energy Management System Ordinance • Ordinance on the use of Solar PV and other RE energy sources 	<ul style="list-style-type: none"> • Business Permit 	<ul style="list-style-type: none"> • Reduction on annual Real Property Tax or Business Permit payment
Transport	<ul style="list-style-type: none"> • Ordinance on the Promotion of E-Vehicle for Public Transport 	<ul style="list-style-type: none"> • Traffic enforcement 	<ul style="list-style-type: none"> • Non-Fiscal incentives / Recognition Award



Department of Energy



Thank You



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