

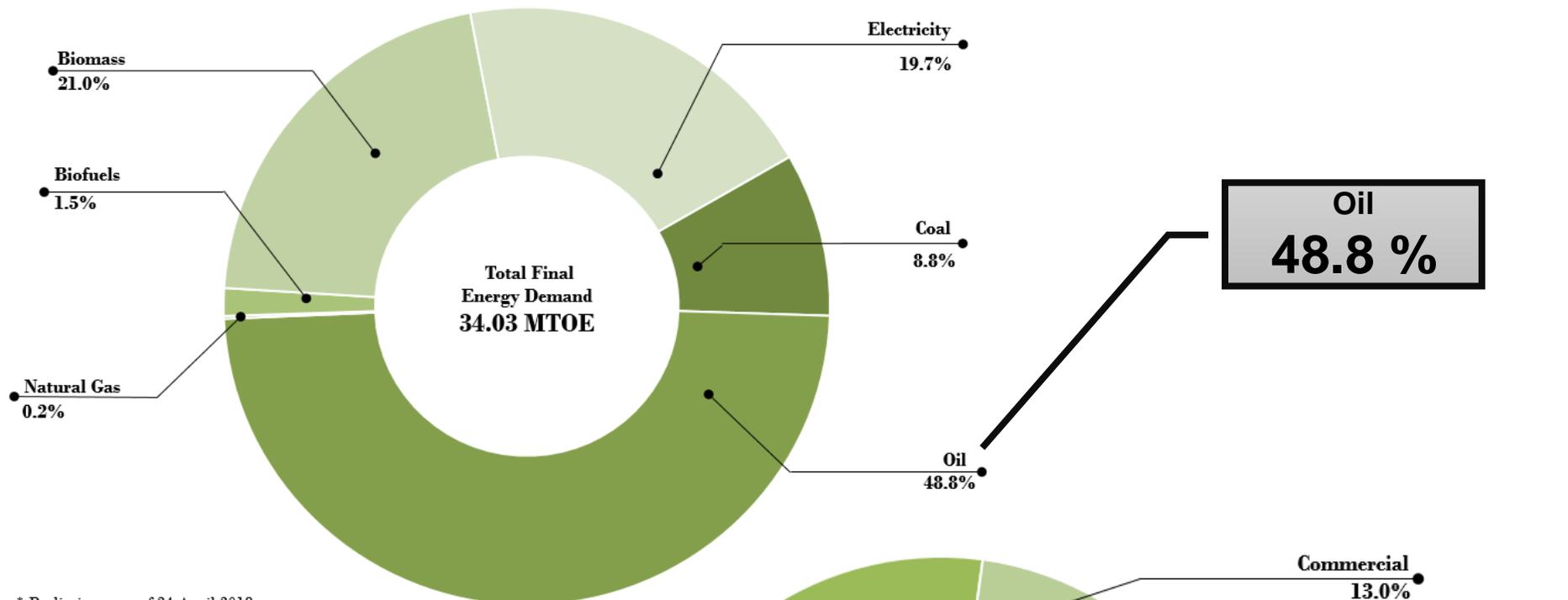


POLICY INITIATIVES ON MAINSTREAMING ALTERNATIVE FUELS AND ENERGY TECHNOLOGIES

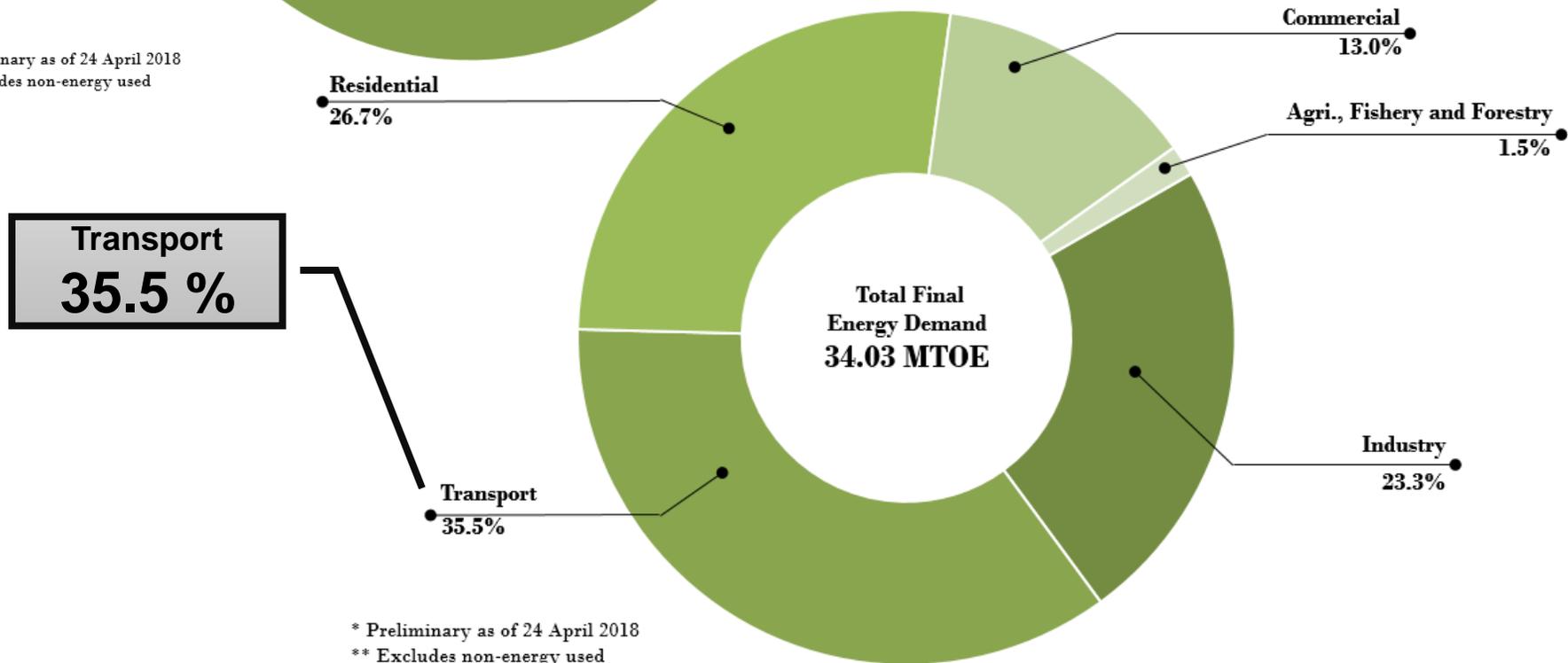
*Mr. Federico G. Domingo, Jr.
Supervising Science Research Specialist*

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**2017 Total Energy
Consumption by Fuel**



* Preliminary as of 24 April 2018
** Excludes non-energy used

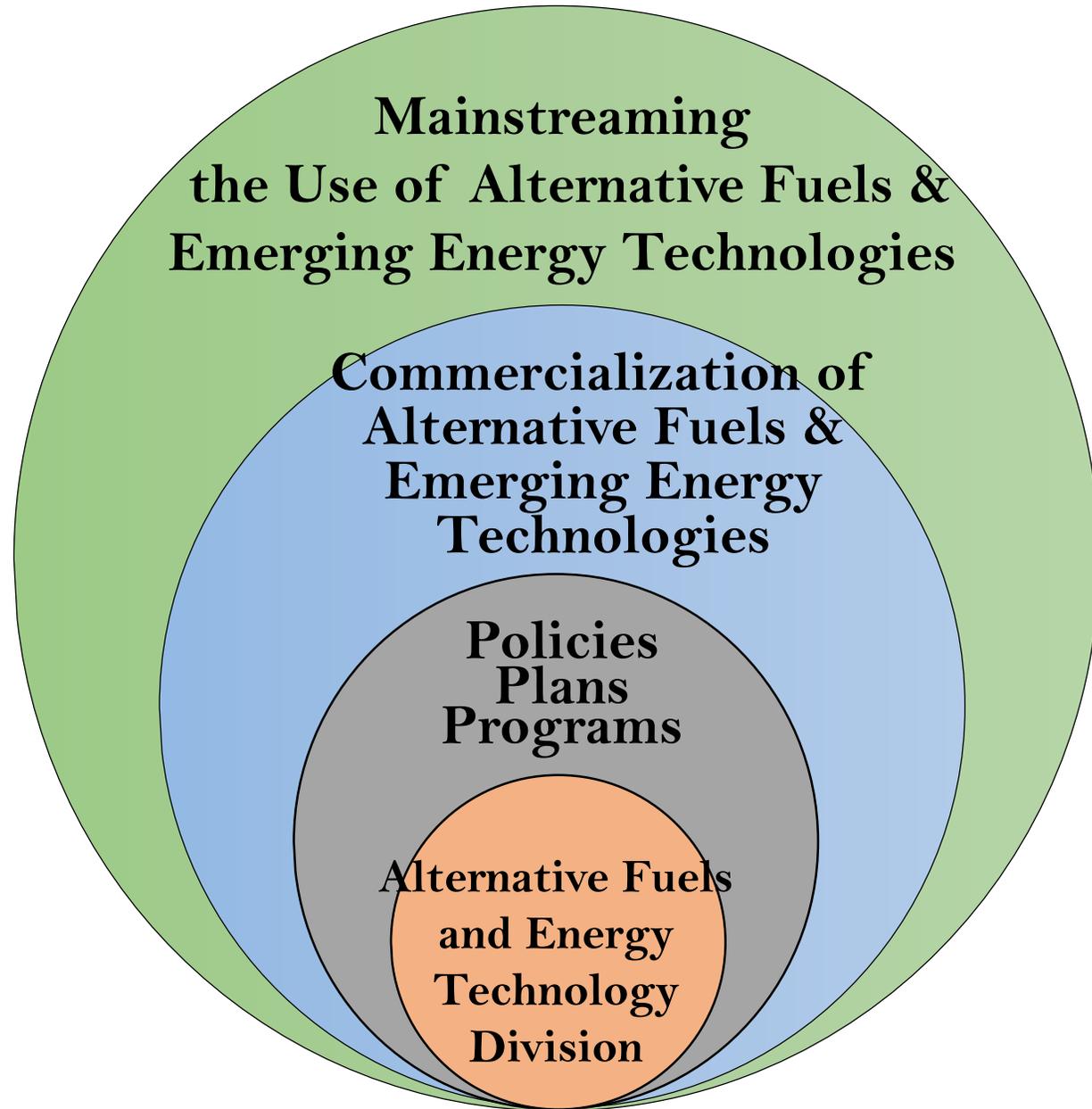


* Preliminary as of 24 April 2018
** Excludes non-energy used



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Alternative Fuels and
Energy Technology
Division (AFETD)
Mandate**



Alternative Fuels and Energy Technology Division Mandate

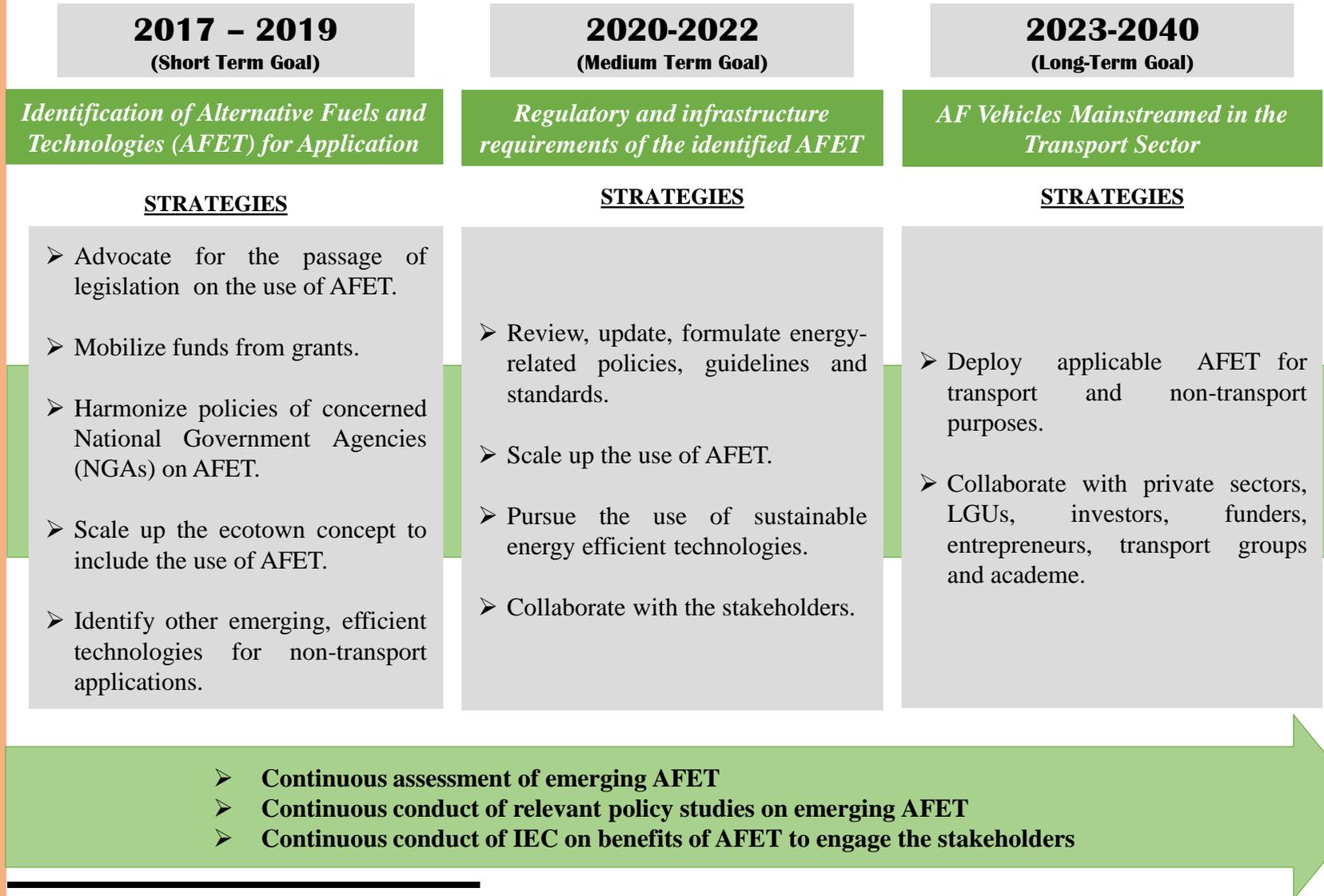


**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**AFETD
Roadmap**

ALTERNATIVE FUELS AND TECHNOLOGIES ROADMAP

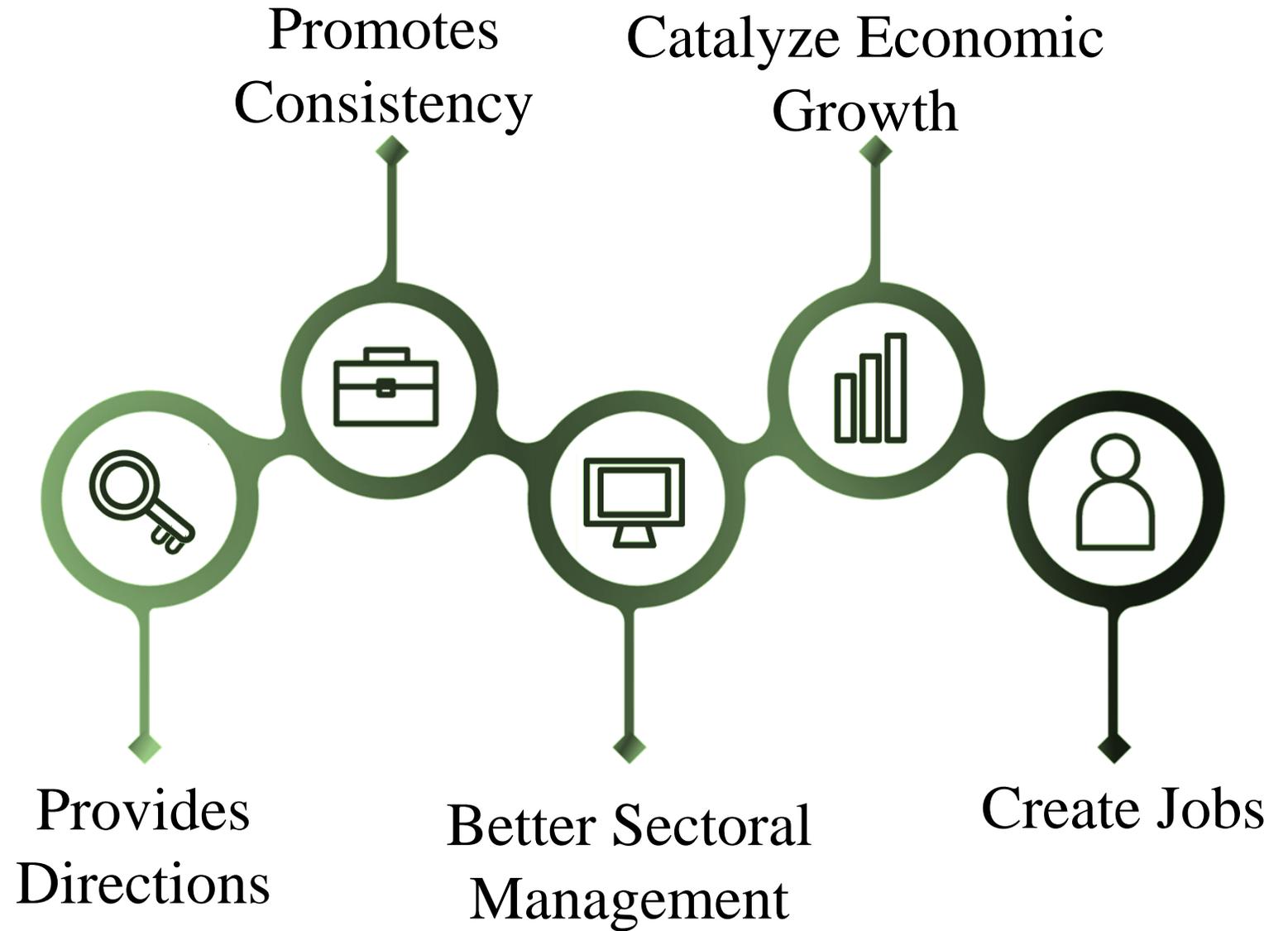
Ensuring Secure and Stable Supply of Energy



SECURED AND STABLE SUPPLY OF ENERGY THROUGH TECHNOLOGY RESPONSIVE ENERGY SECTOR

AFET being prioritized are: 1) electric vehicle, 2) Liquefied Petroleum Gas, 3) Compressed Natural Gas, 4) Liquefied Natural Gas, 5) Hybrid electric vehicle Assessment of non-transport energy technologies will be pursued

Policy on the Mainstreaming of AFETs

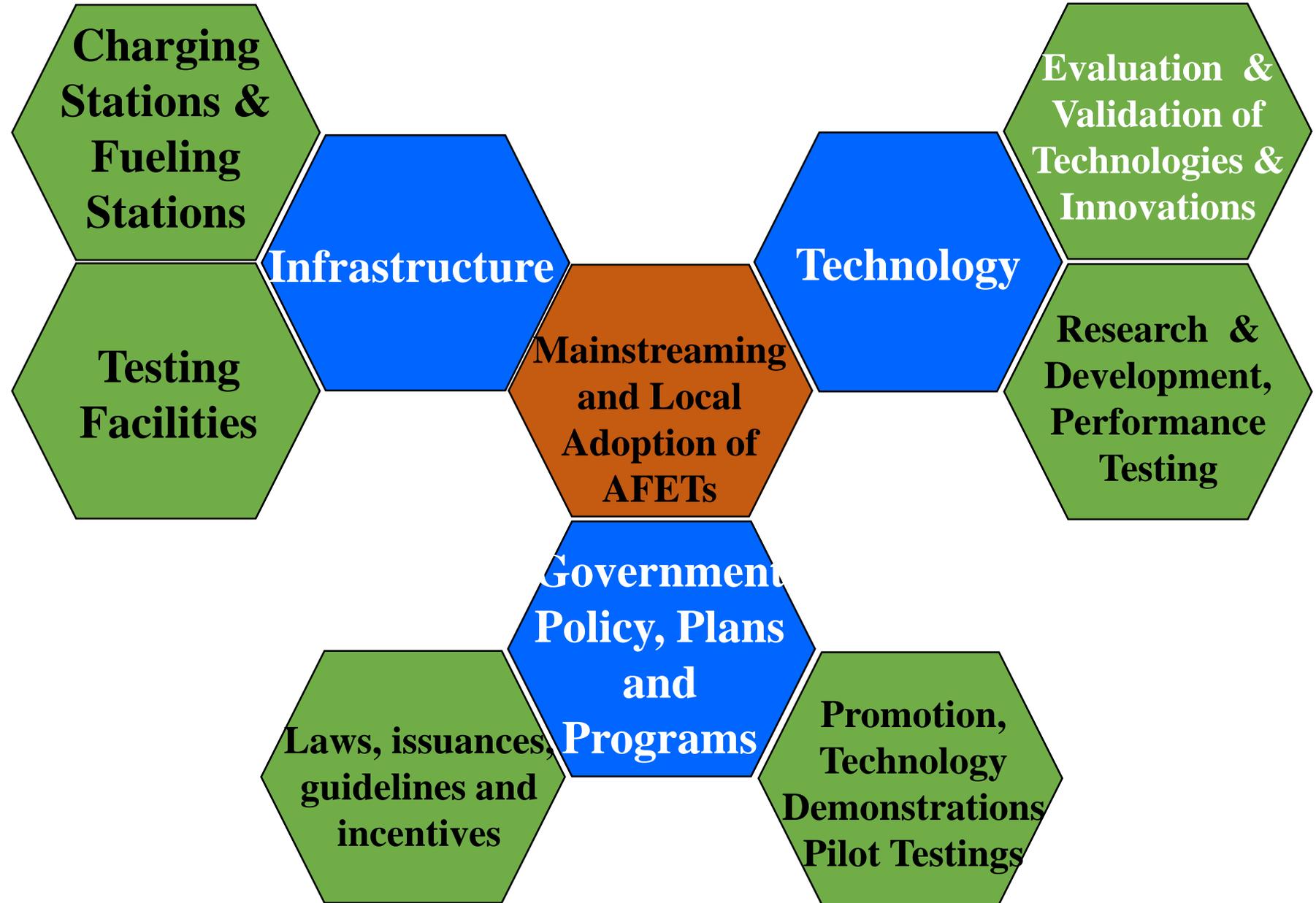




ENERGY UTILIZATION MANAGEMENT BUREAU

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

Policy on the Mainstreaming of AFETs





**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Programs and
Projects**

DOE's Promotion of Alternative Fuels Vehicles and Technologies

Auto-LPG for Public Utility Vehicles (PUVs)

Natural Gas Vehicle Program for Public Transport

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

Introduction of Next Generation Vehicles –
Electric Vehicles, Hybrid and Plug-in Hybrid



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Programs and
Projects**

Promotion and Mainstreaming of Alternative Fuel Vehicles and Technologies

Goal:

Enhance energy supply security in the transport sector through fuel diversification using ***Alternative Fuel Vehicles and Technologies*** as clean alternative fuel for transport



ENERGY UTILIZATION MANAGEMENT BUREAU

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Programs and
Projects**

Promotion and Mainstreaming of Alternative Fuel Vehicles and Technologies

Objectives:

1. Validate the techno-economic feasibility of AFVTs for local adoption
2. Harmonize and streamline government procedures in the utilization of AFVTs for public transport
3. Create an enabling market environment for mainstreaming and local adoption of AFVTs



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**DOE
Initiatives**

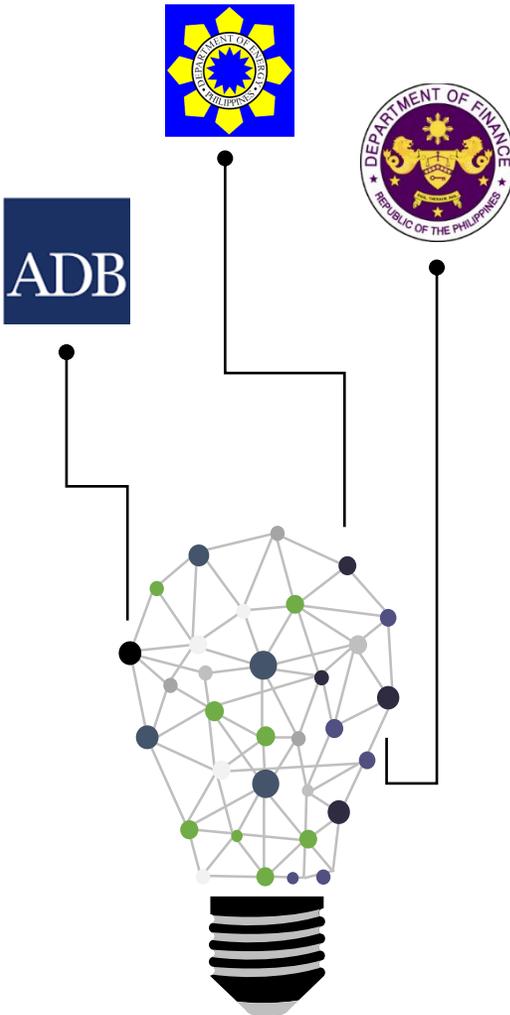
DOE's Promotion of Alternative Fuels Vehicles and Technologies





**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Programs and
Projects**



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

Project Objectives

- 01** Reduce dependence on transport sector's annual petroleum consumption
- 02** Deployment of locally made E-Trikes powered by Lithium-ion batteries to key cities and municipalities nationwide
- 03** CO2 avoidance by shifting to tricycle running on pure electricity
- 04** Establishment of associated EV support industries Charging stations, Motor and parts/supply chain, maintenance/services
- 05** Alleviate the standard of living of tricycle drivers

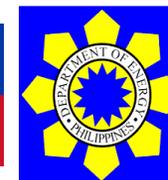
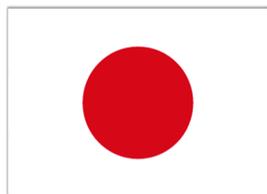


ENERGY UTILIZATION MANAGEMENT BUREAU

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

Japan Non Project Grant Aid (NPGA)

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



**Programs and
Projects**

JPY 500 million (PhP225 million) grant for the promotion of next-generation vehicles and infrastructure

Provided as part of Typhoon Yolanda assistance as well as for the promotion of environment-friendly and fuel efficient vehicles

Programs and Projects

Japan Non Project Grant Aid (NPGA)

	<i>Type</i>	<i>Description</i>
	Hybrid Vehicles	Combination of two (2) or more distinct power sources i.e., gasoline engine and electric motor
	Plug-in Hybrid	Power input can either be gasoline or electric Intelligent system; maximize efficiency of gasoline and electric power drive
	Electric Vehicle	Powered by electricity through battery packs



Efficiency

Hybrid:
31 km/L
11.16
km/kWhe
Gasoline:
19.58 km/L
7.05 km/kWhe

PHEV:
45 km/L
16.2
km/kWhe
Gasoline:
17.58 km/L
6.33 km/kWhe

EV:
51 km/Lequiv
18.36
km/kWhe
Gasoline:
29.23 km/L
10.52 km/kWhe



CO₂ Emission

Hybrid:
86 g
CO₂/km
Gasoline:
152 g
CO₂/km
PHEV:
41 g
CO₂/km
Gasoline:
120 g
CO₂/km

EV:
No tailpipe emission
Gasoline:
101 g

Policies and Issuances

Policies issuances related to Promotion of Alternative Fuel Vehicles and Technologies



<i>Existing Policies/Issuances</i>	<i>Description</i>
Republic Act 10963 - The excise tax exemption of EV and HEV automobiles	100% Excise tax exemption for pure EV 50% Excise tax exemption for HEV
Special Order No. SO2017-04-0026 Creation of an Ad hoc Technical Working Group (TWG) on EV Charging Station	Reclassification System of Fuel Retail Outlets to Include Installation of Electric Vehicle (EV) Charging Stations
EV-Technician Training course	Partnership with TESDA on the development and Integration of an EV Technician Course towards a National Certification
DOST's Harmonized National R&D Agenda	DOE – DOST MOA for Joint Implementation of Energy Related R & D Activities
Philippine Energy Standard Labeling /	Development of a Minimum Energy Performance for EV – Fast Charger

Policies and Issuances

Policies issuances related to Promotion of Alternative Fuel Vehicles and Technologies

<i>Existing Policies/Issuances</i>	<i>Description</i>
Development and Integration of AutoLPG Technician Course towards a National Certification	Integration AutoLPG technician Course in SUCs' TechVoc Automotive Course to ensure supply of high-skilled manpower for safe and proper conversion, repair and maintenance
Development of Emergency response Protocol for AFVs	Development of ERP by BFP to ensure safe and proper response in AFV related incident/accident
Philippine National Standards: PNS -05:1983	Update of the Code of practice for the use of LPG in Internal Combustion Engine
Joint Administrative Order No. 1 Series 2016	Establishment/Creation of the Technical Working Group (TWG) to address concerns on the use of LPG as fuel for public transport and for other related purposes
Development and Integration of AutoLPG Technician Course towards a National Certification	Integration AutoLPG technician Course in SUCs' TechVoc Automotive Course to ensure supply of high-skilled manpower for safe and proper conversion, repair and maintenance





**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

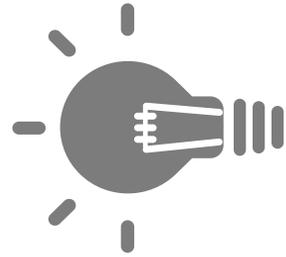
**DOE
Initiatives**

DOE's Promotion of Emerging Energy Technologies



<i>Initiative</i>	<i>On-Going Programs</i>
<p>Promotion of Emerging Energy Technologies</p>	<p>Promotion of Technologies for Agricultural</p> <ul style="list-style-type: none"> ➤ Demonstration of AutoLPG Fueled Farm Equipment ➤ Evaluation of Bugang as a potential fuel source (a locally endemic grass)
	<p>Capacity Building Partnership with SUCs for the integration of AutoLPG Technician Course to provide a pool of expert technicians for autoLPG conversion, repair and maintenance (CHMSC, CvSU, UseP, TUP-Taguig)</p>
	<p>Market Transformation through Introduction of Energy Efficient Electric Vehicles (E-Trike) Project</p>
	<p>Partnership with DOST PCIEERD on the Joint Implementation of energy related R & D</p> <ul style="list-style-type: none"> ➤ Prototyping of PNS Compliant AutoLPG Jeepney ➤ Field Testing and development of Energy Performance Standard for EV Fast Charger

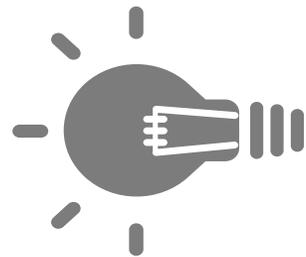
Promotion of Emerging Energy Technologies



Use of Smart controls and sensors at home for energy savings



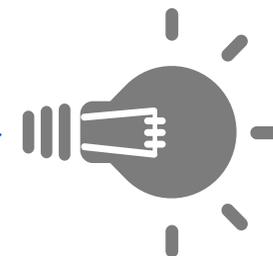
Grass-based biomass fuel (Bugang/Napier) for domestic cooking to address deforestation and reduce indoor pollution



Ethanol Production from Pineapple leaves as Automobile Fuel



LPG-powered farm equipment to avoid fuel spillage and reduce emission

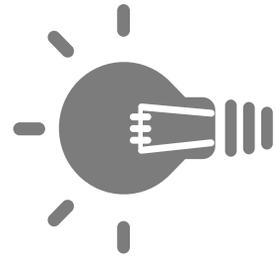
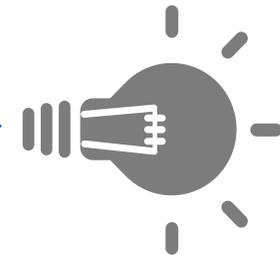


**Programs and
Projects**

Promotion of Emerging Energy Technologies



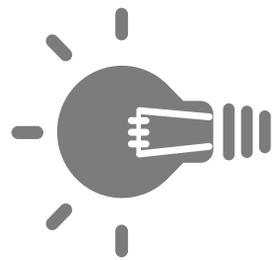
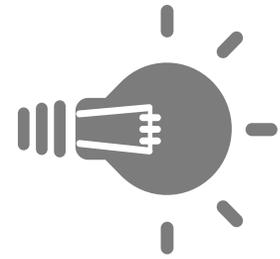
Battery Energy Storage System for Reliable Power Distribution System



Use of Smart controls and sensors at home for energy savings



Use of FAST Electric Vehicle Charger will encourage use of EV for cleaner alternative



Alternative Fuel derived from waste rubber and plastics

**Programs and
Projects**



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policies and
Issuances**

Policies and Issuances Under Development

Joint DOE and DBM Budget Circular for the procurement of AFVs by NGAs, LGUs and GOCCs

Description: *Mandates that 10% of total service fleet of NGAs, LGUs and GOCCs shall use more energy efficient and environment-friendly such as EVs, AutoLPG and natural gas, as applicable*

Updating/Development of other Transportation Related Standards

Description: *Alternative Fuels, Fueling Station and EV Related Standards*



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policies and
Issuances**

Policies and Issuances Under Development

Prescribing the Policy Framework on the Overall Development and Increased Utilization of Alternative Fuels and Energy Technology and Alternative Fuel Vehicles in the Philippines

Description: *Issuance of the Government Framework for the utilization of Alternative Fuel Vehicles and AFETs*

Legislative Issuances for AFVs

Description: *To provide fiscal and non-fiscal incentives for AFVs*



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policies and
Issuances**

Under Development Policies and Issuances

*Protocol for Minimum Energy Performance (MEP)
Certification for Charging Equipment*

Description: *Certification Guidelines on the Necessary
Equipment for Charging Infrastructures*

Policy/Guidelines for Certification of Charging Station

Description: *Certification Guidelines to set-up EV
Charging Stations*



**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policies and
Issuances**

Under Development Policies and Issuances

Rules and regulations governing the re-fleeting of government agencies toward the use of Alternative Fuel Vehicles

Description: *Guidelines for the procurement of AFVs for government offices*

Policy Direction for AFETs

Without Government Policy...





ENERGY UTILIZATION MANAGEMENT BUREAU

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policy
Direction for
AFETs**

DOE's General Policy Framework for Alternative Fuels and Technologies

Technology Responsive Energy Sector Enabling Market Environment



2

Sustainability

1

Growth

3

*Quality Products
and Services*

4

*Healthy
Competition*

Yes!!!

Policy for Alternative Fuels and Energy Technologies



ENERGY UTILIZATION MANAGEMENT BUREAU

**POLICY INITIATIVES ON
MAINSTREAMING ALTERNATIVE
FUELS AND ENERGY
TECHNOLOGIES**

**Policy
Direction for
AFETs**

DOE's General Policy Framework for Alternative Fuels and Technologies

The Government shall:

01

Issue adaptive and consistent policies, guidelines, rules and regulations to encourage private sector participation

02

Ensure the economic, environmental, and safety benefits of locally adopted AFVs to the consumer

03

Support and encourage the conduct of research and development, demonstration, and deployment of AFVTs

04

Provide technical assistance, capacity building, technology evaluation and assessment of related AFVTs

05

Conduct Information, Education and Communication activities increase public awareness and appreciation of AFVTs.



Thank you!