

# EUMB Plans and Programs

(Alternative Fuels and Energy Technologies)

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# AFET Roadmap 2017 - 2040



## ALTERNATIVE FUELS AND ENERGY TECHNOLOGIES ROADMAP

### *Ensuring Secure and Stable Supply of Energy through Fuel and Technology Diversification*

#### **2017 – 2019** **(Short Term Goal)**

*Identification of Alternative Fuels and Technologies (AFET) for Application*

##### STRATEGIES

- Advocate for the passage of legislation on the use of AFET.
- Mobilize funds from grants.
- Harmonize policies of concerned National Government Agencies (NGAs) on AFET.
- Scale up the eco-town concept to include the use of AFET.
- Identify other emerging, efficient technologies for non-transport applications.

#### **2020-2022** **(Medium Term Goal)**

*Preparation of the regulatory and infrastructure requirements of the identified AFET*

##### STRATEGIES

- Review, update, formulate energy-related policies, guidelines and standards.
- Scale up the use of AFET.
- Pursue the use of sustainable energy efficient technologies.
- Collaborate with the stakeholders.

#### **2023-2040** **(Long-Term Goal)**

*AF Vehicles Mainstreamed in the Transport Sector*

##### STRATEGIES

- Deploy applicable AFET for transport and non-transport purposes.
- Collaborate with private sectors, LGUs, investors, funders, entrepreneurs, transport groups and academe.

- Continuous assessment of emerging AFET
- Continuous conduct of relevant policy studies on emerging AFET
- Continuous conduct of IEC on benefits of AFET to engage the stakeholders

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

SECURED AND STABLE SUPPLY OF ENERGY THROUGH TECHNOLOGY RESPONSIVE ENERGY SECTOR

# Promotion of Alternative Fuels and Energy Technology

Initiative	On-Going Programs
<b>Alternative Fuels and Energy Technology Program for the Transport Sector</b>	<ul style="list-style-type: none"><li>• Auto-LPG for Public Utility Vehicles (PUV)</li><li>• Tricycle Modernization Program (TMP)</li><li>• Introduction of Next Generation Vehicles</li></ul>
<b>Promotion of Emerging Energy Technologies</b>	<ul style="list-style-type: none"><li>• Promotion of Emerging Energy Technologies for Agricultural, Household, Industrial &amp; Commercial Applications</li><li>• Partnership with State Universities, DOST &amp; other Research Institution</li></ul>



# Promotion of Auto LPG Program

## Use of AutoLPG in Public Utility Vehicles

### GOAL:

Enhance energy supply security in the transport sector through fuel diversification using LPG as a clean alternative fuel for transport



### Objectives:

1. Promote the use of LPG as a clean alternative fuel for public transport
2. Harmonize and streamline government procedures in the utilization of LPG as fuel for public transport

### Deliverables:

1. Monitoring of converted / retrofitted LPG vehicles in major cities
2. Harmonization of government procedures for the utilization of LPG as transport fuel
3. Conduct of tests on the use of LPG for public utility jeepneys
4. Develop and enhance inspection protocol for LPG in transport



# Promotion of Auto LPG Program

## Use of AutoLPG in Public Utility Vehicles



### Status:

1. Total of 8,415 auto-LPG taxis and 192 dispensing stations nationwide
2. Completed the conduct of Phase 2 of on-road and laboratory performance testing for AutoLPG Jeepneys
3. Institutionalization of AutoLPG Technical Working Group for the harmonization of AutoLPG related government policies and guidelines through a Joint Administrative Order
4. Integration of AutoLPG Technician Vocational Course in State Universities offering automotive course
5. Entered into cooperation with DILG-BFP for the formulation of emergency response protocol for alternative fuel vehicles
6. Partnership with Isabela State University on the use of LPG in farm implements
7. Review and update of applicable AutoLPG standards for transport





# TRICYCLE MODERNIZATION PROGRAM



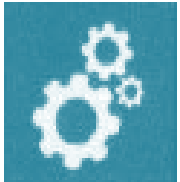
# Tricycle Modernization Program (TMP)

## Re-Branding under Transport Modernization



### 1. LGU LOCAL PUBLIC TRANSPORT ROUTE PLANNING

- Alignment of Local Transport Planning with the Local Public Transport Route Planning as required under Transport Modernization Program



### 2. TRICYCLE MODERNIZATION

- Introduction of high quality, energy efficient, elderly & PWD accessible and environment friendly electric tricycles with warranty and after sales support



### 3. FINANCING TRICYCLE MODERNIZATION

- Accessible loans which features *no down payment, low interest rate and long payment period*



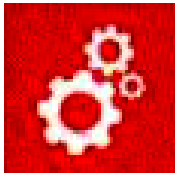
# Tricycle Modernization Program (TMP)

## Re-Branding under Transport Modernization



### 4. VEHICLE USEFUL LIFE PROGRAM

- Improvement in electric tricycle quality (accreditation in MAIDS) and provision for Scrappage Program for Internal Combustion Engine (ICE) tricycles



### 5. PILOT IMPLEMENTATION

- Accelerate local adaption of next generation electric tricycle through the commercial deployment of 3,000 units for selected LGUs in NCR, Region IV-A and IV-B



### 6. STAKEHOLDER SUPPORT MECHANISM

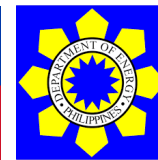
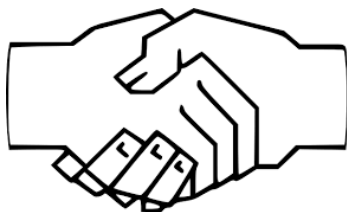
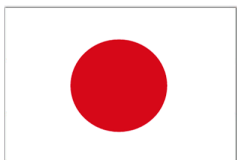
- Community empowerment through gender sensitive trainings, and enhanced livelihood to stimulate local socio-economic development





# Promotion of Electric Vehicles

## 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)

- ❑ 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



# NPGA Vehicles

Type	Description
Hybrid Vehicles	<ul style="list-style-type: none"><li>• Combination of two (2) or more distinct power sources i.e., gasoline engine and electric motor</li><li>• More fuel efficient @ 30 km/liter</li><li>• Less emission (86g/km) vs. average gasoline powered vehicles</li></ul>
Plug-in Hybrid	<ul style="list-style-type: none"><li>• Power input can either be gasoline or electric</li><li>• Intelligent system maximize efficiency of gasoline and electric power drive</li><li>• More fuel efficient @ 45 km/liter equivalent</li></ul>
Electric Vehicle	<ul style="list-style-type: none"><li>• Powered by electricity thru battery packs</li><li>• Energy efficient @ 51.84 km/liter equivalent</li><li>• Zero tail-pipe emission</li></ul>



# NPGA Vehicles



# Promotion of Emerging Energy Technologies

Initiative	On-Going Programs
<b>Promotion of Emerging Energy Technologies</b>	<p><b>Commercial/Industrial Sector</b></p> <p>Transport Sector</p> <ul style="list-style-type: none"><li>• Prototyping of Original Equipment Manufactured (OEM) and Philippine National Standards (PNS) compliant AutoLPG Jeepney</li><li>• Tricycle Modernization Program</li></ul> <p>Non-Biomass based waste-to-energy generation</p> <ul style="list-style-type: none"><li>• Collaboration with international technology provider for pilot technology demonstration</li></ul> <p><b>Household Sector</b></p> <p>Non-wood based fuel for domestic cooking</p> <ul style="list-style-type: none"><li>• Collaboration with Central Mindanao University for the identification and characterization of grass-based fuel for use in domestic cook stove</li></ul> <p><b>Agriculture</b></p> <ul style="list-style-type: none"><li>• Collaboration with Isabela State University for the prototyping and demonstration on the use of LPG in agricultural machineries</li></ul> <p><b>Technologies lined-up for research</b></p> <p>Human Kinetic Energy Harvesting Micro-Energy Harvesting Enzymes for ethanol production from biomass Universally-compatible EV Quick Charging Station</p>

# Policies and Issuances

## Existing Alternative Fuels and Energy Technologies

Existing Policies/Issuances	Description
1. Joint Administrative Order No. 1 Series 2016	<ul style="list-style-type: none"><li>Establishment/Creation of the Technical Working Group (TWG) on the use of LPG as fuel for public transport and for other related purposes</li></ul>
2. Special Order No. SO2017-04-0026 Creation of an Ad hoc Technical Working Group (TWG) on the Reclassification System of Fuel Retail Outlets to Include Installation of Electric Vehicle (EV) Charging Stations	<ul style="list-style-type: none"><li>Establishment of an Ad Hoc TWG to study technical viability of setting up EV charging stations in fuel retail</li></ul>
3. AutoLPG-related Philippine National Standards (PNS)	
4. DOST's Harmonized National R&D Agenda	



# Policies and Issuances

## Alternative Fuels and Energy Technologies

Under Development	Description	Status
1. Joint DOE and DBM Budget Circular for the procurement of AFVs by NGAs, LGUs and GOCCs pursuant to Section 36 of 2017 GAA	<ul style="list-style-type: none"><li>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</li></ul>	<ul style="list-style-type: none"><li>Already signed by Secretary Alfonso G. Cusi of DOE</li><li>Transmitted to DBM on 11 July 2017</li></ul>
2. Updating of PNS 05:1983	<ul style="list-style-type: none"><li>Code of Practice on the Use of LPG as Fuel for Internal Combustion Engines (ICE)</li></ul>	<ul style="list-style-type: none"><li>For finalization of the draft update</li></ul>
3. Legislative Issuances for AFVs	<ul style="list-style-type: none"><li>to provide fiscal and non-fiscal incentives for AFVs</li></ul>	

# Policies and Issuances

## Alternative Fuels and Energy Technologies

Under Development	Description	Status
4. Development and Establishment of Charging Station to Promote the Deployment of Electric Vehicles Integration of EV Charging Station with Existing Fuel Retail Outlets	<ul style="list-style-type: none"><li>Formulate and recommend policies on EV charging</li></ul>	<ul style="list-style-type: none"><li>Ongoing</li></ul>
5. Protocol for Minimum Energy Performance (MEP) Certification for Charging Equipment	<ul style="list-style-type: none"><li>Certification Guidelines on the Necessary Equipment for Charging Infrastructures</li></ul>	<ul style="list-style-type: none"><li>On-going review and collaboration with DOST-PCIEERD</li></ul>
6. Policy/Guidelines for Certification of Charging Station	<ul style="list-style-type: none"><li>Certification Guidelines to set-up EV Charging Stations</li></ul>	<ul style="list-style-type: none"><li>On-going review</li></ul>



# Policies and Issuances

## Alternative Fuels and Energy Technologies

For Development	Description	Status
7. Position Paper on Tax Exemption of AFVs under the proposed Tax Reform	<ul style="list-style-type: none"><li>• Proposal to exempt AFVs from the proposed increase in excise tax for vehicle (submitted to DOF for consideration)</li></ul>	





# Breakout Session Topics for Discussion:

## Promotion and Mainstreaming of Alternative Fuels and Energy Technologies

Topic	Considerations
<b>1.</b> In Search of Policies to Support the Entry of Next-Generation Vehicles and Its Infrastructure within the Context of the Transport Modernization Program	
<b>2.</b> Promotion of Indigenous Energy Technologies and Innovations	



# Thank You!



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