



Alternative Fuels and Energy Technology Overview

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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 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

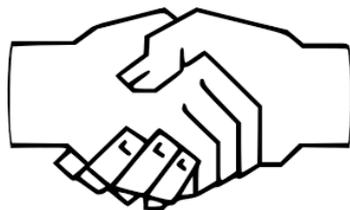
Deliverables:

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 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



Promotion of Electric Vehicles

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



Objectives:

- 1.Reduce dependence on transport sectors annual petroleum consumption;
- 2.Aims to deploy locally made E-Trikes powered by Lithium-ion batteries to key cities and municipalities nationwide;
- 3.CO2 avoidance by shifting to tricycle running on pure electricity;
- 4.Establishment of associated EV support industries such as Charging stations, Motor and parts supply chain, Maintenance and repair services;
- 5.Alleviate the standard of living of tricycle drivers



Promotion of Emerging Energy Technologies

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

Promotion of Alternative Fuels and Energy Technology

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





Thank You!



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