ENERGY PERSPECTIVE ON ELECTRIC VEHICLES AND CHARGING STATION

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Total Final Energy Demand by Sector: in MTOE

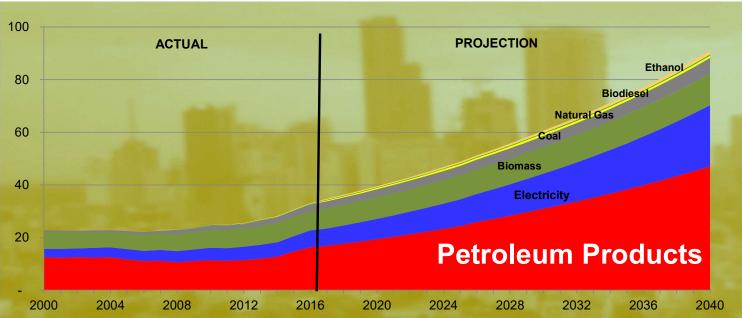
| 100 | ACTUAL | PROJECTION | |
|-----------------|--------|----------------------------------------------|------------------|
| 60 | | | |
| 40 | | | Tran |
| 20 | | | ac |
| 0 | | | larg |
| 2000 200 Tra | | 2020 2024 2028 2032 esidential Commercial | 2036 2040 AFF |

| Sector | 2016 | | 2030 | | 2040 | | AAGR | |
|-------------|-------|-------------------|--------------------|-------------------|--------------------|-------------------|-------------------|--|
| | MTOE | % Shares | MTOE | % Shares | MTOE | % Shares | (2016-2040) | |
| AFF | 0.45 | 1.4 | 0.67 | 1.1 | 1.01 | 1.1 | 3.4% | |
| Industry | 7.45 | 22.5 | 15.61 | 25.7 | 26.07 | 28.6 | 5.4% | |
| Commercial | 3.87 | 11.7 | 6.44 | 10.6 | 8.82 | 9.7 | 3.5% | |
| Residential | 9.04 | 27.3 | 14.50 | 23.9 | 19.57 | 21.5 | 3.3% | |
| Transport | 12.32 | <mark>37.2</mark> | <mark>23.44</mark> | <mark>38.6</mark> | <mark>35.53</mark> | <mark>39.1</mark> | <mark>4.5%</mark> | |
| Total | 33.12 | 100.0 | 60.66 | 100.0 | 90.99 | 100.0 | 4.3% | |

Transport sector accounts for largest demand



Total Final Energy Demand by Fuel Type: in MTOE



Petroleum Products remain largest fuel type

| Sector | 2016 | | 2030 | | 2040 | | AAGR | |
|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|-------------------|--|
| Sector | MTOE | % Shares | MTOE | % Shares | MTOE | % Shares | (2015-2040) | |
| Coal | 2.67 | 8.1 | 4.24 | 7.0 | 6.04 | 6.6 | 3.5% | |
| Natural Gas | 0.06 | 0.2 | 0.84 | 1.4 | 0.88 | 1.0 | 11.5% | |
| Petroleum Products | <mark>16.32</mark> | <mark>49.3</mark> | <mark>31.01</mark> | <mark>51.1</mark> | <mark>47.11</mark> | <mark>51.8</mark> | <mark>4.5%</mark> | |
| Biodiesel | 0.16 | 0.5 | 0.26 | 0.4 | 0.36 | 0.4 | 3.5% | |
| Ethanol | 0.31 | 0.9 | 0.87 | 1.4 | 1.46 | 1.6 | 6.7% | |
| Electricity | 6.38 | 19.3 | 13.31 | 21.9 | 23.18 | 25.5 | 5.5% | |
| Biomass | 7.21 | 21.8 | 10.12 | 16.7 | 11.96 | 13.1 | 2.1% | |
| Total | 33.12 | 100.0 | 60.66 | 100.0 | 90.99 | 100.0 | 4.3% | |



Alternative Fuels and Energy Technologies Roadmap

ALTERNATIVE FUELS AND TECHNOLOGIES ROADMAP

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

| 2017 – 2019 (Short Term Goal) | 2020-2022 (Medium Term Goal) | 2023-2040 (Long-Term Goal) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Identification of Alternative Fuels and Technologies (AFET) for Application STRATEGIES | Preparation of the regulatory and infrastructure requirements of the identified AFET STRATEGIES | AF Vehicles Mainstreamed in the Transport Sector 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 ecotown concept to include the use of AFET. Identify other emerging, efficient technologies for non-transport applications. | 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. | Deploy applicable AFET for transport and non-transport purposes. Collaborate with private sectors, LGUs, investors, funders, entrepreneurs, transport groups and academe. |
| > Continu | ious assessment of emerging AFET ious conduct of relevant policy studies on emergi ious conduct of IEC on benefits of AFET to enga | |

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

Electric Vehicle is prioritized

SECURED AND STABLE SUPPLY OF ENERGY THROUGH TECHNOLOGY

RESPONSIVE ENERGTY SECTOR



On-Going Initiatives





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- Increase public acceptance of Alternative Fuel & Energy Technologies:
 - Conduct of pilot project/demonstration for introduction of New and Emerging Energy Technologies (NEETs) such as electric vehicles
 - Partnership with private institution/s for promotion and awareness activities
 - Establishment of enabling mechanisms for the adoption and commercialization of Alternative Fuels and Technologies:
 - Develop Policy and guidelines that are non-discriminatory
 - Advocate for the passage of Fiscal and non-fiscal incentives
 - Promotion of Energy Sector Innovation
- Capacity Building for Program/Project Implementers on Alternative Fuels and Emerging Technologies



SB174 ELECTRIC VEHICLES AND CHARGING STATIONS ACT



POINTS TO CONSIDER ON THE COST OF OWNERSHIP

5

ICE Unit + Fuel



POINTS TO CONSIDER ON THE COST OF OWNERSHIP

EV Unit = Unit Cost – Battery Cost



EV PRICE BREAKDOWN

UNIT COST

BATTERY COST

(Covering all component of the battery system including BMS, etc.)



Proposed incentives are the same with the EE&C Act

Fiscal Incentives

- VAT
 - Custom Duties

Non-Fiscal Incentives

- Free parking
- Exemption to Number Coding
- 5-year registration

THANK YOU!





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