Philippine Fuels Quality Standards and Thrusts

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Director, Oil Industry Management Bureau
Department of Energy

National Workshop on Clean Fuels & Vehicles
DOE/ CAI-Asia/ Partnership for Clean Fuels & Vehicles
November 16, 2009, Astoria Plaza Hotel, Pasig City
Fuels (oil) and Pollution

Fuel quality is one of the factors contributing to pollution.

Fuels and vehicles are both critical to air quality. Coordination among respective authorities is a must!

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Oil Situation in the Philippines
Share in Energy/Power Mix

Energy Mix
- Local Oil 1.80%
- Natural Gas 8.04%
- Local Coal 4.80%
- Geothermal 23.22%
- Hydropower 6.15%
- Solar, Wind & Micro-hydro 0.01%
- Biomass 13.79%
- Ethanol 0.02%
- CME 0.13%
- Imported Coal 10.88%

Power Mix
- Oil 8%
- Solar & Wind 0%
- Coal 25%
- Geo 18%
- Natural Gas 32%
- Hydro 16%
Philippine Energy Policy
Consistent with Global Thrust

- Security
- Accessibility
- Sufficiency

Reducing import dependence

Energy

Society

Economy

Environment

Reasonable Price
Affordable Price
Generate Income

Improving economic activity esp in countryside

Cleaner Air
Climate Change
Mitigation/Adaptation

Reducing CO₂ and other emissions
I. IMPROVE PETROLEUM FUEL QUALITY

II. SHIFT TO CLEANER ALTERNATIVE FUELS

- Finite resource
- Pollution
- High price
- Imported

- energy
  - oil (esp. transport)
  - alternative fuels
    - renewable
    - indigenous
    - LPG
    - biofuels
    - CNG

RA 8749 – Clean Air Act of 1999
RA 9367 – Biofuels Act of 2006
The TCPPA follows standards development/review procedure of the Phil. Bureau of Product Standards which promulgates the Phil. National Standards (PNS)

Pre-Clean Air Act : BPS TC-12
(technical Committee on Petroleum Products & Lubricants)

**Sitting:** A. Lim (Secretariat Head), N. Pillariza (DOST), J. Rosete (Co-Chair, EMB), Dir. Z. Y. Monsada (Co-Chair, DOE), N. Adao (BPS), R. S. Infante (Alternate Chair, DOE), **Standing:** B. Dionela (CAMPI), E. Reyes (DOE-EUMB), M. Camagay (Academe, UP-NCTS), M. Aquino (MDPPA), A. Loinaz (FILCAR), J. Matsuo (CAMPI), V. Medina (Chevron), W. Matiao (Chevron), J. Diago (Pilipinas Shell), R. Estrella (Petron), R. Tamayo (AMMDA), A. Valera (Petron), D. Simbulan (Total)
## Fuel Quality Requirements

### Unleaded Gasoline (ULG)

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatics</td>
<td>45% max.</td>
<td>Jan. 1, 2000</td>
</tr>
<tr>
<td>Benzene</td>
<td>4% max.</td>
<td>Jan. 1, 2000</td>
</tr>
<tr>
<td>AKI</td>
<td>87.5% min.</td>
<td>Jan. 1, 2001</td>
</tr>
<tr>
<td>RVP</td>
<td>9 psi max.</td>
<td>Jan. 1, 2001</td>
</tr>
<tr>
<td>Aromatics</td>
<td>35% max.</td>
<td>Jan. 1, 2003</td>
</tr>
<tr>
<td>Benzene</td>
<td>2% max.</td>
<td>Jan. 1, 2003</td>
</tr>
</tbody>
</table>

### Automotive Diesel (ADO)

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur</td>
<td>0.2% max.</td>
<td>Jan. 1, 2001</td>
</tr>
<tr>
<td>Cetane No./Index</td>
<td>48 min</td>
<td>Jan. 1, 2001</td>
</tr>
</tbody>
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### Industrial Diesel (IDO)

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur</td>
<td>0.3% max.</td>
<td>Jan. 1, 2001</td>
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## Philippine National Standards (PNS)

### Unleaded Motor Gasoline

- **PNS 1131:2000** - ULG complying to CAA for 2000 specs
- **PNS 1131:2001** - Multigrade ULG complying to 2001 specs
- **PNS 1131:2002** - ULG complying to CAA 2003 specs

### Diesel Fuel

- **PNS 20:2000** - Diesel Oils (ADO/IDO) complying to CAA 2001
- **PNS/DOE QS 004:2003** - ADO complying to CAA 2004

### Post CAA - Gasoline

- **PNS/DOE QS 001:2005** – ULG (set Sulfur limit to EURO 2 level)
- **PNS/DOE QS 001:2009** - ULG (pure petrol, distinct from E-10)
BIOFUELS MANDATE

BIODIESEL

- 2007 mandate
  - 1% Biodiesel blend

- 2009 mandate
  - 2% Biodiesel blend

BIOETHANOL

- 2009 mandate (February)
  - 5% substitution of the annual gasoline sales starting February 2009

- 2011 mandate
  - 10% ethanol blend on all gasolines

PHILIPPINE NATIONAL STANDARDS (PNS)

BIODIESEL & BLENDS

- PNS/DOE QS 002:2007 – Coconut Methyl Ester (B100) (revision of 2003)
- PNS/DOE QS 004:2007 – FAME Blended Diesel Oil (B1)
- PNS/DOE QS 004:2009 – FAME Blended Diesel Oils (B2)

BIOETHANOL & BLENDS

- PNS/DOE QS 007:2005 – Anhydrous Bioethanol (E100)/Denatured Fuel Ethanol
- PNS/DOE QS 008:2007 – E-Gasoline (E10)
- PNS/DOE QS 008:2009 - E-Gasoline (multigrade E-10)

RA 9367: Signed 1/12/07; Effective 2/6/07
Spot checks and product sampling
- oil refineries
- import terminals / bulk plants
- gas stations
- biofuel plants

Sampling
- frequency – at least once a year inspected for major facilities nationwide

Testing for PNS compliance
- laboratory
- portable diesel analyzer

Inter-lab correlation

Administrative actions
- Fines and penalties for violations
- Feedback to companies
  - With violations - require corrective measures and reports
  - W/o violations - issue “Clean Bill of Health”
## Role of DOE Units vs Regulations

### DOE - OIMB
- Monitoring
  - Fuel quality/quantity \(\rightarrow\) (RA 8479 / RA 9367)
  - Refining/marketing process, inventory, price (RA 8479)
- Additives Registration (RA 8479 / RA 8749)
- Fuel Quality Standard Setting (RA 8749 / RA 9367)
- Petroleum Facilities Standard Setting (MOA with BPS)
- Regulate as necessary (RA7638)

### DOE - EUMB (RA 9367, MC 55, RA 9513)
- Accreditation & Monitoring of Biofuels Manufacture
- Transition Secretariat for NBB (RA9367, JAO)

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**DOE-ERTLS conducts testing of samples, DOE-Legal processes violations**
Quality Standard Harmonization

**Fuel Quality**
- Conventional
- Alternative fuels & blends

**Facilities**
- Gasoline stations
- LPG tanks/conversion kits
- Terminals
- Control equipment (correlation)

**Codes of Practice**
- LPG Vehicle Conversion
- Retail Operation
- Bulk Storage, Handling & Distribution
Quality Standard
Facilities/Practice

Technical Committee on Petroleum Processes & Facilities
Quality Standard
Facilities/Practice – Liquid Fuels

- PNS/DOE Petroleum Products Retail Outlets
  - PNS/DOE FS 1-1:2005 – HSE
  - PNS/DOE FS 1-3:2005 – Piping System
  - PNS/DOE FS 1-4:2005 – Dispensing Pumps


Informational/Safety Signs

Prohibited Acts
## Quality Standard

### Facilities/Practice

- **PNS/DOE FS 2:2006** – LPG Refilling Plant
- **PNS/DOE FS 3:2006** – Auto-LPG Dispensing Station

### Private (Garage-based)

<table>
<thead>
<tr>
<th>Region</th>
<th>Count</th>
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<tbody>
<tr>
<td>Metro Manila</td>
<td>34</td>
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<tr>
<td>South Luzon</td>
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<tr>
<td>Visayas</td>
<td>19</td>
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<tr>
<td>Mindanao</td>
<td>11</td>
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<tr>
<td></td>
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### Public

<table>
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<td>Metro Manila</td>
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<tr>
<td>South Luzon</td>
<td>0</td>
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<tr>
<td>Visayas</td>
<td>1</td>
</tr>
<tr>
<td>Mindanao</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>112</td>
</tr>
</tbody>
</table>
Natural Gas Vehicles Program for Public Transport (NGVPPT)
- 200 buses in the Southern Luzon-Manila route
- serviced thru the South Expressway NGV Refueling Station
  - at a fixed/discounted price for 7 yrs.
**Fuel Quality Standard**

Development/Enforcement

- **CAA**
- **Biofuels Act of 2006**
  - **Clean Fuel Initiatives (WWFC)**
  - **Fuel Quality Regional Harmonization (WP 29 & Vehicle Harmonization)**
  - **Alternative Fuels / Energy Security & Sufficiency**

**Review & Formulate Standards**
- Technical Committee on Petroleum Products & Additives (TCPAA)
- Int’l Fuel Quality Standards
- R & D on Fuel Specification
- Dev’t in Fuel Additives

**Monitoring: Sampling & Testing**
- Field/On-site testing
- Laboratory testing
- Local Supply and Demand

**Multi-lateral bodies:**
- ADB, JICA, JETRO etc.

**Inter-agency Cooperation:**
- DOE, DTI, BPS, DENR-EMB, DOTC
- DOF, BIR, BOC, TC, DOST, etc.

**Others:**
- Industry – Oil/Car
- NGO’s, Academe
- Fuel Quality Standards
- Supply Availability
  - Local production
  - Imports
- Compatible Facilities
Fuel Quality Challenges

Oil Price / Forex
Fuel Quality Challenges
Supply Availability/Accessibility
1. Organize the following with CAI-ASIA Center:
   - National stakeholders workshop on clean fuels and vehicles to develop an action plan moving to **EURO IV** (Nov. 16, 2009)
   - Organize a biofuels roundtable discussion to update stakeholders on biofuels initiative in the Phils., in Asia and the World (Nov. 17, 2009);

2. Pursue deliberation of fuel quality standards for **Euro IV**

3. Pursue acquisition of mobile monitoring/testing facilities

4. Pursue establishment of fuel marking system

5. Pursue active participation in regional initiatives towards harmonization of standards for fuels/biofuels.


7. Inventory all laws, rules and regulations and standards, frameworks and plans relating to fuels.
Thank you!