Downstream Oil Industry Resiliency: Continuity of Business and Rebuilding the Community

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Energy Consumers and Stakeholders' Conference 2017

Theme: E-POWER MO!

12 July 2017

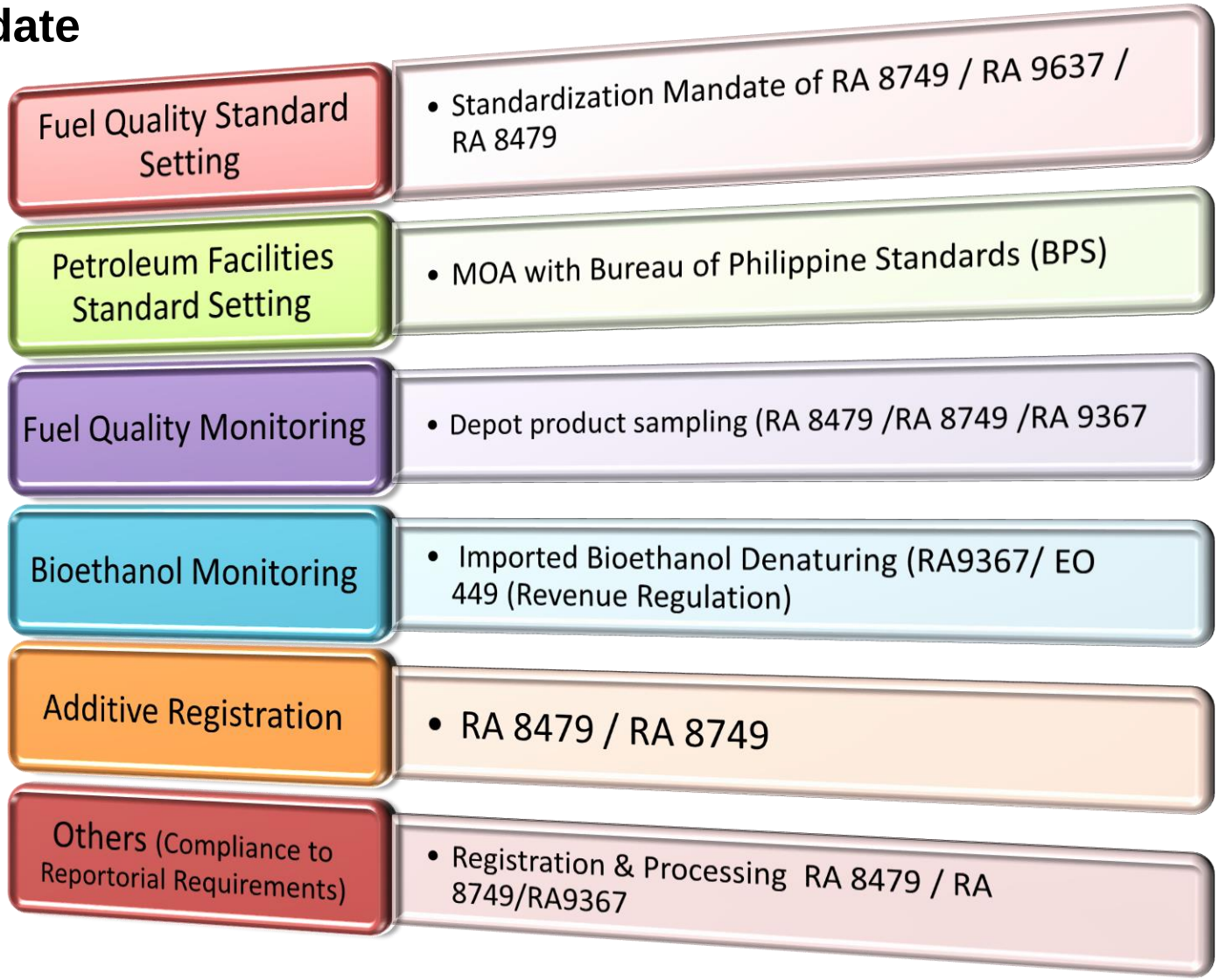
PICC

Presentation Outline

I. Standards Development
   A. Legal Mandate
   B. Policy Guide
   C. How we do it
   D. What we have done so far
   E. Moving beyond the standard
      1. Code of Safety Practices
      2. Helping the community

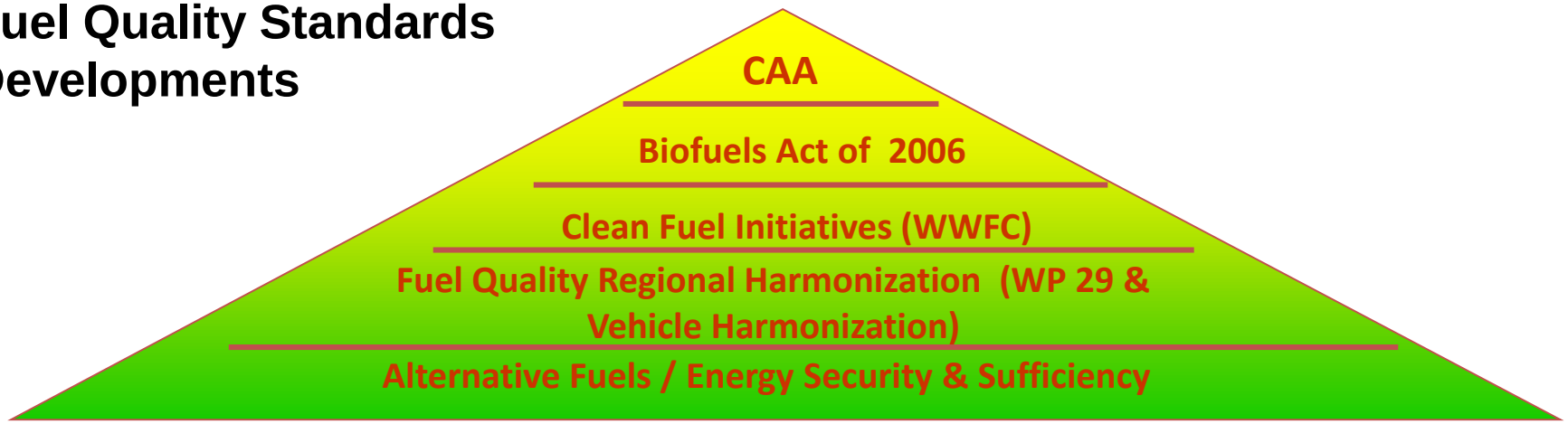
Standards Development

Legal Mandate



Policy Guide - Cleaner Fuels

Fuel Quality Standards Developments

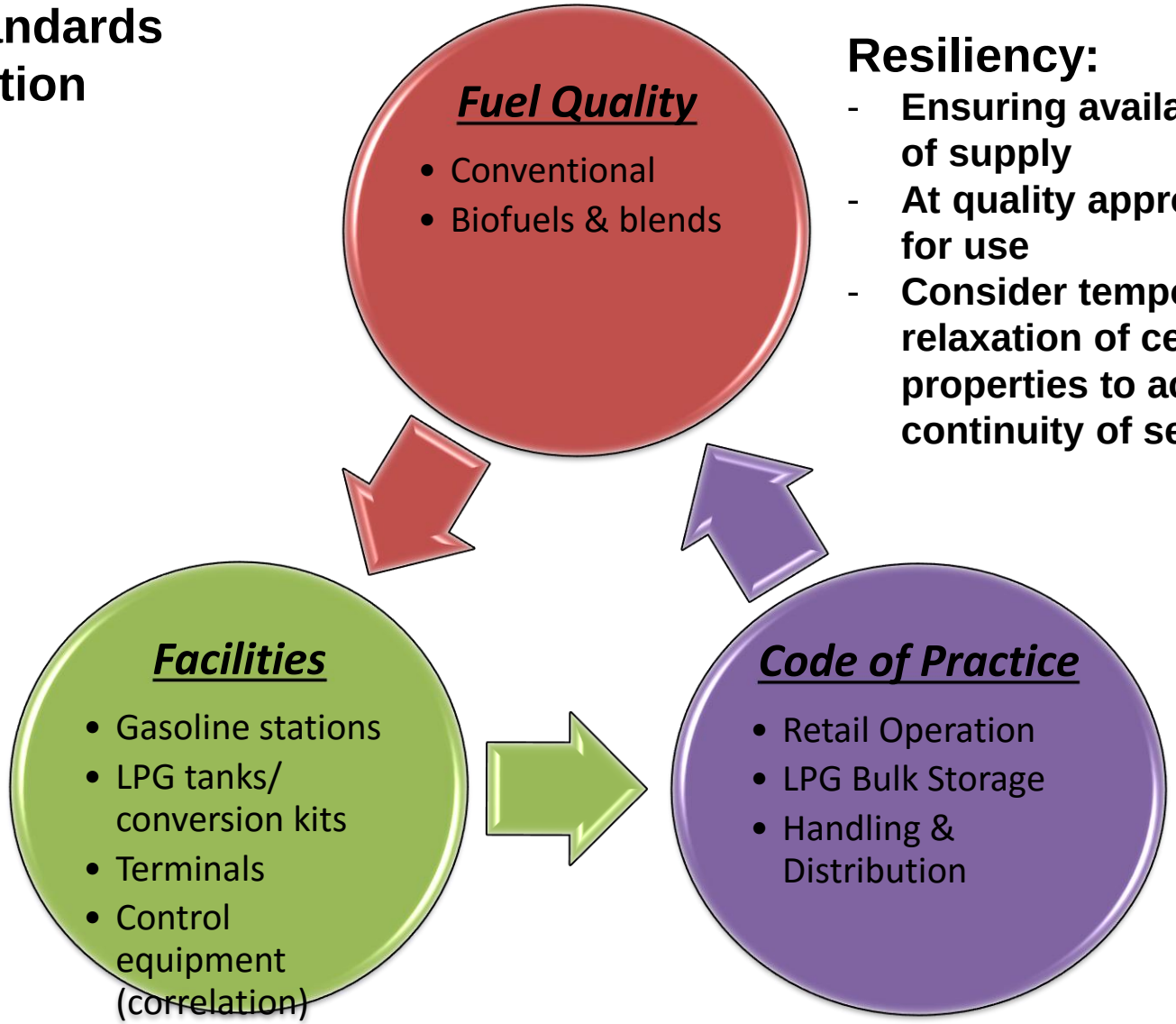


Review & Formulate Standards Technical Committee on Petroleum Products & Additives (TCPPA)		**Monitoring: Sampling & Testing**
Int'l Fuel Quality Standards	Emission Stds/ Regulations	Field/On-site testing
R & D on Fuel Specification	Vehicle Technology Dev't.	Laboratory testing
Dev't in Fuel Additives	IRR for Standards	Local Supply and Demand

Multi-lateral bodies: ERIA, JAMA, JPEC etc.	Inter-agency Cooperation: DOE, DTI, BPS, DENR-EMB, DOTC DOF, BIR, BOC, TC, DOST, etc.	Others: Industry – Oil/Car NGO's, Academe

Policy Guide

Quality Standards Harmonization



Resiliency:

- **Ensuring availability of supply**
- **At quality appropriate for use**
- **Consider temporary relaxation of certain properties to achieve continuity of service**

How we do it

Standardization Technical Committees

1. Technical Committee on Petroleum Products and Additives (TCPPA)

Chairs : DOE and DENR

Members

- **Government : DOE, DENR, BPS-DTI, ITDI-DOST**
- **Fuel Sector : Petron, Shell, Chevron, PIP, IPPCA**
- **Engine Suppliers/ Manufacturers: CAMPI, AMMDA, MDPPA**
- **Consumer Sector/ NGO : FilCar Foundation, AWMA**
- **Academe : UP-NCTS, AIPSI**

2. Technical Committee on Petroleum Processes and Facilities (TCPPF)

Chairs : DOE

Members

- **Government : DTI-BPS, DENR-EMB, DILG-BFP, DOLE (BWC, OSHC)**
- **Testing : DOST-MIRDC, UP**
- **Industry : Petron, Chevron, Shell, Total, IPPCA (Seaoil,TWA)**
- **Prof. Assoc. : SOPI**

What we have done so far

Fuel Quality Standards Development (Gasoline)

	GASOLINE (E0)					E-GASOLINE (E10)			
	CLEAN AIR ACT			POST CLEAN AIR ACT		BIOFUELS ACT			
								E10	EURO 4-PH
PROPERTY	2000	2001 [a]	2003	2005	2009	2006	2009	2012	
Distillation temperature, 0C at:									
10% recovered, max	70	70	70	70	70	70	70	70	70
50% recovered	75-121	75-121	75-121	75-121	75-121	70-110	70-110	70-110	70-110
90% recovered, max	180	180	180	180	180	180	180	180	180
End point, max	221	221	221	221	221	215	215	215	215
Residue, % vol., max.	2	2	2	2	2	2	2	2	2
Hydrocarbons:									
Alcohols (C_2 to C_4), % vol., max. [b]	10	10	10	10	8.4	9.5-10	9.0-10	9.0-10	9.0-10
Aromatics, % vol., max.	45	45	35	35	35	35	35	35	35
Benzene, % vol., max.	4	4	2	2	2	2	2	2	2
Ethers (e.g. MTBE), % vol., max.	10	10	10	2 [c]	2 [c]			2 [c]	2 [c]
Lead Content, g/L, max.	0.013	0.013	0.013	0.005	0.005	0.005	0.005	0.005	0.005
Octane rating, min.									
Research Octane Number (RON)	93	81/87/93/95	81/87/93/95	81/93/95	81/93/95	93	93/95	91/95/97	91/95/97
Anti-Knock Index (AKI)	87.5	87.5	87.5	87.5	87.5	87.5	87.5	87.5	87.5
Vapor Pressure, @ 37.80C, kPa, max.	62	85/62	85/62	85/62	85/62	62	62	68/62	68/62
Sulfur, % mass, max.	0.10	0.2/0.1	0.2/0.1	0.05	0.05	0.5	0.05	0.05	0.005

Mandatory implementation by Jan. 1, 2016 per DOE DC No. 2015-06-0004

[a] multi-grade gasoline [b] ethanol [c] allowable contamination tolerance only. Intentional addition not permitted for both imported and locally-produced gasoline

Note: E10 standards also provide minimum reference specifications for base gasoline.

What we have done so far

Fuel Quality Standards Development (Automotive Diesel)

	CLEAN AIR ACT				BIOFUELS ACT						
	DIESEL OILS				FAME BLENDED DIESEL OIL						
	2000		2003		2007 (B1)		2009 (B2)		2012 (B2)		
PROPERTY	ADO	IDO	ADO	IDO	ADO	IDO	ADO	IDO	ADO	IDO	EURO 4-PH
Calculated cetane index min. Or	48		50		50		50				
Cetane number, min. Or	48								50		50
Derived cetane number, min .											
Carbon residue on 10% Distillation residue, % mass, max.	0.15	0.35	0.15	0.35	0.15	0.35	0.15	0.35	0.15	0.35	.015
Color, ASTM			2.5 max.	5.0 min.	2.5 max.	5.0 min.	2.5 max.	5.0 min.	2.5 max.	5.0 min.	2.5 max.
Copper strip corrosion, 3h at 50 °C, max.			No. 1	No, 1	No. 1	No. 1	No. 1	No. 1	No. 1	No. 1	No. 1
Density at 15 °C, kg/L	0.8650	0.880	0.8600	0.8800	0.820-0.860	0.880 max.	0.820-0.860	0.880 max.	0.820-0.860	0.880 max.	0.820-0.860
Distillation, 90% recovered, °C, max	375	Report	370	Report	370	Report	370	Report	370	Report	370
FAME [a], content, % volume.					0.7-1.2	0.7-1.2	1.7-2.2	1.7-2.2	1.7-2.2	1.7-2.2	1.7-2.2
Flash point, Pensky-Martens, °C, min.	52.0	52.0	55.0	55.0	55	55	55	55	55	55	55
Kinematic viscosity, mm^2/s at 40°C	2.0-4.5	2.0-4.5	2.0-4.5	1.7-5.5	2.0-4.5	1.7-5.5	2.0-4.5	1.7-5.5	2.0-4.5	1.7-5.5	2.0-4.5
Lubricity, (HRFF), wear scar dia. @ 60 °C, micron, max.			460		460		460		460		460
Methyl Laurate (C12 ME), % mass, min					0.4	0.4	0.8	0.8	0.8	0.8	0.8
Sulfur, % mass, max.			0.05	0.03	0.05	0.30	0.05	0.30	0.05	0.30	0.005
Water, % volume, max. [b]					0.05		0.05		0.05		0.05
Water and sediment, % volume, max.	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Mandatory implementation by Jan 1, 2016 per DOE DC No. 2015-06-0004

Note: FAME blended diesel oils also provide minimum reference specifications for base diesel

What we have done

Developed/Promulgated Standards (PNS)

A. Biofuels:

- PNS/DOE QS 002:2015 – Coconut Methyl Ester (B100)
- PNS/DOE QS 007:2014 – Anhydrous Bioethanol & Bioethanol Fuel (E100 & E98)

B. Conventional Petroleum:

- PNS/DOE QS 003:2003 – Two-stroke (2T) Lubricating Oils
- PNS/DOE QS 005:2005* - Liquefied Petroleum Gases (LPG)
- PNS/DOE QS 006:2005 – Fuel Oils (Bunker)
- PNS/DOE QS 009:2007 – Kerosene
- PNS/ASTM D 910:2010 - Aviation Gasoline Grade 100LL

C. Test Methods:

- PNS/DOE TM 01:2015 – Determination of Lauric Acid Content in Fatty Acid Methyl Esters (FAME) by Gas Chromatography
- PNS/DOE TM 02: 2009 – Separation of Fatty Acid Methyl Esters (FAME) from FAME-Blended Diesel Oils by Liquid Adsorption Chromatography and Characterization by Gas Chromatography

- PNS/DOE FS 1-4:2005 - Retail Outlets
  - ✓ PNS/DOE FS 1-1:2005 – Heath, Safety and Environment
  - ✓ PNS/DOE FS 1-2:2005 – Under ground Storage Tank
  - ✓ PNS/DOE FS 1-3:2005 – Piping System
  - ✓ PNS/DOE FS 1-142005 – Dispensing Pumps
- PNS/DOE FS 2:2006 - LPG Refilling Plant – General Requirement
- PNS/DOE FS 3:2013 - Auto -LPG Dispensing Station
- PNS/DOE FS 4:2007 - Liquid Petroleum Products (LPP) Depot
- PNS/DOE FS 5:2009 - Storing and Handling of CME and CME-Blends Petroleum and in LPP Depot
- PNS/DOE FS 6:2011 - Storing and Handling of E-Gasoline in Retail Outlet
- PNS/DOE FS 7:2011 - Storing and Handling of B5 in Retail Outlet
- PNS/DOE FS 8:2009 - Transportation of Petroleum Products by Pipeline (on-going)
- PNS/DOE FS 9:2015 - Code of Safety Practice in Auto-LPG Dispensing Station

What we have done

On-going Standards Development (DPNS)

1. Fuel Quality Standards

A. LPG review/update of 2005 specs*

- DPNS/DOE QS 005:2016 – Liquefied Petroleum Gases (LPG) as non-motor fuel
- DPNS/DOE QS 012:2016 – Liquefied Petroleum Gases (LPG) as motor fuel

*(*endorsed to BPS and awaiting for adoption and promulgation as PNS)*

B. E10 & B2 review/update of 2012 specs*

- DPNS/DOE QS 008:2017 – E-Gasoline Specification (E10)
- DPNS/DOE QS 004:2017 – CME-Blended Automotive Diesel Oil (ADO)
- DPNS/DOE QS 013:2017 – CME-Blended Industrial Diesel Oil (IDO)

*(*in general circulation for 2 months until July 31, 2017)*

2. Facility Standards

A. PNS/DOE FS 10:2017 – Code of Safety Practices for LPP in Retail Outlet (new)

*(*endorsed to BPS and awaiting for adoption and promulgation as PNS)*

B. DPNS/DOE FS __ - Code of Safety Practices for and LPG Refilling Plant (new)

*(*on-going deliberation/consultation with LPG Association)*

Moving beyond the standard

- The oil companies or the industry to collectively help the government stop unfair business practices such as:
  - ✓ Illegal LPG refilling
  - ✓ Use of sub-standard or defective LPG cylinders
  - ✓ Poorly maintained operated retail outlets
  - ✓ Buying from bote-bote or LPG-refilled tin canisters
  - ✓ “pa-ihi”

- Allow the public to also know the other side of the “Oil Company” and not just about their prices
  - ✓ Encourage CSR
  - ✓ Include their social or environmental advocacies in their ad campaigns or messaging to the public
  - ✓ See the youth as a separate and distinct segment of the society and support advocacies that relate to them

Thank You!

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