

COUNTRY REPORT

**APEC/APLMF Seminar and Training Courses in Legal Metrology
(CTI – 25/2007T)**

**Training Course on Natural Gas Vehicle Fuel Dispensers
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**NONA I. PILARIZA
Senior Science Research Specialist
Standards and Testing Division
Industrial Technology Development Institute
Department of Science and Technology**

**Standards and Testing Division
DOST Compound, General Santos Avenue
Bicutan, Taguig City, Philippines
(632) 837 0032
npilarizarp@yahoo.com**

1.0 Self Introduction

I am connected with the Industrial Technology Development Institute (ITDI), an agency under the Department of Science and Technology (DOST). ITDI has several divisions, two of which are the *Standards and Testing Division (STD)* and the *National Metrology Laboratory (NML)*.

1.1 **Standards and Testing Division (STD)**, the division I am in is one of the technical divisions of ITDI established under Executive Order No. 128 dated 30 January 1987. ITDI through STD implements the provisions of Republic Act 2067 known as the Science Act of 1958. It renders technical services to industries, schools, hospitals, other government agencies, private institutions and industries. STD has five (5) major laboratories namely:

- a) ***Organic Chemistry Laboratory*** – Foods / Organic and Fine Chemicals/ paints and Allied Products/ Natural Products / Fuels and Petroleum
- b) ***Inorganic Chemistry Laboratory*** – Water and Wastewater/ Metals/ Minerals, Ores, Fertilizers/ Inorganic Chemicals
- c) ***Material Products Performance Laboratory*** – Rubber/ Paper, Carton, Cardboard/ Textiles
- d) ***Microbiology Laboratory***
- e) ***Pharmacology and Toxicological Laboratory***

Under the Organic Chemistry Laboratory is the Fuels and Petroleum Section involved in the testing of fuel products including alternative fuels and petroleum products.

1.2 **National Metrology Laboratory (NML)** is the organization responsible for establishing, maintaining and dissemination of national physical standards for basic and derived quantities. It is equipped with high precision standards and measuring instruments for use in its calibration and measurement activities. The national standards are regularly calibrated abroad to ensure international traceability. NML – ITDI has five (5) major laboratories which are:

- a) ***Volume/ Density/ Viscosity/ Moisture Standards***
- b) ***Mass Standards (Force and Pressure Standards)***
- c) ***Length and Engineering Metrology Standards***
- d) ***Electrical/ Time/ Frequency Standards***
- e) ***Thermometry and Hygrometry Standards***

Each of these laboratories disseminates the standard units of measurement through calibration and testing services. Clients include hospitals, schools, manufacturing companies, industrial companies and calibration laboratories.

Personnel who are sent to trainings locally or abroad are required to disseminate information to other staff through echo seminars and train other staff as well.

2.0 Use of Natural Gas in the Philippines

2.1 Natural Gas Vehicle (NGV's)

There are about 12 Natural Gas Vehicles in the Philippines with another 200 privately owned units expected to be delivered in full late this year.

The Philippine government currently owns about 12 units of Natural Gas Vehicles. Two of these are demo units owned by the Department of Energy (DOE) acquired from Korea and India. Four (4) are NGV's converted by DOE and undergoing further testing. The Philippine National Oil Corporation (PNOC) own six (6) Original Equipment Manufactured taxis from Petronas, Malaysia. These vehicles are undergoing on - road testing to assess the technical viability to local conditions. They are also used to inform and educate the populace on the benefits of NGV's

The 200 NGV fuelled public utility buses (PUB) are owned by several DOE accredited transport groups with provincial routes plying near the Malampaya onshore gas plant. These are low emission buses powered by Cummins Westport engines. Use of NGV in public transport will increase with the completion of arrival of the remaining PUB's. The national government with its policy to promote the Clean Air Act through the use of environment friendly fuels launched the Natural Gas Vehicle Program for Public Transport (NGVPPT) which aims to convert public transport vehicles like buses, taxi and jeepneys to run on natural gas. By offering incentives, income tax holidays and providing preferential franchise, the government is encouraging more transport operators to use natural gas as fuel alternative.

2.2 Natural Gas Demand

Natural gas demand comes mainly from the power sector. Gas from Malampaya is used to fuel three power plants in Batangas with a combined capacity of 2700 MW. These power plants are the 1200 MW Ilijan Power Plant, the 560 MW San Lorenzo Power Plant, and the 1000 MW Sta. Rita Power Plant.

2.3 Re - fuelling Stations

The first and only operational re-fuelling station is the PNOC-Exploration Corporation's Natural Gas from the San Antonio, Isabela gas field. This station was initially constructed to supply the 12 demo units owned by DOE and PNOC.

In the case of gas supply from the Malampaya Gas field, a mother – daughter re-fuelling system is constructed to transport natural gas from the Malampaya gas field. The mother station is situated within the Malampaya on –shore gas plant in

Batangas with the daughter in Batangas City. This in turn is piped to the Mamplasan service station in Biñan, Laguna and will serve as a refueling station for the 200 public utility buses.

2.4 Other Uses of Natural Gas

The potential natural gas users are the industrial sector and commercial/residential sector. Industries along the proposed pipeline routes linking Batangas province and the Bataan peninsula to Metro Manila are expected to be natural gas market. Natural gas is expected to be used for process heat, air conditioning and power requirements. Likewise for the commercial and residential sector, gas can be an alternative to electricity for air condition and lighting use. Principal opportunity for gas use in the residential sector is as a replacement for LPG as fuel for cooking

3.0 Legal Metrological Control on Natural Gas Dispensers in the Philippines

3.1 Measurement of Natural Gas

The unit of measure for natural gas under standard condition is stated in Rule 4 of the DOE Circular No. 2002-08-005 as:

Section 1. Unless otherwise approved by the DOE and for the purpose of this Circular, the volume and energy of Natural Gas will be measured according to the relevant standards as developed and maintained by the International Standardization Organization (ISO) and in particular:

- (a) The volume of Natural Gas will be measured in cubic meters under standard conditions specified in section 2 below and all reporting will be in units of standard cubic meter (SCM);
- (b) The energy value of Natural Gas will be measured in joules (J) with quantity prefix such as megajoules (MJ), terajoules (TJ), petajoules (PJ), etc., as appropriate.

3.2 Verification of Natural Gas dispensers in the Philippines

There is no verification of Natural Gas dispensers to date since we are still in the launching stage of the project. In the event that the supply and distribution of Natural Gas becomes fully operational, the Department of Energy (DOE) is the government agency will monitor and verify fuel gas dispensers for natural gas. The equipment for verification should be calibrated by the National Metrology Laboratory of ITDI – DOST.

3.3 Regulation, and Approval of Natural Gas dispensers in the Philippines

The Department of Energy (DOE) in consultation with appropriate government agencies issued and promulgated the DOE Circular No. 2002-08-005 which is the Interim Rules and Regulations Governing the Transmission, Distribution and Supply of Natural Gas

4.0 Requirements/ Problems

Due to some problems the implementation of legal metrology system is hampered. As a consequence there is always the problem of hiring technical personnel and the procurement of appropriate standard equipment to perform inspection and verification of materials in industry, trade and commerce.

However, the trainings provided by international organizations like the APLMF give other countries like the Philippines a big boost.

Thank you very much