VALUE PROPOSITION FOR METHANOL FUEL BLENDING IN TRINIDAD AND TOBAGO

Trinidad and Tobago Methanol Fuel Blending Forum
January 22, 2019
Outline

• Value Proposition

• Logistics

• Potential Benefits to Region

• Issues to be Considered to Support the Opportunity

• Trinidad’s Potential for a Methanol Economy

• Path towards Methanol Fuel blending in Trinidad
Value Proposition: Methanol can help reduce the cost of imported gasoline

Trinidad, a leading methanol exporting country, currently exports over 1.7 billion gallons of methanol annually!
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As all of the gasoline will now be imported, domestic methanol plants can provide a clean, lower cost, replacement fuel for a portion of the imported gasoline.
On a volume basis, methanol prices trend lower than gasoline leading to potential costs savings if used as a blending stock.
Methanol is high-performance fuel

✓ Higher Octane Value than Gasoline
  – RON Methanol is 109
  – RON Premium Gasoline is 95
  – RON Super Gasoline is 92

✓ Increased Engine Efficiency Compared to Gasoline

✓ Higher Flame Speed than Gasoline (Tighter Combustion Control and More Precise Torque Management)
Value Proposition

Overall Benefits

Methanol Blending Benefits

Cost Savings
- Displaces equivalent volume of more expensive base fuel
- Octane Booster - Allows use of lower grade and therefore cheaper base fuel
- Reduces Government's Forex Expenditure
- Lower subsidy or lower cost at the pump

Environmental
- Reduction of Volatile Organic Compounds (VOCs) and Particulate matter

Other
- Additional Jobs for logistics and blending operations.
Value Proposition - Potential Financial Benefits of Blending 5% Methanol into Gasoline Pool

- Reduction of 30 million gallons per year of gasoline imports (~2,000 bbl per day)
- Potential to save in upwards of TT$240 million per year
- Expected reduction in overall gasoline fuel costs will also reduce ultimate cost of fuels

<table>
<thead>
<tr>
<th>Fuel Mix</th>
<th>Units</th>
<th>5% Methanol / 95% Gasoline</th>
<th>0% Methanol / 100% Gasoline</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTI Crude Price</td>
<td>USD / BBL</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Unsubsidized Super Gasoline Price(^1)</td>
<td>TT$ / Gallon</td>
<td>14.90</td>
<td>14.90</td>
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<tr>
<td>Motor Gasoline Imports(^2)</td>
<td>MM Gallons / Year</td>
<td>600</td>
<td>630</td>
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<tr>
<td>Methanol Domestic Price</td>
<td>TT$ / Gallon</td>
<td>7.25</td>
<td>N/A</td>
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<tr>
<td>Methanol Motor Fuel Demand</td>
<td>MM Gallons / Year</td>
<td>30</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total Fuel Cost</strong></td>
<td>TT$Bn / Year</td>
<td><strong>9.1</strong></td>
<td><strong>9.4</strong></td>
</tr>
</tbody>
</table>

1) Calculated based on Finance Ministry’s estimated unsubsidized super gasoline price of TT$5.47/Litre at West Texas Intermediate (“WTI”) crude oil price of US$73/BBL as per the “Budget Statement 2019 Turnaround”. Price shown assumes a deduction of the cost of the current 12.5% VAT on the gasoline imported.
Logistics

Blending can be done at the main import and storage locations, the gasoline distribution terminals or in road tank wagons themselves.

Trinidad has the available infrastructure to accommodate these options with some modifications.
Logistics – Methanol Production

7 commissioned methanol plants and 1 methanol plant in construction with existing on-island storage capacity.

- Point Fortin
- Port of Spain
- Point a Pierre
7 commissioned methanol plants and 1 methanol plant in construction with existing on-island storage capacity

Existing storage and distribution facility at Caroni.

Existing fuel import, blending facility and storage infrastructure at former Petrotrin Pointe-à-Pierre refinery, and National Petroleum Marketing Company Limited (“NP”) storage facilities at Sea Lots, remain utilized
Logistics

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Transport by tank wagon.

Port of Spain

Caroni

Point a Pierre

Point Fortin
Logistics

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Existing gasoline import carrier delivery to Pointe-à-Pierre refinery; blended methanol / gasoline carrier delivery to other customer nations
Potential Benefits to the Region

- This is an exciting opportunity to position the Petroleum Industry in Trinidad, as a regional common good.

- Opportunity to provide lower cost fuel for the Caribbean

- Can be a part of the strategy for the Region to meet SDG 13 (‘particularly on emissions) and to make their economies more resilient.

- This Opportunity should be championed throughout the Region to secure ‘buy-in’.

- Additional benefits may be negotiated with Countries, in order to make the Opportunity even more attractive.
Issues to be Considered to Support the Opportunity

- Funding for modifications/additions to infrastructure can be supported through existing incentives.
- Domestic VAT exemptions for inputs into exports and exports.
- Possible negotiated Tax exemptions on Capital Equipment and concessions on intermediate inputs can be negotiated.
- Possible negotiated Corporation Tax negotiations to benefit the investment.
- Possible opportunities through the Green Climate Fund (GCF).
- Trade with Caricom Nations
  - Current Common External Tariff (CET) protection for Gasoline Products stands at 30%.
- The Regime has other features which makes it attractive for an Investment of this nature (Such as the Ineligibles Regime) - Regional Demand Study would support this Status.
Trinidad’s Potential For a Methanol Economy

Expansive low-cost methanol production resources position Trinidad to develop a “methanol economy” that can further reduce imported fuel volumes long-term.

**Higher Gasoline Fuel Blends**
Blends in engines up to 15% in any vehicle engine; higher levels in flexible fuel engines possible, and upwards of 100% methanol fuel for fleet vehicles.

**Power Generation**
Clean fuel substitute for diesel, ideal for small generators without access to natural gas, or as back up power.

**Cooking Fuel**
Clean cost efficient and safer replacement for LPG and kerosene-fired stoves commercialized in Caribbean, South American, African and Asian nations.
Path Towards Methanol Fuel Blending in Trinidad

• Task force to perform a technoeconomic feasibility study

• Consultation with stakeholders including, but not limited to, Paria Trading, Trinidad and Tobago National Petroleum Marketing Company (NP), Ministry of Energy and Energy Industries, methanol producers, Trinidad and Tobago Bureau of Standards, automobile dealerships and associations and logistics contractors

• Develop a pilot program

• Create a regulatory framework that facilitates the adoption of methanol (first within Trinidad and for countries that import gasoline from Trinidad)

• Adopt new fuel standard

• Modifications/additions to existing infrastructure to facilitate blending
THANK YOU