Philippine: How to increase the local bioethanol production?

June 25, 2019

7th Global Bioenergy Partnership Week 2019
PICC, CCP Complex, Manila
Outline

1. Industry Background
   b. Policy Implementation and other Issuances
   c. Introduction of EPAP
   d. Industry Status and Updates
   e. Feedstock

2. How to increase the local bio-ethanol production
   a. Challenges
   b. Ways to improve
What is the Biofuels Act of 2006?

Mandates 10% blending of Bioethanol with Gasoline

Mandates 2% blending of Coco Biodiesel with Diesel
What are the purposes of Republic Act 9367 or The Biofuels Act?

Develop and utilize *indigenous* renewable and sustainable source of clean energy

Mitigate *toxic* and greenhouse gas *emissions*

Increase rural *employment* and *income*

Ensure the availability of alternative and *renewable clean energy without any detriment* to the natural ecosystem, biodiversity and food reserves of the country
DOE DC 2011-12-0013 was signed mandating all oil companies to purchase local bioethanol prior to importation.

Nationwide 5% blend was implemented

DOE Circular Released

DC AMENDMENTS: E10 Blend Exemptions – RON97,98 ABOVE

Rated capacity of local bioethanol facilities will now cover the 45% of E10 demand

Biofuels Act of 2006 was signed
Who is EPAP?
Where are we now?

Supply

• 12 accredited bioethanol producers
• Total production capacity of 364.62 MLPY as of end of 2018
• Capacity to supply 45% of the total 2018 E10 demand
• Additional 68 MLPY capacity by 2020.

Demand

• Total sales of local bioethanol reached 296 ML in 2018 or about 53% of 630ML-volume requirement for E10 mandate;
• Unsold Inventory for 2018 ranges from 20-33ML (import is preferred despite buy-local circular due to cheaper import price);
• Imports filled in the deficit and sourced from the US, Australia, South Korea, among others.
### Where are our Processing Plants located?

<table>
<thead>
<tr>
<th>PRODUCER</th>
<th>PROJECT LOCATION</th>
<th>REGISTERED CAPACITY (in ML)</th>
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<tbody>
<tr>
<td>1 San Carlos Bioenergy, Inc.</td>
<td>San Carlos City, Negros Occidental</td>
<td>40</td>
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<td>2 Leyte Agri Corp.</td>
<td>Ormoc City, Leyte</td>
<td>9</td>
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<td>3 Roxol Bioenergy Corp.</td>
<td>La Carlota, Negros Occidental</td>
<td>30</td>
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<td>4 Green Future Innovations, Inc.</td>
<td>San Mariano, Isabela</td>
<td>54</td>
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<td>5 Balayan Distillery, Inc.</td>
<td>Batangas</td>
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<td>6 Far East Alcohol Corp.</td>
<td>Pampanga</td>
<td>15</td>
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<td>7 Kooll Company, Inc.</td>
<td>Talisay City, Negros Occidental</td>
<td>14.12</td>
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<td>8 Universal Robina Corp.</td>
<td>Negros Oriental</td>
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<td>9 Progreen Agricorp, Inc.</td>
<td>Nasugbu, Batangas</td>
<td>30</td>
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<tr>
<td>10 Absolut Distillers, Inc.</td>
<td>Lian, Batangas</td>
<td>30</td>
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<tr>
<td>11 Emperador Distillers, inc. (2018 Q3)</td>
<td>Gimalas, Balayan, Batangas</td>
<td>66</td>
</tr>
<tr>
<td>12 Victorias Milling (2018 Q4)</td>
<td>Victorias City, Negros Occidental</td>
<td>16.5</td>
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<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>364.62</strong></td>
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Bioethanol Production Plants (Completed)

Emperador Distillers, Inc. *(Inaugurated on 14 March 2018)*
Capacity: 66 million liter per year
Location: Nasugbu, Batangas

Reported by: DOE-Renewable Energy Management Bureau (DOE-REMB) Dec2018
Bioethanol Production Plants (Completed)

Victorias Milling Company, Inc. (April 2018)
Capacity: 16.5 million liter per year
Location: Victorias City, Negros Occidental

Reported by: DOE-Renewable Energy Management Bureau (DOE-REMB) Dec2018
Bioethanol Production Plants (On-going Construction)

Asian Alcohol Corporation
Location: Pulupandan, Negros Occidental
Capacity: 30 million liter per year
Target Commercial Operation: January 2020

Reported by: DOE-Renewable Energy Management Bureau (DOE-REMB) Dec 2018
Bioethanol Production Plants (On-going Construction)

Cavite Biofuel Producers, Inc.
Location: Magallanes, Cavite
Capacity: 38 million liter per year
Target Commercial Operation: 3rd Quarter 2020

Reported by: DOE-Renewable Energy Management Bureau (DOE-REMB) Dec2018
What feedstock do we currently use to produce ethanol?

Potential feedstock:

- Sugarcane
- Molasses
- Sweet sorghum
- Cassava
- Nipa
- Sweet Potato
R, D & D Initiatives on Bioethanol Feedstock

Mariano Marcos State University (MMSU)

“Establishment of a Community-Based Bioethanol Industry and Continued R&D on the Feasibility of Hydrous Bioethanol as Biofuel Blend using Nipa Sap as Feedstock”

NSEBIO Co., Ltd. Philippine Branch

“Demonstration Test for Cellulosic Ethanol Production Technology in the Philippines”
How to increase bio-ethanol production in the Philippines?
CHALLENGE #1: FEEDSTOCK SHORTAGE

Types of Ethanol Producers in the Philippines

- Sugarcane as primary feedstock
- Molasses as primary feedstock

Shortage of Sugarcane

- Sugarcane hectarage declining
- GFII has a milling capacity of 810,000 tons cane per year
  - 2017: 110,000 tons cane milled
  - 2018: 175,000 tons cane milled
  - 2019: 200,000+ projected tons cane milled
- San Carlos Bio-ethanol has opted to use molasses because of competition to acquire sugarcane negros

Shortage of Molasses

- Demand of molasses based on capacity of ethanol producers is 1.5 million tons
- Local molasses production is approximately 1.1 million tons
Solution #1: Increase sources of feedstocks

Allow the use of corn and other feedstock to open up new supply of feedstock that will help maximize the capacity of the ethanol plants.

- FOOD VS FUEL DILEMMA: By-product from producing ethanol from corn is Dried Distillery Grains, which is a high protein ingredient for animal feeds.
- Developed ethanol industries such as the ethanol industries in the United States and Brazil use corn as a feedstock.

Temporarily allow importation of feedstock

- Will allow plants to maximize their capacity but will not contribute directly to the local farmers.
CHALLENGE #2: DIFFICULT TO LEASE LARGE PROPERTIES FOR PLANTATIONS

1. Very difficult to manage 3 to 5 hectares plantation spread out around the area
2. Constantly transporting labor and farming equipment
3. Difficult to access plantations
IMPROVEMENT #2: Create a program with DENR to lease land for production of feedstock to produce bio-ethanol

1. DENR has the Forest Land Grazing Management Program.
   • The purpose of program is to use the land for either reforestation or cattle grazing (food security).
   • DENR has large plots of land that could be used to plant feedstock for bio-ethanol.
2. Large plots of land are much easier to manage than small plots scattered around
3. Longer lease terms will make it feasible to invest in developing the properties for feedstock production
   • Irrigation
   • Land preparation
IMPROVEMENT #2: Create Program with DENR to lease land for production of feedstock to produce bio-ethanol

Sample of 300 hectare plantation:
Consensus in sugar industry is that it is more difficult to find labor to plant and harvest sugarcane.

- Sugarcane labor are working for construction
- Insufficient investment in field mechanical harvesting.
- Sugarcane fields are not planted for mechanical harvesting

Effects:
- Sugarcane farmers stop planting sugarcane because fear that their cane won’t be harvested
- Drop in total production of sugarcane in the Philippines
IMPROVEMENT #3: Mechanize Farming

1. Increase production of sugarcane
2. Increase factory efficiency from continuous delivery of sugarcane to the mill
3. Higher value jobs in the country side
Please add us on Facebook:

**Ethanol Producers Association of the Philippines - EPAP**

[www.facebook.com/PhilippineEthanol](http://www.facebook.com/PhilippineEthanol)

Email us at:

[philippine.ethanol@gmail.com](mailto:philippine.ethanol@gmail.com)
Would Regulators allow feedstock importation to grow ethanol production?

Develop and utilize *indigenous* renewable and sustainable source of clean energy

---- Allow use cereals, such as corn for local feedstock – Department of Agriculture to amend the Joint Administrative Order No. 2008-1,

--- Amend portion of the law and/or seek SPECIAL EXEMPTION similar to that of oil companies’ request to exempt RON 97. 98 and above

Mitigate toxic and greenhouse gas emissions

Increase rural employment and income

Ensure the availability of alternative and renewable clean energy without any detriment to the natural ecosystem, biodiversity and food reserves of the country