Ethanol Policy and Ethanol Industry Overview - Philippines

The Benefits of Bio-Ethanol Workshop

May 16, 2017 Seoul, Korea

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Landmark Law

Republic Act No. (RA) 9367: Biofuels Act of 2006

Biofuels Act of 2006

An Act to direct the use of biofuels, establishing for this purpose the Biofuel Program, Appropriating Funds therefore, and for other purposes

Signed into law on January 12, 2007

The Biofuels Act of 2006 was aimed to increase the contribution of biofuels in the country's energy mix thereby reducing its dependence on imported fossil-based fuels, enhance the quality of the environment, and create opportunities for countryside socio-economic development.

RA 9367: Biofuels Act of 2006

To achieve energy independence and fuel diversification while meeting environmental challenges through the utilization of agricultural-based feedstock

biodiesel

Potential Diesel Displacement

- 140 million liters per year for B2

bioethanol

Potential Gasoline Displacement

- 400 million liters per year for E10

RA 9367

- Mandates the use of biofuels

  BIODIESEL

  - 2% biodiesel blend on Feb. 6, 2009 in all gasoline stations nationwide

  BIOETHANOL

  - Start of 5% by total volume on Feb. 6, 2009
  - 10% bioethanol blend to all gasoline on Feb. 6, 2012

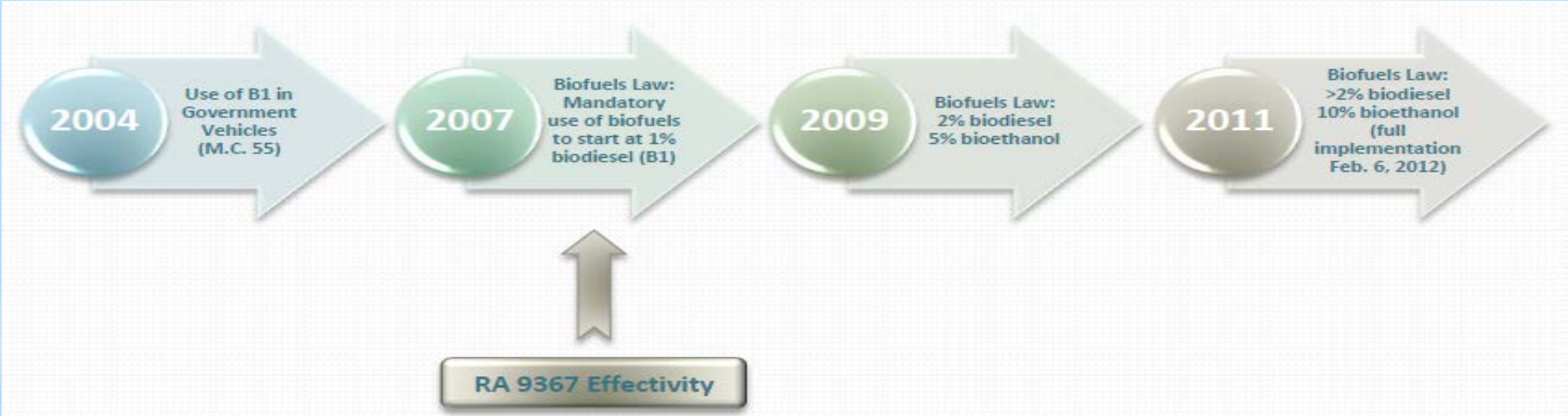
- It provides incentives in the production, distribution and mandates the use of locally-produced biofuels

- It creates the National Biofuel Board that will monitor and evaluate the implementation of the National Biofuels Program

Incentives under the Biofuels Law

- *Specific Tax* per liter of volume is zero (0) for biofuels component;
- Exemption from *Value Added Tax* (*VAT*) on the sale of raw material used in the production of biofuels;
- Exemption from *Wastewater Charges* of all water effluents from the production of biofuels under Philippine Clean Water Act;
- High priority from Government Financial Institutions (GFIs) to entities that will engage in production, storage, handling and transport of biofuel and biofuel feedstock, including the blending with petroleum as certified by DOE.

Biofuels Implementation Plan



R. A. No. 9513: The Renewable Energy Act of 2008

Accelerate the development of the country's renewable energy resources by providing fiscal and non-fiscal incentives to private sector investors and equipment manufacturers / suppliers.

RA 9513: Renewable Energy Act of 2008

An Act promoting the development, utilization and commercialization of renewable energy resources and for other purposes.

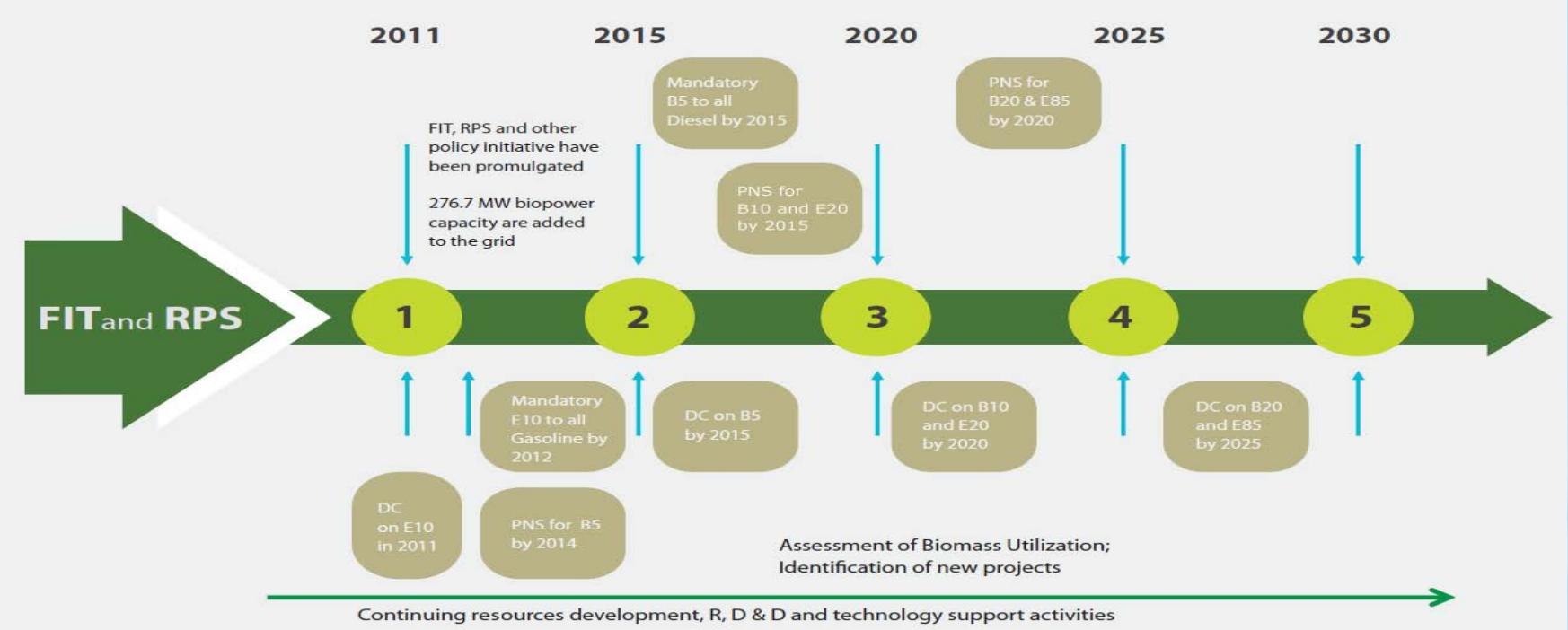
- Department Circular No. 2009-07-0011

"Guidelines Governing a Transparent and Competitive System of Awarding Renewable Energy Service/Operating Contracts and Providing for Registration Process of Renewable Energy Developers"

-JAO 2008-1 shall govern the registration of biofuel projects/facilities under RA 9513 in lieu of an RE contract

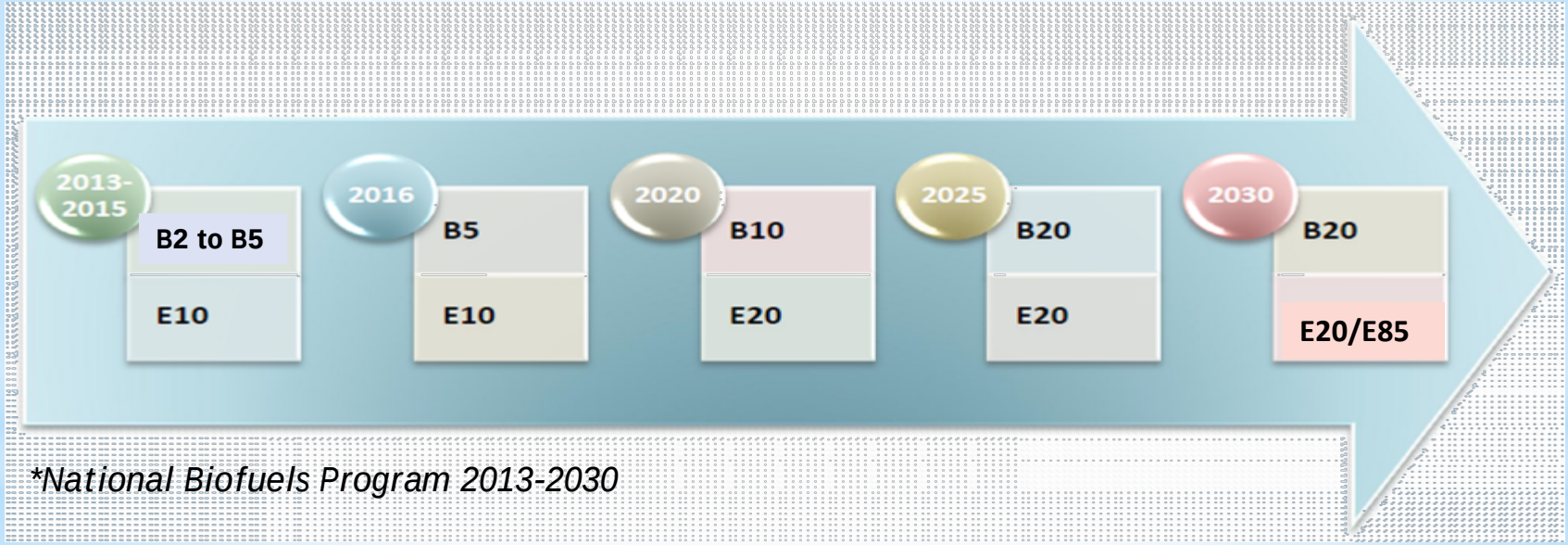
-incentives under RA 9513 may be availed of (Income Tax Holiday, Duty-Free Importation, Low income tax rate of 10% after the ITH, Sale of fuel is Zero percent VAT, among others)

BIOMASS SECTOR ROADMAP, 2011-2030*

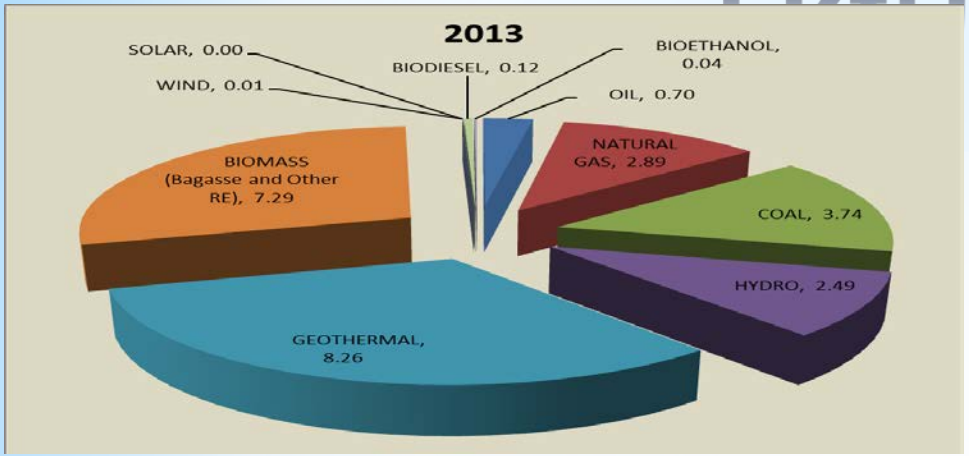


*National Renewable Energy Program (NREP) 2011-2030

Targeted Biofuels Blend, 2013-2030*



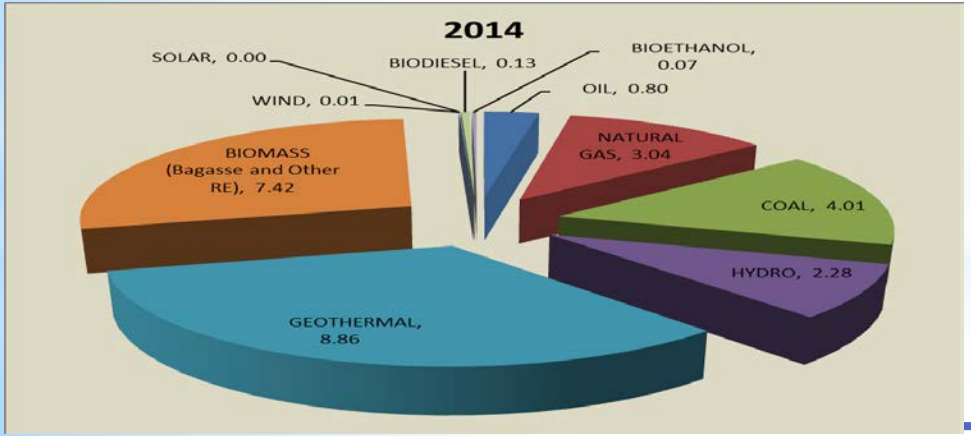
PRIMARY ENERGY MIX



2013

Total Energy=44.86 MTOE

Self-sufficiency=56.92%
Green Energy=47.15%
Renewable Energy=40.72%



2014

Total Energy=47.49 MTOE

Self-sufficiency=56.07%
Green Energy=46.31%
Renewable Energy=39.92%

Where are we now?

Policies and Issuances

- Joint Administrative Order No. 2008-1, Series of 2008 providing the "Guidelines Governing the Biofuel Feedstocks Production, and Biofuels and Biofuel Blends Production, Distribution and Sale under Republic Act No. 9367"

- Department Circular No. DC2011-02-0001 "Mandatory Use of Biofuel Blend"
  - *a minimum of 10% blend of biofuel by volume into all gasoline fuel distributed and sold by each and every oil company*

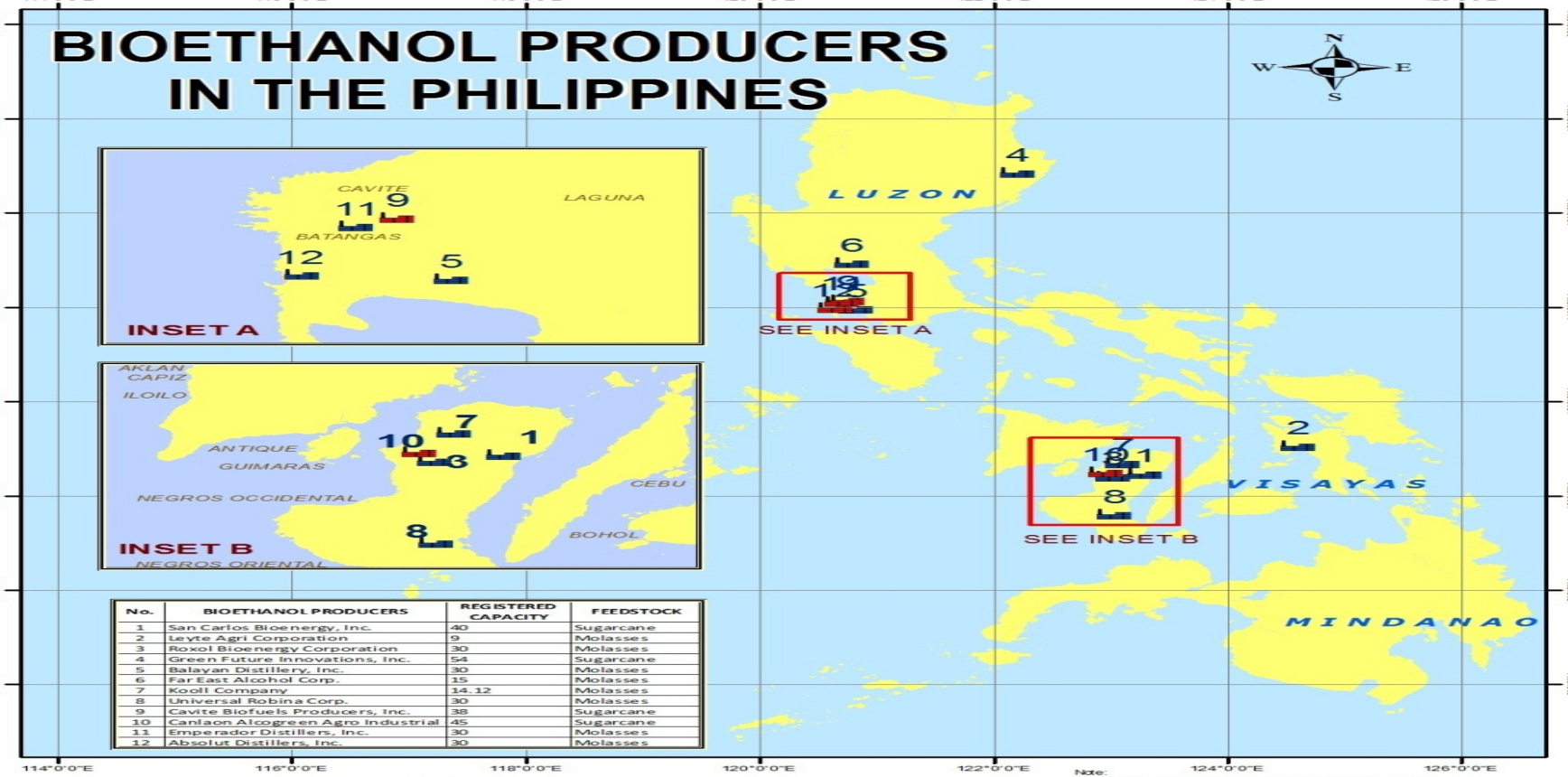
- Department Circular No. DC2011-12-0013 "Utilization of Locally-Produced Bioethanol in the Production of E-Gasoline Consistent with the Biofuels Act of 2006"
  - *mandates the use of locally-sourced biofuels and exhaustion of its supply before importing biofuels that will be blended with liquid fuels for motors and engines sold in the Philippines*

Policies and Issuances

- Department Circular No. DC2015-06-0007 “Revised Guidelines on the Utilization of Locally-Produced Bioethanol in the Production of E-Gasoline”
  - *amendments on DC2011-12-0013 which includes elimination of the notice of allowable bioethanol importation (NABI) , the consideration of major equipment breakdown, among others.*

Performance Assessment

BIOETHANOL PRODUCERS IN THE PHILIPPINES



No.	BIOETHANOL PRODUCERS	REGISTERED CAPACITY	FEEDSTOCK
1	San Carlos Bioenergy, Inc.	40	Sugarcane
2	Leyte Agri Corporation	9	Molasses
3	Roxol Bioenergy Corporation	30	Molasses
4	Green Future Innovations, Inc.	54	Sugarcane
5	Balayan Distillery, Inc.	30	Molasses
6	Far East Alcohol Corp.	15	Molasses
7	Kooll Company	14.12	Molasses
8	Universal Robina Corp.	30	Molasses
9	Cavite Biofuels Producers, Inc.	38	Sugarcane
10	Canlaon Alcogreen Agro Industrial	45	Sugarcane
11	Emperador Distillers, Inc.	30	Molasses
12	Absolut Distillers, Inc.	30	Molasses

Legend

STATUS

- Registered with Notice to proceed
- Accredited Producers
- Municipal Basemap

Note:
1. Political boundaries are approximate, not authoritative, and subject to further research/ validation.
2. Protected Areas and Forestry Tenurial Instruments must be validated with DENR-PAWB and DENR-FMB, respectively.
3. Ancestral Domain claims must be validated with NCIP.

DEPARTMENT OF ENERGY
Information Technology and Management Services
Information Services Division

PREPARED BY: R. C. DRAPETE	APPROVED BY: RSA
VERIFIED BY: AAP	DATE PREPARED: 03 NOV. 2015

MAP NO.: _____ DBASE FILENAME: _____ POLYGON ID: _____

Bioethanol Supply-Demand

ACCREDITED/REGISTERED BIOFUELS PRODUCERS			
	BIOETHANOL PRODUCERS	**PROJECT LOCATION**	**REGISTERED CAPACITY (in million liters)**
	ACCREDITED		
1	**San Carlos Bioenergy, Inc.**	San Carlos City, Negros Occ.	40
2	**Leyte Agri Corp.**	Ormoc City, Leyte	9
3	**Roxol Bioenergy Corporation**	La Carlota, Negros Occidental	30
4	**Green Future Innovations, Inc.**	San Mariano, Isabela	54
5	**Balayan Distillery, Inc.**	Batangas	30
6	**Far East Alcohol Corp.**	Pampanga	15
7	**Kooll Company, Incorporated**	Talisay City, Negros Occidental	14.12
8	**Universal Robina Corporation**	Negros Oriental	30
9	**Emperador Distillers, Inc.**	Nasugbu, Batangas	30
10	**Absolut Distillers, Inc.**	Lian, Batangas	30
		TOTAL	**282.12**
	REGISTRATION WITH NOTICE TO PROCEED		
1	**Cavite Biofuels Producers Inc.**	Magallanes, Cavite	38
2	**Canlaon Alcogreen Agro Industrial Corp.**	Bago City, Negros Occidental	45
3	**Emperador Distillers, Inc.***	Gimalas, Balayan, Batangas	64
		TOTAL	**147**

**on-going registration*

Bioethanol Supply-Demand

ACTUAL ANNUAL BIOETHANOL REPORT (in million liters)			
YEAR	LOCAL PRODUCTION	LOCAL SALES	IMPORTED
2008	0.97	0.42	12.56
2009	23.28	23.11	64.24
2010	10.17	9.17	140.40
2011	4.14	2.87	218.78
2012	35.09	38.18	249.95
2013	71.54	63.20	320.09
2014	115.11	118.89	352.03
2015	167.87	168.41	302.74
2016	230.18	226.88	241.52

**Year to Date (January to December 2016)*

*Biofuels Production

Current Mandate: B2, E10
Targets: B10 and E20 by 2020, B20 and E85 by 2025

Renewable Energy	Capacity (in Million Liters)								No. of Projects Monitored as of 2016
	As of 2015				As of 2016				
	Construction*	Operational	Production	Sales	Construction*	Operational	Production	Sales	
Biodiesel	-	584.9	204.0	200.6	90.0	614.9	225.9	217.7	13
Bioethanol	104.0	222.1	167.9	168.4	104.0	282.1	230.2	226.9	12
TOTAL	104.0	807.0	371.9	369.0	194.0	897.0	456.1	444.6	25

** With Certificate of Registration of Notice to Proceed Construction*

90 ML Chemrez Technologies Inc., Biodiesel Plant
(Bagumbayan, Quezon City)

54 ML Green Future Innovation Inc., Bioethanol Plant
(San Mariano, Isabela)

Bioethanol Supply-Demand Outlook, 2016-2030

(in million liters)			
Year	Gasoline Demand	Bioethanol Blends (Target)	Supply Requirement
2016	3,769.92	10%	376.99
2020	4,301.80	20%	860.36
2025	4,682.81	20%	936.56
2030	5,052.25	20%/85%	1,010.45

Research, Development and Deployment (RD&D)

Types of Biofuels	Bioethanol Production
1st Generation	Sugarcane, Cassava, Sweet Sorghum, Molasses
2nd Generation	Cellulosic Materials, Grass, Agricultural Waste Material, Forest Waste and Residues
3rd Generation	Macroalgae

Source: UPLB

R&D Initiatives on Bioethanol

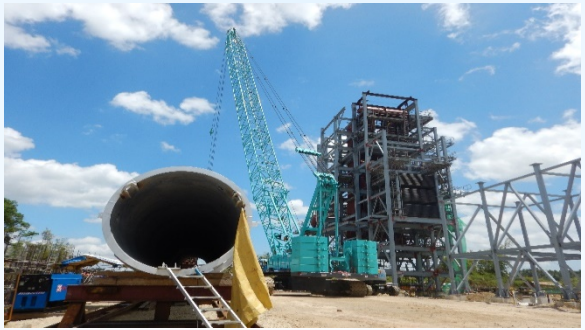
Mariano Marcos State University (MMSU)

"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"

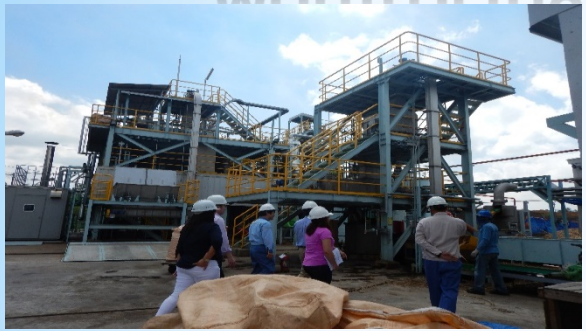
NSEBIO Co., Ltd. Philippine Branch

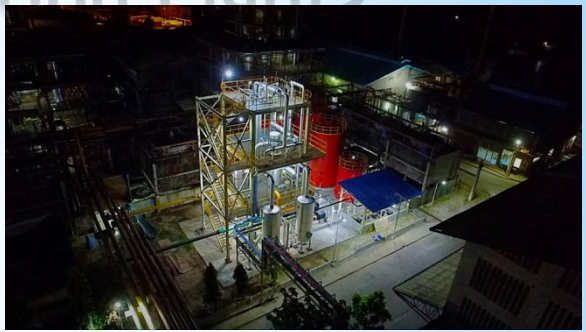
"Demonstration Test for Cellulosic Ethanol Production Technology in the Philippines"

Bioethanol Production Plants On-going Construction



Monitoring of Biofuels Production Plants





Bioethanol Reference Price

BI-MONTHLY BIO-ETHANOL REFERENCE PRICE, CROP YEAR 2016-2017									
Month	GIVEN Negros Molasses Price (Php/MT)	Transportation Cost (Php/Ton)	Equivalent Feedstock Cost due Molasses (Php/liter)	GIVEN Sugar Price (Php/Lkg)	Equivalent Sugarcane Price (Php/MT)	Equivalent Feedstock Cost due sugarcane (Php/liter)	Average Feedstock Cost at 50:50 (Php/liter)	Conversion Cost (Php/liter)	Bioethanol Price Index (Php/liter)
Sept 2016, Average	10,037.50	450.00	42.81	1,720.23	2,227.70	31.82	37.32	22.29	59.61
Average, 1st half	10,075.00	450.00	42.96	1,729.00	2,239.06	31.99	37.47	22.29	59.76
Average, 2nd half	10,000.00	450.00	42.65	1,711.46	2,216.34	31.66	37.16	22.29	59.45
Oct 2016, Average	9,985.07	450.00	42.59	1,607.23	2,081.37	29.73	36.16	22.29	58.45
Average, 1st half	9,957.68	450.00	42.48	1,703.47	2,205.99	31.51	37.00	22.29	59.29
Average, 2nd half	10,003.32	450.00	42.67	1,543.08	1,998.29	28.55	35.61	22.29	57.90
Nov 2016, Average	9,634.80	450.00	41.16	1,645.00	2,130.27	30.43	35.80	22.29	58.09
Average, 1st half	9,797.01	450.00	41.82	1,646.49	2,132.20	30.46	36.14	22.29	58.43
Average, 2nd half	9,472.60	450.00	40.50	1,643.50	2,128.33	30.40	35.45	22.29	57.74
Dec 2016, Average	9,405.31	450.00	40.23	1,523.02	1,972.31	28.18	34.20	22.29	56.49
Average, 1st half	9,470.16	450.00	40.49	1,536.35	1,989.57	28.42	34.46	22.29	56.75
Average, 2nd half	9,340.46	450.00	39.96	1,509.69	1,955.05	27.93	33.95	22.29	56.24
Jan 2017, Average	9,196.22	450.00	39.37	1,517.13	1,964.69	28.07	33.72	22.29	56.01
Average, 1st half	9,239.36	450.00	39.55	1,512.80	1,959.07	27.99	33.77	22.29	56.06
Average, 2nd half	9,131.53	450.00	39.11	1,523.64	1,973.11	28.19	33.65	22.29	55.94
Feb 2017, Average	8,809.76	450.00	37.79	1,461.27	1,892.35	27.03	32.41	22.29	54.70
Average, 1st half	8,994.41	450.00	38.55	1,499.55	1,941.92	27.74	33.15	22.29	55.44
Average, 2nd half	8,625.12	450.00	37.04	1,423.00	1,842.78	26.33	31.68	22.29	53.97
Mar 2017, Average	7,905.77	450.00	34.11	1,326.08	1,717.27	24.53	29.32	22.29	51.61
Average, 1st half	8,065.49	450.00	34.76	1,349.13	1,747.12	24.96	29.86	22.29	52.15
Average, 2nd half	7,746.06	450.00	33.45	1,303.02	1,687.41	24.11	28.78	22.29	51.07
Apr 2017, Average	6,718.93	450.00	29.26	1,272.85	1,648.35	23.55	26.40	22.29	48.69
Average, 1st half	6,948.27	450.00	30.20	1,290.12	1,670.70	23.87	27.03	22.29	49.32
Average, 2nd half	6,374.92	450.00	27.86	1,246.96	1,614.81	23.07	25.46	22.29	47.75

NOTE: Average millsite prices are monitored on a weekending basis with cut-off every Sunday of the week.

Source : Licensing & Monitoring Division, Regulations Department

Prepared by : Planning & Policy Department

PLEASE NOTE on the general agreement between the bioethanol producers and petroleum companies that when there's no bidding at the millsites, the price of the preceding period will be adopted

Source: www.sra.gov.ph

Current Concerns and Challenges

E10 Mandate

- Price of locally produced bioethanol is more than twice of imported ethanol due to high molasses price
- Review of Bioethanol Reference Price

Supply

- Completion of bioethanol production facilities between 2017 to 2019 to fully meet the mandated volume requirement for E10
- Production cost of local bioethanol
- Commercially available 2nd and 3rd generation bioethanol technology and cost

BIOFUELS ROADMAP

	Short-Term (2017-2019)	Medium to Long Term (2020-2040)
BIODIESEL	B2 Maintain 2% biodiesel blending on diesel	• Revisit blending requirement and available feedstock • Continuous conduct of research and development on feedstock sources
BIOETHANOL	E10 Review the bioethanol mandate	

OVERALL OBJECTIVE BY 2040

Pursue the development of Biofuels in compliance with the Biofuels Act of 2006 (R.A. 9367)

THANK YOU AND MABUHAY!!!

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