THE PHILIPPINES' BIOENERGY POLICY AND REGULATORY FRAMEWORK: A LEGISLATOR'S PERSPECTIVE

7TH BIOENERGY WEEK

GLOBAL BIOENERGY PARTNERSHIP (GBEP)

25 June 2019 | PICC

SENATOR WIN GATCHALIAN

Photo Source: howitworksmagazine.com

RA NO. 9367

BIOFUELS ACT OF 2006

Republic of the Philippines
Congress of the Philippines
Metro Manila

Thirteenth Congress
Third Regular Session

Begun and held in Metro Manila, on Monday, the twenty-fourth day of July, two thousand six.

Republic Act No. 9367 **January 12, 2007**

AN ACT TO DIRECT THE USE OF BIOFUELS, ESTABLISHING FOR THIS PURPOSE THE BIOFUEL PROGRAM, APPROPRIATING FUNDS THEREFOR, AND FOR OTHER PURPOSES.

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION 1. ***Short Title*** - This act shall be known as the "***Biofuels Act of 2006***".

SEC. 2. ***Declaration Policy*** - It is hereby declared the policy of the State to reduce dependence on imported fuels with due regard to the protection of public health, the environment, and the natural ecosystems consistent with the country's sustainable economic growth that would expand opportunities for livelihood by mandating the use of biofuels as a measure to:

a) Develop and utilize indigenous renewable and sustainable-sources clean energy sources to reduce dependence on imported oil.

b) Mitigate toxic and greenhouse gas (GSG) emissions;

c) increase rural employment and income; and

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

SEC. 3. ***Definition of terms*** - As used in this act, the following term shall be taken to means as follows:

a) *AFTA* - shall refer to the ASIAN free trade agreement initiated by the Association of South East Asian Nation;

b) *Alternative Fuel Vehicle/Engine* - shall refer to vehicle/engines that use alternative fuels such as biodiesel, bioethanel, natural gas, electricity, hydrogen and automotive LPG instead of gasoline and diesel;

c) *Bioethanol fuel* - shall refer to ethanol (C2H30H) produce from feedback and other biomass.

d) *Biodiesel* - shall refer to Fatty Acid Methyl Ester (FAME) or mono-alkyl ester delivered from vegetable oil,

RA NO. 9513

RENEWABLE ENERGY ACT OF 2008

Republic of the Philippines
Congress of the Philippines
Metro Manila

Fourteenth Congress
Second Regular Session

Begun and held in Metro Manila, on Monday, the twenty-eight day of July, two thousand eight.

Republic Act No. 9513 **December 16, 2008**

AN ACT PROMOTING THE DEVELOPMENT, UTILIZATION AND COMMERCIALIZATION OF RENEWABLE ENERGY RESOURCES AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled::

CHAPTER I

TITLE AND DECLARATION OF POLICIES

Section 1. ***Short Title.*** - This Act shall be known as the "***Renewable Energy Act of 2008***". It shall hereinafter be referred to as the "Act".

Section 2. ***Declaration of Policies.*** - It is hereby declared the policy of the State to:

(a) Accelerate the exploration and development of renewable energy resources such as, but not limited to, biomass, solar, wind, hydro, geothermal and ocean energy sources, including hybrid systems, to achieve energy self-reliance, through the adoption of sustainable energy development strategies to reduce the country's dependence on fossil fuels and thereby minimize the country's exposure to price fluctuations in the international markets, the effects of which spiral down to almost all sectors of the economy;

(b) Increase the utilization of renewable energy by institutionalizing the development of national and local capabilities in the use of renewable energy systems, and promoting its efficient and cost-effective commercial application by providing fiscal and nonfiscal incentives;

(c) Encourage the development and utilization of renewable energy resources as tools to effectively prevent or reduce harmful emissions and thereby balance the goals of economic growth and development with the protection of health and the environment; and

(d) Establish the necessary infrastructure and mechanism to carry out the mandates specified in this Act and other existing laws.

Both laws aim to **spur the use of indigenous and clean energy sources in transportation and power generation**

BIOFUELS ACT OF 2006

- Mandates **all liquid fuels for motors and engines to contain locally sourced biofuels**

- Provides **fiscal incentives for producers and consumers** such as **zero vat on local and imported biofuels** component, and **vat exemption for the sale of raw materials used for biofuel production**

Photo Source: renewablesnow.com

RENEWABLE ENERGY ACT OF 2008

Provides for mechanism to

stimulate the entry and expansion of renewable energy technologies

including biomass

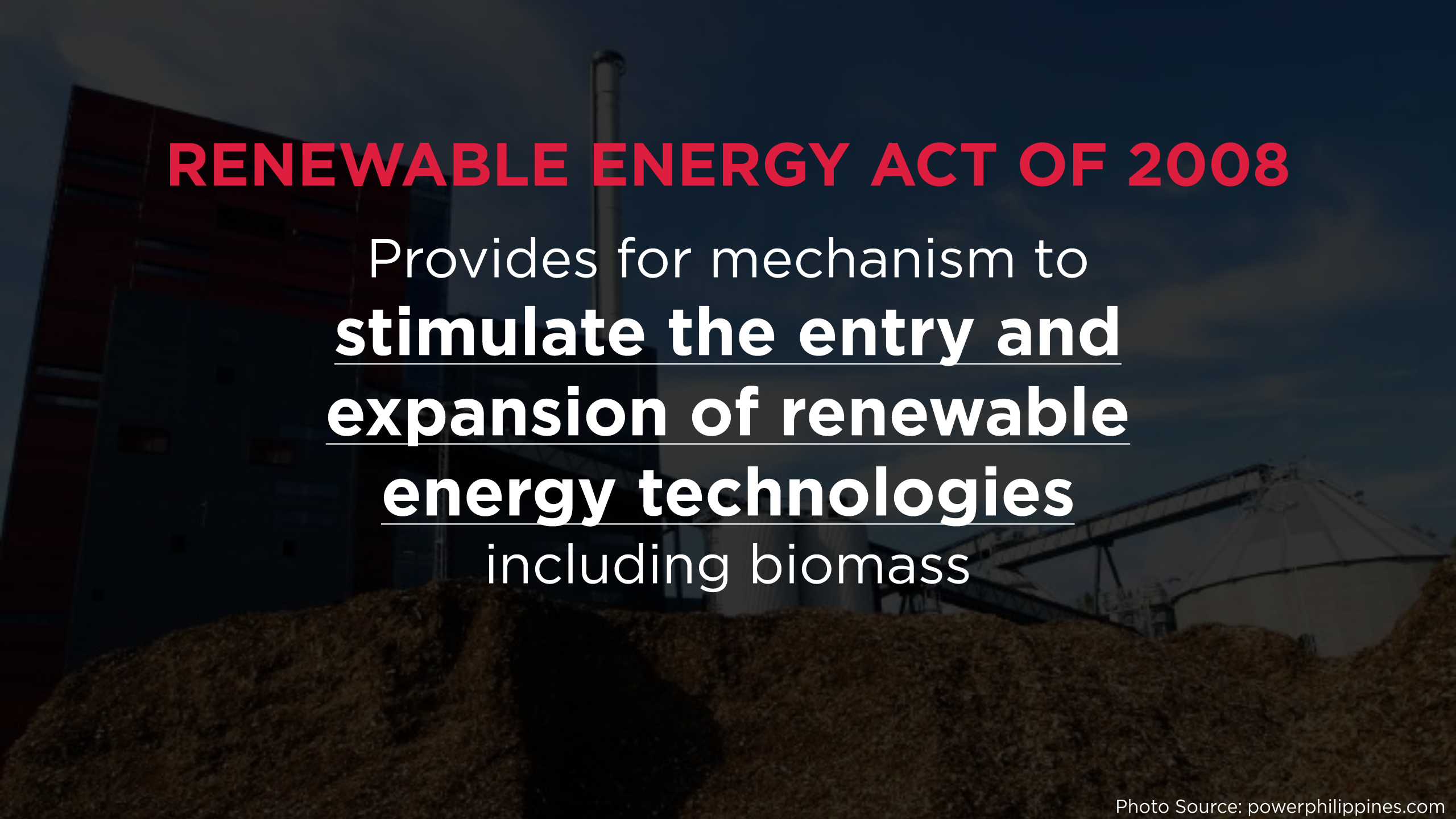


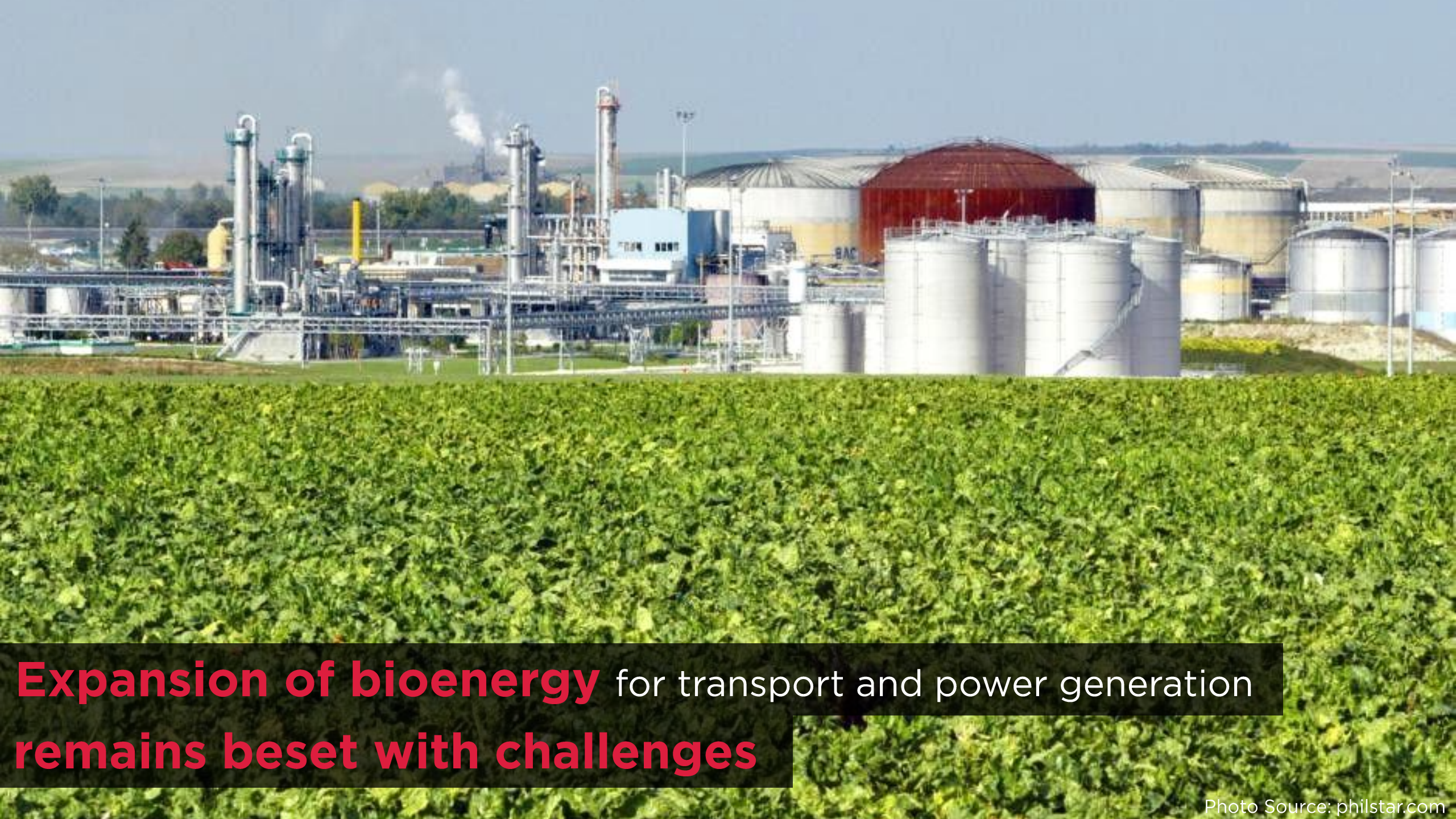
Photo Source: powerphilippines.com

SUPPLY

- Feed-In-Tariff
- Renewable Portfolio Standards
- Fiscal Incentives for developers
    - Income tax holiday
    - Duty Free importation
    - Zero percent vat on purchase of local supply of goods, properties and services

DEMAND

- Green energy option
- Net metering
- Zero percent vat on sale of fuel or power generated from renewable sources

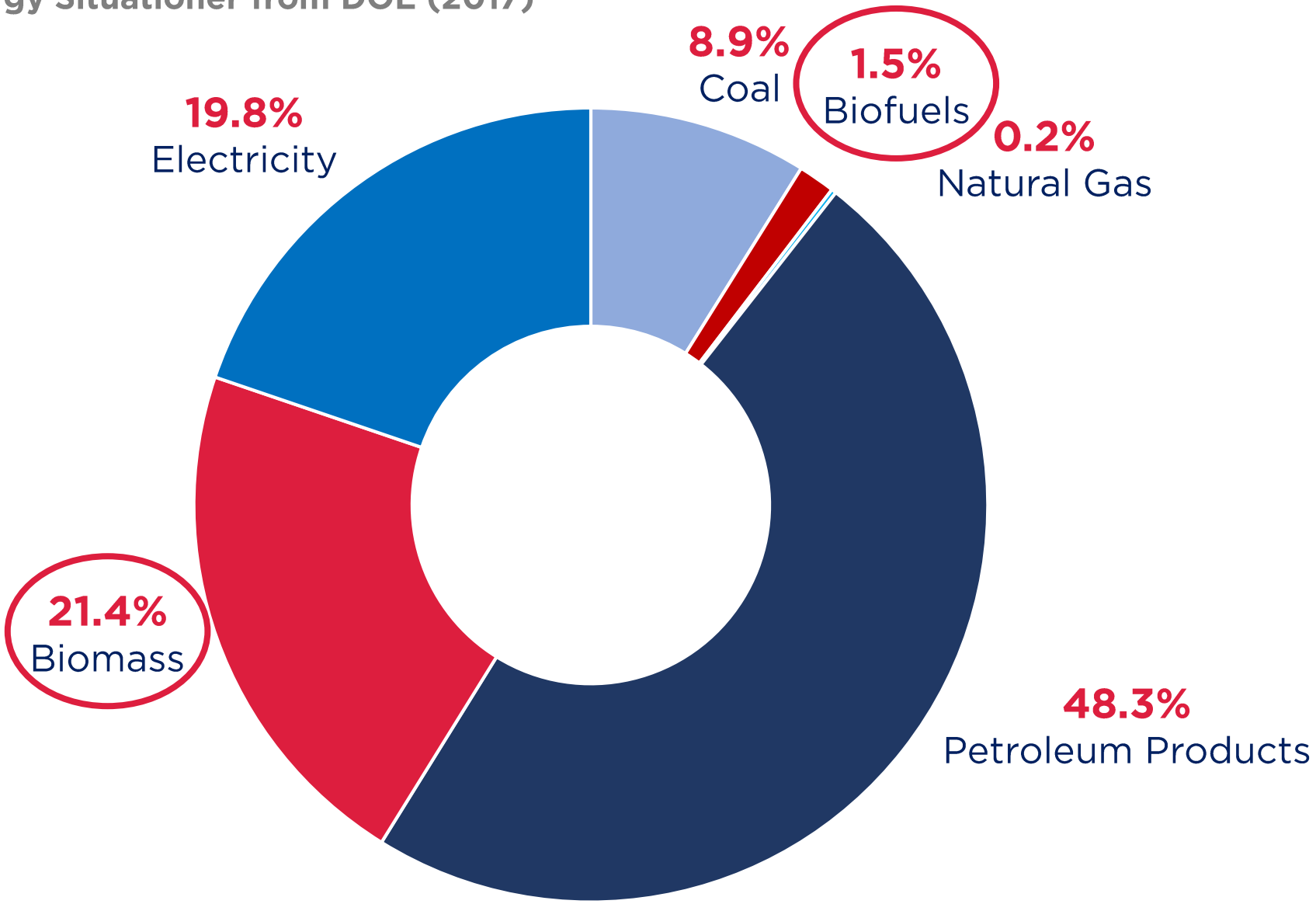


Expansion of bioenergy for transport and power generation **remains beset with challenges**

Photo Source: philstar.com

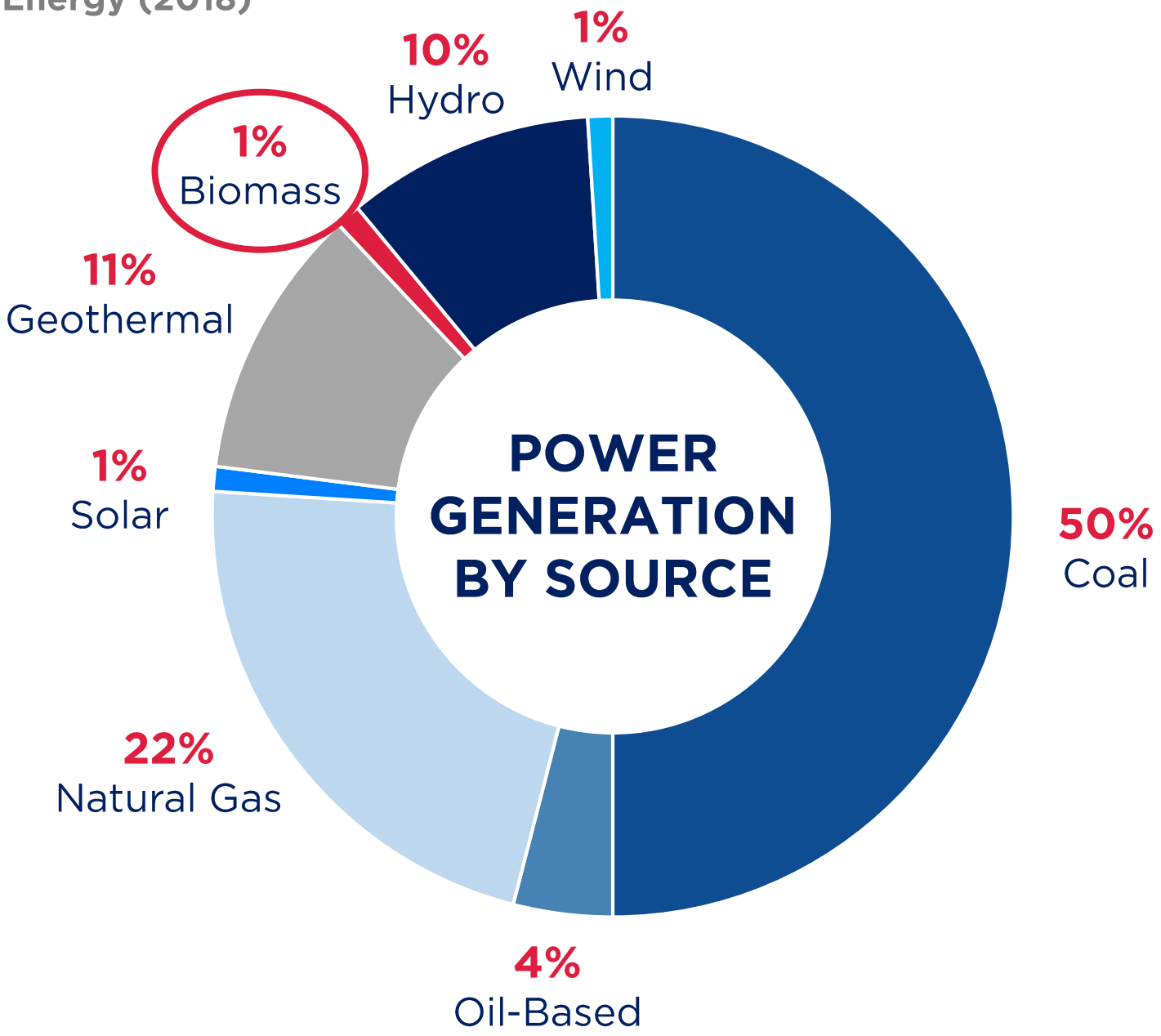
TOTAL FINAL ENERGY CONSUMPTION BY FUEL SHARES

Source: Philippine Energy Situationer from DOE (2017)



2017 ENERGY MIX

Source: Department Of Energy (2018)



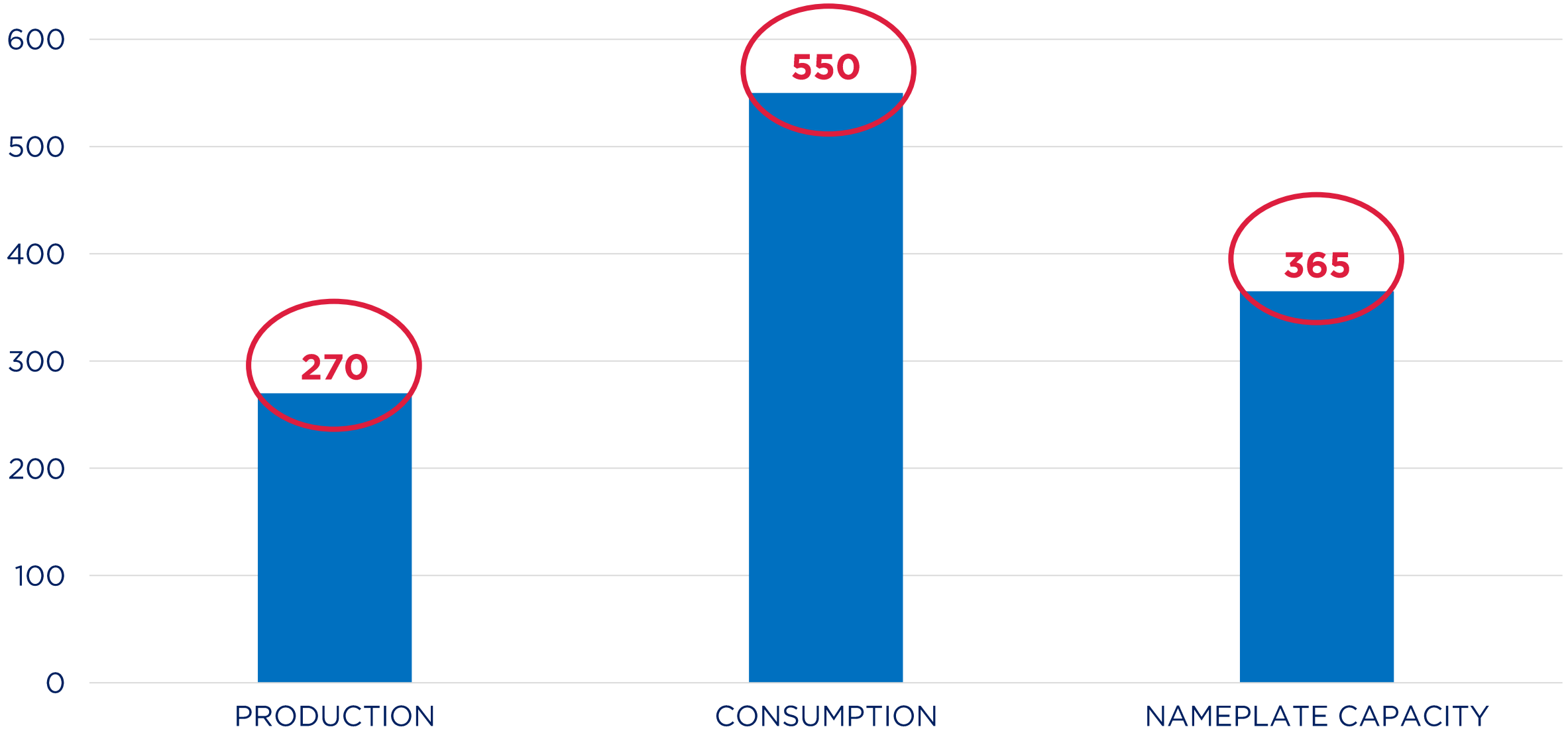
ETHANOL USED AS FUEL AND OTHER INDUSTRIAL CHEMICALS

Source: DOE and SRA; USDA GAINS Report, Philippine Biofuels Situation and Outlook, November 28, 2018

CALENDAR YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018F
DEMAND AND SUPPLY (MILLION LITERS)										
Production	23	10	4	35	72	115	168	230	235	270
Imports	64	140	215	248	297	339	311	260	276	280
Exports	0	0	0	0	0	0	0	0	0	0
Consumption	87	150	219	283	369	454	479	490	511	550
PRODUCTION CAPACITY (MILLION LITERS)										
Number of Refineries	2	3	3	4	4	8	8	10	10	12
Nameplate Capacity	49	79	79	133	133	222	222	282	282	365
Capacity Use (%)	47	13	5	26	54	52	76	82	83	74
FEEDSTOCK USE FOR FUEL (1,000 MT)										
Sugarcane	310	160	0	480	500	500	150	55	40	10
Molasses	15	0	16	20	155	340	650	930	950	1,100
Sugar	0	0	0	2	10	5	0	0	0	0
MARKET PENETRATION (MILLION LITERS)										
Fuel Ethanol	87	150	219	283	369	454	479	490	511	550
Gasoline	3,784	3,918	3,882	4,114	4,365	4,547	5,211	5,741	6,028	6,200
Blend Rate (%)	2.3	3.83	5.64	6.88	8.45	9.98	9.19	8.54	8.48	8.87

2018 ETHANOL USED AS FUEL (MILLION LITERS)

Source: DOE and SRA; USDA GAINS Report, Philippine Biofuels Situation and Outlook, November 28, 2018



Feedstock for all operating bioethanol plants

Molasses

Sugarcane

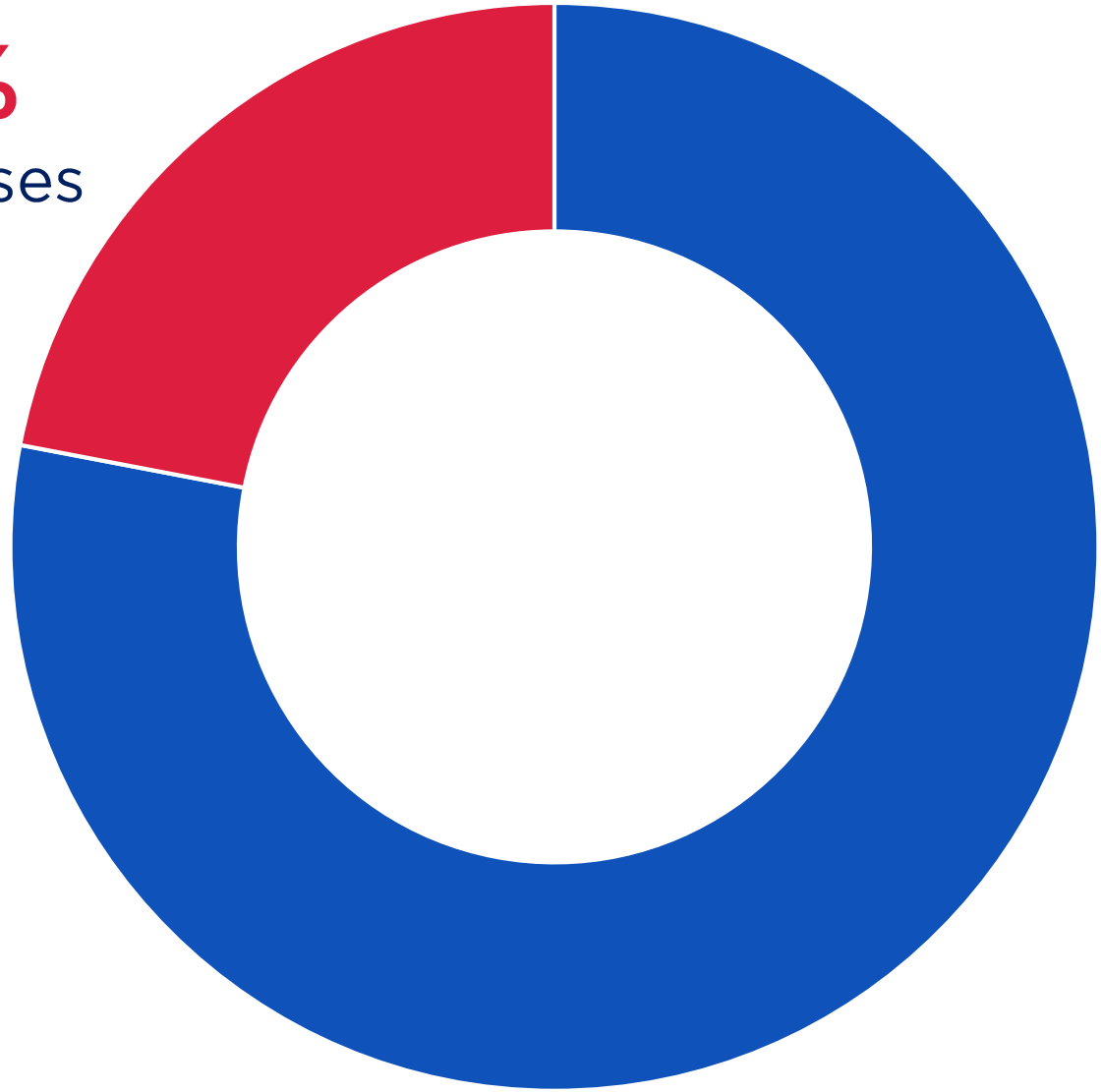
Sugar

Photo Source: medium.com

USE OF MOLASSES

Source: SRA (CY 2017-2018)

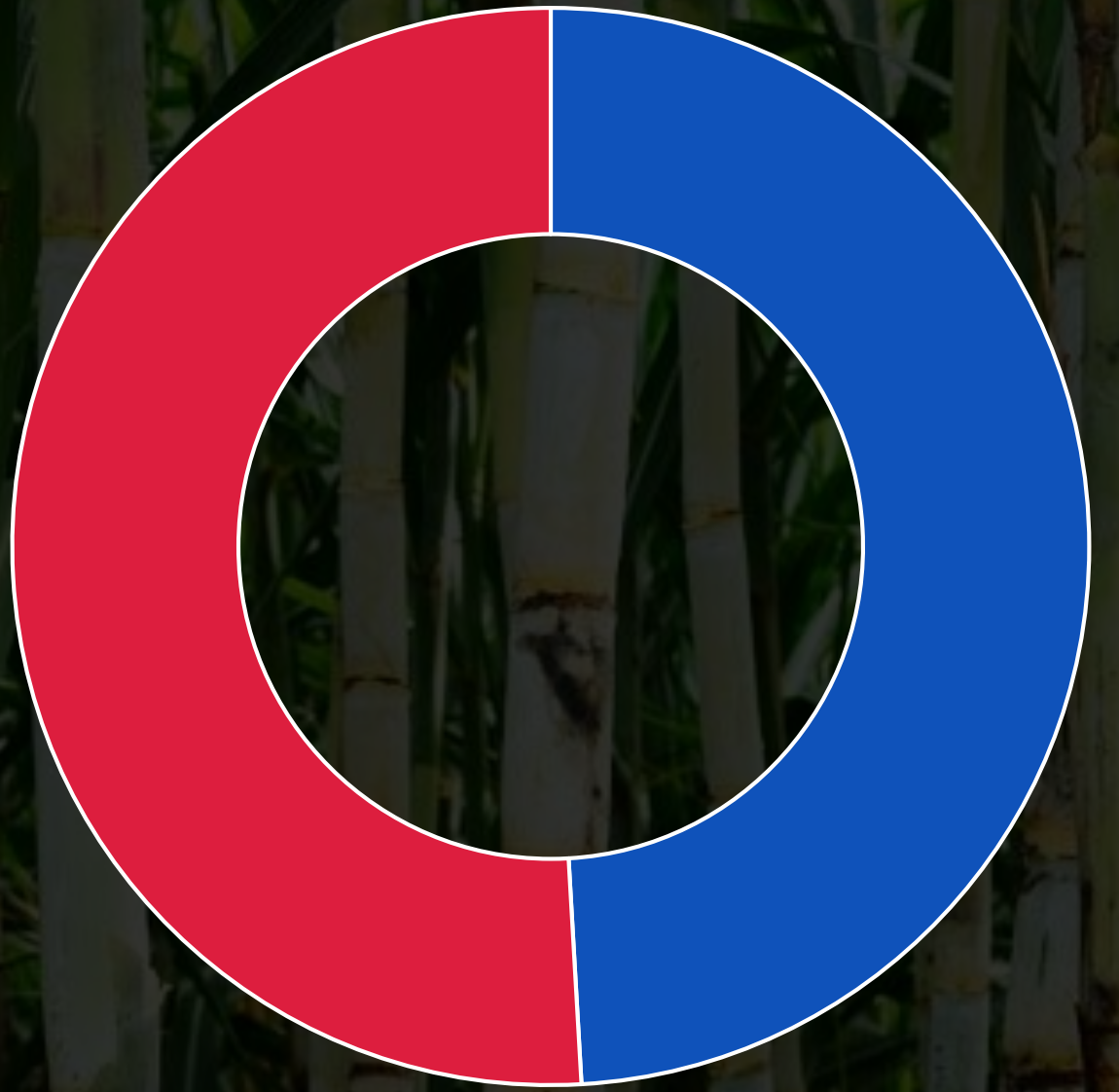
22%
Other Uses



78%
Feedstock for Bioethanol

BIOETHANOL PRODUCTION AND IMPORTATION

50.91%
imported

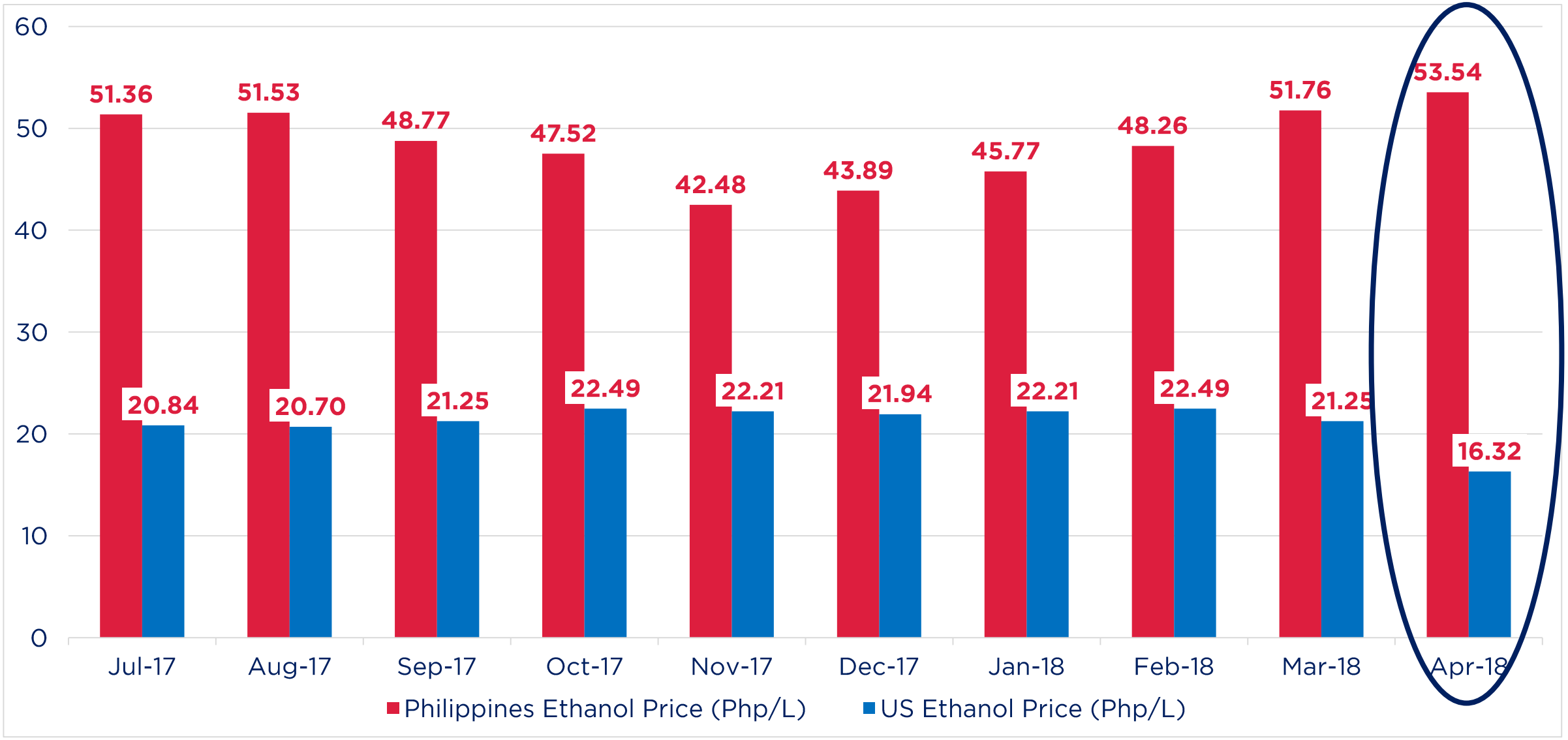


49.09%
produced
domestically

Photo Source: medium.com

COMPARATIVE BIOETHANOL PRICES (PHP/L) PHILIPPINES VS. USA

Source: USDA GAINS Report, 2019; Additional computation by Office of Senator Gatchalian



All these problems **affect the pump price paid by public**

Photo Source: philstar.com

The Senate Committee on Energy is pushing for diversification of bioethanol feedstock sources and improved production processes.
Atty. WILLIAM PAMINTUAN
Mr. ALFREDO J. NON
Commissioner, ERC
ATTY. JOSE VICENTE SALAZAR
Usec. WIMPY FUENTEBELLA
Department of Energy
MS. GLADYS CRUZ-STA. RITA
MS. MELINDA OCAMPO
MS. SONIA SAN DIEGO

MARIANO MARCOS STATE UNIVERSITY
1978

UNIVERSITY OF THE PHILIPPINES
1908
LOS BAÑOS

Nipa and sweet sorghum **can supplement the existing feedstock**

NIPA PLANTATION SITES

Source: Dr. Agrupis (2018)

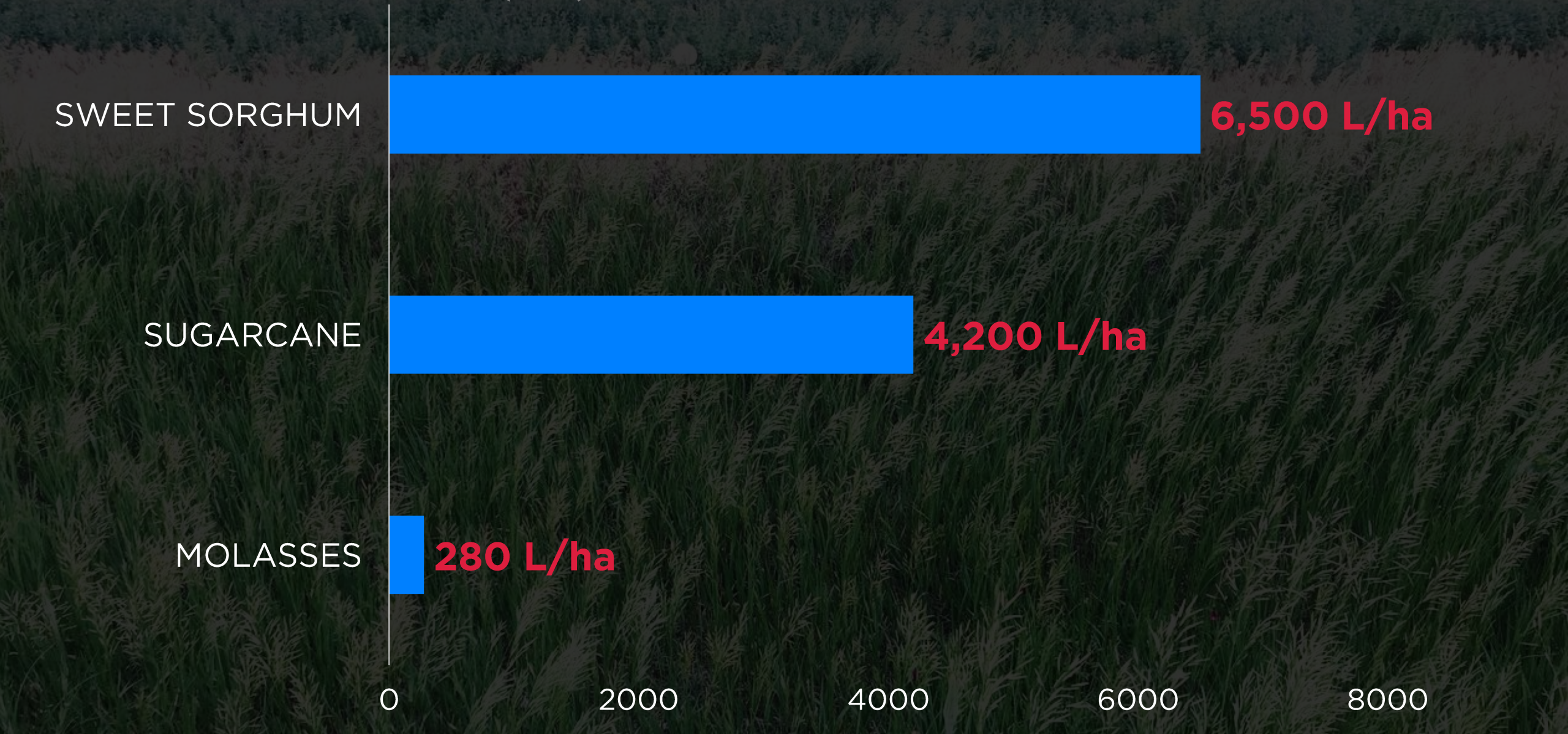
Cagayan
Leyte
Samar
Negros
Zamboanga Del Sur
Zamboanga Sibugay

36.6 million liters
maximum bioethanol potential

Photo Source: dr.farrahcancercenter.com

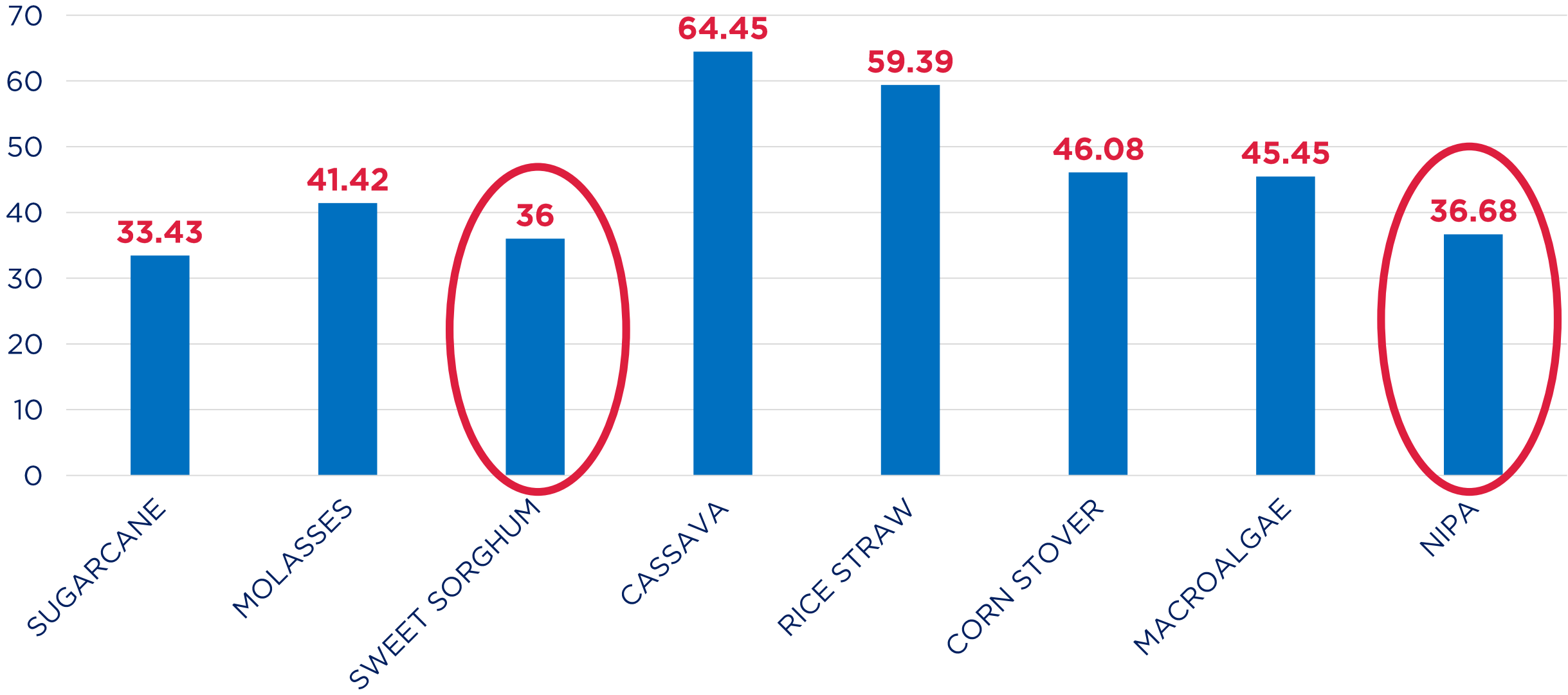
ETHANOL YIELD PER HECTARE

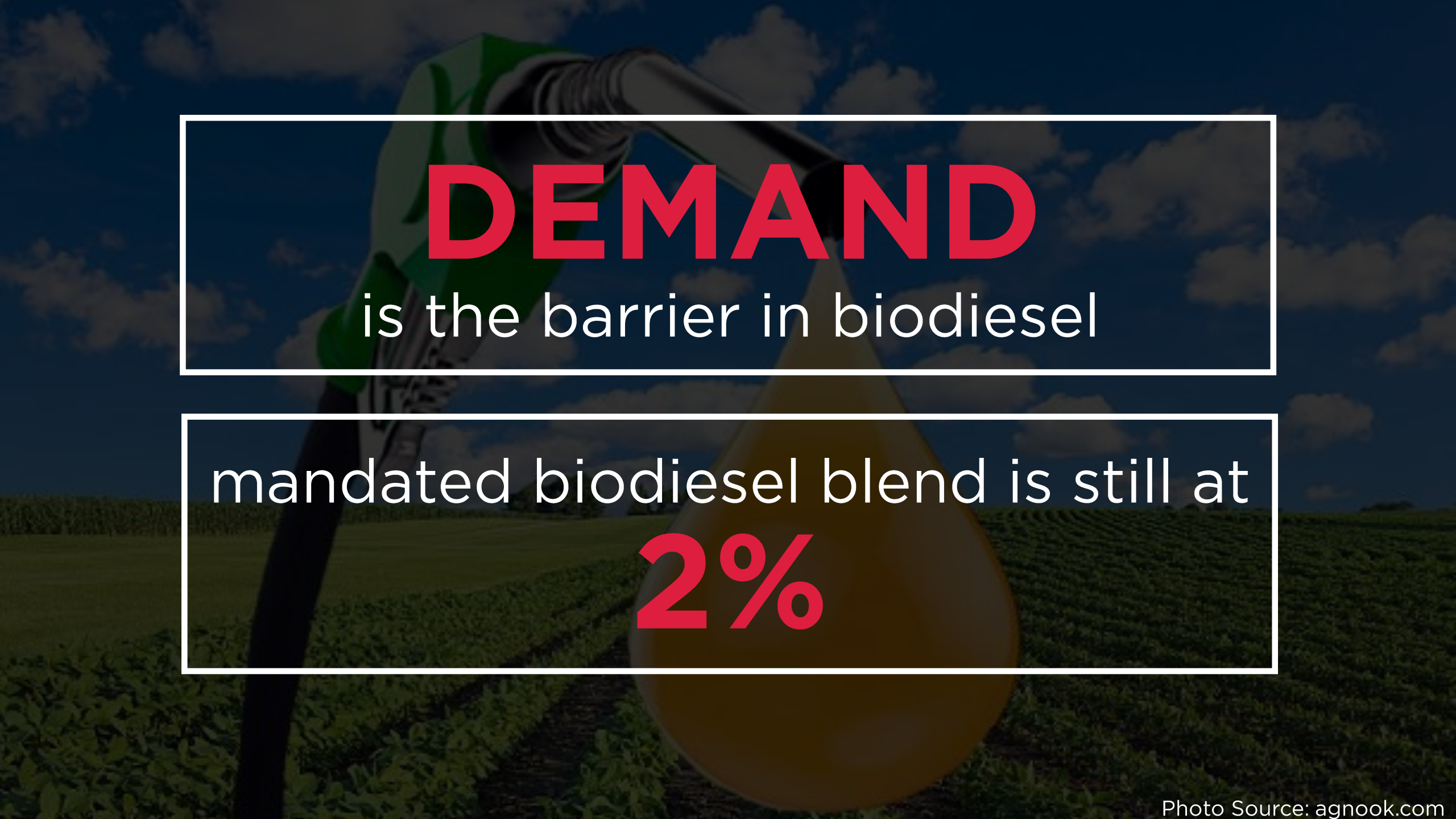
Source: Dr. Demafelis (2018)



ETHANOL PRICE (PHP/L)

Source: Demafelis (2019) and Agrupis (2019); Computation by Office of Senator Gatchalian




DEMAND
is the barrier in biodiesel
mandated biodiesel blend is still at
2%
Photo Source: agnook.com

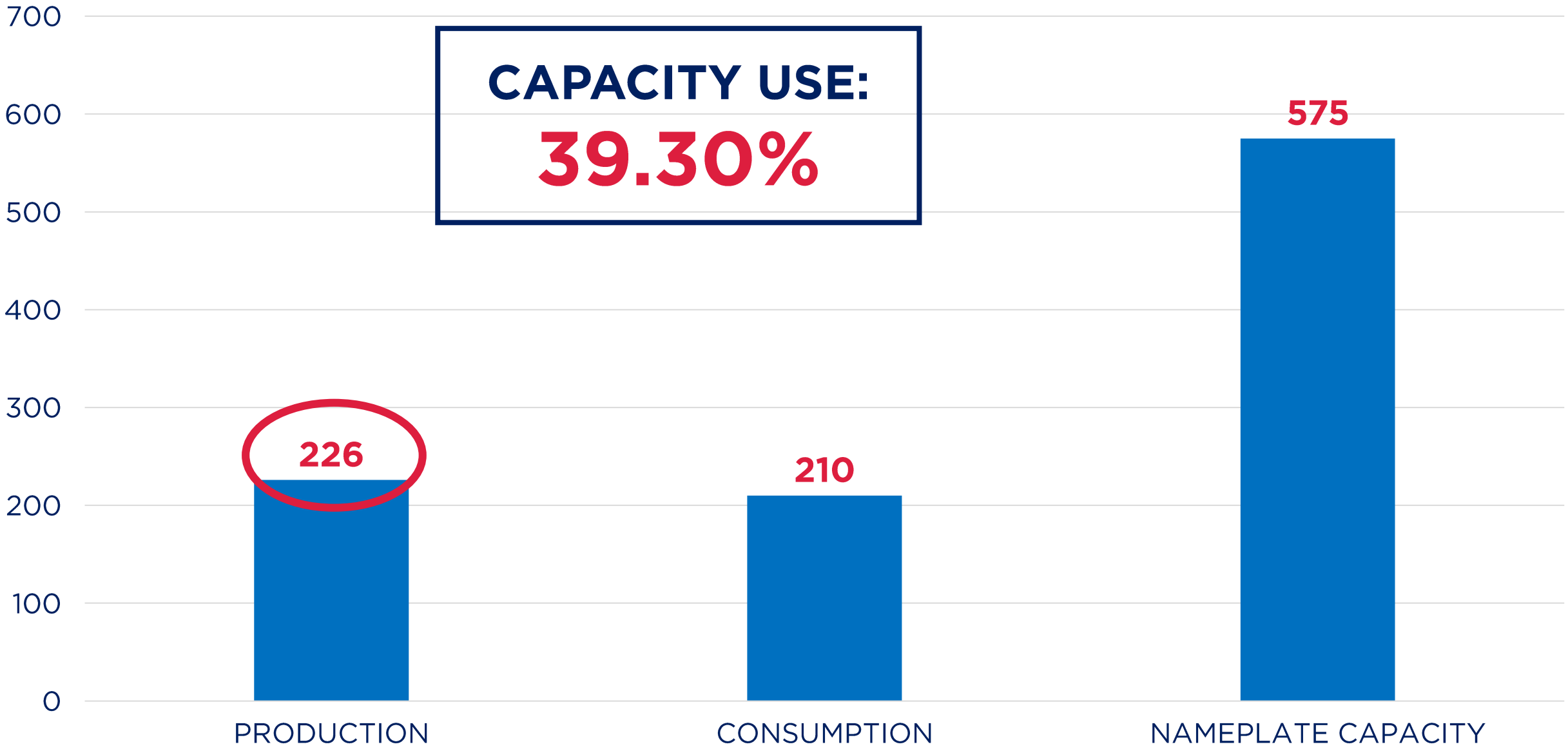
BIODIESEL USED AS FUEL

Source: DOE and SRA; USDA GAINS Report, Philippine Biofuels Situation and Outlook, November 28, 2018

CALENDAR YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018F
DEMAND AND SUPPLY (MILLION LITERES)										
Beginning Stocks	2	8	7	17	18	20	29	32	41	57
Production	137	124	133	138	155	172	204	227	220	226
Imports	0	0	0	0	0	0	0	0	0	0
Exports	0	0	0	0	0	0	0	0	0	0
Consumption	131	125	123	137	153	163	201	218	204	210
Ending Stocks	8	7	17	18	20	29	32	41	57	73
PRODUCTION CAPACITY (MILLION LITERS)										
Number of Refineries	10	8	9	9	9	11	11	11	11	11
Nameplate Capacity	350	436	350	393	393	585	585	575	575	575
Capacity Use (%)	39.10	28.50	38.00	35.10	39.4	29.4	34.90	39.50	38.30	39.30
FEEDSTOCK USE FOR FUEL (1,000 MT)										
Coconut Oil	125	113	122	126	142	157	186	207	201	207
MARKET PENETRATION (MILLION LITERS)										
Biodiesel (on-road use)	131	125	123	137	153	163	201	218	204	210
Diesel (on-road use)	5,454	5,631	5,566	5,819	6,187	6,579	7,334	7,701	8,086	8,200
Diesel (total use)	6,449	6,588	6,696	7,004	7,394	7,778	8,793	9,535	10,159	10,158
Blend Rate (%)	2.40	2.20	2.20	2.40	2.50	2.50	2.70	2.80	2.50	2.60

2018 BIODIESEL USED AS FUEL (MILLION LITERS)

Source: DOE and SRA; USDA GAINS Report, Philippine Biofuels Situation and Outlook, November 28, 2018



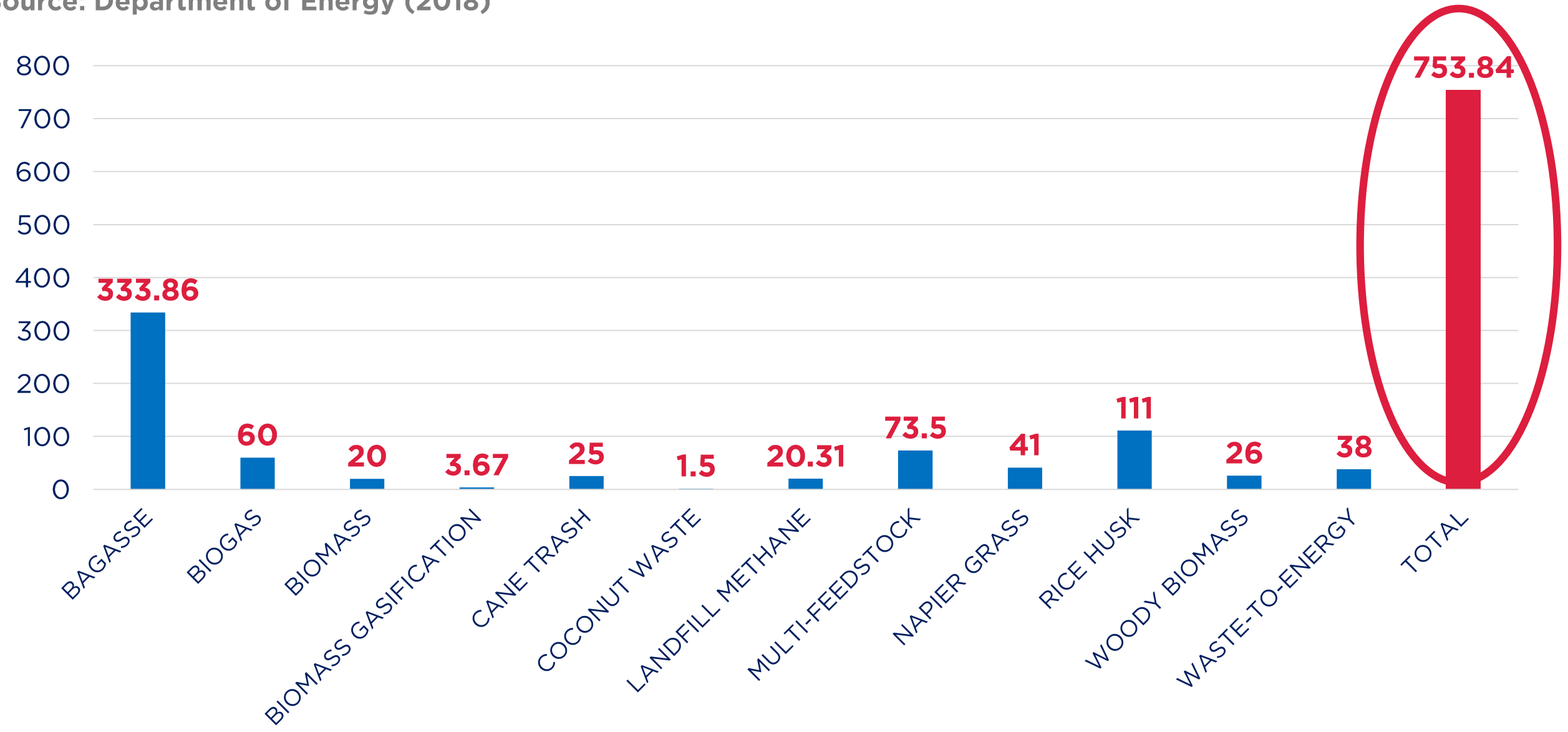
Ensure sufficient and sustainable supply of CME and

Ascertain effect on pump price

Photo Source: alfa.com

TOTAL INSTALLED AND COMMITTED CAPACITY OF BIOMASS POWER PLANTS (MW)

Source: Department of Energy (2018)



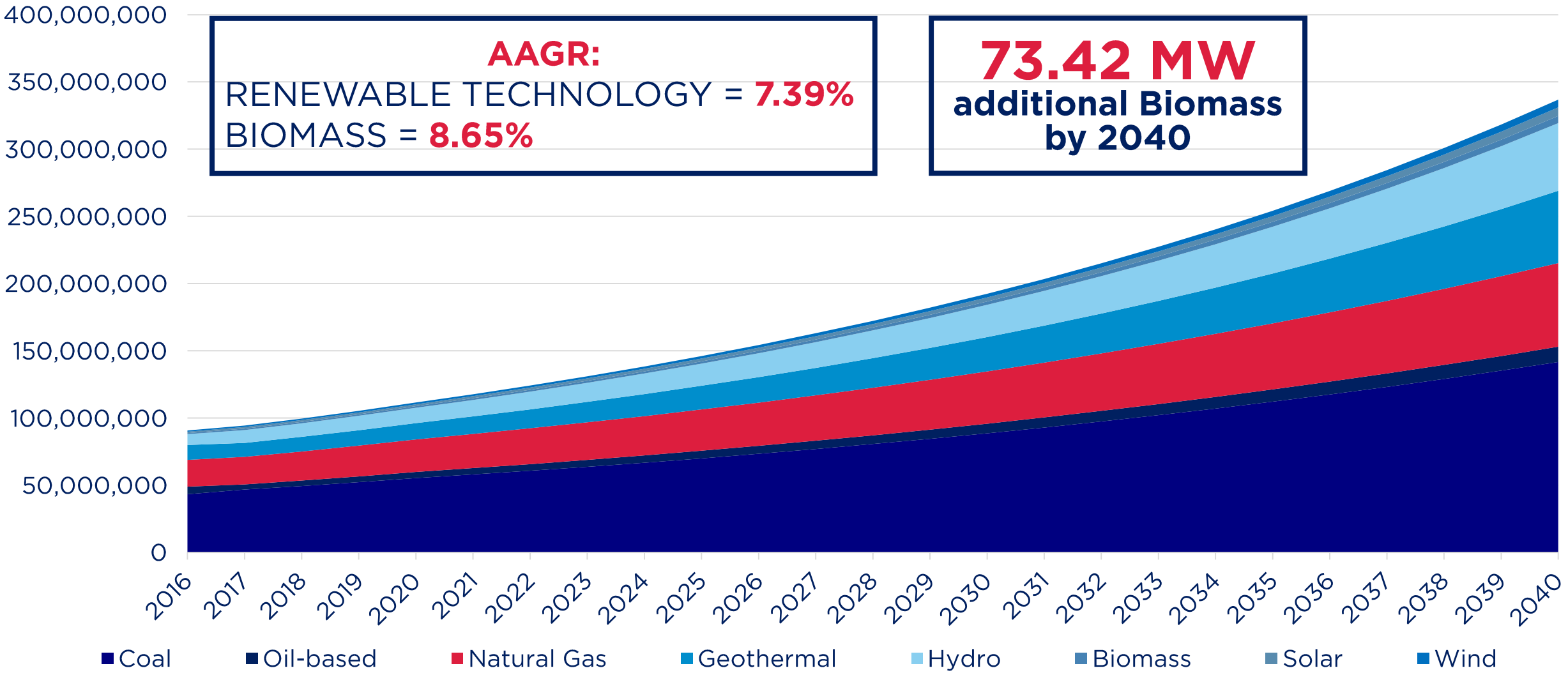
FEED-IN-TARIFF (FIT)

Source: National Transmission Corporation (2019). 2019-Feed-in-Tariff Allowance Rate Application

TECHNOLOGY	SUBSCRIBED CAPACITY (MW)	AVAILABLE CAPACITY (MW)	INSTALLATION TARGET (MW)	FIT RATE
BIOMASS	151.825	98.175	250	6.59
HYDROPOWER	146.2	103.8	250	5.9
SOLAR	525.95	0	500	9.68
WIND	426.9	0	400	8.53

POWER GENERATION MIX OUTLOOK WITH RPS (2016-2040)

Source: Data from DOE (2018) / Computations and Assumptions from OS Gatchalian



BAGASSE

RICE HUSK

Existing bagasse and rice husk production can power an additional

115.37 MW capacity

Source: Zafar and Salman (2018); Pippo and Luengo (2013); Belonio (2014); Zafar and Salman (2019); Office of Sen. Gatchalian (2019)

WASTE TO ENERGY (WTE)

Source: US EIA (2018); Office of Sen Gatchalian (2019)

4 WTE plants
under construction

→

TOTAL CAPACITY:
38 MW

Potential Additional WTE capacity this year

111 MW

WASTE TO ENERGY BILL

- Allow WTE technologies provided they do not emit toxic and poisonous fumes;
- Mandate local government units (LGUs) to estimate the percentage of their waste that can be used as feedstock;
- Authorize the clustering of LGUs to enter into joint ventures, public private partnerships, or other allowable contractual arrangements for WTE generation facilities; and
- Implement a transparent and streamlined procedure for the entire WTE value chain

Photo Source: parcolnews.com

Philippines still has considerable **biomass potential for power generation**

Photo Source: pyrotechenergy.com

RA NO. 11234

ENERGY VIRTUAL ONE STOP SHOP

S. No. 1439
H. No. 8417

Republic of the Philippines
Congress of the Philippines
Metro Manila
Seventeenth Congress

Third Regular Session

Begun and held in Metro Manila, on Monday, the twenty-third day of July, two thousand eighteen.

[REPUBLIC ACT NO. 11234]

AN ACT ESTABLISHING THE ENERGY VIRTUAL ONE-STOP SHOP FOR THE PURPOSE OF STREAMLINING THE PERMITTING PROCESS OF POWER GENERATION, TRANSMISSION, AND DISTRIBUTION PROJECTS

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

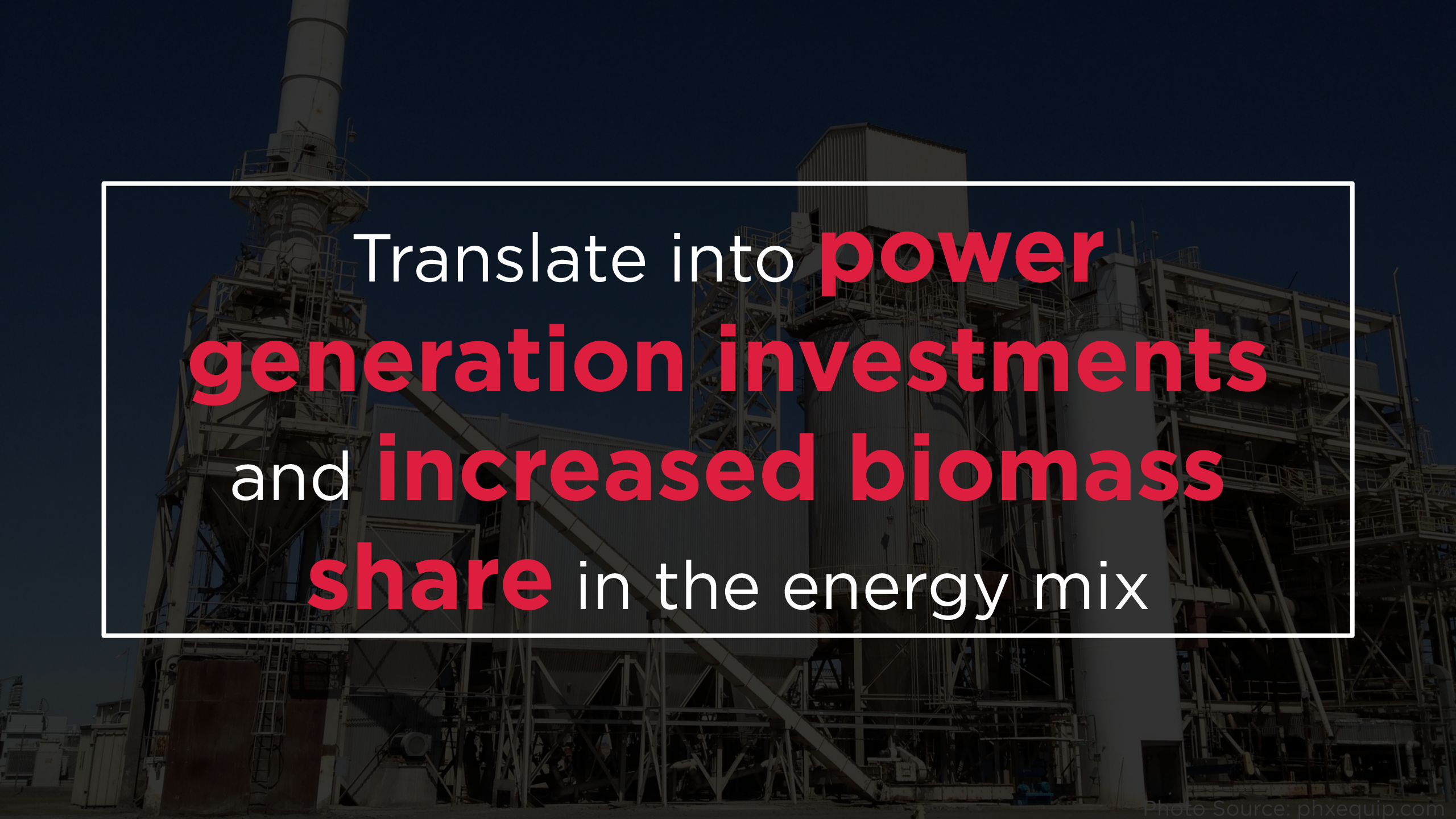
CHAPTER I

GENERAL PROVISIONS

SECTION 1. *Short Title.* – This Act shall be known as the "Energy Virtual One-Stop Shop Act".

SEC. 2. *Declaration of Policy.* – It is hereby declared the policy of the State to:

(a) Ensure the quality, reliability, and security of energy at reasonable cost by undertaking measures to guarantee that supply meets demand in a timely manner;


Translate into power generation investments and increased biomass share in the energy mix
Photo Source: phxequip.com

SUMMARY

- Research and development for sustainable feedstock supply both for bioethanol and biodiesel
- Improved processes for feedstock production
- Full implementation of the Renewable Energy Act
- The passage of a WTE bill

Photo Source: roxasholdings.com.ph

MORE SECURE ENERGY SYSTEM

MORE SUSTAINABLE TRANSPORT AND POWER GENERATION SECTORS

SAVINGS FOR CONSUMERS AND LIVELIHOOD FOR FARMERS

Photo Source: newsmb.com.ph

FOLLOW US:

www.WinGatchalian.com

WinGatchalian74

email@wingatchalian.com