2016 Visayas Energy Investment Forum

Investment Opportunities

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Presentation Outline

- Power Sector
- Oil & Gas
- Coal
- Alternative Fuels
- Energy Efficiency
- Renewable Energy

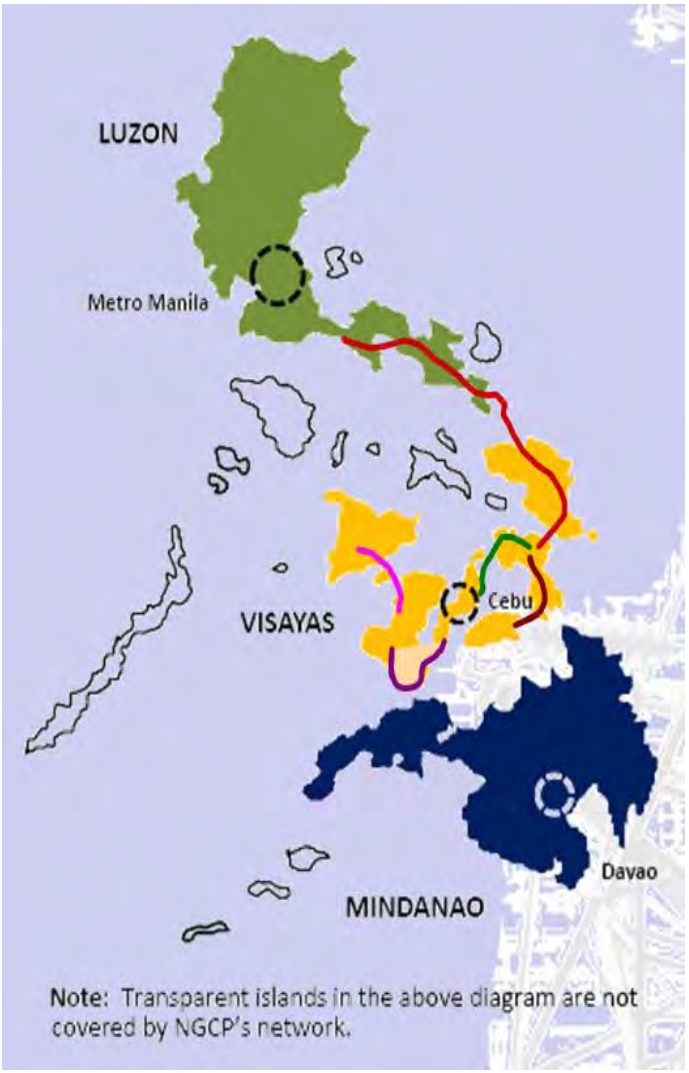
Power Sector

Power Sector Situation

Capacity by Plant Type

FUEL TYPE	PHILIPPINES			
	Capacity (MW)		Percent Share (%)	
	Installed	Dependable	Installed	Dependable
Coal	**6,366**	**5,968**	**33**	**35**
Oil Based	**3,615**	**2,739**	**19**	**16**
Natural Gas	**2,862**	**2,759**	**15**	**16**
Geothermal	**6,484**	**5,435**	**34**	**32**
Hydro	*1,917*	*1,601*	*10*	*9*
Wind	*3,600*	*3,073*	*19*	*18*
Solar	*427*	*379*	*2*	*2*
Biomass	*307*	*225*	*2*	*1*
TOTAL	**19,327**	**16,902**		

Note: Assuming all units of power plants are in operation.
Installed and Dependable capacity as of 31 May 2016
Available Capacity based on coincidental demand as of April 2016
Excluding off –grid generators
Commissioning projects and RE plant under validation of REMB not yet considered



Interconnection Line Capacity

- **Leyte-Luzon (440 MW)**
- **Leyte-Cebu (400 MW)**
- **Cebu-Negros (200 MW)**
- **Negros – Panay (100 MW)**
- **Leyte-Bohol (100 MW)**

Power Sector Situation

Capacity Mix

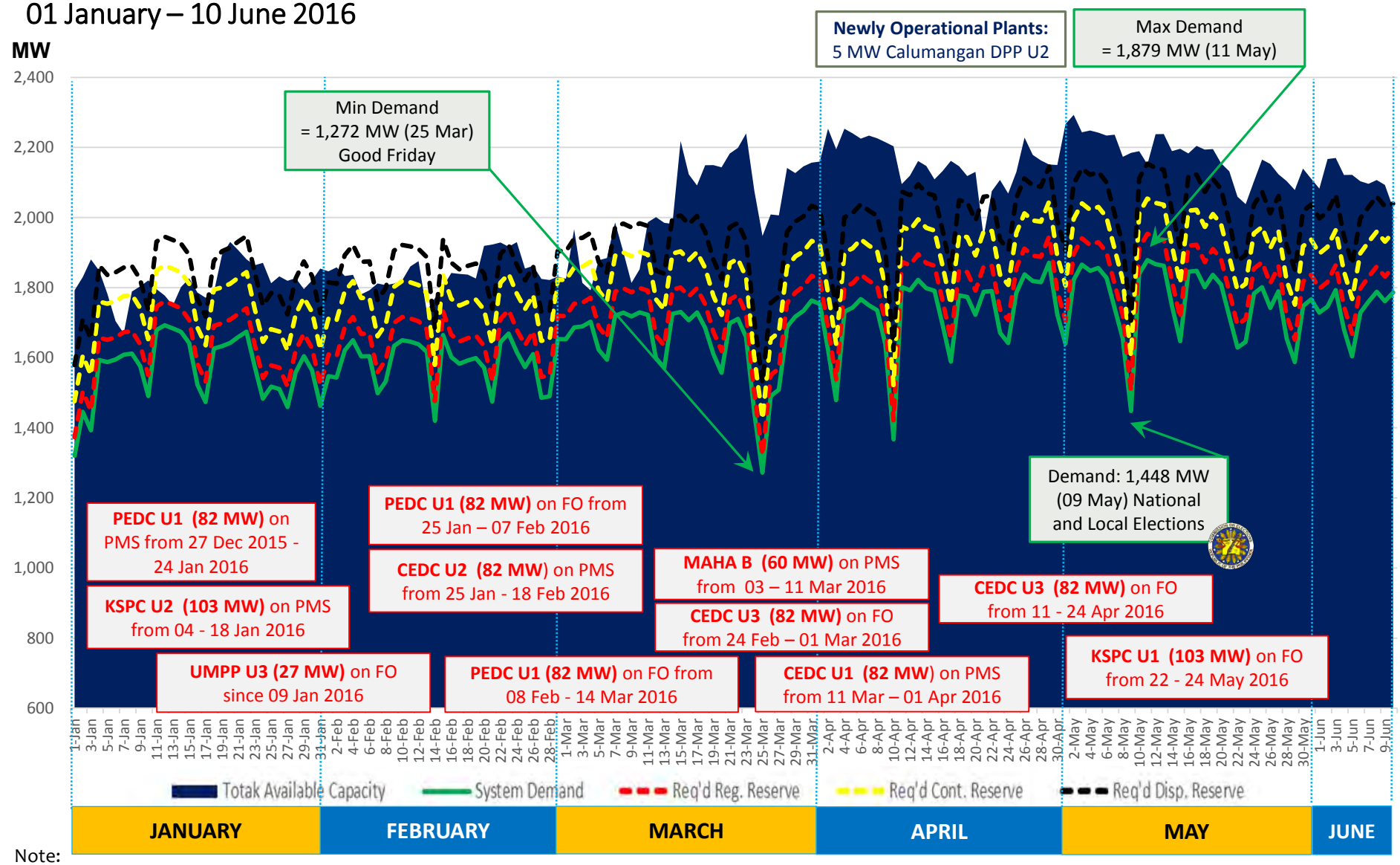
FUEL TYPE	LUZON				VISAYAS				MINDANAO			
	Capacity (MW)		Percent Share (%)		Capacity (MW)		Percent Share (%)		Capacity (MW)		Percent Share (%)	
	Installed	Dependable	Installed	Dependable	Installed	Dependable	Installed	Dependable	Installed	Dependable	Installed	Dependable
Coal	4,947	4,633	35.4	37.3	769	761	28.7	34.1	650	574	24.2	25.4
Oil Based	2,133	1,585	15.3	12.8	670	425	25.0	19.1	812	729	30.2	32.2
Diesel	*763*	*645*	*5.5*	*5.2*	*615*	*425*	*22.9*	*19.1*	*812*	*729*	*30.2*	*32.2*
Oil Thermal	*650*	*320*	*4.7*	*2.6*								
Gas Turbine	*720*	*620*	*5.2*	*5.0*	*55*	*0*	*2.0*	*0.0*				
Natural Gas	2,861	2,759	20.5	22.2	1	0	0.0	0.0				
Geothermal	844	691	6.0	5.6	965	813	36.0	36.5	108	98	4.0	4.3
Hydro	2,528	2,224	18.1	17.9	11	11	0.4	0.5	1,061	837	39.5	37.0
Wind	337	293	2.4	2.4	90	86	3.4	3.9	0	0	0.0	0.0
Biomass	95	71	0.7	0.6	101	77	3.8	3.4	36	10	1.3	0.4
Solar	212	154	1.5	1.2	75	56	2.8	2.5	20	15.3	0.7	0.7
TOTAL	**13,958**	**12,410**			**2,683**	**2,228**			**2,686**	**2,263**		

Note: Assuming all units of power plants are in operation.
Installed and Dependable capacity as of May 2016

Available Capacity based on highest recorded capacity (non-coincidental) as of May 2016
Excluding off –grid generators

Visayas Demand-Supply Situation

01 January – 10 June 2016



Note:
FO – Forced Outage / PO – Planned Outage

Power Sector Situation

Visayas Additional Capacities

01 January 2016 – 31 May 2016

Power Plant	Location	Installed Capacity (MW)	Commercial Operation
Miag-ao Solar Power Project	Miag-ao, Iloilo	5.67	
Cadiz Solar Power Project	Brgy., Tinampa-an Cadiz City, Negros Occidental	132.50	
La Carlota Solar Power Project Phase A (SACASOL II-A)	La Carlota City, Negros Occidental	18.00	
Manapla Solar Power Plant Project (SACASOL III)	Manapla, Negros Occidental	48.00	
Bais City Solar Power Project (SACASOL IV)	Bais City, Negors Occidental	18.00	
LaCarlota Solar Power Project Phase A (SACASOL II-B)	La Carlota City, Negros Occidental	14.00	
SACASUN Solar Power Porject	San Carlos City, Negros Occidental	58.98	
SEPALCO Solar Park	Palo, Leyte	49.81	
Calumangan DPP U2	Bago City, Negros Occidental	5.0	5-Apr-2016
Total		**349.96**	

Power Outlook – Visayas Grid

Demand – Supply Outlook 2016 - 2020

2016

Mar: ***18 MWp La Carlota Solar Power Project Phase A***
5.67 MWp Miag-ao Solar Power Project
132.5 MWp Cadiz Solar Power Project*
8 MW Villasiga HEPP

2016

Mar: ***5 MW Calumangan DPP U1***
5 MW Calumangan DPP U2
5 MW Calumangan DPP U3
Apr: 3.9 MW Calumangan DPP U4
Jun: ***135 MW Concepcion Coal U1***
Jul: ***150 MW PEDC Expansion***
Sep: 10 MW Biliran GPP U1
Oct: 10 MW Biliran GPP U2

2017

Jul: 15 MW Biliran GPP U3
Nov: 15 MW Biliran GPP U4
Dec: 14 MW Nabas Wind Phase 2

2018

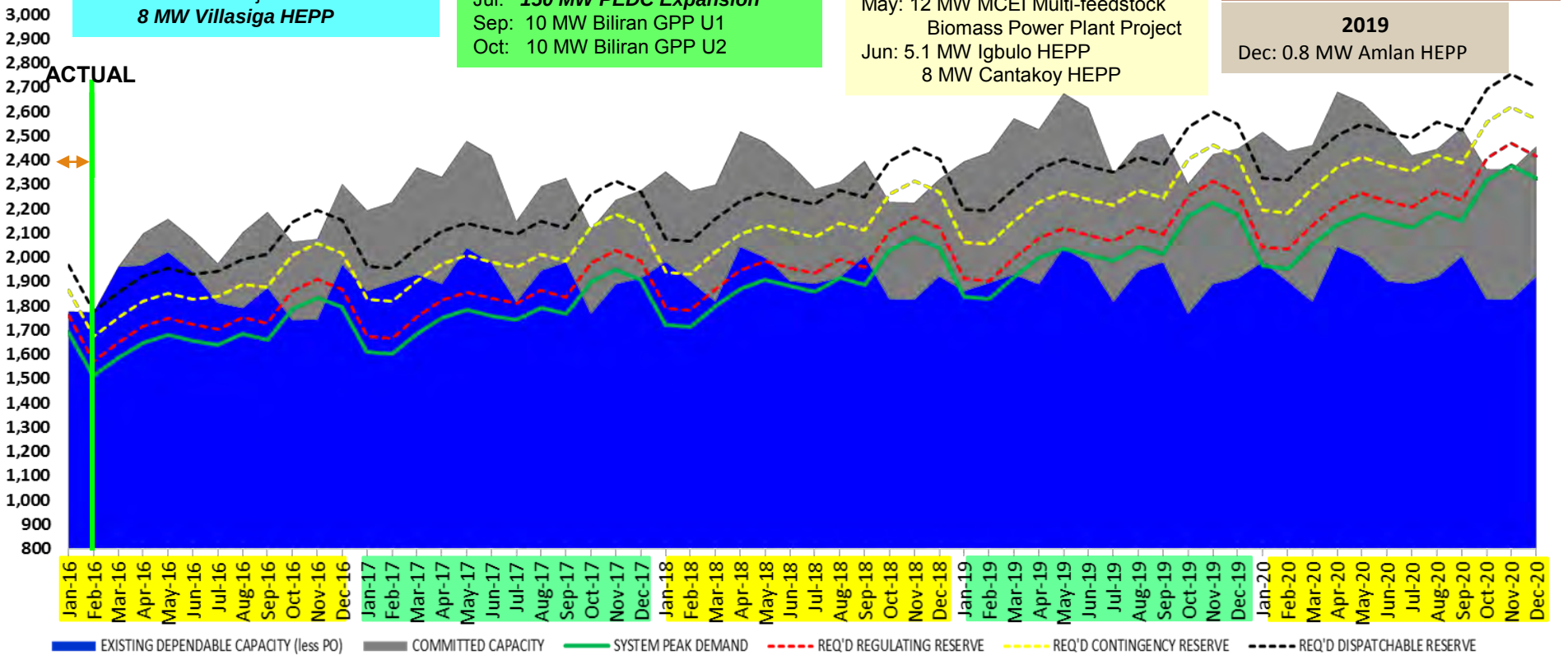
May: 12 MW MCEI Multi-feedstock Biomass Power Plant Project
Jun: 5.1 MW Igbulo HEPP
8 MW Cantakoy HEPP

2018

Jul: 2.25 MW MCEI Rice husk-fired Biomass Power Plant Proj.
Dec: ***135 MW Concepcion Coal U2***

2019

Dec: 0.8 MW Amlan HEPP



Notes

a. Reserve Margin (RM) i.e. 4% regulating reserve and largest online unit for contingency reserve (CR) and dispatchable reserve (DR) requirement (103 MW to increase by 150 MW for CR and 135 MW for DR in 2016)

b. 5.9 % average peak demand growth rate for 2016-2017resulted from observed 1 elasticity ratio of demand for electric power with national economic growth applied to 6.4 % GDP growth rate (GR) forecast of ADB.

c. 6.8 % average peak demand growth rate for 2018-2020 resulted from observed 1 elasticity ratio of demand for electric power with national economic growth applied to 7 % GDP growth rate (GR) target of DBCC.

* On-going testing and commissioning
Bold & italicized – with changes on schedule

As of February 2016

Power Outlook – Visayas Grid

Summary of Power Projects

Type of Power Plant	Committed			Indicative		
	No. of Proponents	Capacity (MW)	% Share	No. of Proponents	Capacity (MW)	Capacity (MW)
Coal	2	420.0	52.1	3	900.0	35.2
Oil-Based	1	18.9	2.3	1	10.0	0.4
Natural Gas	0	0.0	0.0	0	0.0	0.0
Renewable Energy	10	367.1	45.5	21	1,647.2	64.4
Geothermal	1	50.0	*6.2*	1	40.0	*1.6*
Hydro	4	21.9	*2.7*	10	101.7	*4.0*
Biomass	0	0.0	*0.0*	3	113.3	*4.4*
Solar	5	295.2	*36.6*	5	353.2	*13.8*
Wind	0	0.0	*0.0*	2	1,039.0	*40.6*
TOTAL	13	806.0	100.0	25	2,557.2	100.0
Battery	0	0		3	100.0	

*** for accounting purposes; declared capacity for Ancillary Services (AS) to the system**

Power Outlook – Visayas Grid

Committed Power Projects: 806.0 MW

Name of the Project	Project Proponent	Mother/ JV Company	Location	Rated Capacity (MW)	Target Testing & Commissioning	Target Commercial Operation
Concepcion Coal-fired Power Plant Unit 1	Palm Thermal Consolidated Holdings Corp.	AC Energy Holdings, Inc./ Palm Thermal Consolidated Holdings Corporation	Brgy. Nipa, Concepcion, Iloilo	135.00	Sep 2015	Jun 2016
PEDC Expansion	Panay Energy Development Corporation	Global Business Power Corporation	Brgy. Ingore, La Paz, Iloilo	150.00	Jul 2016	Aug 2016
Concepcion Coal-fired Power Plant Unit 2	Palm Thermal Consolidated Holdings Corp.	AC Energy Holdings, Inc./ Palm Thermal Consolidated Holdings Corporation	Brgy. Nipa, Concepcion, Iloilo	135.00	Mar 2018	Dec 2018
TOTAL COAL				420.00		
Calumangan Diesel Power Plant	Energreen Power Development & Management, Inc.	Energreen Power Development & Management, Inc.	Brgy. Calumangan, Bago City, Negros Occidental	18.90	U1 – Apr 2016 U2 – Jan 2016 U3 – Apr 2016 U4 – Jul 2016[b]	U1 – May 2016[b] U2 – Apr 2016[b] Operating since 5 April 2016 U3 – May 2016[b] U4 – Aug 2016[b]
TOTAL OIL-BASED				18.90		
Villasiga HEPP	Sunwest Water & Electric Co. Inc. (SUWECO)	Sunwest Water & Electric Co. Inc. (SUWECO)	Brgy. Igsoro, Bugasong, Antique	8.00	Jul 2015	May 2016
Igbulo (Bais) Hydroelectric Power Project	Century Peak Energy Corporation	Century Peak Energy Corporation	Igbaras, Iloilo	5.10	Dec 2017	Jun 2018
Cantakoy HEP	Quadriver Energy Corp.	Quadriver Energy Corp.	Danao, Bohol	8.00	Jun 2018	Jun 2018
Amlan	Natural Power Sources Integration, Inc.	Natural Power Sources Integration, Inc.	Amlan, Negros Oriental	0.80	Nov 2019	Dec 2019
TOTAL HYDRO				21.90		

[b] Updated from proponent's submission

Power Outlook – Visayas Grid

Committed Power Projects: 806.0 MW

Name of the Project	Project Proponent	Mother/ JV Company	Location	Rated Capacity (MW)	Target Testing & Commissioning	Target Commercial Operation
Biliran Geothermal Plant Project Phase 1*	Biliran Geothermal Incorporated	Orka Energy Philippine (Iceland)	Biliran, Biliran	50.0	Aug 2016	U1 – Sep 2016 U2 – Oct 2016 U3 – Jul 2017 U4 – Nov 2017
TOTAL GEOTHERMAL				50.00		
Miag-ao Solar Power Project	COSMO Solar Energy, Inc.	COSMO Solar Energy, Inc.	Miag-ao, Iloilo	5.67	Feb 2016	May 2016 (being confirmed)
Cadiz Solar Power Project	Philippine Power Solar Energy Corp.	SOLEQ	Brgy., Tinampa-an Cadiz City, Negros Occidental	132.50	Mar 2016	May 2016 (being confirmed)
La Carlota Solar Power Project Phase A (SACASOL II-A)	San Carlos Solar Energy Inc.	Bronzeoak Philippines	La Carlota City, Negros Occidental	18.00	Mar 2016	May 2016 (Operational; Awaiting COE-FIT from DOE then COC-FIT from ERC) [b]
Manapla Solar Power Plant Project (SACASOL III)	Negros Island Solar Power Inc.	San Carlos Solar Power	Manapla, Negros Occidental	48.00	Mar 2016	May 2016 (Operational; Awaiting COE-FIT from DOE then COC-FIT from ERC) [b]
Bais City Solar Power Project (SACASOL IV)	Monte Solar Power Inc.	Bronzeok Philippines Asia Pacific Clean Energy	Bais City, Negors Occidental	18.00	Mar 2016	May 2016 (Operational; Awaiting COE-FIT from DOE then COC-FIT from ERC) [b]
LaCarlota Solar Power Project Phase A (SACASOL II-B)	Negros Island Solar Power Inc.	Negros Island Solar Power Inc.	La Carlota City, Negros Occidental	14.00	Mar 2016	May 2016 (Operational; Awaiting COE-FIT from DOE then COC-FIT from ERC) [b]
SACASUN Solar Power Porject	San Carlos Solar Energy Inc.	San Carlos Solar Energy Inc.	San Carlos City, Negros Occidental	58.98	Mar 2016	May 2016 (being confirmed)
TOTAL SOLAR				295.15		
TOTAL COMMITTED				806.0		

[a] Revised based on REMB's Report
[b] Updated from proponent's submission
[c] Revised based from DOE-VFO
[d] New Entry to Committed Project

As of May 2016

Power Outlook – Visayas Grid

Indicative Power Projects: 2,557.19 MW

Name of the Project	Project Proponent	Mother/ JV Company	Location	Rated Capacity (MW)	Target Commissioning
Therma Visayas Energy Ph 2	Therma Visayas Inc.	Aboitiz Power Corporation	Brgy. Bato, Toledo City, Cebu	300.00	U1-Dec 2017 U2 – Mar 2018
SPC Coal Power Plant Project	SPC Power Corporation	SPC Power Corporation	Brgy. Colon, Naga City, Cebu	300.00	TBD
Ludo Coal-Fired Thermal Power Plant	Ludo Power Corporation	Ludo Power Corporation	Cebu City	300.00	TBD
TOTAL COAL				900.00	
Datem Energy Northern Samar Diesel Power Plant Project	Datem Energy Corporation	Datem Energy Corporation	Northern Samar	10.00	TBD
TOTAL GEOTHERMAL				10.00	
Tigbauan Solar Power	Solexar Energy International, Inc.	Solexar Energy International, Inc.	Tigbauan, Iloilo	30.20	May 2016 (being confirmed)
Biliran Solar Power Project	E&P Green Energy, Inc.	E&P Green Energy, Inc.	Biliran, biliran	48.00	May 2016 (being confirmed)
Grid Tied Solar Farm Project	E&P Green Energy, Inc.	E&P Green Energy, Inc.	Biliran, Biliran	25.00	Sep 2016
Ceko Solar PV Project[d]	Ceko Solar Farm Systems Corp.	Ceko Solar Farm Systems Corp.	Brgy. Tominjao, Dann Bantayan, Cebu	100.00	TBD
First Toledo Solar Power Project	SunAsia Energy, Inc.	SunAsia Energy, Inc.	Toledo City, Cebu	60.00	TBD
Mabinay Solar Power Project[1]	Lohas and Soul Lighting, Inc.	Lohas and Soul Lighting, Inc.	Mabinay, Negros Oriental	90	TBD
TOTAL SOLAR				50.00	
Pulupandan Wind Power Project	First Maxpower International Corporation	First Maxpower International Corporation	Pulupandan, Negros Occidental	50.00	Dec 2016
Nabas Wind Power Project Phase II	PetroWind Energy Corporation	PetroWind Energy Corporation	Brgy. Pawa, Nabas, Aklan	14.00	TBD
Iloilo 1 Wind Project[1]	Energy Development Corporation	Energy Development Corporation	Batad & San Dionisio, Iloilo	213	TBD
Iloilo 2 Wind Project[1]	Energy Development Corporation	Energy Development Corporation	Concepcion, Iloilo	500	TBD
Negros Wind Project[1]	Energy Development Corporation	Energy Development Corporation	Manapla & Cadiz, Negros Occidental	262	TBD
TOTAL WIND				1,039.0	

[1] New Entry to Indicative List based from REMB's Report

TBD – to be determined

As of May 2016

Power Outlook – Visayas Grid

Indicative Power Projects: 2,557.19 MW

Name of the Project	Project Proponent	Mother/ JV Company	Location	Rated Capacity (MW)	Target Commissioning
Timbaban Hydroelectric Power Project	Oriental Energy and Power Generation Corporation	Oriental Peninsula Resources Group Inc (ORE)	Madalag, Aklan	18.00	May 2018
Loboc Hydro Power Project	Sta Clara Power Corporation	Sta Clara Int'l Corporation	Loboc, Bohol	1.20	Jun 2018
Hilabangan (Upper Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	Kabankalan, Negros Occidental	4.80	Aug 2018
Hilabangan (Lower Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	Kabankalan, Negros Occidental	3.00	Aug 2018
Main Aklan River Hydroelectric Power	Sunwest Water & Electric Co. Inc. (SUWECO)	Sunwest Water & Electric Co. Inc. (SUWECO)	Libacao, Aklan	15.00	Sep 2018
Maninila (Lower Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	San Remigio, Antique	4.50	Oct 2018
Maninila (Upper Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	San Remigio, Antique	3.10	Oct 2018
Sibalom (Upper Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	San Remigio, Antique	4.20	Oct 2018
Sibalom (Middle Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	San Remigio, Antique	4.00	Oct 2018
Sibalom (Lower Cascade)	Century Peak Energy Corporation	Century Peak Metals Holdings Corp	San Remigio, Antique	4.00	Oct 2018
Basak II	Meadowland Developers, Inc.	Meadowland Developers, Inc.	Badian, Cebu	0.50	Apr 2019
Amlan (Plant B)	Natural Power Sources Integration, Inc.	Natural Power Sources Integration, Inc.	Amlan, Negros Oriental	1.50	Jul 2019
Amlan (Plant A)	Natural Power Sources Integration, Inc.	Natural Power Sources Integration, Inc.	Amlan, Negros Oriental	3.20	Sep 2019
Amlan (Plant C)	Natural Power Sources Integration, Inc.	Natural Power Sources Integration, Inc.	Amlan, Negros Oriental	0.80	Sep 2019
Malugo	Vivant-Malogo Hydropower, Inc	Vivant-Malogo Hydropower, Inc	Silay City, Negros	6.00	Oct 2019
Lower Himogaan	LGU of Sagay	LGU of Sagay	Sagay, Negros Occidental	4.00	Sep 2020
Caroan	Antique Electric Cooperative	Antique Electric Cooperative	Sebaste, Antique	0.84	Sep 2020
Ipayo	Antique electric Cooperative	Antique electric Cooperative	Sebaste, Antique	11.60	Sep 2020
Ilaguen 4	Isabela Power Corporation	Isabela Power Corporation	Echague	10.00	Oct 2020
Bansud	Sunwest Water & Electric Company, Inc.	Sunwest Water & Electric Company, Inc.	Bansud & Gloria, Oriental Mindoro	1.50	Oct 2020
TOTAL HYDRO				101.74	

Power Outlook – Visayas Grid

Indicative Power Projects: 2,557.19 MW

Name of the Project	Project Proponent	Mother/ JV Company	Location	Rated Capacity (MW)	Target Commissioning
Boracay Oxyfuel-Gas Fired Power Plant Project	CENERTEC Philippines, Inc.	CENERTEC Philippines, Inc.	Brgy. Yapak, Malaya, Aklan	3.0	Dec 2016
Mina Multi-Fuel Biomass Power Generation Facility	Green Power Panay Phils., Inc.	Green Power Panay Phils., Inc.	Iloilo	Phase 1 – 16.50 Phase 2 – 16.50	Phase 1- May 2017 Phase 2 – May 2018
MCEI Multi-Feedstock Biomass Power Plant Project	Megawatt Clean Energy, Inc.	Megawatt Clean Energy, Inc.	Negros Occidental	12.00	May 2018
MCEI Rice Husk-Fired Biomass Power Plant Project	Megawatt Clean Energy, Inc.	Megawatt Clean Energy, Inc.	Negros Occidental	2.25	Jul 2018
Biomass Co-generation Plant[1]	Victorias Milling Company, Inc. (Amendment)	Victorias Milling Company, Inc. (Amendment)	Victoria, Negros Occidental	63.00	TBD
TOTAL BIOMASS				113.25	
TOTAL INDICATIVE VISAYAS				**2,557.2**	

AES Battery Storage - Kabankalan Project	AES Philippines Power Partners Co., LTD.	AES Philippines Power Partners Co., LTD.	Kabankalan, Negros Occidental	40	Dec 2016
Enerhiya Delas Islas I Battery Energy Storage Project[1]	SunAsia Energy Inc.	SunAsia Energy Inc.	Amlan, Negros Oriental	15	TBD
Enerhiya Delas Islas II Battery Energy Storage Project[1]	SunAsia Energy Inc.	SunAsia Energy Inc.	Ormoc, Leyte	15	TBD
Enerhiya Delas Islas III Battery Energy Storage Project[1]	SunAsia Energy Inc.	SunAsia Energy Inc.	Compostela, Cebu	15	TBD
Cadiz Energy Storage Project[1]	EQ Energy Storage Inc	EQ Energy Storage Inc	Cadiz City, Negros Occidental	15	TBD
TOTAL BATTERY				100.00	

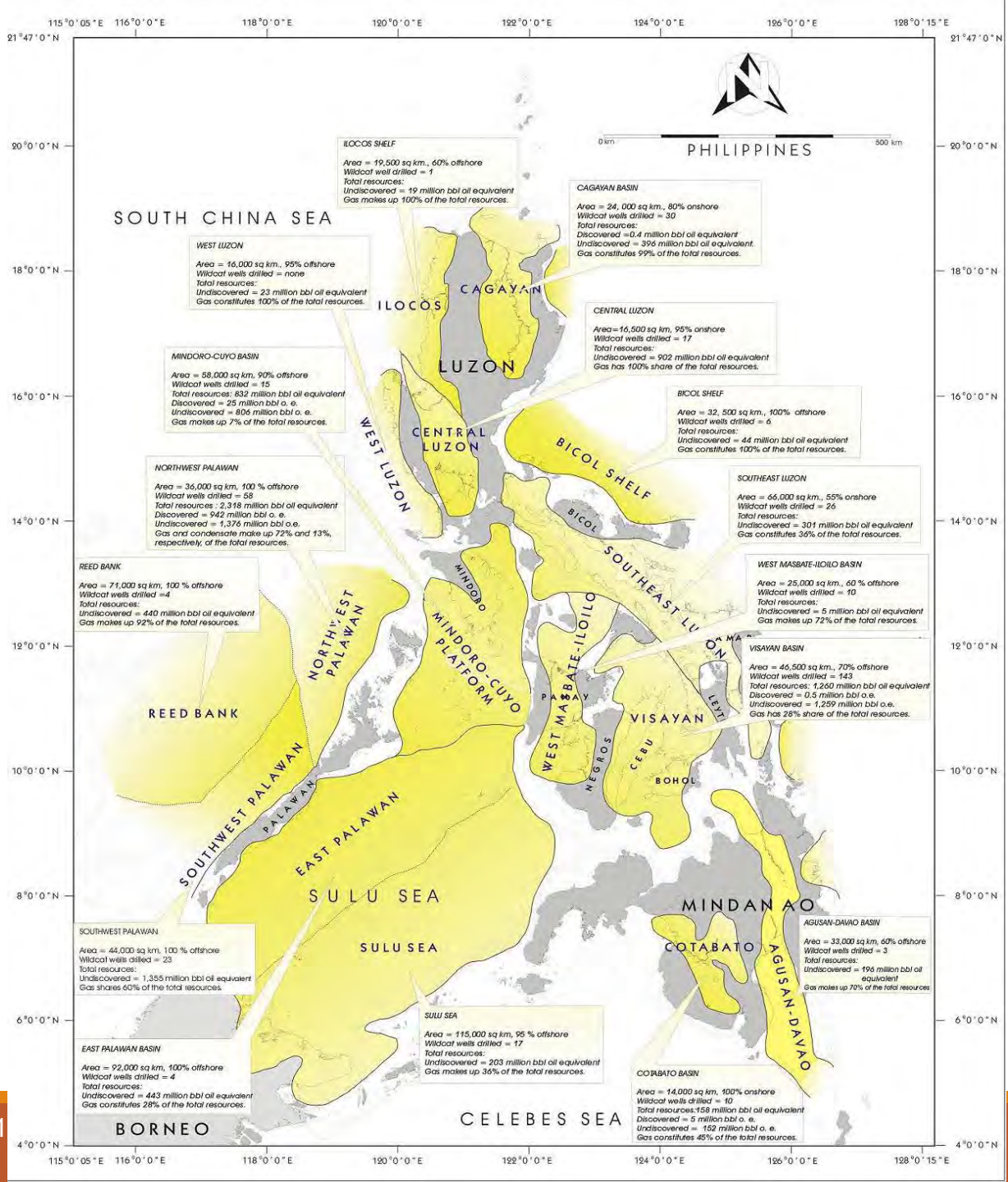
TBD – to be determined [1] New Entry to Indicative List based from REMB's Report
*** for accounting purposes; declared capacity for Ancillary Services (AS) to the system**

Oil & Gas

Areas of Opportunities

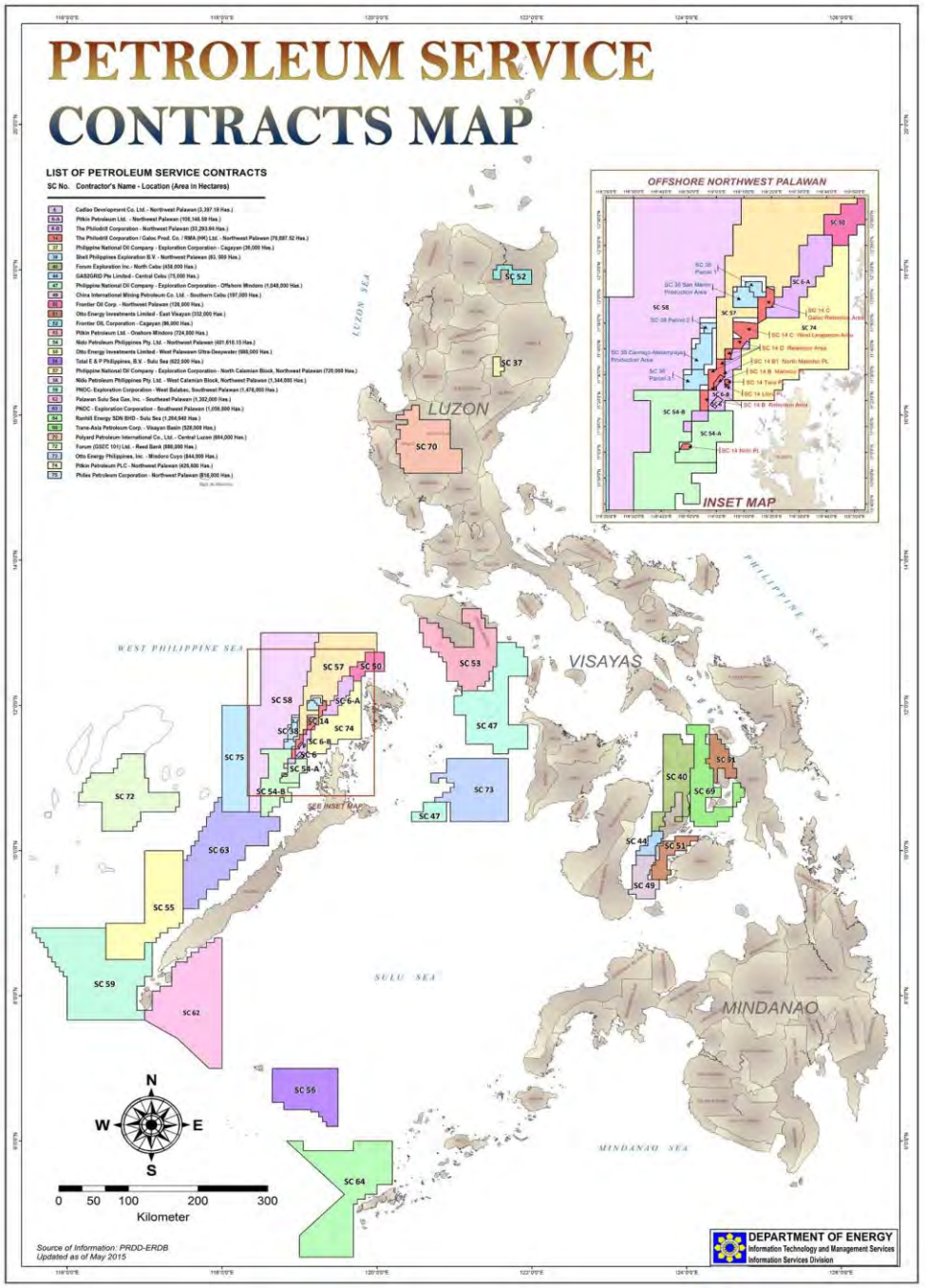
Philippines:

- **16** Sedimentary basins representing an
- area of over 700,000 sq km
- Combined potential of 4,777 MMBFOE



Upstream Oil & Gas
Exploration & Development

- 29 Active Petroleum Service Contracts (PSCs)
  - 5 PSCs located in Visayas
- Produced 2.37 MMB of oil, 122.54 BCF of gas & 3.74 MMB condensate in 2015
- Produced 0.92 MMB of oil, 48.04 BCF of gas and 1.44 MMB condensate (January to May 2016)



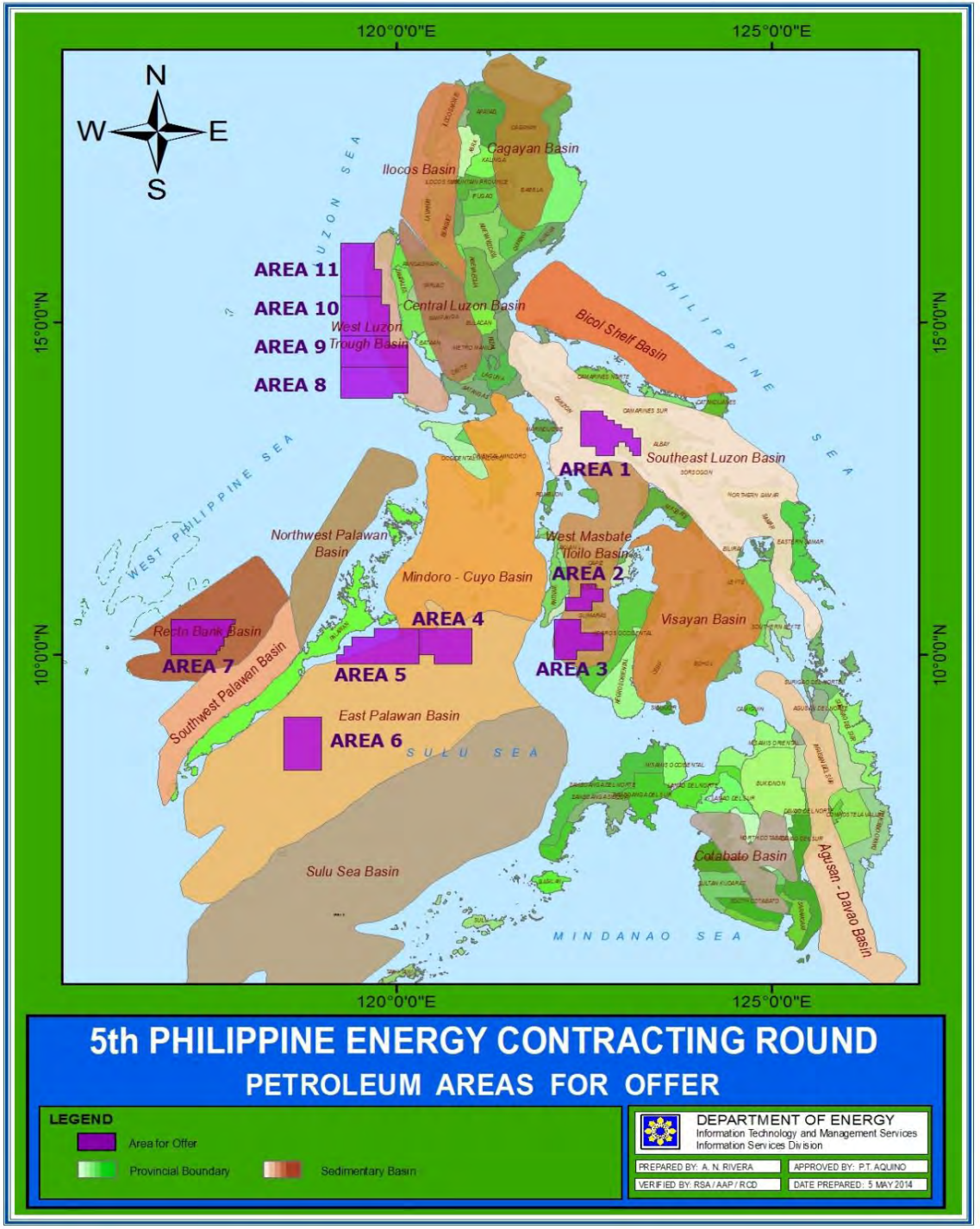
Existing Petroleum Service Contracts
Visayas

SERVICE CONTRACT NO.	NAME OF CONTRACTOR	LOCATION	ACREAGE (hectares)
SC 40	FORUM EXPLORATION INC.	North Cebu	458,000
SC 44	GAS 2 GRID PTE LIMITED	Central Cebu	75,000
SC 49	CHINA INTERNATIONAL MINING AND PETROLEUM INC.	South Cebu	197,000
SC 51	OTTO ENERGY INVESTMENTS LTD.	East Visayan Basin	332,000
SC 69	OTTO ENERGY PHILIPPINES, INC.	Visayan Basin	528,000
	Total		1,590,000

5th Philippine Energy Contracting Round (PECR5)

- Launched in 09 May 2014
- 11 Areas offered, with a total area of 4,824,000 hectares
- Potential resources in the 11 areas: 8,807.97 MMB of oil 18,119.43 BCF of gas

BASIN	AREAS
SOUTHEAST LUZON	AREA 1
MASBATE-ILOILO	AREAS 2 & 3
NORTHEAST PALAWAN	AREAS 4 & 5
SOUTHEAST PALAWAN	AREA 6
RECTO BANK	AREA 7
WEST LUZON	AREAS 8,9,10 & 11



5th Philippine Energy Contracting Round (PECR5)

PECR 5 Applications

AREA 1 – Southeast Luzon
424,000 hectares
Yulaga Oil Exploration Corp.

AREA 4 – East Palawan
416,000 hectares
Ratio Petroleum Ltd.

AREA 5 – East Palawan
576, 000 hectares
Colossal Petroleum Corp.

AREA 7 – Recto Bank
468,000 hectares
Colossal Petroleum Corp.

Qualified for Evaluation and Recommended for Awarding

AREA 4 – East Palawan
416,000 hectares
Ratio Petroleum Ltd.

AREA 5 – East Palawan
576, 000 hectares
Colossal Petroleum Corp.

AREA 7 – Recto Bank
468,000 hectares
Colossal Petroleum Corp.

Visayas Energy Investment Forum, 22 June 2016
Cebu Parklane International Hotel, Cebu City

Coal

Summary of Regional Coal Reserves

(in Million Metric Tons)

QUEZON
Resource Potential - 2.00
In-situ Reserves - 0.09

MINDORO
Resource Potential - 100.00
In-situ Reserves - 1.44

SEMIRARA
Resource Potential - 570.00
In-situ Reserves - 112.32

NEGROS
Resource Potential - 4.50
In-situ Reserves - 2.01

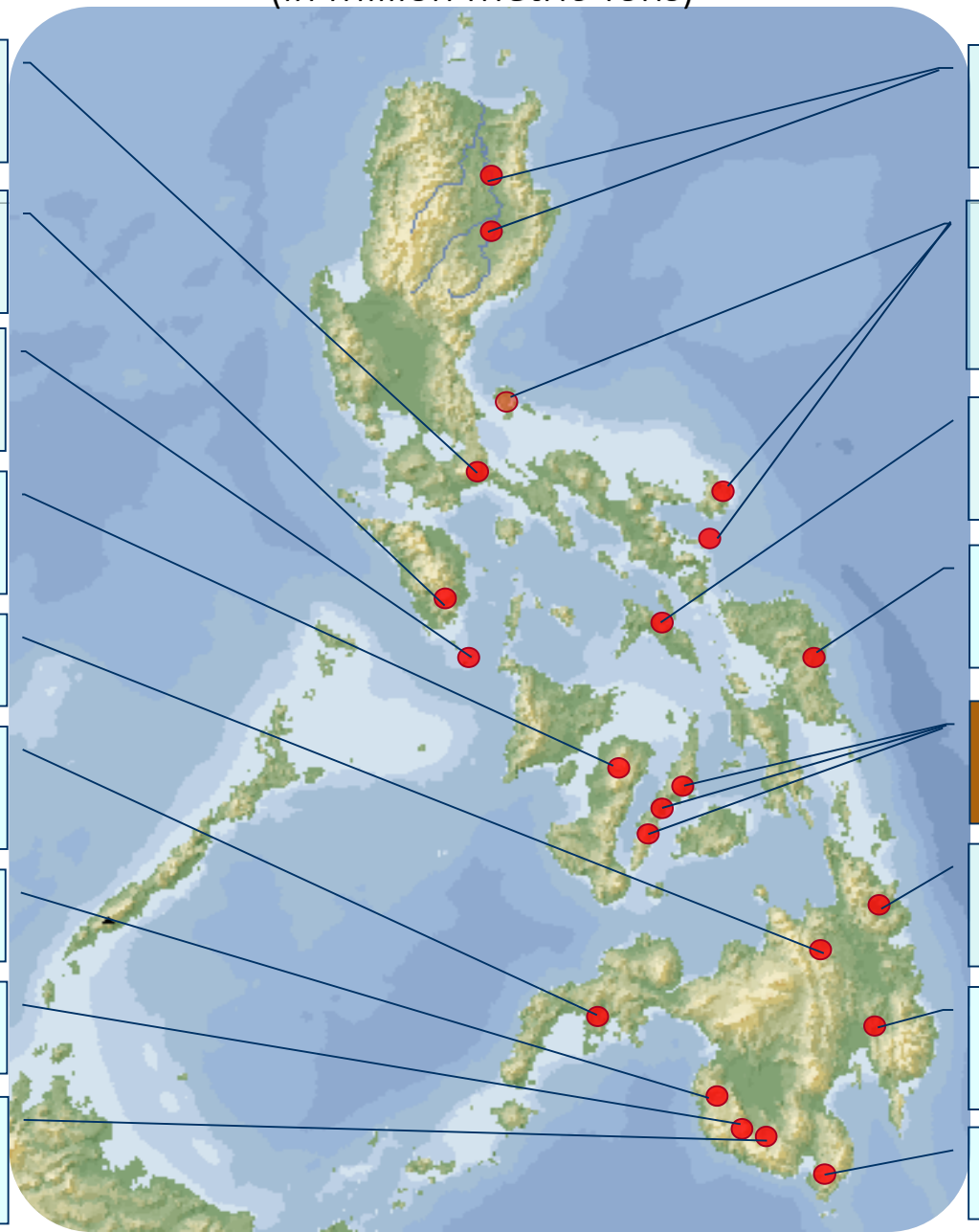
BUKIDNON
Resource Potential - 50.00

ZAMBOANGA
Resource Potential - 45.00
In-situ Reserves - 37.99

MAGUINDANAO
Resource Potential - 108.00

SULTAN KUDARAT
Resource Potential - 300.30

SOUTH COTABATO
Resource Potential - 230.40
In-situ Reserves - 81.07



CAGAYAN VALLEY
Resource Potential - 336.00
In-situ Reserves - 82.57

BATAN-POLILLO-CATANDUANES
Resource Potential - 17.00
In-situ Reserves - 6.02

MASBATE
Resource Potential - 2.50
In-situ Reserves - 0.08

SAMAR
Resource Potential - 27.00
In-situ Reserves - 8.59

CEBU
Resource Potential - 165.00
In-situ Reserves - 11.63

SURIGAO
Resource Potential - 209.00
In-situ Reserves - 69.55

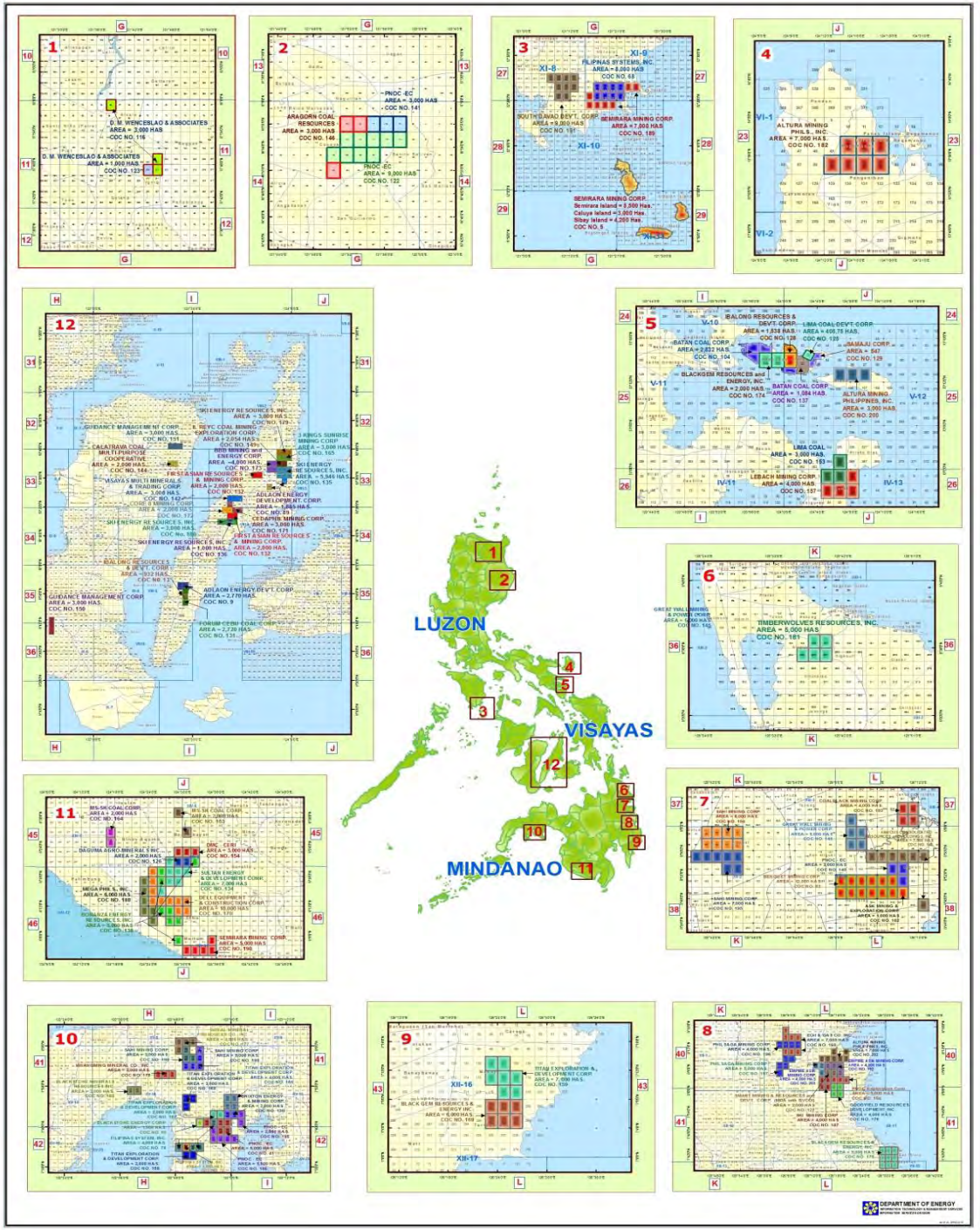
DAVAO
Resource Potential - 100.00
In-situ Reserves - 0.21

SARANGANI
Resource Potential - 120.00

Coal Operating Contracts (COCs)

As of January 2016

Region	Exploration	Development & Production	Total
II	2	3	5
IV-A	2	0	2
IV-B		1	1
V	5	5	10
Luzon	9	9	18
VI	1	1	2
VII	6	8	14
Visayas	7	9	16
IX	6	5	11
XI	3	0	3
XII	4	3	7
CARAGA	16	4	20
Mindanao	29	12	41
Philippines	**45**	**30**	**75**



Existing Coal Operating Contracts
Visayas

COC NO.	LOCATION	REGION	COMPANY	STATUS
136	Alpaco, Naga Cebu	VII	SKI ENERGY RESOURCES, INC.	Exploration
151	Calatrava, Negros Occidental	VI	GUIDANCE MANAGEMENT CORPORATION	Exploration
165	Carmen, Cebu	VII	3KINGS SUNRISE MINING CORP.	Exploration
171	Toledo City, Cebu	VII	CEDAPHIL MINING CORP.	Exploration
172	Toledo City, Cebu	VII	CORE 8 MINING CORPORATION	Exploration
179	Carmen, Asturias and Catmon, Cebu	VII	ALCO STEAM ENERGY CORP.	Exploration
180	Pinamungahan and Naga, Cebu	VII	ALCO STEAM ENERGY CORP.	Exploration
5	Semirara Island,	VI	SEMIRARA MINING CORPORATION	Development & Production
9	Dumalan, Dalaguete, Cebu	VII	ADLAON ENERGY DEVELOPMENT CORP	Development & Production
13	Dalaguete, Cebu	VII	IBALONG RESOURCES & DEVELOPMENT CORPORATION	Development & Production
131	Dalaguete, Naga, Cebu	VII	FORUM CEBU COAL CORP.	Development & Production
132	Balamban, Cebu	VII	FIRST ASIAN RESOURCES MINING CORP.	Development & Production
135	Danao,Cebu	VII	ALCO STEAM ENERGY CORP.	Development & Production
142	Toledo, Cebu	VII	VISAYAS MULTI-MINERALS MINING AND TRADING CORPORATION	Development & Production
149	Danao, Cebu City	VII	IL REY'C COAL MINING	Development & Production
173	Asturias, Balmban and Danao City, Cebu	VII	BBB MINING AND ENERGY CORP.	Development & Production

Alternative Fuels

Biofuels Supply-Demand

BIODIESEL DEMAND			
Year	Diesel Demand	Biodiesel Blends (Target)	Supply Requirement (in million liters)
2016	7,176.41	5%	358.82
2020	7,923.37	10%	792.34
2025	8,693.73	20%	1,738.75
2030	9,030.68	20%	1,806.14

BIOETHANOL DEMAND			
Year	Gasoline Demand	Bioethanol Blends (Target)	Supply Requirement
2015	3,818.61	10%	381.86
2020	4,328.87	20%	865.77
2025	4,712.28	20%	942.46
2030	5,084.05	20%/85%	1,016.81

Energy Efficiency& Conservation

Energy Efficiency & Conservation Roadmap

Sector	Short Term	Medium Term	Long Term	2030 Objectives
	2014-2015	2016-2020	2021-2030	
Transport	▪ Fuel Efficiency Standards developed all vehicles ▪ • Risk management on vehicle conversion, e-vehicle programs ▪ • Re-formulated coordination mechanisms	▪ Financial incentives for EE through vehicle taxes ▪ Promotion of key vehicle technologies ▪ Driver education and fleet management pro-grams	▪ EE programs beyond road transport (passenger and cargo ships, aviation fuels) ▪ Reintegration of urban planning and transport energy use	▪ 40 % Reduction in energy intensity compared to 2010 baseline ▪ Decreased Energy consumption of 1.6% per year against baseline forecasts ▪ Savings of approx. 10,665 KTOE p.a. (one-third of current demand) by 2930
Industry	▪ Link existing training projects with ESCO capacity building ▪ Develop sectoral focus programs to facilitate EE in energy intensive industries (e.g. cement and construction, sugar)	▪ Develop standards for motors ▪ Facilitate example models including ESCOs, finance ▪ Implement demand response programs ▪ Review of energy pricing	▪ Review inward investment rules for EE to remove distortions	
Residential Buildings	▪ Enforceable minimum energy standards for appliances, with a focus on space cooling and refrigeration ▪ Building envelope measures – cool roofs and insulation	▪ Develop role of utilities as key implementation partners and information providers ▪ Specific EE programs for low-income house-holds	▪ Towards energy efficient housing precincts ▪ Inclusion of residential measures in Building Code	

Energy Efficiency & Conservation Roadmap

Sector	Short Term	Medium Term	Long Term	2030 Objectives
	2014-2015	2016-2020	2021-2030	
Commercial Buildings	▪ Reformulate group to oversee EE measures in Building Code ▪ Retro-commissioning program for existing buildings ▪ Benchmarking and ratings for building information & reporting	▪ EE measures for inclusion in national building code ▪ Government demonstration retrofits to show-case ESCOs and financing models ▪ Promote green building ratings	▪ Incentive funds in place for EE, including private financiers ▪ Mandatory disclosure of commercial building performance	▪ 40 % Reduction in energy intensity compared to 2010 baseline ▪ Decreased Energy consumption of 1.6% per year against baseline forecasts ▪ Savings of approx. 10,665 KTOE p.a. (one-third of current demand) by 2030
Cross-Sectoral	▪ Support passage of Enercon Bill ▪ Establish EE database, data collection regime, M&E framework ▪ Establish enforcement regimes ▪ Strengthen ESCO capacity ▪ Continue awareness-raising	▪ National strategy for efficiency in power supply sector ▪ Stronger coordination with other levels of government (LGUs) ▪ Regular reporting and monitoring to commence	▪ Energy Efficiency and Conservation Center mandated and established	

Renewable Energy

Renewable Energy Development

National Renewable Energy Program

Renewable Energy Targets, 2011 -2030

Sector	Short Term	Medium Term	Long Term	Total
	2011-2015	2016-2020	2021-2030	
Geothermal	220 MW	1,100 MW	175 MW	1,495 MW
Hydropower	341.3 MW	3,161 MW	1,891.8 MW	5,394.1 MW
Biomass	276.7 MW	0	0	276.7 MW
Biofuels	•DC on E10 in 2011 •Mandatory E10 to all Gasoline by 2012 •PNS for B5 by 2014 •DC on B5 by 2015 •Mandatory B5 to all Diesel by 2015	•PNS for B20 & E85 by 2020 •DC on B10 and E20 by 2020	•DC on B20 and E85 by 2025	
Wind	200 MW	700 MW	1,445 MW	2,345 MW
Solar	50 MW	100 MW	200 MW	350 MW (Aspirational target 1,528 MW)
Ocean Power	0	35.5	35	70.5
Total	**1,088 MW**	**5,096 MW**	**3,746.80 MW**	**9,931.3 MW**

Note: RE Targets under review of NREB to reflect developments on RE sector and the DOE's issuances of new Installation targets

Renewable Energy Development Philippines (as of 31 March 2016)

RESOURCES	AWARDED PROJECTS		
	No. of Projects	Potential Capacity (MW)	Installed Capacity (MW)
Hydro Power	353	7,054.65	141.49
Grid – Use	352	7,053.15	141.49
Own - Use	1	1.50	
Ocean Energy	7	26.00	
Geothermal	41	610.00	1,906.19
Wind	55	1,168.00	426.90
Grid – Use	54	1,168.00	426.90
Own - Use	1	-	0.006
Solar	147	3960.92	307.78
Grid – Use	131	3,956.64	304.56
Own - Use	16	4.286	3.218
Biomass	52	201.50	419.45
Grid – Use	37	197.58	253.27
Own - Use	25	3.92	166.18
Total Grid – Use	622	13,011.37	3,032.41
Total Own – Use	43	9.706	169.40
Total	665	13,021.08	3,201.81

Renewable Energy Development
Visayas (as of 31 March 2016)

RESOURCES	AWARDED PROJECTS		
	No. of Projects	Potential Capacity (MW)	Installed Capacity (MW)
Hydro Power	47	730.98	4.5
Grid – Use	47	730.98	4.5
Own - Use	0		
Ocean Energy	4	10	
Geothermal	7	70	945.18
Wind	17	89	90
Grid – Use	17	89	90
Own - Use			
Solar	34	1161.97	75.096
Grid – Use	30	1,161.97	75
Own - Use	4	3.214	0.096
Biomass	20	29.2	229.21
Grid – Use	8	28.58	136
Own - Use	12	0.62	93.21
Total Grid – Use	113	2,090.53	1,250.68
Total Own – Use	16	0.62	93.306
Total	129	2,091.15	1,343.99

Feed-in-Tarriff Status

RESOURCES	1st EFFECTIVITY (JULY 2012)		2nd EFFECTIVITY		TOTAL CAPACITY (MW)
	Installation Target (MW)	FIT Rates (PHP/kwH)	Installation Target (MW)	FIT Rates (PHP/kwH)	
Run-of-River Hydro Power	250	5.90	-	5.90	250
Biomass	250	6.63	-	6.63	250
Wind	200	8.53	200	7.40*	400
Solar	50	9.68	450	8.69**	500
TOTAL	**750**		**650**		**1,400**

** Effective October 2015*

*** Effective April 2015*

Policies to Promote Renewable Energy

- Review and Implement NREP targets
- Execute Policy Mechanisms under Chapter 5 of the RE Act
- Realize Off-Grid Renewable Energy Development Policy Mechanism
  - NPC-SPUG or its successors-in-interest and/or qualified third parties in off-grid
- Implement Fuel Mix Policy
- At least 30% RE in the capacity mix by 2030

Policy Mechanisms to Promote Renewable Energy

- Renewable Portfolio Standard (RPS)
  - Market based policy that requires the mandated electricity industry participants to source an agreed portion of their supply from eligible RE Resources: ***Public Consultation was conducted on 16 June 2016 in Manila***

- Feed-In Tariff (FIT) System
  - Policy that offers guaranteed payments on a fixed rate per kilo-watt hour for emerging RE sources
    - Priority connection to the grid
    - Priority purchase and transmission of and payment for by grid system operators
    - Fixed tariff for 20 years
    - To be applied for generation utilized in compliance with RPS

Policy Mechanisms to Promote Renewable Energy

- Net-Metering for RE
  - Consumer-based RE incentive scheme wherein the electric power generated by an eligible on-site RE generating facility and delivered to the local distribution grid may be used to offset electric energy provided by the DU to the end-user during the applicable period
    - ERC approved the Net Metering Rules last 27 May 2013
    - Conducted Nationwide IEC for LGUs, DUs, Consumers
    - 428 Net Metering Customers with 2,380.98 kWp
- Must and Priority Dispatch for Variable REs
  - DOE Circular No. DC2015-03-0001 dtd 20 March 2015 promulgated the implementation framework
- Renewable Energy Market (REM)
  - Venue for trading of Renewable Energy Certificates (RE Certificates)
- Green Energy Option
  - Mechanism to provide end-users the option to choose RE as their sources of energy: Implementing Guidelines for final review

THANK YOU

Visayas Energy Investment Forum
22 June 2016
Cebu Parklane International Hotel
Cebu City

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Your Business. Our People.