TOWARD BUILDING A RESILIENT AND SUSTAINABLE WESTERN VISAYAS

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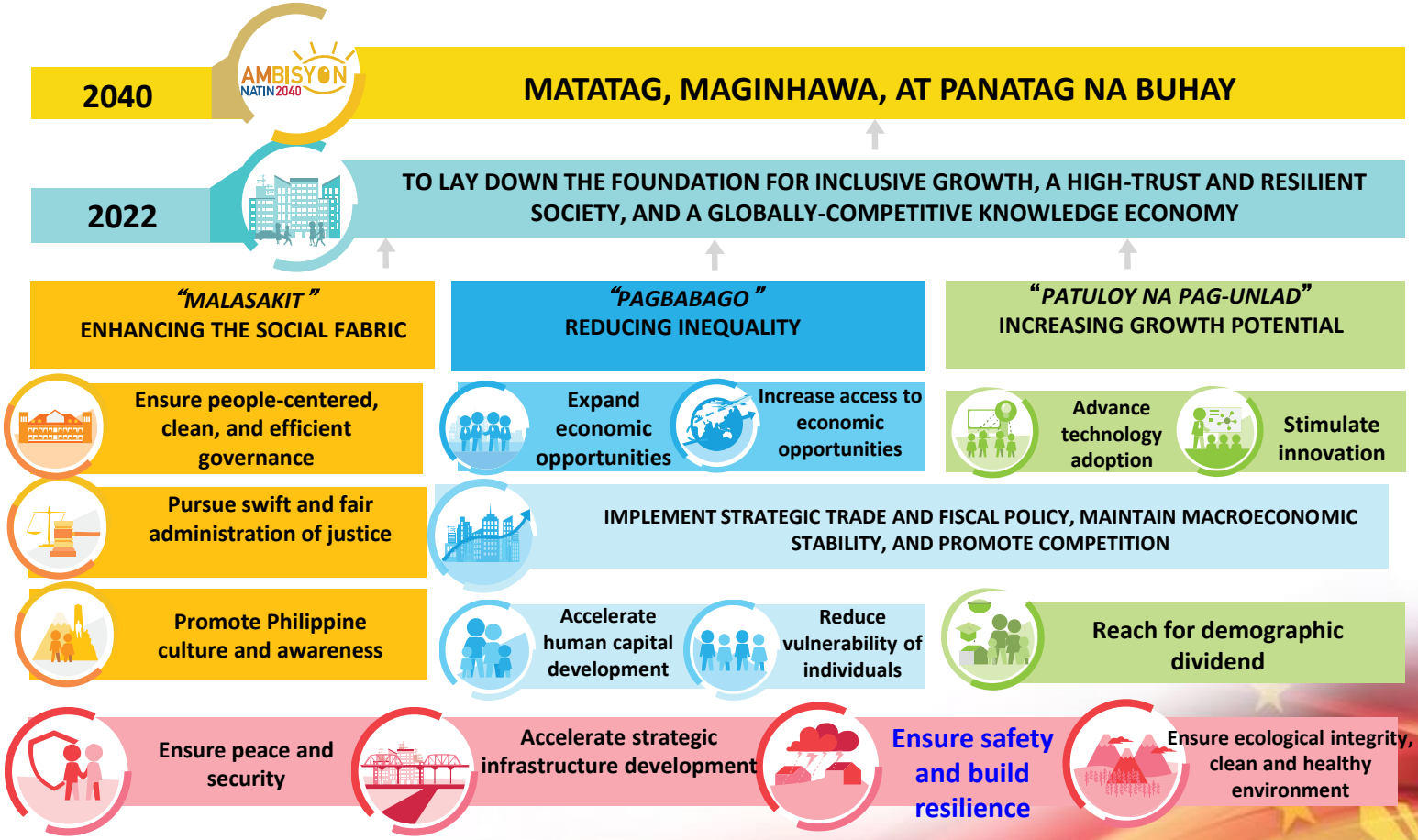
Regional Development Office
National Economic and Development Authority

Presentation Flow

- Building resiliency through disaster risk reduction and management and climate change adaptation
- Ensuring sustainability through renewable energy

2017-2022 Philippine Development Plan's Overall Strategic Framework



PDP 2017-2022 : Strategies on Disaster Risk Reduction and Climate Change Adaptation

Housing Sector

- ✓ Provide adequate transition houses and livelihood opportunities during early rehabilitation and recovery period
- ✓ Develop integrated neighborhoods and sustainable communities particularly for low-income households which are compliant with disaster risk reduction and management (DRRM) and climate change adaptation (CCA) requirements
- ✓ Adopt viable land acquisition approaches and fast-track the inventory of lands for socialized housing development to encourage people to move out of areas exposed to high risks of hazards

PDP 2017-2022 : Strategies on Disaster Risk Reduction and Climate Change Adaptation

Infrastructure Sector

- ✓ Promote climate and disaster-resilient structures and designs following established measures and standards
- ✓ Continue flood management initiatives

Agriculture Sector

- ✓ Accelerate construction of disaster- and climate-resilient, small-scale irrigation systems and retrofit existing ones
- ✓ Increase agricultural insurance to small farmers and fisherfolk

Social Development Sector

- ✓ Provide adequate mental health and psychosocial support to victims of calamities
- ✓ Continue reforms on education curriculum (integrating DRRM and CCA in the school curricula)

PDP 2017-2022 : Strategies on Disaster Risk Reduction and Climate Change Adaptation

Other Strategies

- ✓ Develop, maintain, and ensure the accessibility of climate and geospatial information
- ✓ Develop risk transfer mechanisms
- ✓ Promote business continuity planning
- ✓ Encourage and support innovation in export-oriented industries through investments, with focus on state-of-the-art disaster- and climate-resilient technologies

Building Resiliency through DRRM: The Western Visayas Experience

2008

Typhoon Frank

2011

Typhoon Sendong

2012

Typhoon Quinta

2013

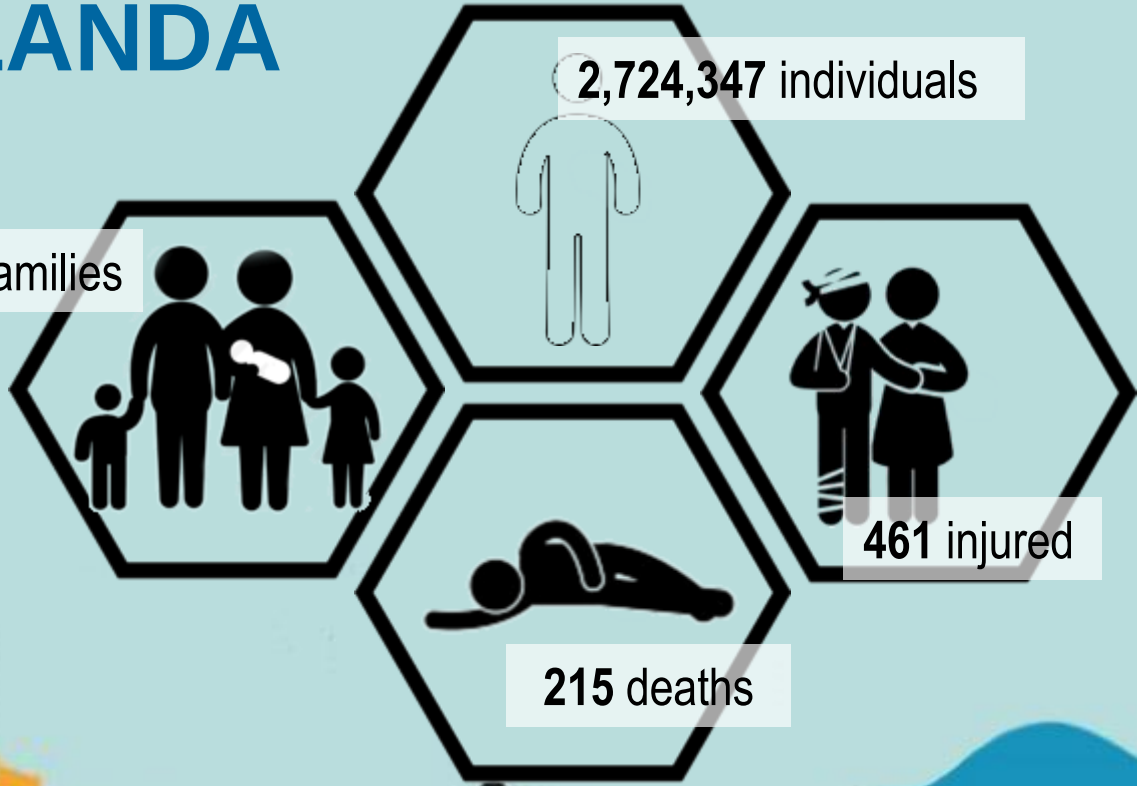
Typhoon Yolanda

TYPHOON YOLANDA

08 November 2013

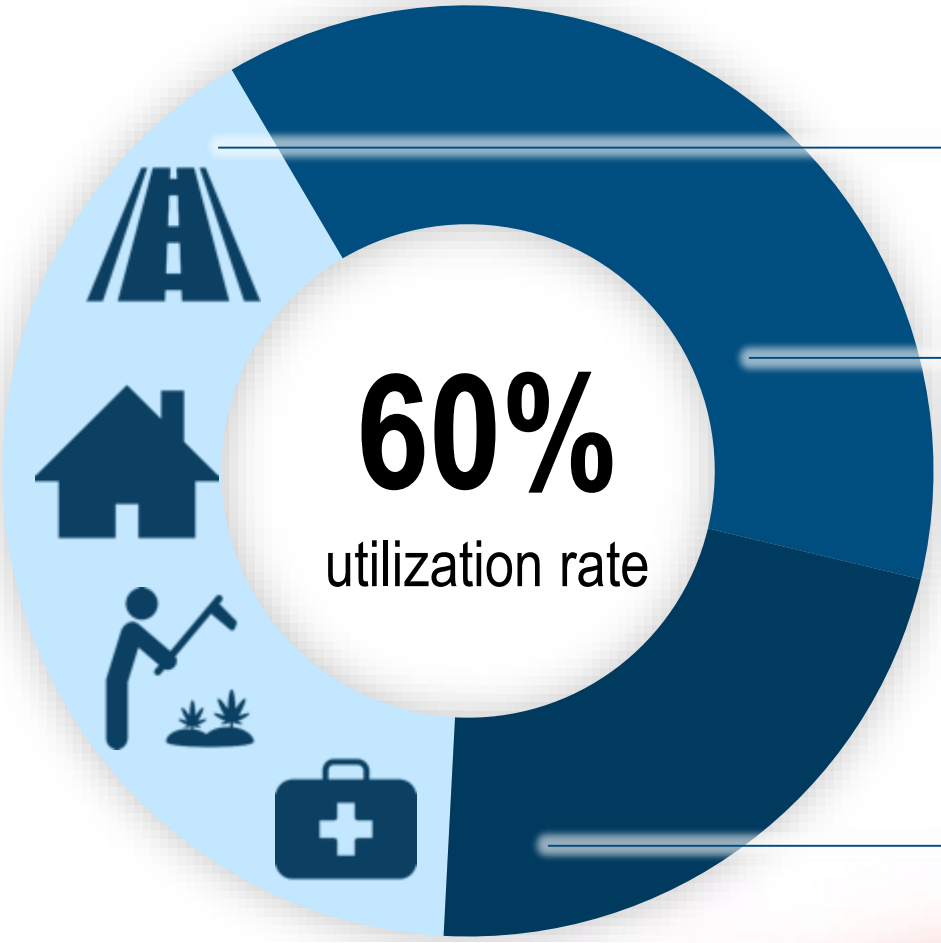
Billions of damages to…

- Power utilities
- Water supply systems
- Houses
- School buildings
- Health facilities
- Markets
- Institutions
- Agri & fishery productions



TYPHOON YOLANDA

Rehabilitation Project Cost



Total project cost
P35 billion

Released amount as of October 2016
P32 billion

Disbursed amount
P19 billion

Improvements in weather forecasting in the Visayas

DOST

Hybrid Weather Monitoring Sensors

Hybrid Weather Monitoring Sensors

Doppler Radar

Credits: RVDumpit, DOST-VI

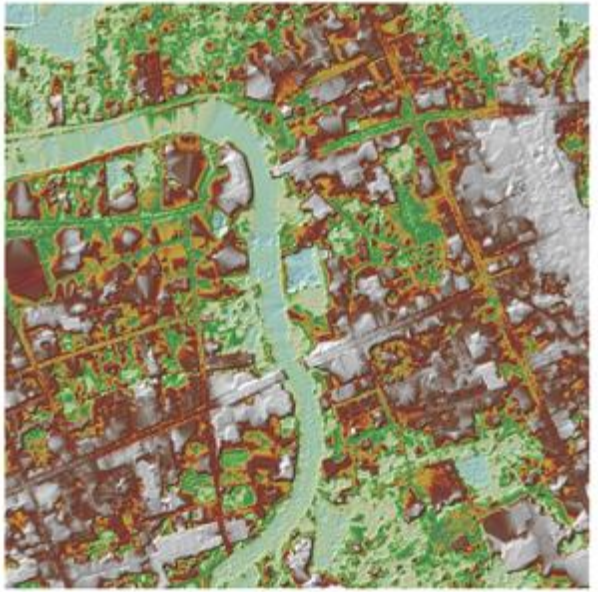
National Economic and Development Authority

Enhancement of Hazard Maps using LiDAR Mapping Technique

Orthophoto

Digital Surface Model

Digital Terrain Model



Credits: RVDumpit, DOST-VI

NEDA at the forefront in mainstreaming DRRM and CCA in local planning

PAMBANSANG PANGASIWAAN SA KABUHAYAN AT PAGPAPAUNLAD
REPUBLIKA NG PILIPINAS

neda

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NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

VULNERABILITIES REDUCED AND SAFE AND SECURE COMMUNITIES BUILT

VULNERABILITIES OF INDIVIDUALS AND FAMILIES REDUCED

UNIVERSAL AND TRANSFORMATIVE SOCIAL PROTECTION PROGRAM ENHANCED

- Strengthen collaboration and enhance convergence of efforts among agencies
- Focused-targeting of poor families and areas
- Develop sustainable protection programs to reduce risks and vulnerabilities
- Strengthen implementation of labor standards and other working arrangements in companies
- Improve financial inclusion and access of the vulnerable and poor families
- Promote income diversification as safeguard to emergencies and threats of economic and natural shocks
- Intensify implementation of solutions to reduce housing backlog particularly of the lower income classes and vulnerable sector
- Provide adequate transition houses and livelihood opportunities to disaster victims during the response, early rehabilitation and recovery period

SAFE AND SECURE COMMUNITIES BUILT

DISASTER RESILIENCY OF INDIVIDUALS AND COMMUNITIES INCREASED

- Identify vulnerable and susceptible areas to guide building resettlement communities
- Regularly update DRR/CCA-enhanced plans
- Improve the region's coping capacity from natural and human-induced disasters
- Conduct regular DRRM capability-building trainings
- Develop social safety nets in rebuilding disaster-stricken communities and areas in situations of armed conflicts

Proposed programs for Western Visayas, 2018-2022

Name of Project/Description	Location	Cost (million)	Implementing Agency
Health Emergency Preparedness and Response - Health Emergency Management	Regionwide	275.9	DOH
Assess vulnerability and risk to geohazards of LGUs, particularly rain-induced landslides and floods	Selected municipalities in Aklan, Capiz, Iloilo, Antique	47.0	MGB
Assess identified LGUs for sub-surface hazards particularly sinkholes and subsidence in Jordan, Guimaras	Guimaras	1.7	MGB
Incorporation of a DRR-CCA lens in the major local plans of the LGUs	17 LGUs in the Major River Basin Areas (Jalaur and Panay)	1.8	DILG
Construction of Disaster Resilient Evacuation Centers	Belison, Antique	150	Belison, Antique
Construction of Multi-Purpose Covered Court/Evacuation Center (Poblacion, Patnongon)	Patnongon, Anique	30	NHA

Proposed programs for Western Visayas, 2018-2022

Name of Project/Description	Location	Cost (million)	Implementing Agency
Constructions of seawall	Selected municipalities in Antique	150	DPWH
Acquisition of a 10-hectare lot and construction of an ideal and complete evacuation center for 1,112 vulnerable households or 5,556 individuals in 6 coastal brgys.	Pres. Roxas, Capiz	100	DILG/OCD
Construction of standard evacuation center in 4 municipalities (Buenavista, Jordan, Nueva Valencia, San Lorenzo) with complete amenities such as kitchen, quarters, etc	Buenavista, Guimaras	100	LGU
Provision of Advance Warning System for Earthquakes, Tsunamis	Iloilo City	50	Iloilo City

Proposed programs for Western Visayas, 2018-2022

Name of Project/Description	Location	Cost (million)	Implementing Agency
Provision of Early Warning System (EWS) to 180 barangays (such as rain gauge, siren, flooding EWS, earthquake-prone/faultline warnings)	Iloilo City	150	Iloilo City
Establishment of satellite operations center in 7 Districts	Iloilo City	200	Iloilo City
Provision of Advance Warning System for Earthquakes, Tsunamis	Iloilo City	50	Iloilo City
River control constructed along riverine area	Iloilo	1,080	Iloilo
Acquisition of Two (2) DRRMC Emergency Vehicles	Passi City	10	Passi City
Construction of ten (10) evacuation centers in the province	Iloilo	100	PDRRMO

Proposed programs for Western Visayas, 2018-2022

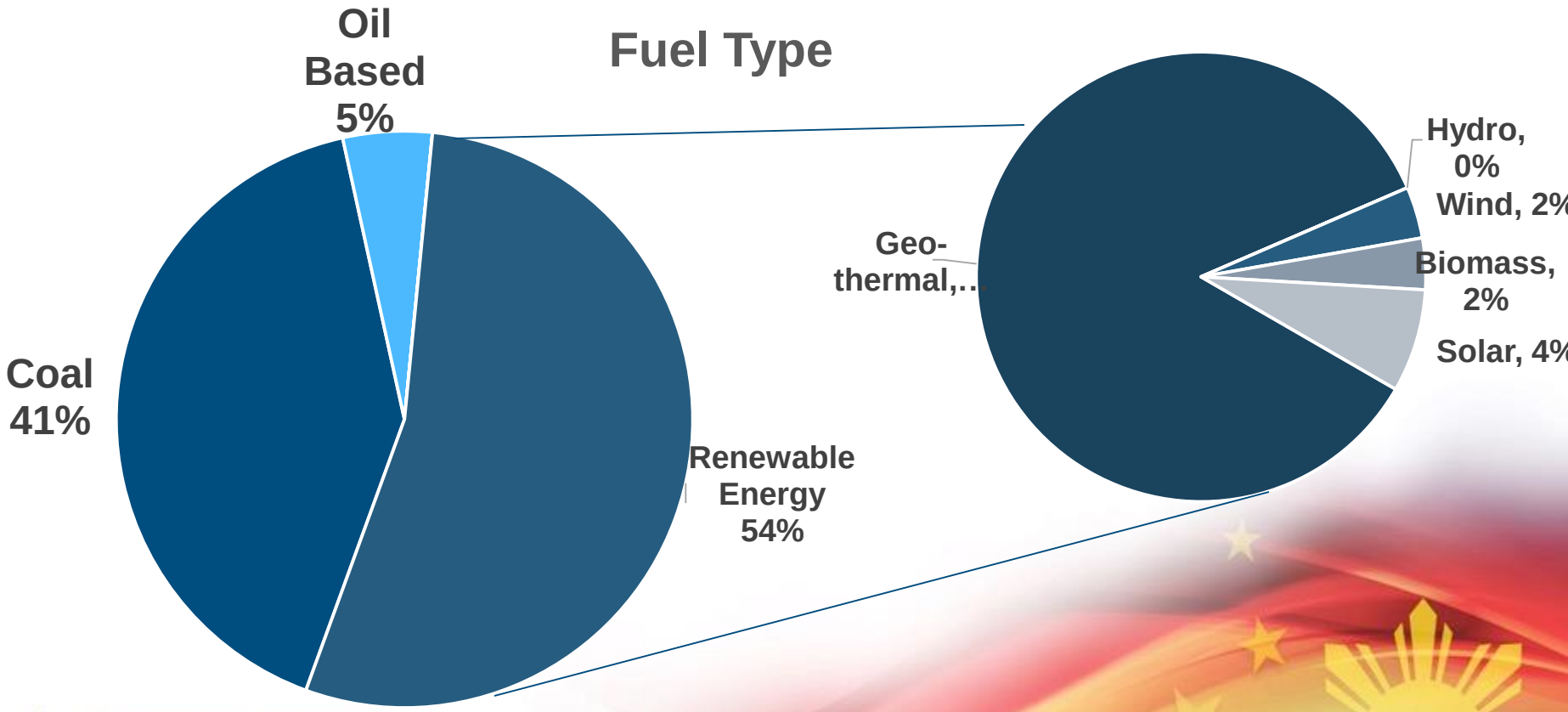
Name of Project/Description	Location	Cost (million)	Implementing Agency
Construction of Flood Control Facilities - 2.5 km floodway, excavation, masonry works, steelworks and riprap/slope protection at Brgy. Poblacion	Calinog, Iloilo	30	OCD / DND / DPWH
Construction of Flood Control - Construction of cut-off channel connecting Buntatala River and Gui-gui creek, Municipality of Leganes	Leganes, Iloilo	120	LGU/DPWH
Establishment of evacuation center for all residents	Sara,Iloilo	150	LGU-OCD/NDRRMC
Disaster Response and Management Program	Regionwide	216.90	DSWD

Proposed programs for Western Visayas, 2018-2022

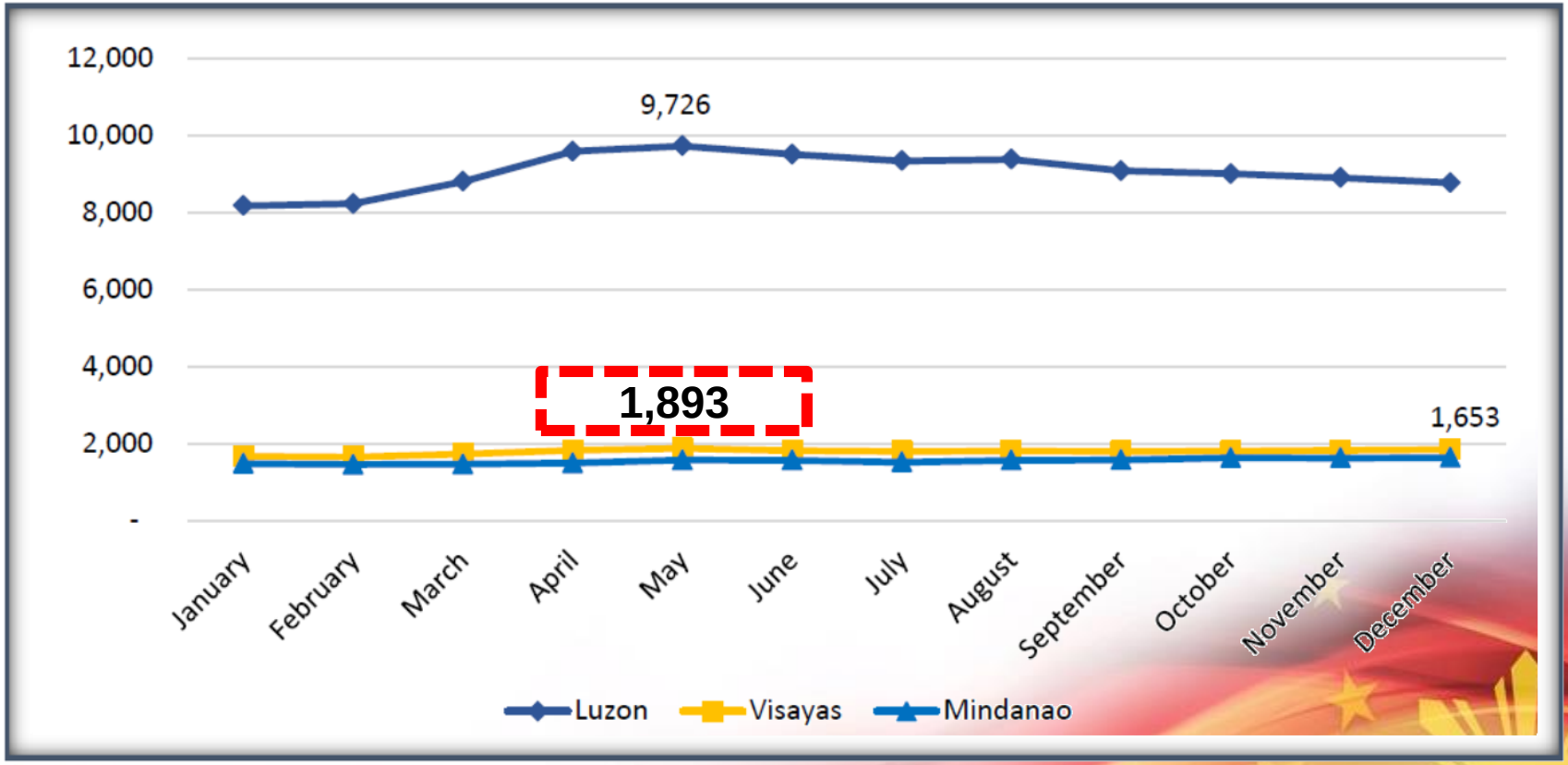
Name of Project/Description	Location	Cost (million)	Implementing Agency
Establishment of Local Conservation Areas in the Province of Negros Occidental	Negros Occidental	1.8	LGU
Support to the Local Conservation Areas in the Negros Occidental	Negros Occidental	0.500	LGU
Forest Land Use Planning	Negros Occidental	0.400	LGU
Provincial Crop Insurance Program	Negros Occidental	12	LGU
Livestock and Poultry Disaster Preparedness and Response Program	Negros Occidental	11	LGU
Establishment of Resettlement Sites and/Evacuation Centers	Negros Occidental	20	LGU

Ensuring Sustainability Through Renewable Energy

Visayas Gross Power Generation (2016)



Luzon, Visayas and Mindanao System Peak Demand, 2016 (in MW)



Source: Department of Energy Power Situation Report, 2016

Visayas Installed, Dependable and Available Capacity from January – December 2016 (in MW)

Fuel Type	Installed		Dependable		Available		
	MW	% share	MW	% share	Min	Max	Average
Coal	1,054	32.10	1,050	37.33	320	1,048	805
Oil Based	655	19.95	434	15.43	202	445	390
Natural Gas	1	0.03	0	0	0	0	0
Renewable Energy	1,574	47.93	1,329	47.24	535	1,346	1,113
Geothermal	*965*	*29.38*	*813*	*28.90*	*384*	*798*	*702*
Hydro	*20*	*0.61*	*18*	*0.64*	*6*	*18*	*12*
Wind	*90*	*2.74*	*90*	*3.20*	*1*	*90*	*45*
Biomass	*101*	*3.08*	*77*	*2.74*	*18*	*67*	*59*
Solar	*399*	*12.15*	*331*	*11.77*	*126*	*373*	*295*
TOTAL	**3,284**	**100.00**	**2,813**	**100.00**	**1,057**	**2,839**	**2,308**

Source: Department of Energy Power Situation Report, 2016

Required Capacity Addition in Visayas, 2016-2030

Type of Power Plant	System Peak Demand + Reserve, MW	Existing Capacity , in MW	Committed Capacity, in MW	Required Capacity Addition, MW
Baseload (Coal Geothermal, Natural Gas*, Nuclear, Biomass**, and Hydro***	3,684	1,390	326	1,968
Mid-merit (Natural Gas and all others)	1,500	0	0	1,500
Peaking (Oil, Solar-PV daytime and Wind)	796	629	17	150
TOTAL	**5,980**	**2,019**	**343**	**3,618**

Source: Department of Energy

National Economic and Development Authority

*Considered as Baseload but belongs to Mid-merit category.
**Biomass is Baseload only during the availability of feedstock.
***Hydro is Baseload only during rainy season.

Committed and Indicative Power Plant Projects in Visayas, as of May 2017 *(in MW)*

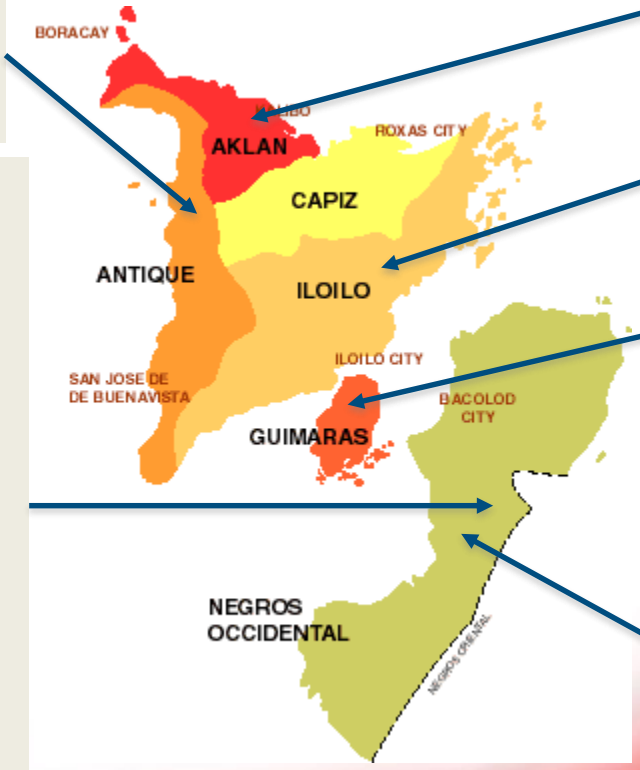
Type of Power Plant	Committed	Indicative
Coal	135	900
Oil	8	40
Geothermal	50	40
Hydropower	31.1	705.34
Wind	0	1,217.75
Solar	65.67	539.63
Biomass	178	14.5
Battery	-	130
TOTAL	**467.77**	**3,627.22**

Source: Department of Energy

Completed Renewable Energy Projects in Western Visayas

HYDROPOWER:
- 8MW Villasiga Hydroelectric Power Project

SOLAR:
- 22MW San Carlos Solar Power Project Phase I-A and I-B (SACASOL I-A&I-B)
- 23MW San Carlos Solar Power Project Phase I-C and I-D (SACASOL I-C&I-D)
- 132.5MW Cadiz Solar Power Project
- 48MW Manapla Solar Power Project (SACASOL III)
- 32MW Islasol Solar Power Project
- 25.01MW Silay Solar Power Project



WIND:
- 36MW Nabas Wind Power Project

SOLAR:
- 5.67MW Miag-ao Solar Power Project

WIND:
- 54MW San Lorenzo Wind Power Project

BIOMASS:
- 21 MW FFHC Bagasse-Fired Cogeneration Power Plant
- 20.58 MW HPCo Bagasse Cogeneration Power Plant Project
- 34 MW VMCI Bagasse-Fired Cogeneration Power Plant
- 46 MW URC Bagasse-Fired Biomass
- Cogeneration Power Plant Project

Ongoing Renewable Energy Projects in Western Visayas

Project Name	Company	Location	Project Status
SOLAR POWER			
58.98MW SACASUN Solar Power Project	San Carlos Sun Power Inc.	San Carlos City	On-going commissioning. Subject for on-site validation of its Successful Commissioning
18MW La Carlota Solar Power Project (SACASOL II-A)	Negros Island Solar Power Inc.	La Carlota City	Amended DOC to merge SACASOL II-A and II-B.
14MW La Carlota Solar Power Project (SACASOL II-B)	Negros Island Solar Power Inc.	La Carlota City	

Ongoing Renewable Energy Projects in Western Visayas

Project Name	Company	Location	Project Status
HYDROPOWER			
5.1MW Igbulo (Bais) Hydroelectric Power Project	Century Peak Energy Corporation	Igbaras, Iloilo	Pre-construction - 67.85% Construction – 43.9%
18MW Timbaban Hydroelectric Power Project	Oriental Energy and Power Generation Corporation	Madalag, Aklan	On-going construction
WIND			
Pulupandan Wind Power Project	FirstMaxpower International Corporation	Pulupandan, Negros Occidental	On-going acquisition of relevant permits under Pre-Construction Stage. Subject for on-site monitoring.

Challenges in Visayas

- Congestion issues in Negros Island – oversupply of solar energy capacity, due to limited transfer capacities of transmission between the islands
- Need for upgrading of submarine cables to interconnect sub-grids in Visayas
- Need for more investment in power plants and transmission system capacities

Challenges in Western Visayas

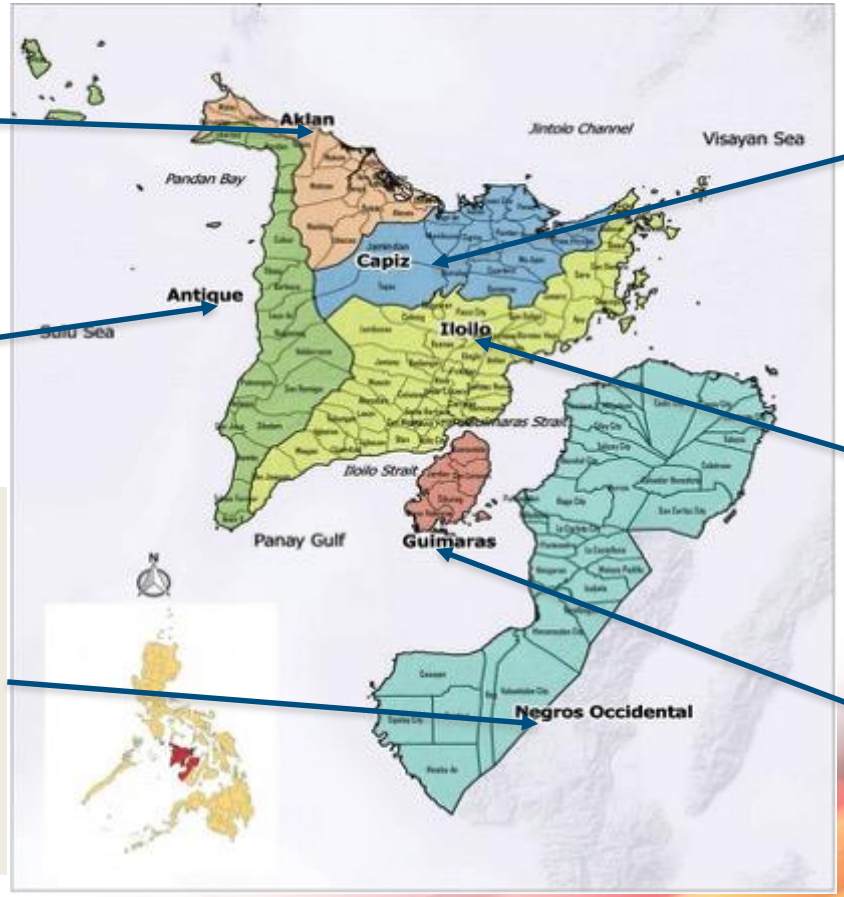
- High cost of electric power
- Absence of electricity in some remote areas or sitios
- Limited island-to-island interconnection

Awarded Renewable Energy Projects in Western Visayas (as of June 2017)

Aklan
Hydro: 3
Wind: 4
Solar: 4

Antique
Hydro: 9
Solar: 1

Negros Occidental
Hydro: 11
Wind: 4
Solar: 20
Biomass: 13
Geothermal: 2



Capiz
Wind: 1
Solar: 2
Biomass: 1

Iloilo
Hydro: 1
Wind: 2
Solar: 4
Biomass: 2

Guimaras
Wind: 3

Source: DOE

**data for Solar and Biomass include own-use*

Western Visayas RDP Strategy

- Upgrade and install transmission lines, maintain reliability, and ensure the security of power supply

Specific steps

- Expand the implementation of the Household Electrification Program through RE
- Fast-track the upgrading and uprating of the Cebu-Negros-Panay Transmission Grid
- Ensure timely coordination between ERC and DOE on new power projects

Recommendations

- Private Sector participation in small, isolated or island grids (which are deemed unviable by electric cooperatives) is encouraged.

  - may apply as Qualified Third Party and provide electricity services with subsidy for cost recovery through the Universal Charge for Missionary Electrification

- The government enjoins the private sector to utilize innovation in the power sector, and encourage the use of Renewable and Clean Energy

GALVANIZING PARTNERSHIPS

Thank you!