

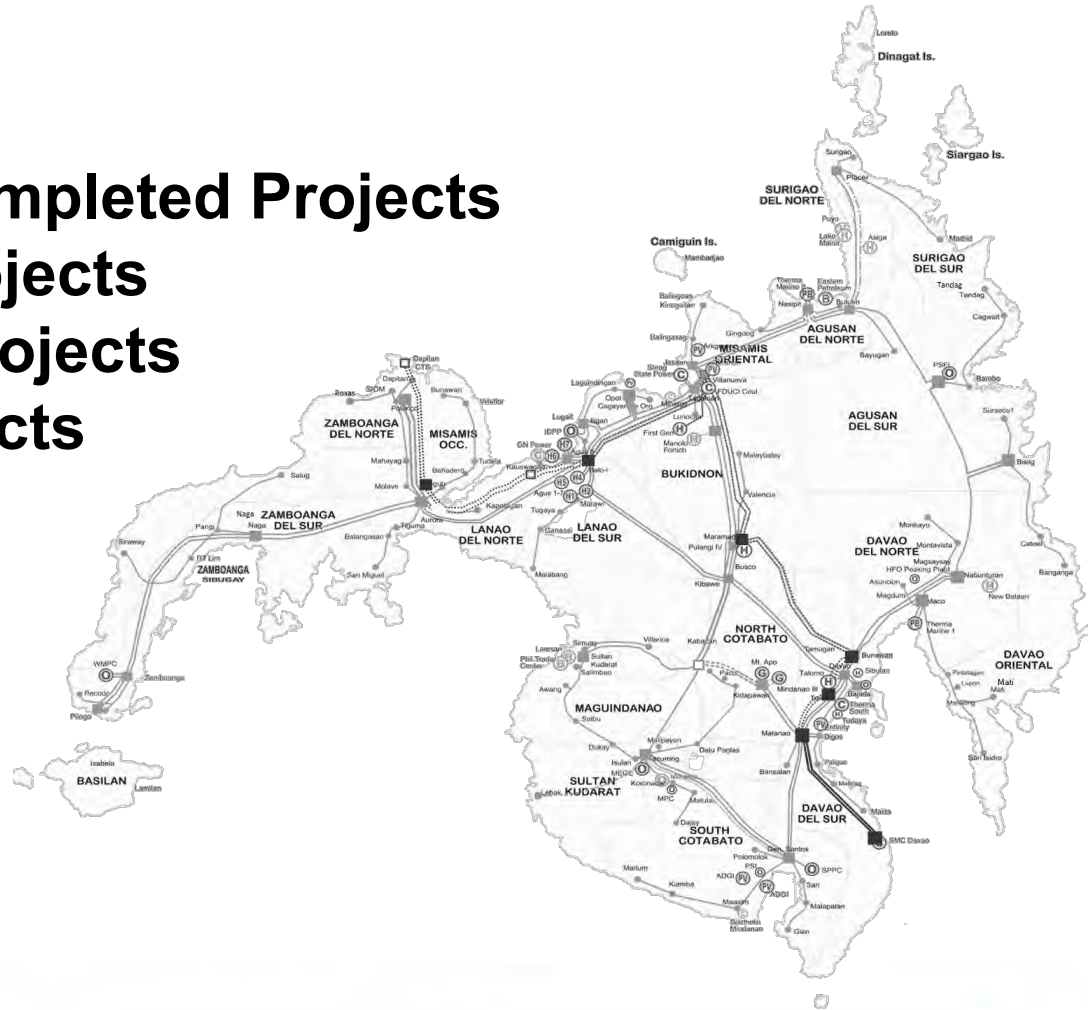
MINDANAO TDP

2019 Mindanao Energy Investment Forum
April 3, 2019 Davao City



OUTLINE

- Recently Completed Projects
- Ongoing Projects
- Proposed Projects
- Future Projects

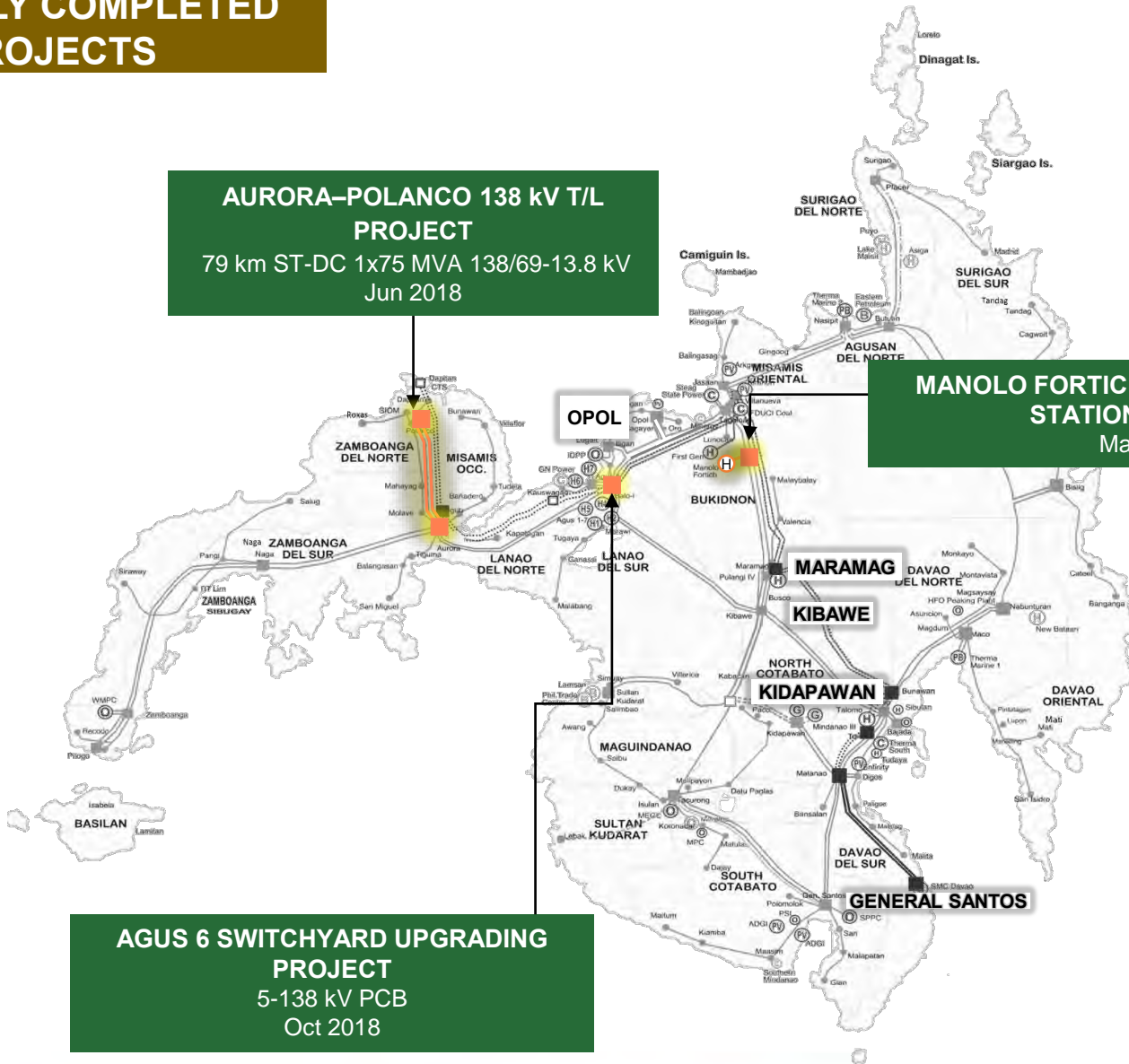


RECENTLY COMPLETED PROJECTS

AURORA-POLANCO 138 kV T/L PROJECT
 79 km ST-DC 1x75 MVA 138/69-13.8 kV
 Jun 2018

MANOLO FORTICH 138 KV SWITCHING STATION PROJECT
 May 2018

AGUS 6 SWITCHYARD UPGRADING PROJECT
 5-138 kV PCB
 Oct 2018

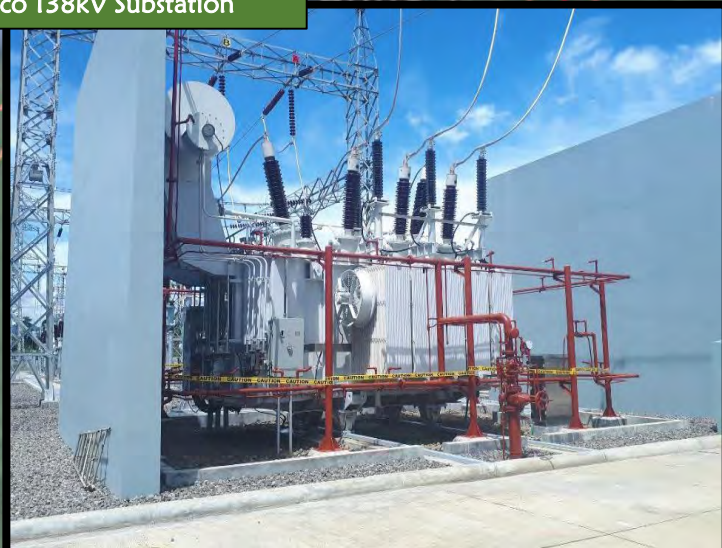
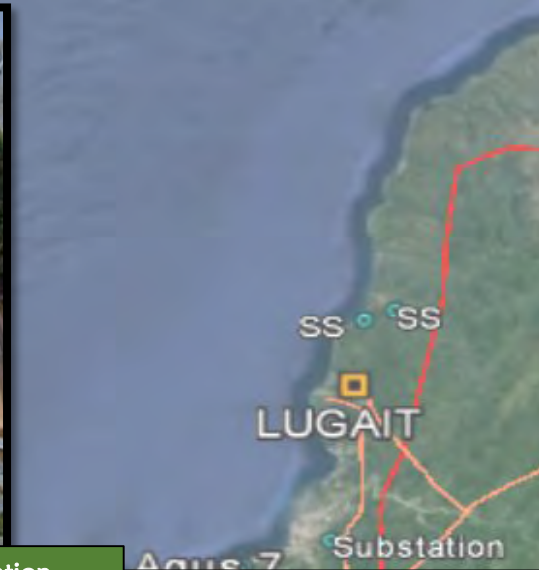


RECENTLY COMPLETED PROJECTS

AURORA – POLANCO 138 KV TL PROJECT



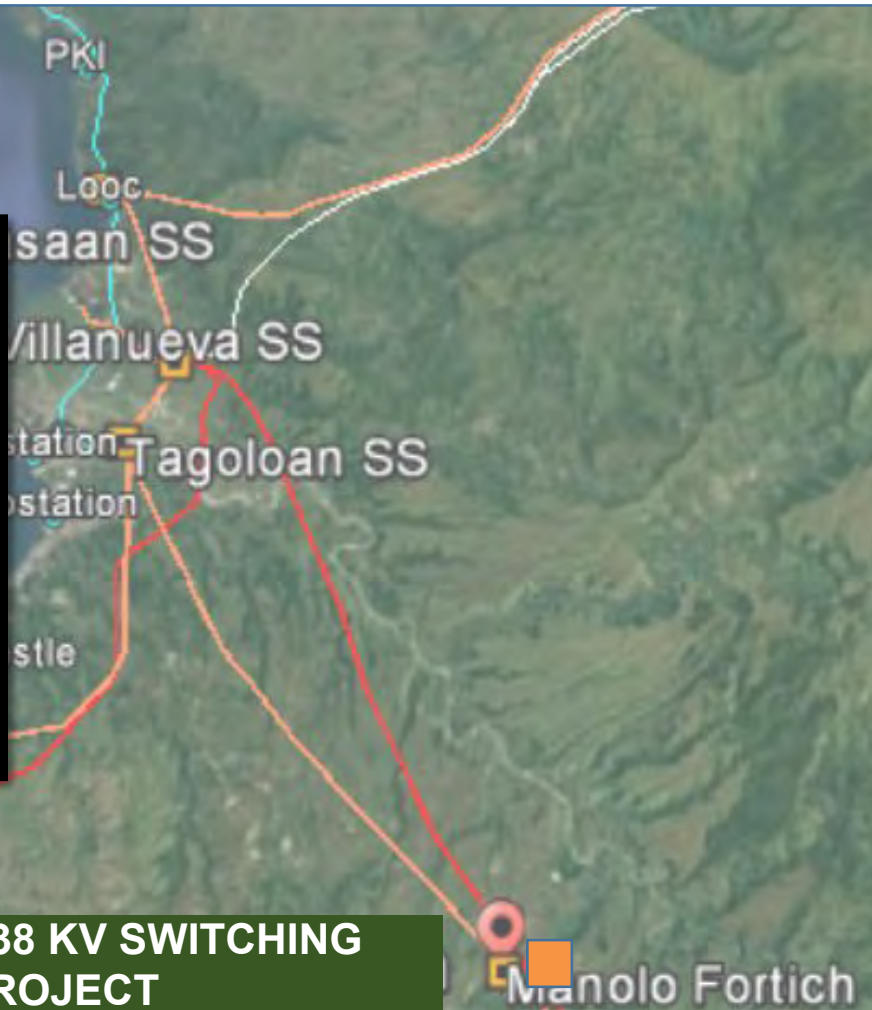
Polanco 138kV Substation



RECENTLY COMPLETED PROJECTS



MANOLO FORTICH 138 KV SWITCHING STATION PROJECT



RECENTLY COMPLETED PROJECTS



LUGAIT

IDPP

PPEI

AGUS 6 SWITCHYARD UPGRADING REHABILITATION PROJECT

Substation

Kauswagan

GN-POWER

Agus 7 Overton

AGUS 6 SS

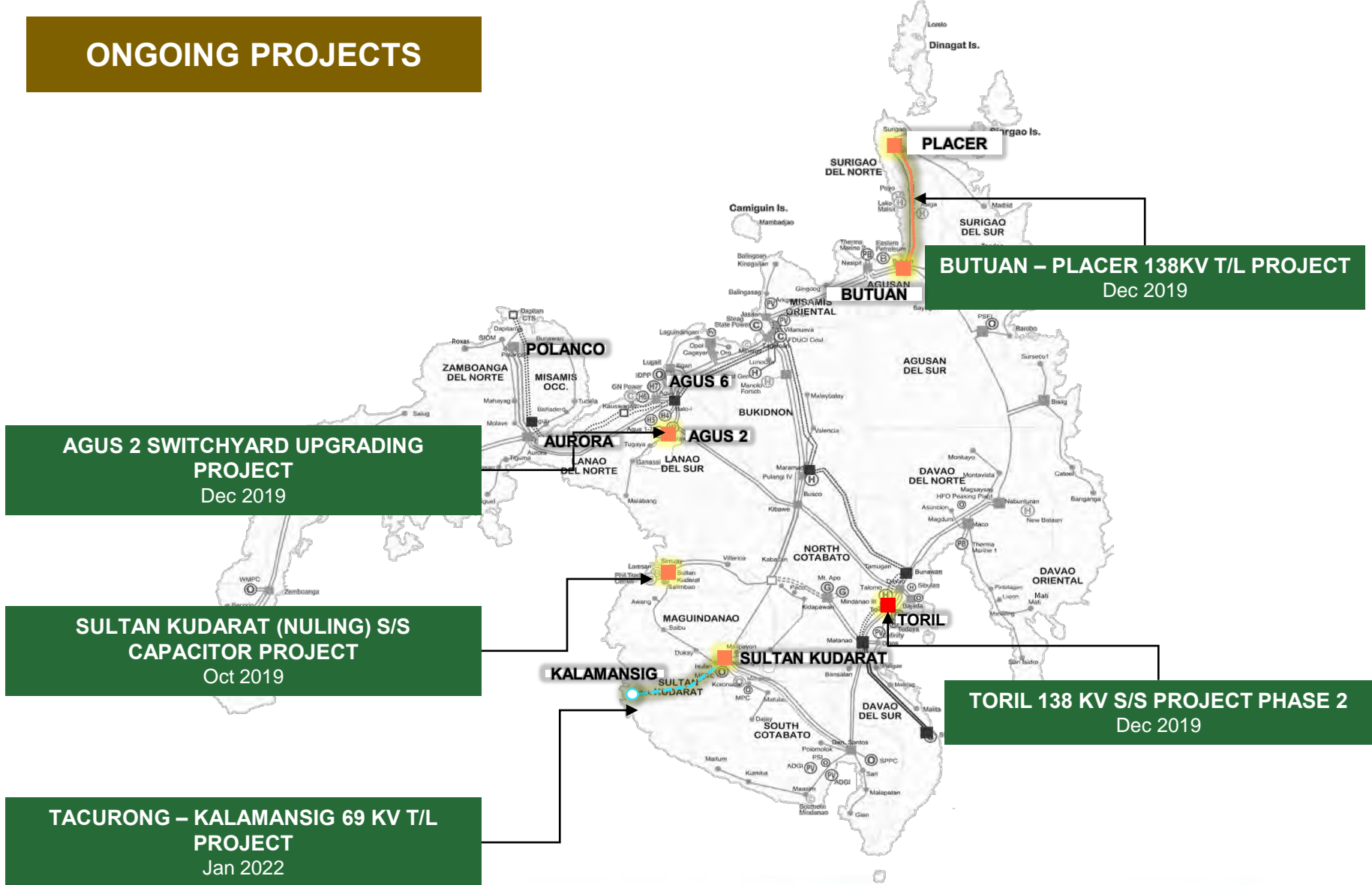
Plant SS

Agus 5

Balo-i SS

Agus 4 SS

ONGOING PROJECTS



BUTUAN – PLACER 138KV T/L PROJECT
Dec 2019

AGUS 2 SWITCHYARD UPGRADING PROJECT
Dec 2019

SULTAN KUDARAT (NULING) S/S CAPACITOR PROJECT
Oct 2019

TORIL 138 KV S/S PROJECT PHASE 2
Dec 2019

TACURONG – KALAMANSIG 69 KV T/L PROJECT
Jan 2022

ONGOING PROJECTS

AGUS 6 S/Y UPGRADING & REHABILITATION PROJECT



BUTUAN – PLACER 138 kV T/L PROJECT



AGUS 2 SWITCHYARD REHABILITATION PROJECT

Retaining Wall



Waste Management House



SULTAN KUDARAT (NULING) S/S CAPACITOR PROJECT

Installation of Surge Arrester



ONGOING PROJECTS

TORIL 138 KV SUBSTATION PROJECT PHASE 2

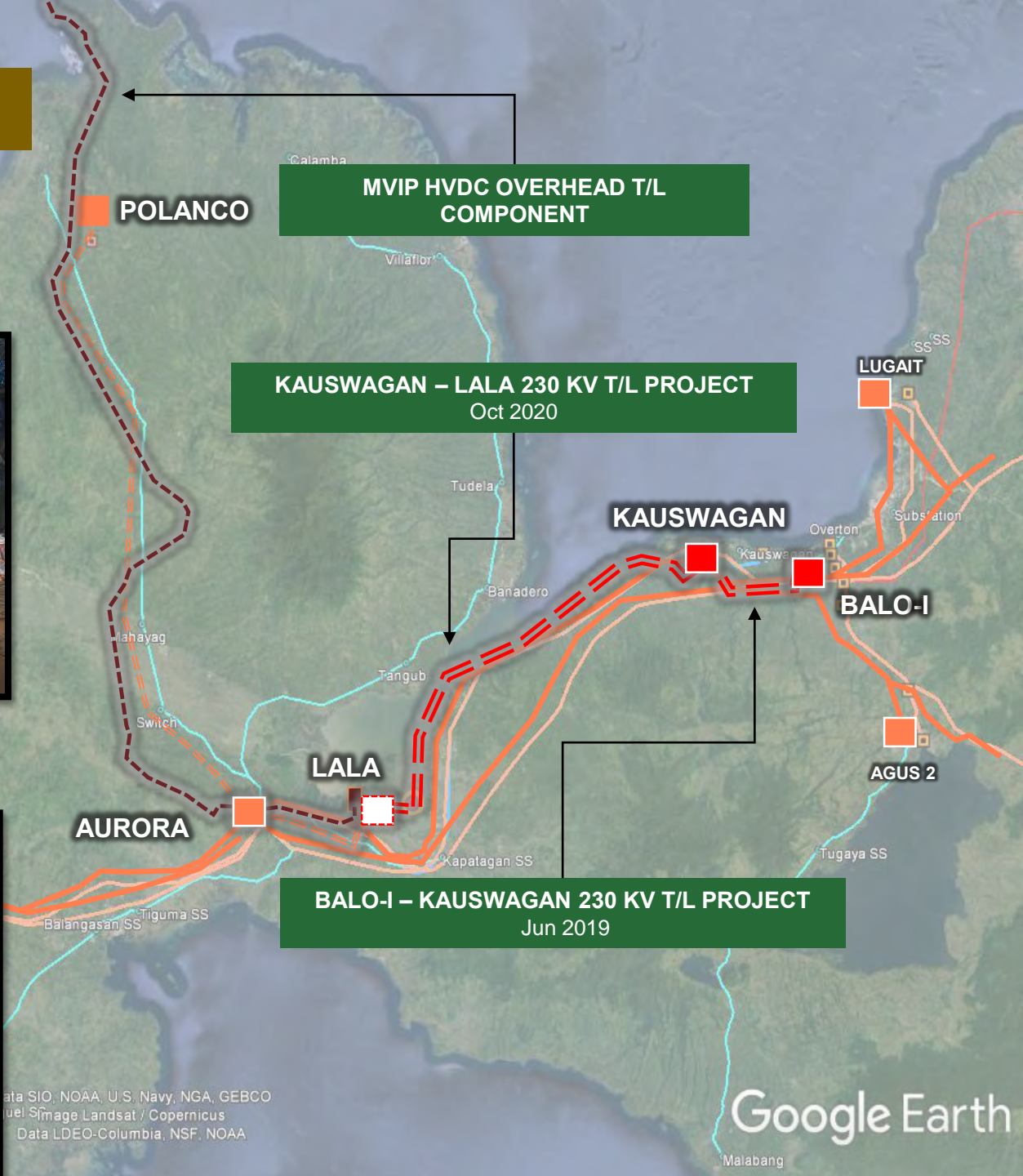


ONGOING PROJECTS

Lala CS



Balo-i SS



MVIP HVDC OVERHEAD T/L COMPONENT

KAUSWAGAN - LALA 230 KV T/L PROJECT
Oct 2020

KAUSWAGAN

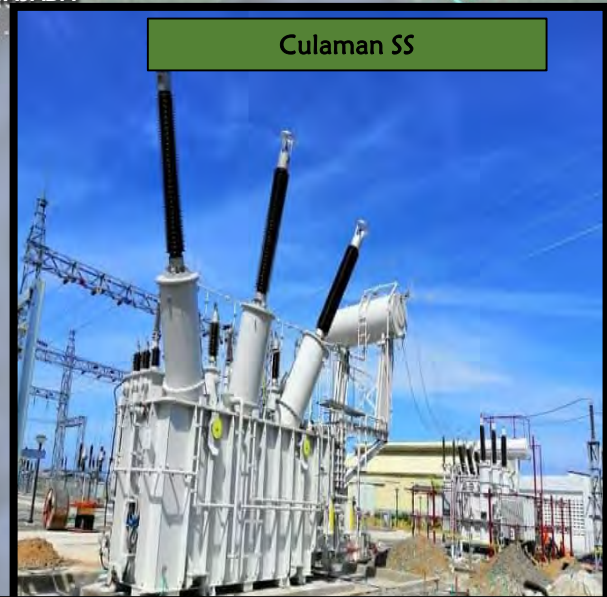
BALO-I

LALA

AURORA

BALO-I - KAUSWAGAN 230 KV T/L PROJECT
Jun 2019

ONGOING PROJECTS



Matanao – Toril – Bunawan 230 kV T/L



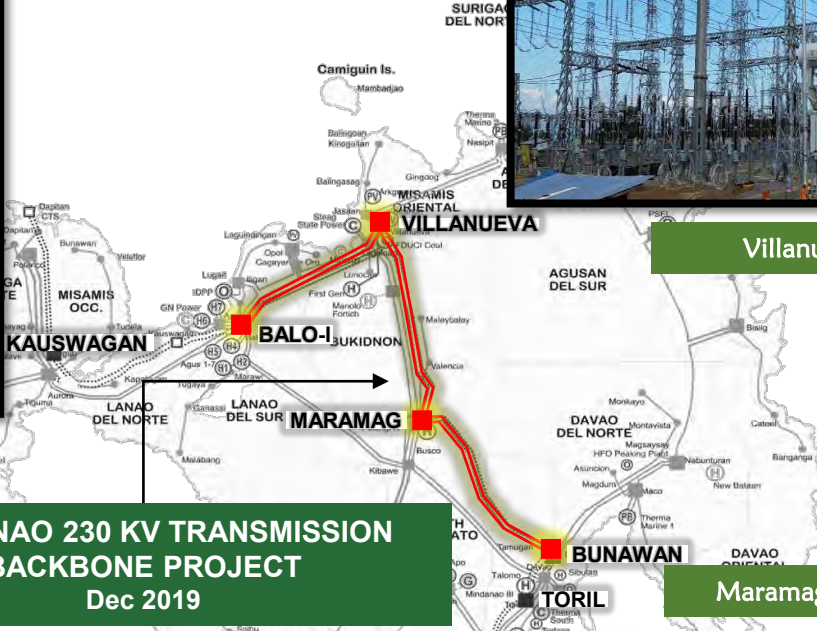
ONGOING PROJECTS



Balo-i Substation



Villanueva Substation



Bunawan Substation

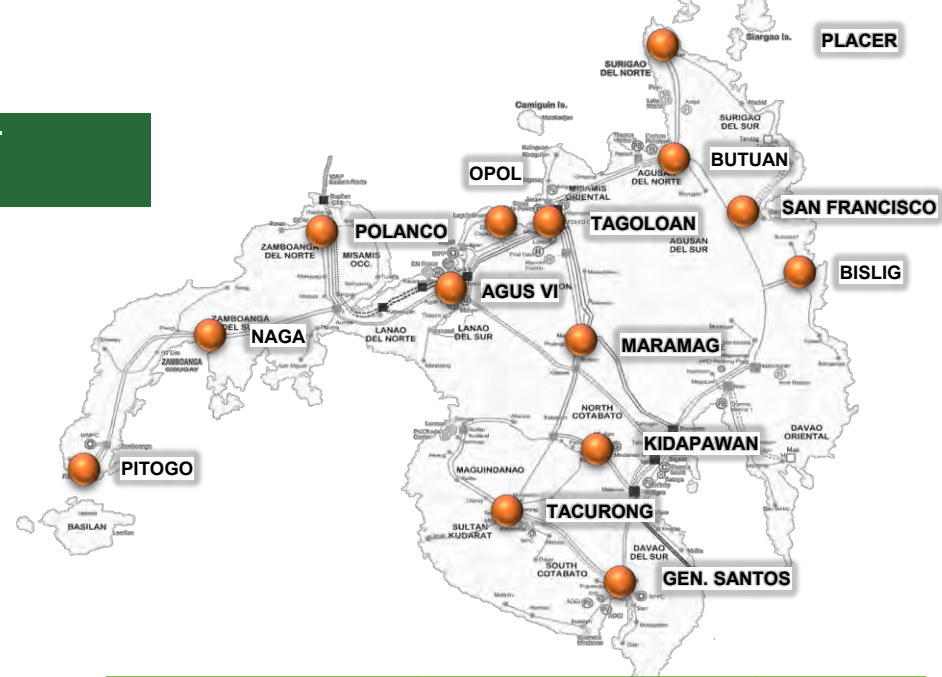


Maramag Substation

ONGOING PROJECTS

MINDANAO SUBSTATION UPGRADING PROJECT

ETC: Jan 2021



Substation / Voltage	Capacity Qty x MVA		Target Completion
	Without Project	With project	
Transformer Component			
PITOGO	1x100	1x100 1x100	Jan 2021
PLACER	2X50	2X50 1X100	Jan 2021
BISLIG	1X30 1X50	1X50 1X50	Jan 2021
SAN FRANCISCO	1X50	1X50 1x50	Jan 2021
KIDAPWAWAN	2x50	2x50 1x50	Jan 2021
GEN. SANTOS	2X100	2X100 1X100*	Jan 2021
POLANCO	1x75	1x75 1x75	Jan 2021
NAGA	1X50	1X50 1X100	Jan 2021
AGUS 6	1x100	1x100 1x100	Jan 2021
MARAMAG	1x75	1x75 1x75	Jan 2021
OPOL	2x100	2x100 1x75	Jan 2021

Substation / Voltage	Capacity Qty x MVAR		Target Completion
	Without Project	With project	
Capacitor Bank Component			
BUTUAN	2x7.5	2x7.5 2x7.5	Jan 2021
PLACER	1x7.5	1x7.5 1x7.5	Jan 2021
SAN FRANCISCO	-	2x7.5	Jan 2021
GEN. SANTOS**	3x7.5	3x7.5 1x7.5	Jan 2021
TACURONG**	3x7.5	3x7.5 1x7.5	Jan 2021

** Originally planned for General Santos and Tacurong SS. To be installed in Pitogo Substation

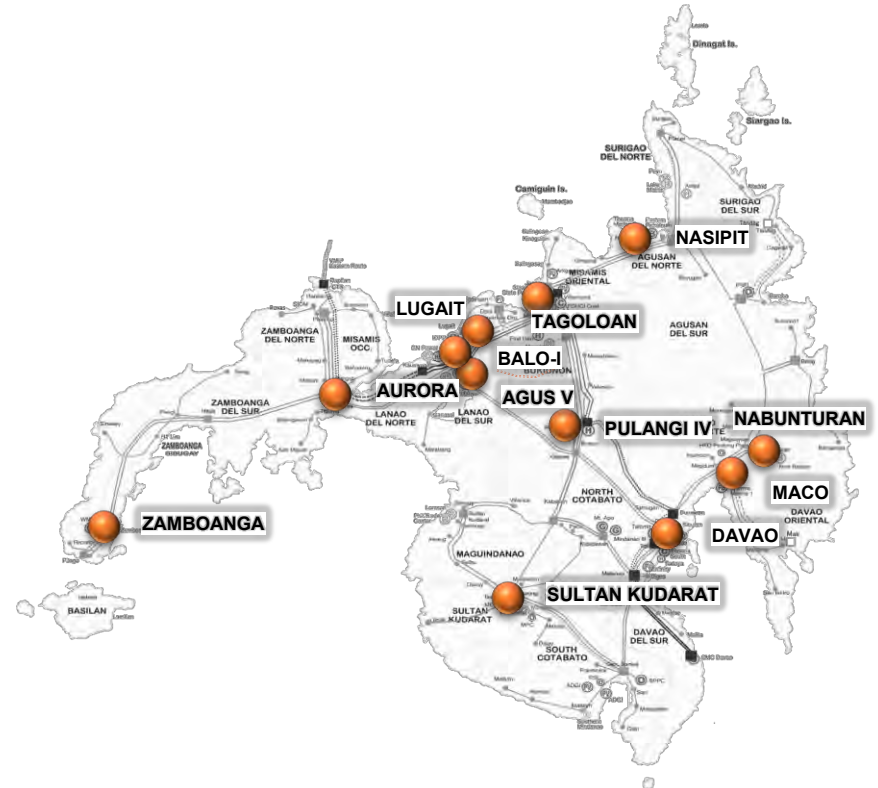
* Previously intended for Butuan S/S

ONGOING PROJECTS

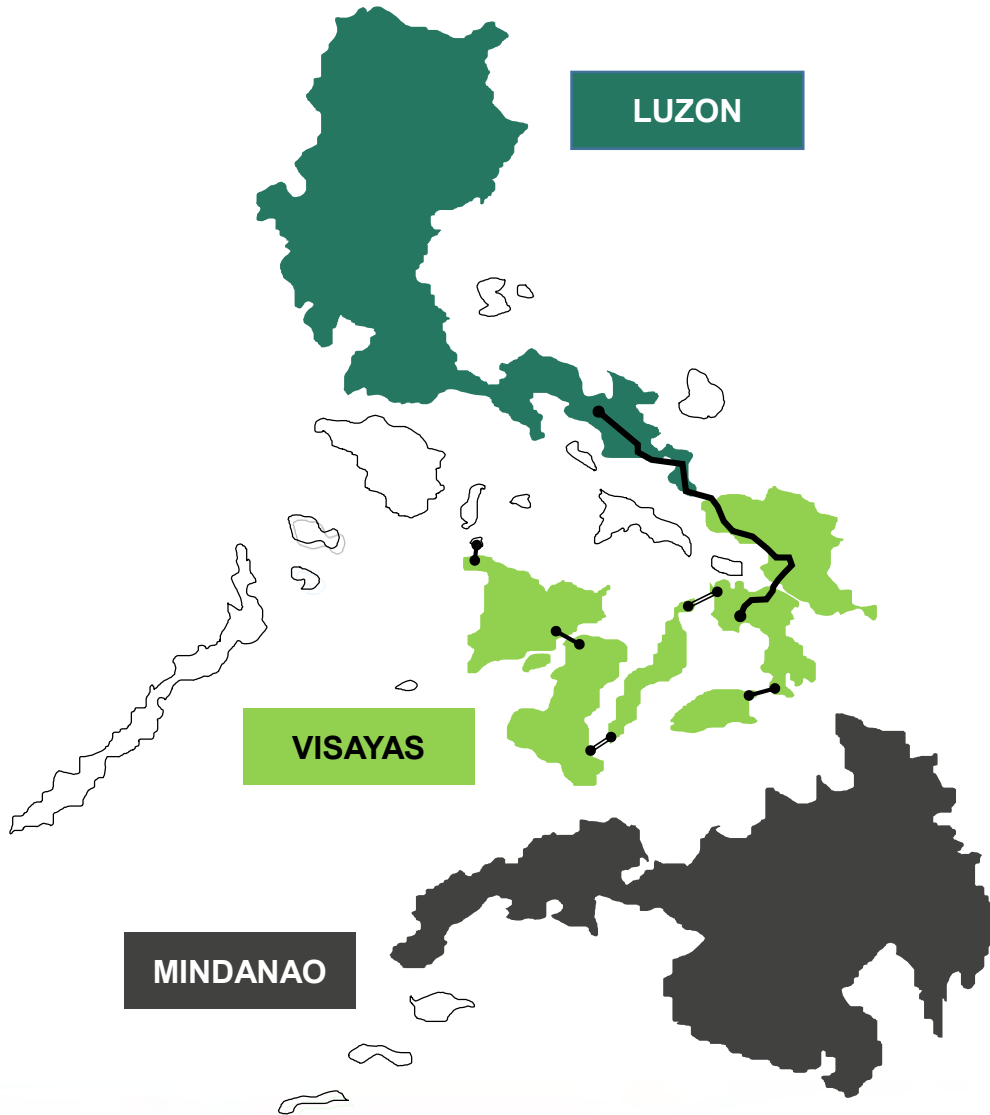
MINDANAO SUBSTATION REHABILITATION PROJECT

ETC: Dec 2022

SUBSTATION	REPLACEMENT DUE TO OLD AGE		TARGET COMPLETION
	138KV PCB	69KV PCB	
AURORA	1	3	Dec 2022
ZAMBOANGA	3	2	Dec 2022
BALO-I	13	-	Dec 2022
AGUS 5	4	-	Dec 2022
LUGAIT	5	-	Dec 2022
TAGOLOAN	4	1	Dec 2022
PULANGI IV	10	3	Dec 2022
NASIPIT	4	-	Jan 2022
DAVAO	4	6	Jan 2022
MACO	-	2	Jan 2022
BUNAWAN	6	-	Jan 2022
NABUNTURAN	3	5	Jan 2022
SULTAN KUDARAT	-	4	Jan 2022



ONGOING PROJECTS



Existing Major Island Link

**LUZON - VISAYAS
INTERCONNECTION (1998)**

HVDC System 440 MW

Ongoing Major Island Link

**MINDANAO – VISAYAS
INTERCONNECTION
PROJECT**

HVDC System:

Initial Capacity - 450 MW.

Final Capacity - 900 MW

ONGOING PROJECTS

Mindanao-Visayas Interconnection Project (MVIP)

Target
Completion

Dec 2020



ONGOING PROJECTS

LALA CS/SS



DAPITAN – LALA ± 350 KV HVDC



ONGOING PROJECTS

ALEGRIA ES

MAGDUGO - DUMANJUG 230 KV HVAC



ONGOING PROJECTS

MINDANAO SIDE ELECTRODE LINE

DUMANJUG – SANTANDER ±350KV HVDC



VISAYAS SIDE ELECTRODE LINE

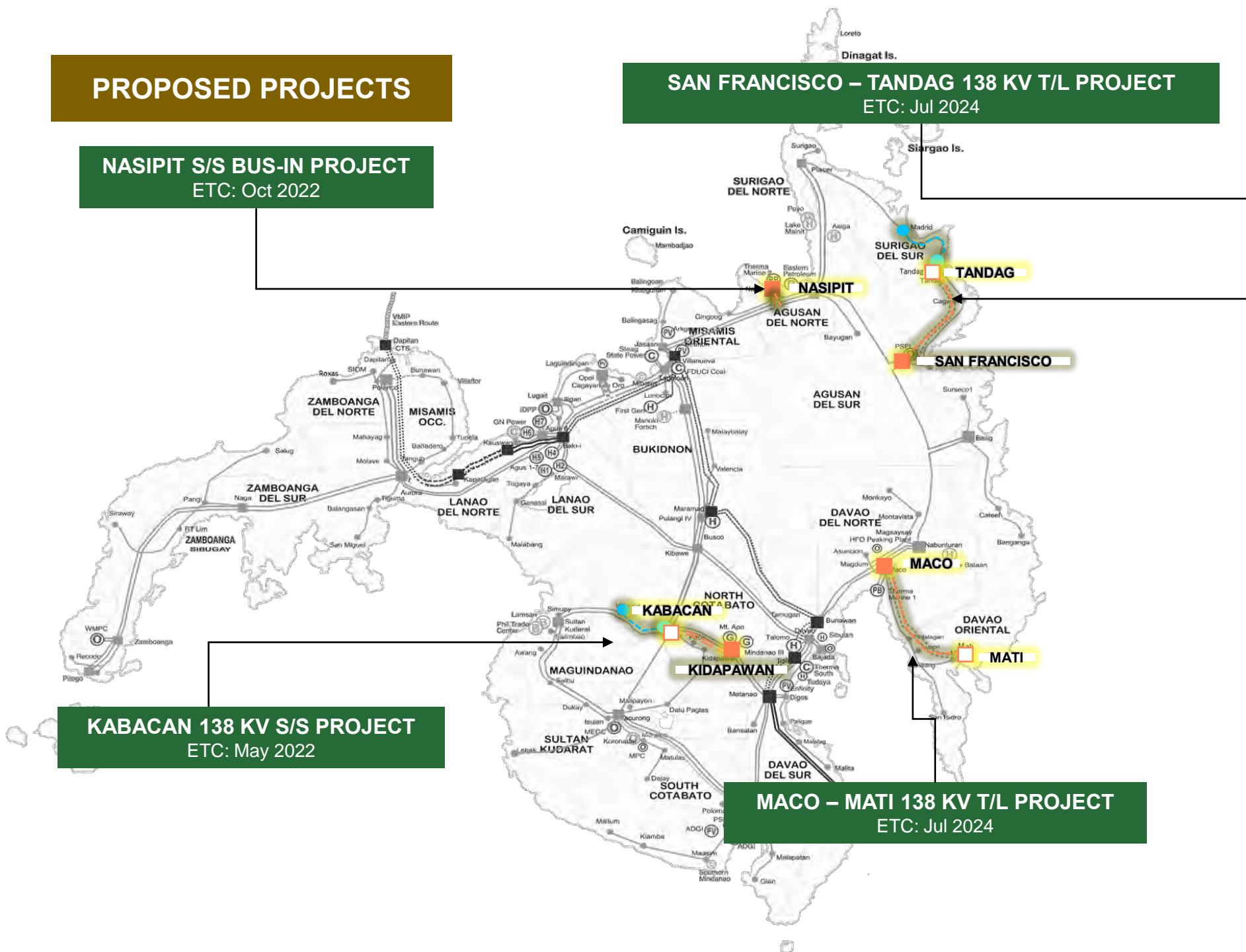
PROPOSED PROJECTS

SAN FRANCISCO – TANDAG 138 KV T/L PROJECT ETC: Jul 2024

NASIPIT S/S BUS-IN PROJECT ETC: Oct 2022

KABACAN 138 KV S/S PROJECT ETC: May 2022

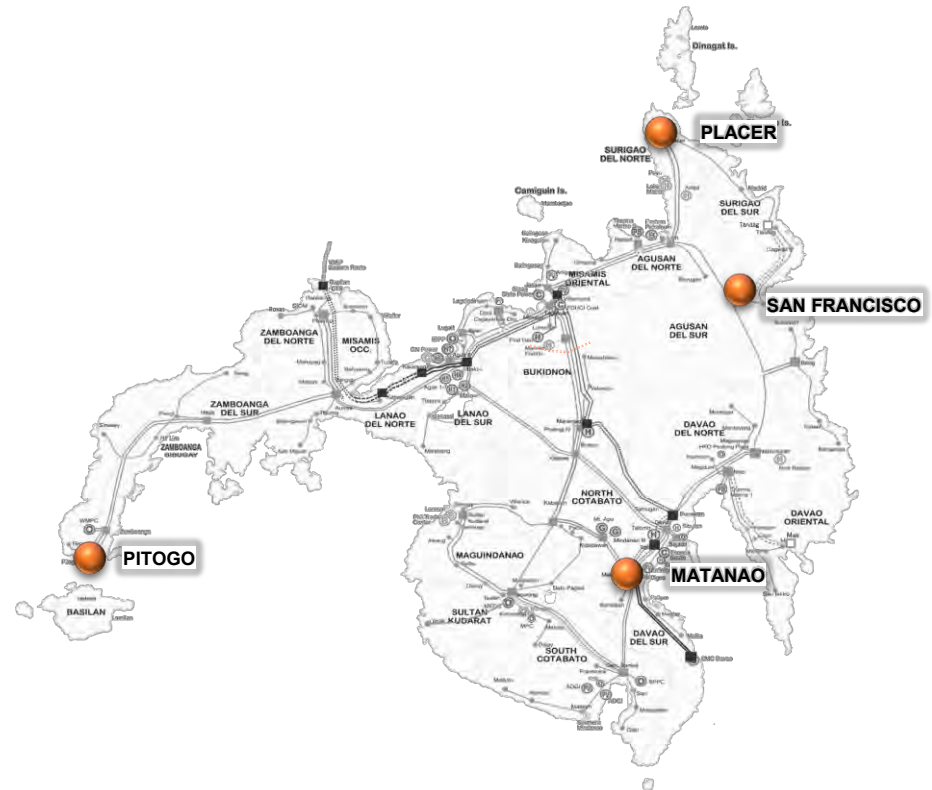
MACO – MATI 138 KV T/L PROJECT ETC: Jul 2024



ONGOING PROJECTS

MINDANAO SUBSTATION EXPANSION 3 PROJECT ETC: Oct 2023

Substation / Voltage	Capacity Qty x MVA		Target Completion
	Without Project	With project	
Transformer Component			
PITOGO	2X100	2X100 1X100	OCT 2023
PLACER	2X50 1X100	2X50 1X100 1X100	OCT 2023
SAN FRANCISCO	2X50	2X50 1X100	OCT 2023
MATANAO	2X50	2X50 1X100	OCT 2023



PROPOSED PROJECTS

LAGUINDINGAN 230 KV S/S PROJECT
ETC: May 2024

OPOL S/S BUS-IN PROJECT
ETC: Dec 2025

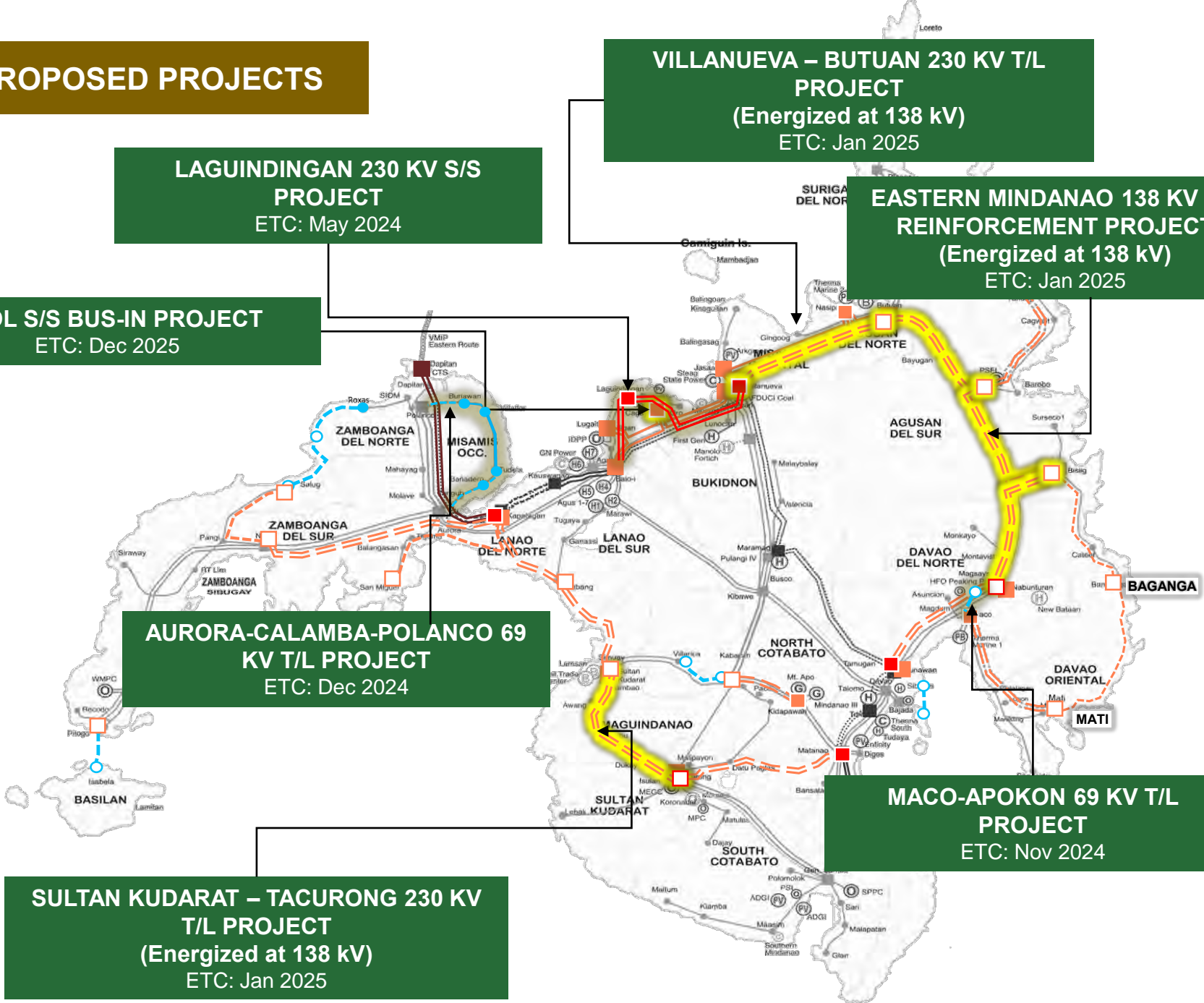
VILLANUEVA – BUTUAN 230 KV T/L PROJECT
(Energized at 138 kV)
ETC: Jan 2025

EASTERN MINDANAO 138 KV T/L REINFORCEMENT PROJECT
(Energized at 138 kV)
ETC: Jan 2025

AURORA-CALAMBA-POLANCO 69 KV T/L PROJECT
ETC: Dec 2024

MACO-APOKON 69 KV T/L PROJECT
ETC: Nov 2024

SULTAN KUDARAT – TACURONG 230 KV T/L PROJECT
(Energized at 138 kV)
ETC: Jan 2025



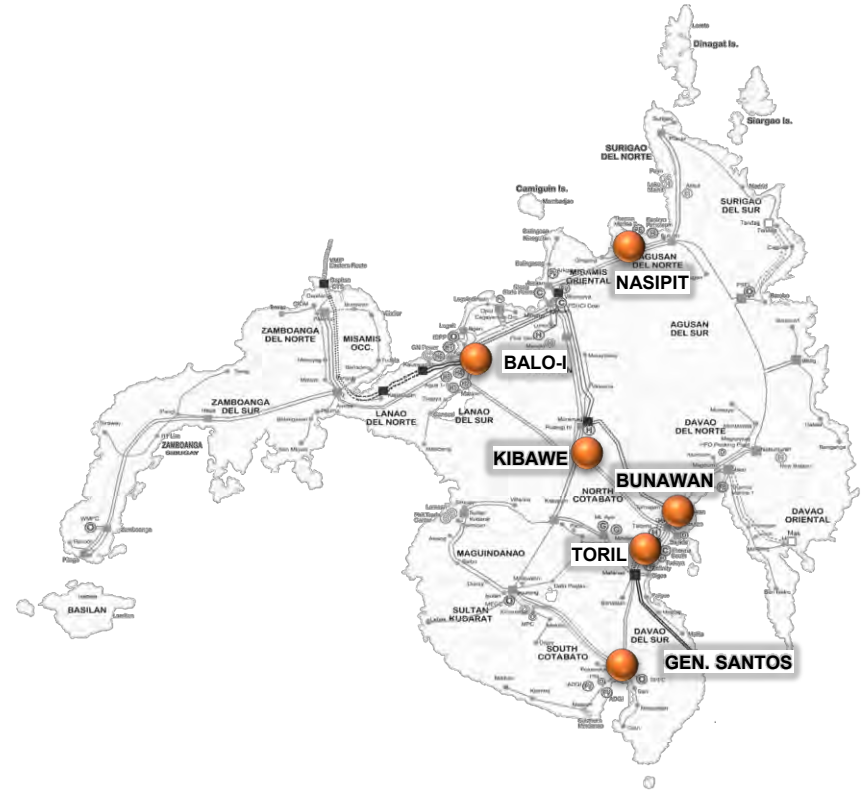
PROPOSED PROJECTS

MINDANAO SUBSTATION UPGRADING 2 PROJECT

ETC: Dec 2025

Substation / Voltage	Capacity Qty x MVA		Target Completion
	Without Project	With project	
Transformer Component			
GENERAL SANTOS	2x50 2x100	2x50 2x100 1x100	Dec 2025
TORIL	1X50	1X50 1X100	Dec 2025
BALO-I	1X50 1x100	1X50 1x100 1x100	Dec 2025
BUNAWAN	1x50	1x50 1x100	Dec 2025
NASIPIT	1x50	2x50* 2x50	Dec 2025
KIBAWE	1x50	1x50 1x50	Dec 2025

* One (1) 50 MVA is from Nasipit S/S Bus-in Project

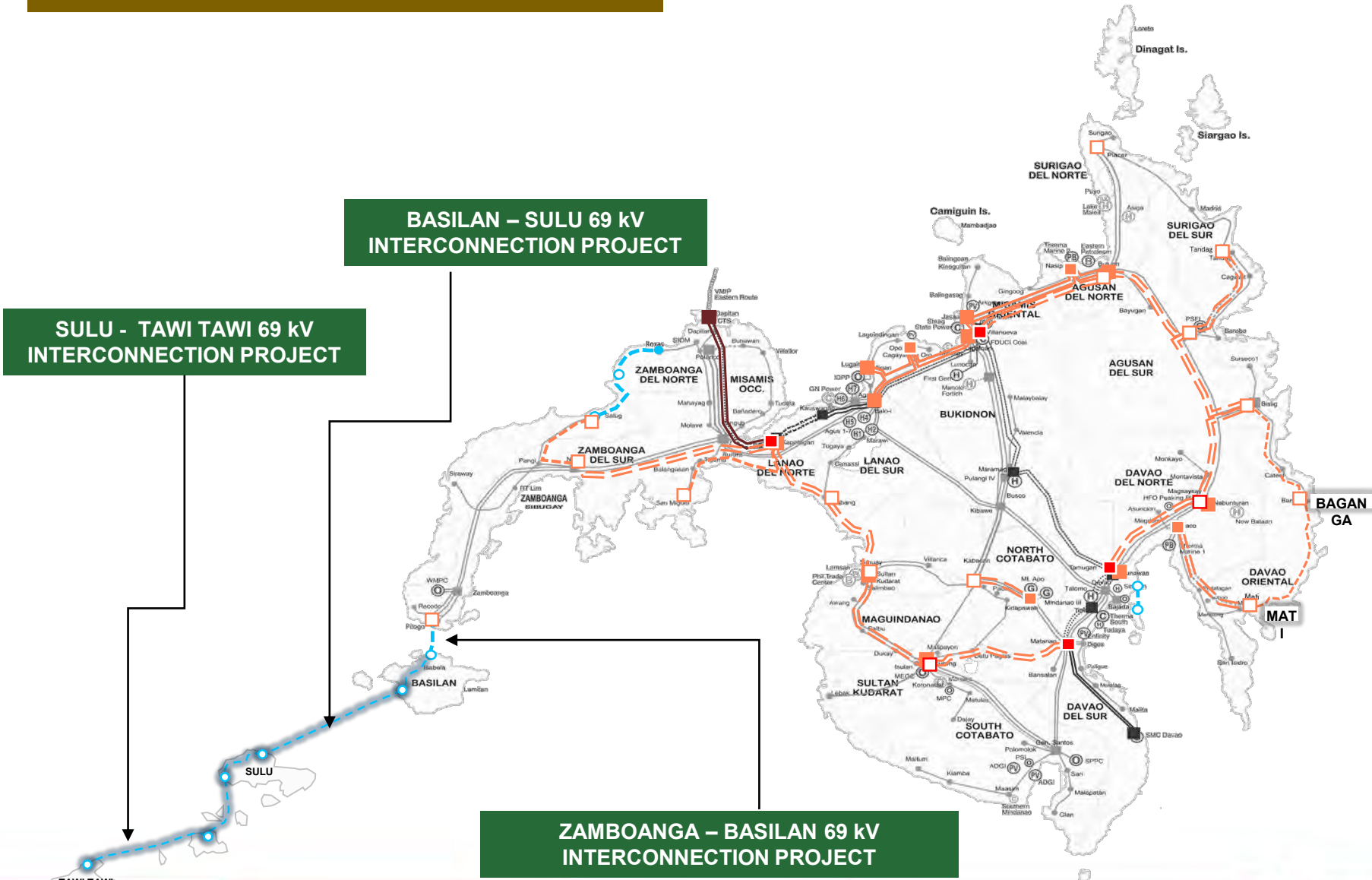


SMALL ISLAND INTERCONNECTIONS

**BASILAN – SULU 69 kV
INTERCONNECTION PROJECT**

**SULU - TAWI TAWI 69 kV
INTERCONNECTION PROJECT**

**ZAMBOANGA – BASILAN 69 kV
INTERCONNECTION PROJECT**



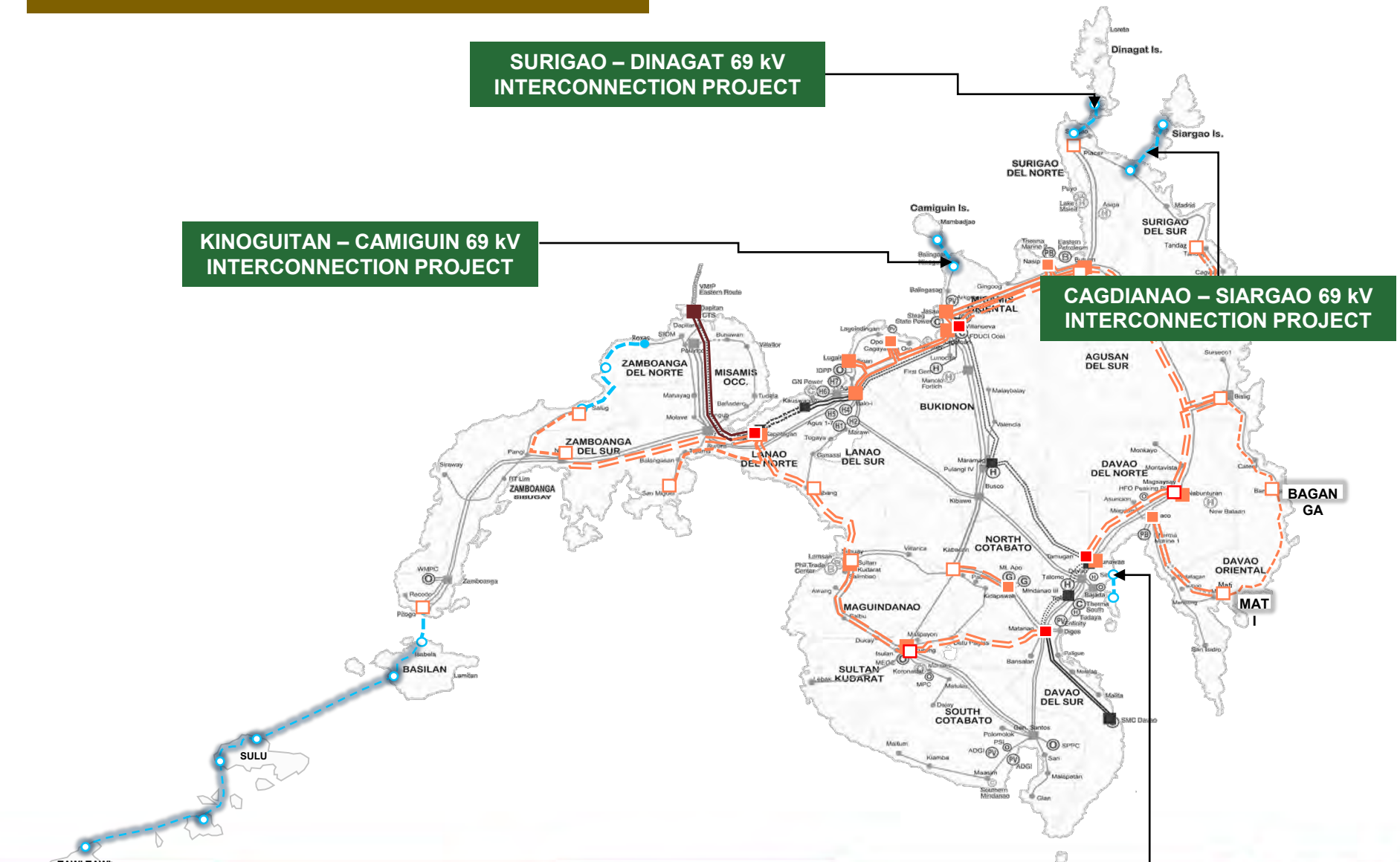
SMALL ISLAND INTERCONNECTIONS

**SURIGAO – DINAGAT 69 kV
INTERCONNECTION PROJECT**

**KINOGUITAN – CAMIGUIN 69 kV
INTERCONNECTION PROJECT**

**CAGDIANAO – SIARGAO 69 kV
INTERCONNECTION PROJECT**

**DAVAO – SAMAL 69 kV
INTERCONNECTION PROJECT**

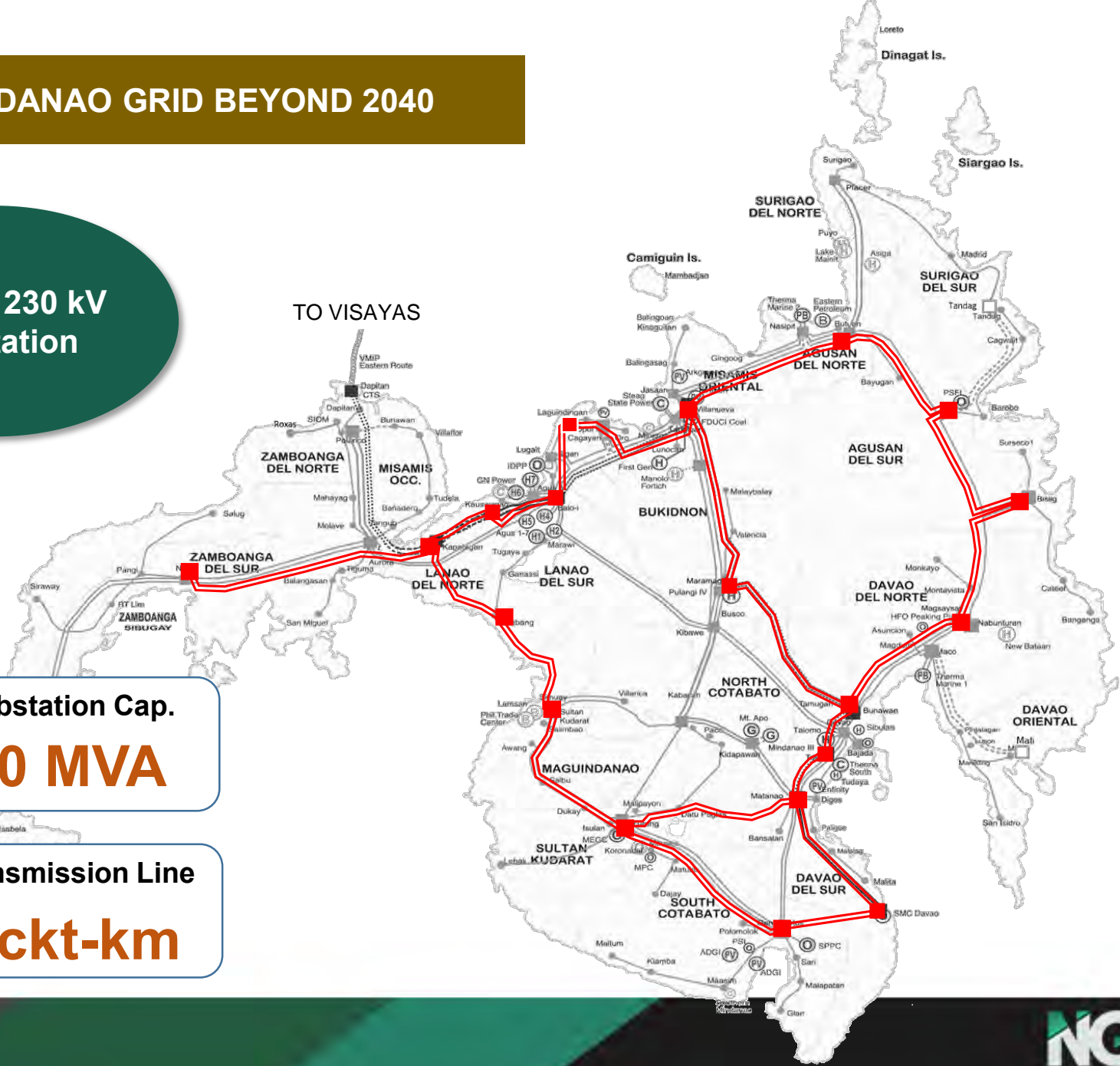


MINDANAO GRID BEYOND 2040

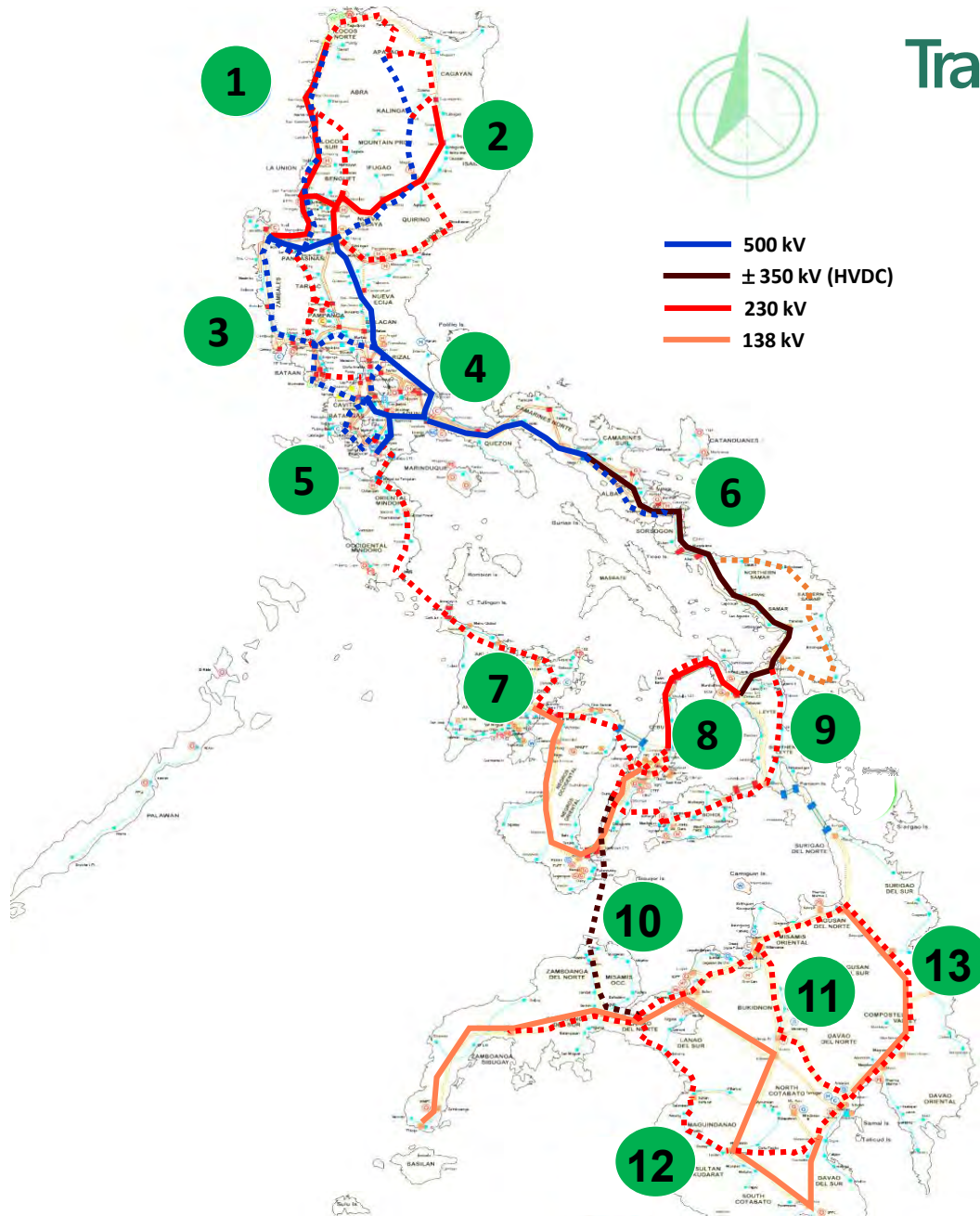
19 New 230 kV Substation

230 kV Substation Cap.
11,100 MVA

230 kV Transmission Line
3,240 ckt-km



Transmission Development Plan



- 1 Bolo to Laoag 500 kV Backbone
- 2 Nagsaag to Kabugao 500 kV Backbone
- 3 Western Luzon 500 kV Backbone
- 4 Metro Manila 500 kV Backbone Loop
- 5 Batangas-Mindoro Interconnection
- 6 Luzon-Visayas HVDC Bipolar Operation
- 7 Cebu-Negros-Panay 230 kV Backbone
- 8 Metro Cebu 230 kV Backbone Loop
- 9 Cebu-Bohol-Leyte 230 kV Backbone
- 10 Mindanao-Visayas Interconnection
- 11 Mindanao Backbone 230 kV Energization
- 12 Western Mindanao 230 kV Transmission Backbone
- 13 Eastern Mindanao 230 kV Transmission Backbone

End