



2011 Transmission Development Plan (Volume II)

Mindanao Public Consultation

Marco Polo Hotel, Davao City

10 January 2012



OUTLINE



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- II. AGE PROFILE OF NGCP ASSETS
- III. OUTAGE STATISTICS
- IV. MAJOR CAPEX CATEGORY
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- VI. CAPEX PROGRAM
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I. OVERVIEW



**The Transmission Development Plan
Volume II** is the capital expenditure
program of the Group for the period 2011-
2020.

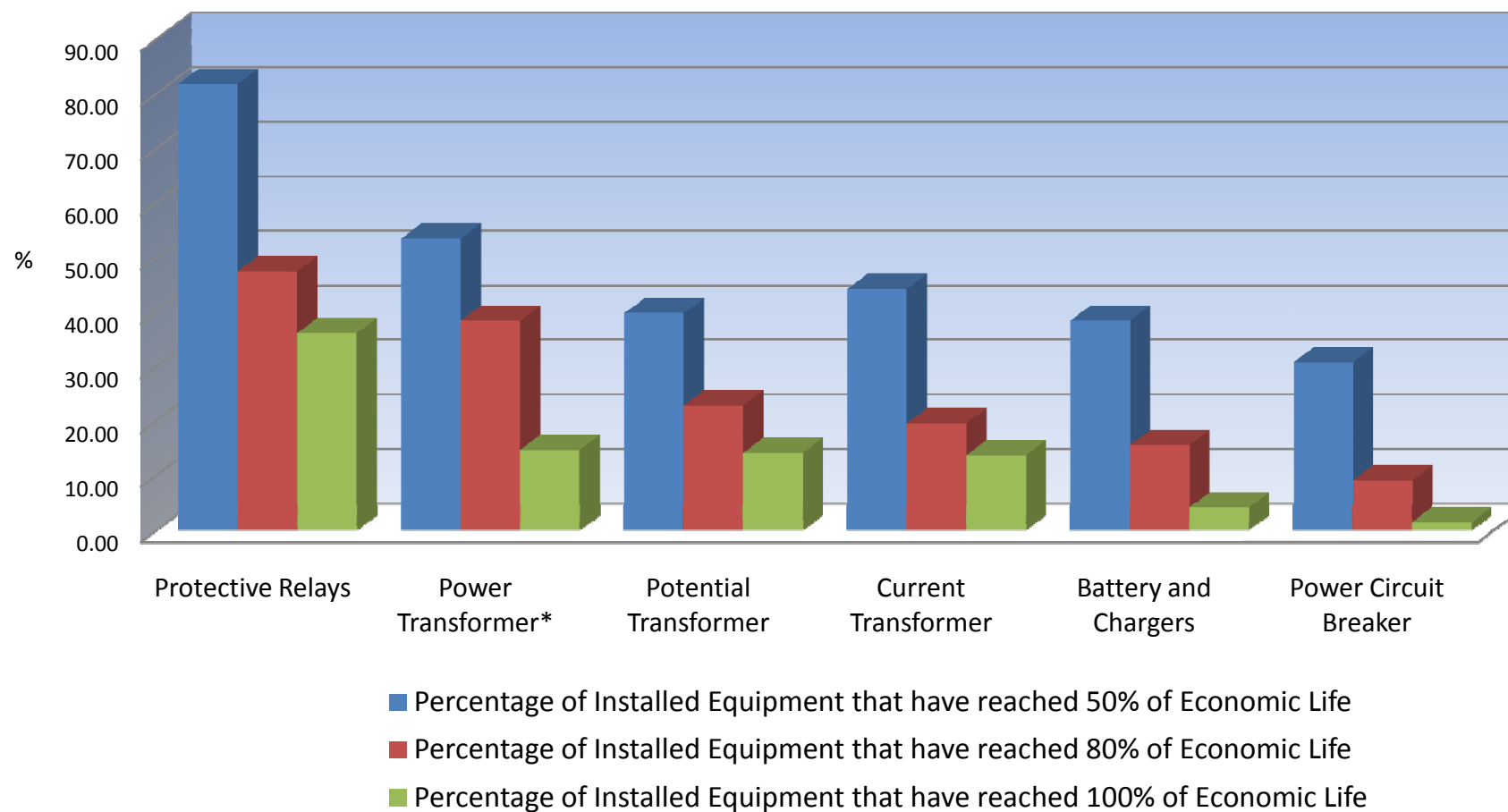


II. AGE PROFILE OF NGCP ASSETS

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Age Profile of NGCP Assets



As of January 2011

II. AGE PROFILE OF NGCP ASSETS



Equipment	ERC Recommended Economic Life	Percentage of Installed Equipment that have reached 50% of Economic Life	Percentage of Installed Equipment that have reached 80% of Economic Life	Percentage of Installed Equipment that have reached 100% of Economic Life
Protective Relays	15	81.81	47.51	36.10
Power Transformer*	35	53.49	38.37	14.73
Potential Transformer	30	39.78	22.86	14.16
Current Transformer	30	44.28	19.61	13.72
Battery and Chargers	15	38.40	15.59	4.18
Power Circuit Breaker	40	30.76	9.17	1.44

II. AGE PROFILE OF NGCP ASSETS



	Percentage of Existing Line More than 25 year old	Percentage of Existing Line More than 40 Years Old
Transmission Lines	43.46	7.94
Sub-Transmission Lines	47.38	14.05

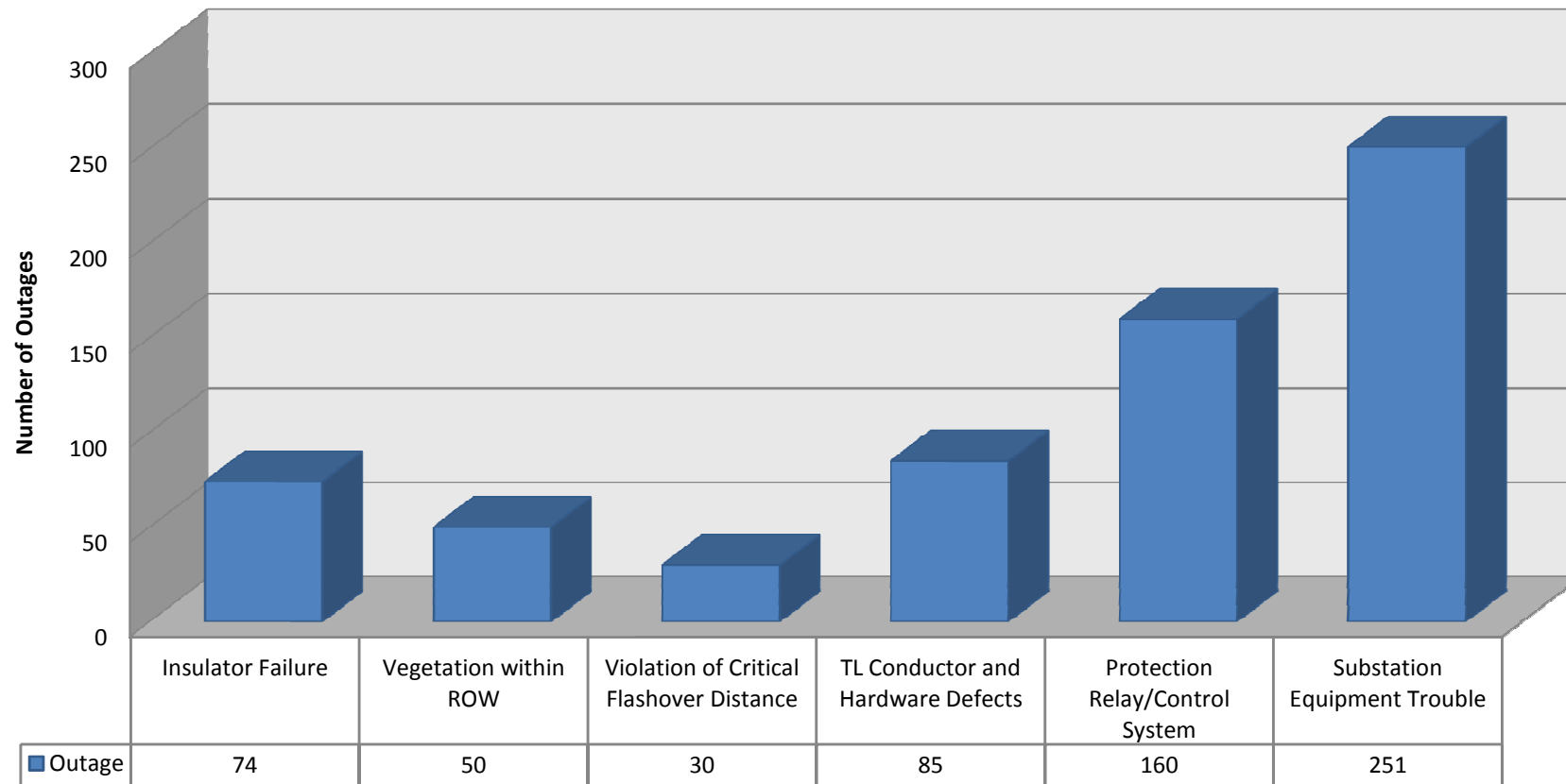


III. OUTAGE STATISTICS

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Forced Outage

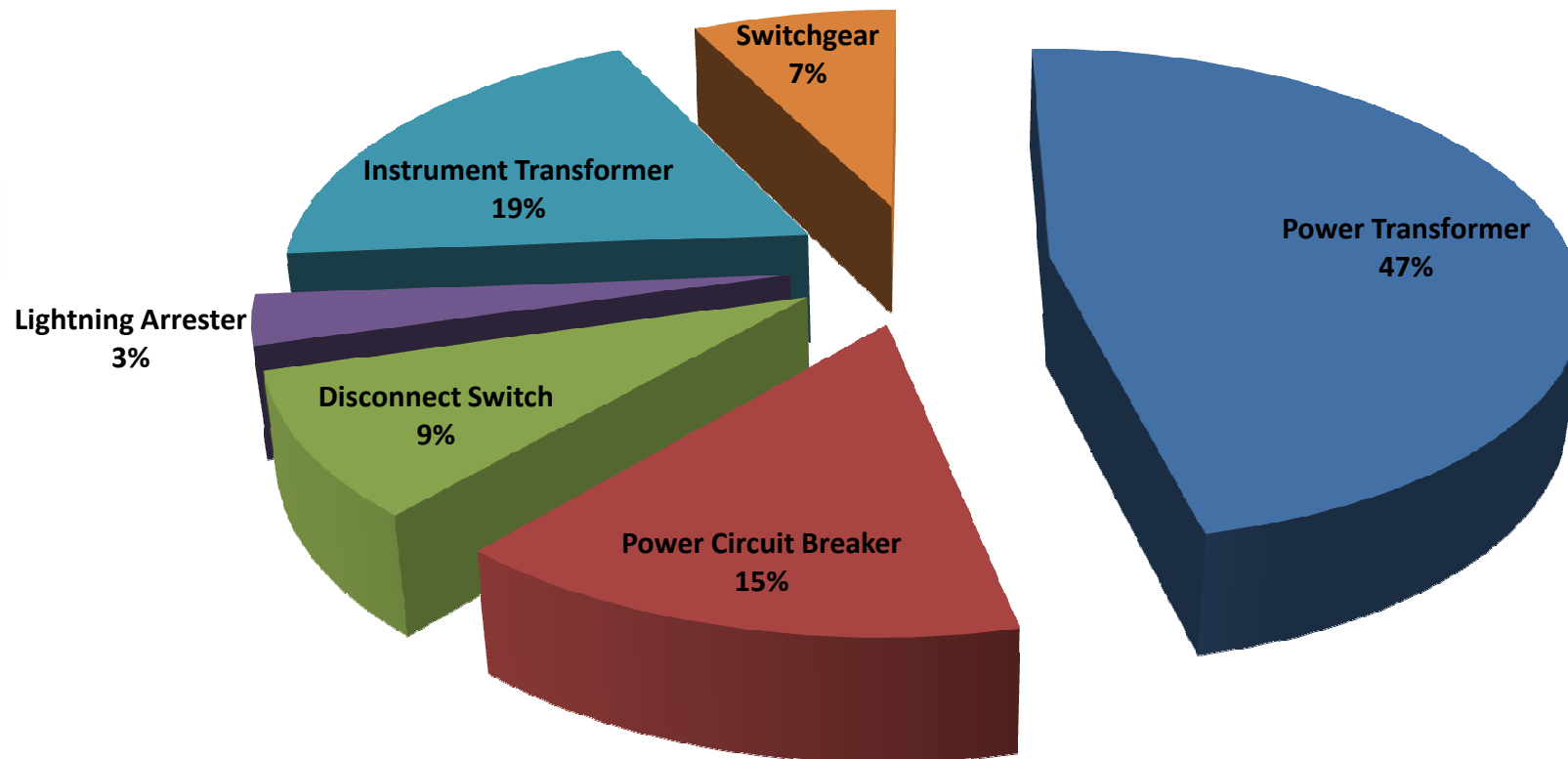


For the period January 2009 to July 2011

III. OUTAGE STATISTICS



Substation Equipment Trouble



For the period January 2009 to July 2011





IV. MAJOR CAPEX CATEGORY

IV. O&M MAJOR CAPEX CATEGORY



- Substation Secondary Devices Upgrading**
- Fire and Flood Control**
- Environmental Compliance**
- Overall and Regional Disaster Command Centers**
- Slope protection**
- Rehabilitation of Ageing Transmission Lines**
- Spare Equipment**
- Acquisition of Heavy Equipment, Vehicles, Test Instruments and Linemen Tools**



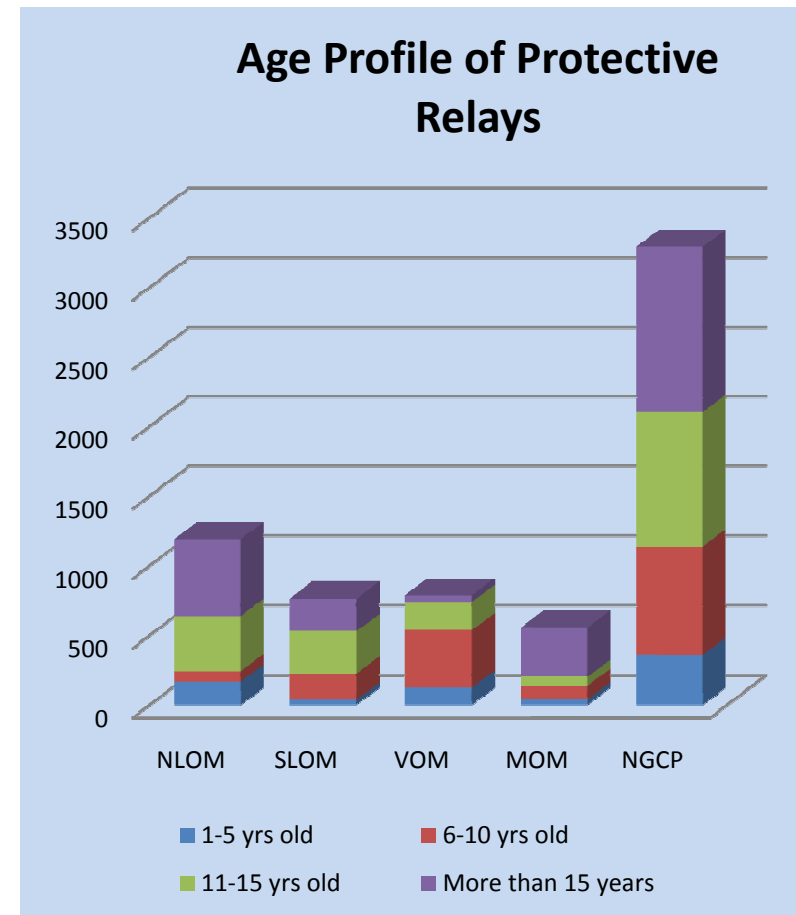
V. THE NEED TO UNDERTAKE CAPEX PROJECTS

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❑ Substation Secondary Devices Upgrading

- Secondary Devices have reached the ERC Recommended Economic life
- Replacement and upgrade existing secondary devices on per substation basis.



V. THE NEED TO UNDERTAKE CAPEX PROJECTS



❑ Fire and Flood Control Projects

- Install Anti Flooding measures
- It is expected that flooding will worsen in the future due to climate change .
- Recent fire incidents in Dolores, Dasmaringas and San Jose Substations that caused major system disturbance highlighted the need to improve the anti-fire Protection measures.



V. THE NEED TO UNDERTAKE CAPEX PROJECTS



□ **Environmental Compliance Projects**

- Disposal of PCB contaminated equipment as required by DENR, procurement of SF6 handling units, reforestation and construction of oil spill containment.

IV. THE NEED TO UNDERTAKE CAPEX PROJECTS



❑ Establishment of Overall and Regional Disaster Command Centers

- Monitor and coordinate contingency measures for disaster preparedness to mitigate its effects to NGCP facilities.
- Quick restoration of power after disaster



IV. THE NEED TO UNDERTAKE CAPEX PROJECTS



☐ Slope protection of Transmission Lines

- Philippines is frequently visited by an average of 20 typhoons per year.
- Weakening of structure foundations caused by soil erosion
- O&M has been implementing at least 100 slope protection projects annually.



IV. THE NEED TO UNDERTAKE CAPEX PROJECTS



- ❑ **Rehabilitation of Ageing Transmission Lines/ Sub-Transmission Lines**
 - From January 2009 to July 2011, tripping due to insulator failures are about 13% of the total outages.
 - 8% of the Transmission Lines are already beyond 40 years. From 2012 to 2020 a significant number of insulators and hardware are expected to fail.
 - 14% of sub-transmission lines are already 40 years old and above.

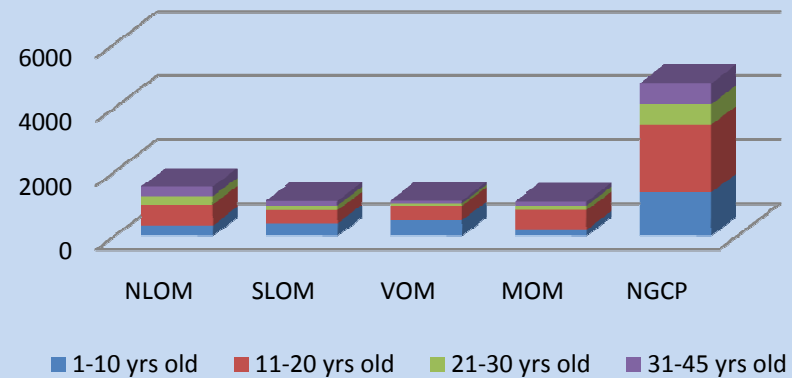
IV. THE NEED TO UNDERTAKE CAPEX PROJECTS



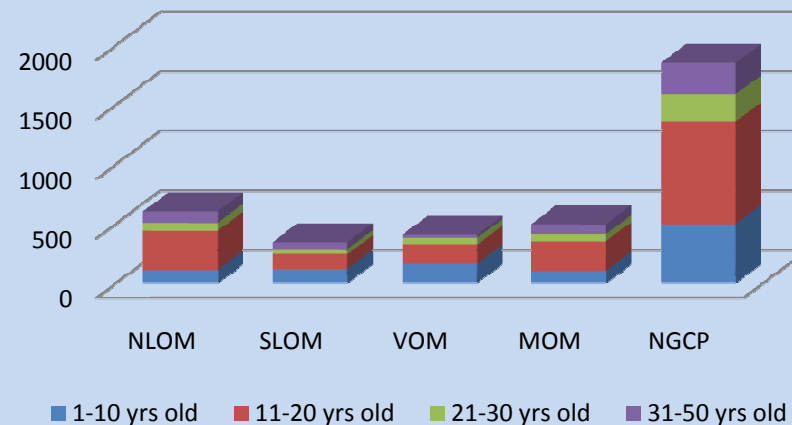
❑ Acquisition of Spares

- Back-up in the course of operating the grid
- More than 13% of Installed Instrument Transformers are beyond the economic life.

Age Profile of Current Transformers



Age Profile of Potential Transformers



V. THE NEED TO UNDERTAKE CAPEX PROJECTS



- ❑ **Acquisition of Heavy Equipment, Vehicles, Test Instruments and Linemen Tools**
 - Reliability of equipment and transmission facilities.
 - 73% of the existing vehicles are over 10 years old



VI. CAPEX PROGRAM

SECONDARY DEVICES UPGRADING



MINDANAO

 Third Reg

 Fourth Reg

NAGA MINDANAO
(SANTA CLARA)
Substation (2016)

SANGALI Substation (2020)

AGUS 6 (2013)

AGUS 5 (2016)

TACURONG Substation (2019)

GENERAL SANTOS Substation (2017)

BALO-I (ABAGA)
SUBSTATION (2011)

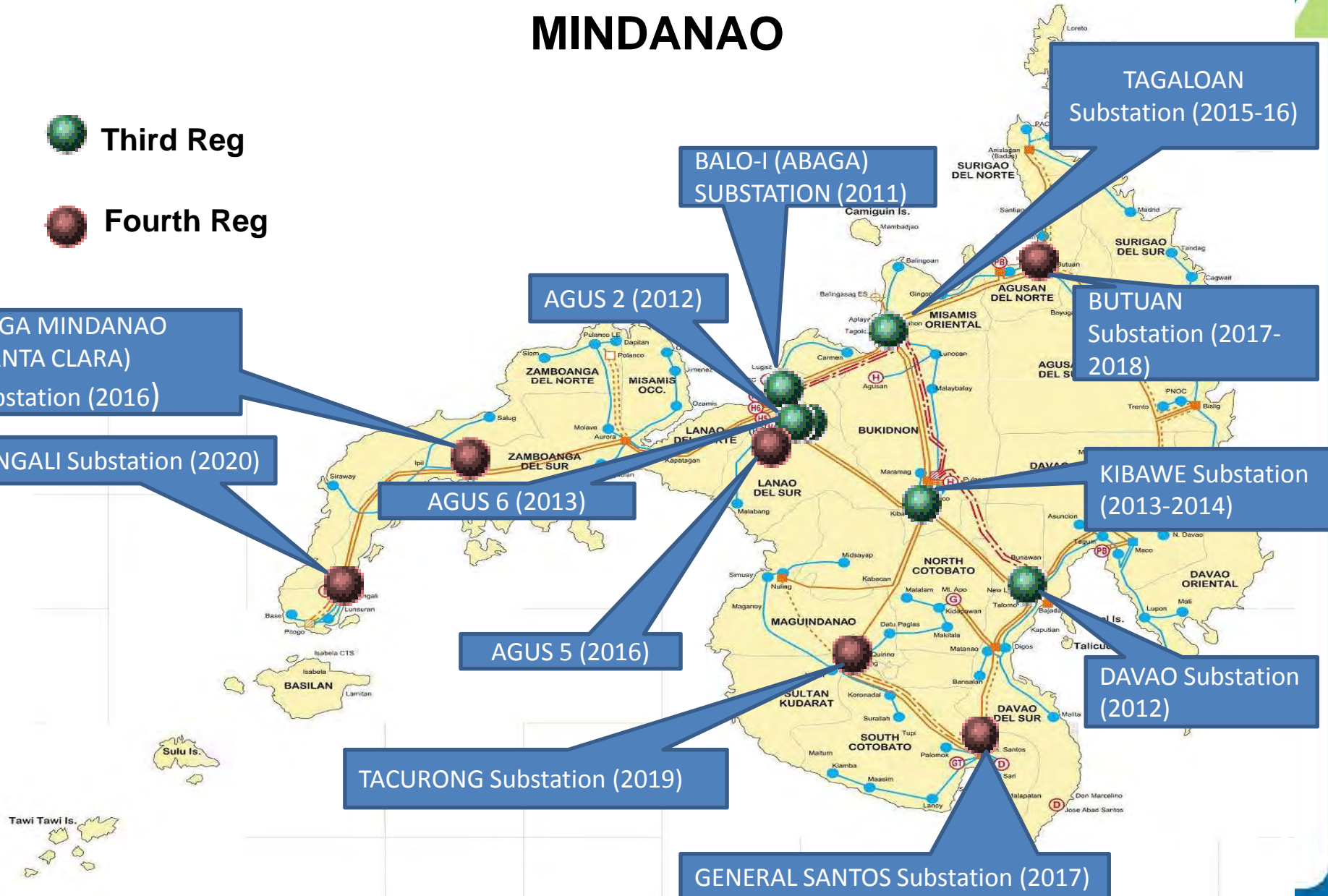
AGUS 2 (2012)

TAGALUAN
Substation (2015-16)

BUTUAN
Substation (2017-
2018)

KIBAWA Substation
(2013-2014)

DAVAO Substation
(2012)



VI. CAPEX PROGRAM

OTHER MAJOR PROJECTS OF O&M



2011

- REPLACEMENT OF 878 DEFECTIVE WOODPOLES IN SAMAR

2012

- CONSTRUCTION OF OVERALL DISASTER COMMAND CENTER
- CONSTRUCTION OF REGIONAL DISASTER COMMAND CENTERS

2012-2014

- REHABILITATION OF RECENTLY CLASSIFIED SUB-T/LS TO TRANSMISSION ASSETS IN SAMAR

2013

- ACQUISITION OF SPARE SLOM SMOOTHING REACTOR

2013-2014

- REHABILITATION OF NAGA-TAYABAS 230 KV TLS
- REHABILITATION OF NAGA-DARAGA 230 KV TL

2018

- NLOM MTD-B LABORATORY CONSTRUCTION





VII. LEVEL OF EXPENDITURES



END OF PRESENTATION