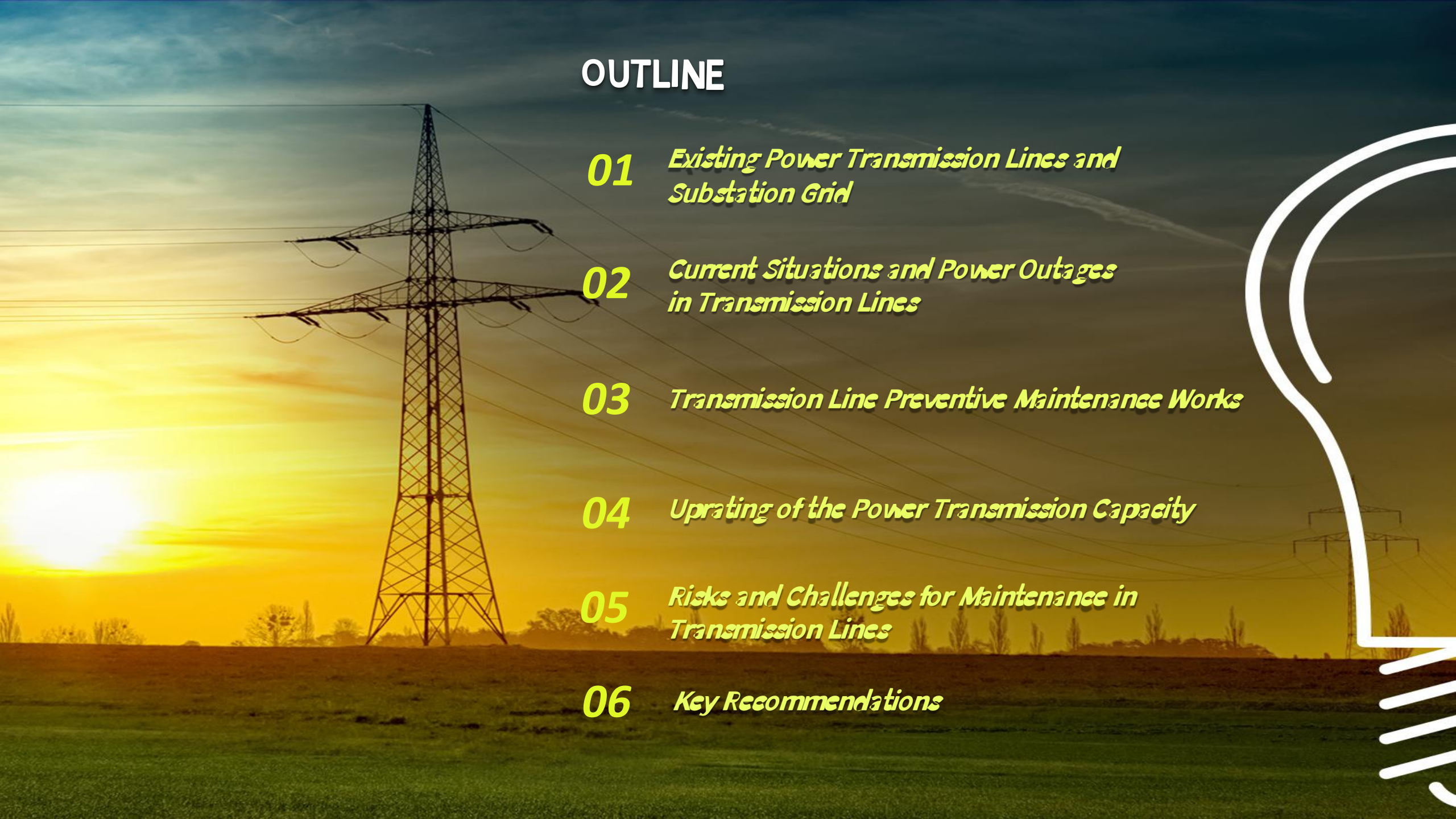
The Republic of the Union of Myanmar

Ministry of Electric Power

Best Practices in Maintenance of Transmission System

Venue –

Date – 10 February 2026



OUTLINE

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02 Current Situations and Power Outages in Transmission Lines

03 Transmission Line Preventive Maintenance Works

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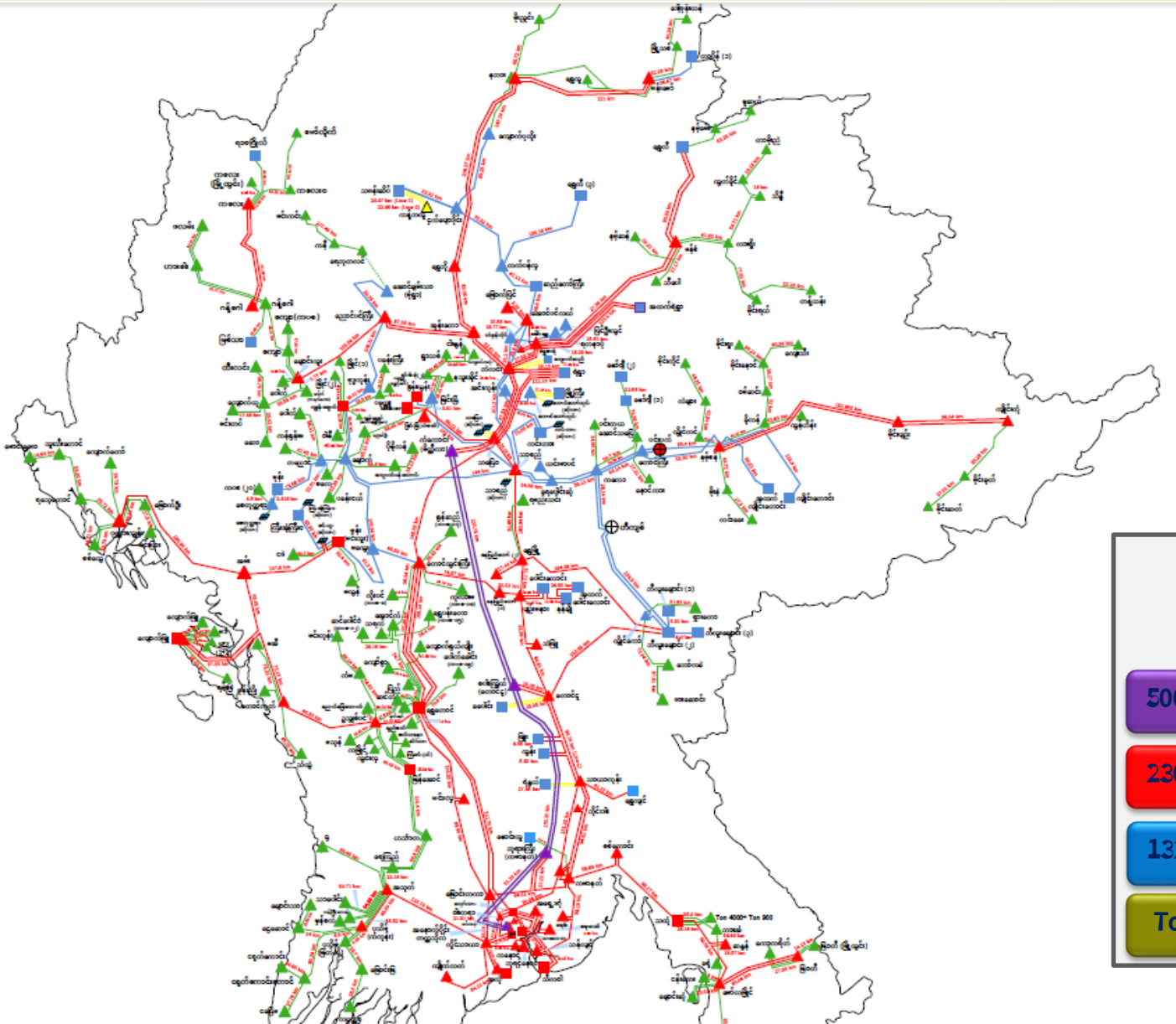
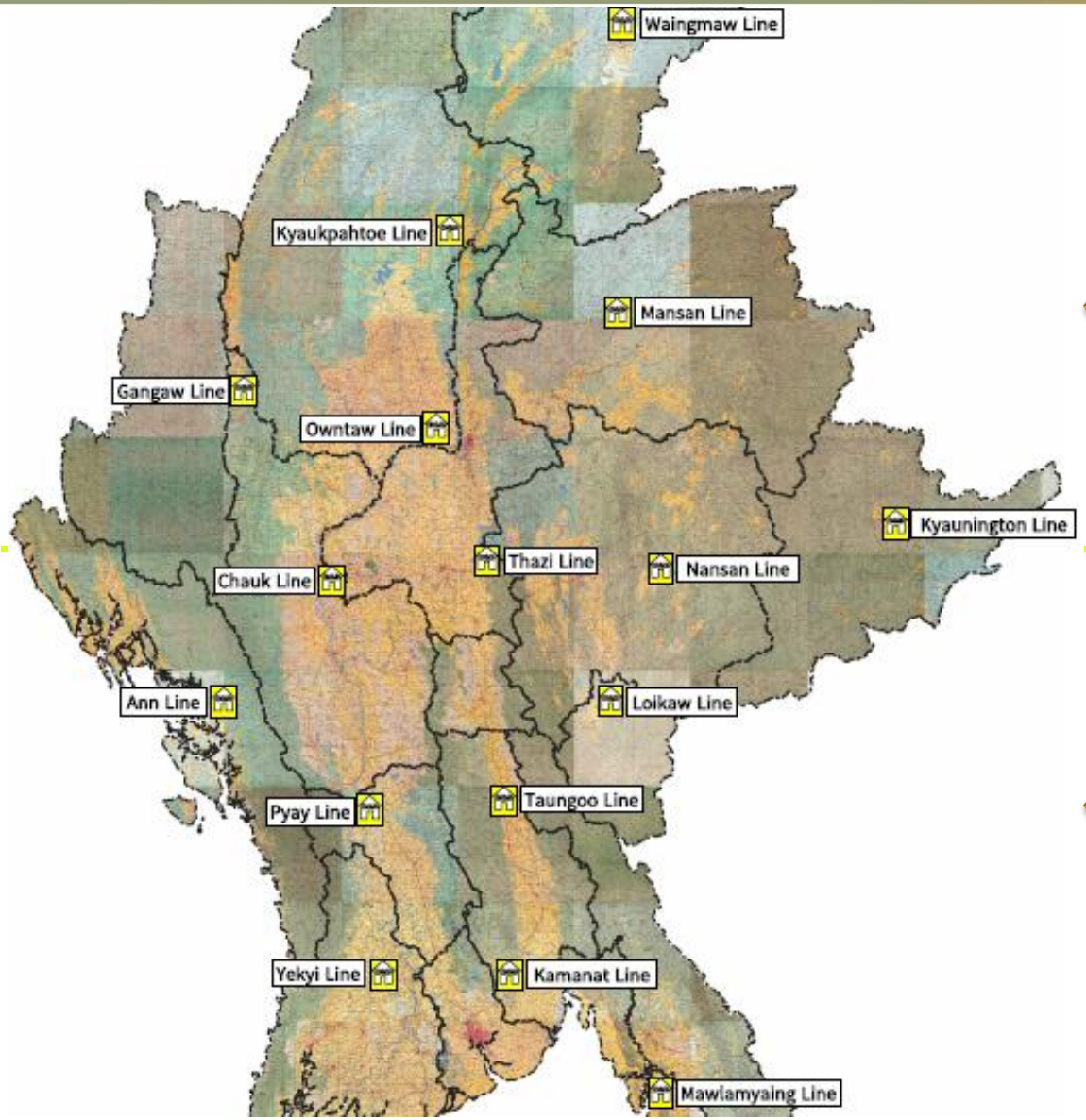
Existing Power Transmission Lines and Substations Grid



	Transmission Lines		Substations	
	Nos	Miles	Nos	MVA
500 kV	4	254.19	4	4000
230 kV	92	3514.41	55	11231.5
132 kV	42	1442.10	21	2286
Total	301	9120.35	80	13571.5

Transmission Line Maintenance Offices



Upper Regions
(8) Offices

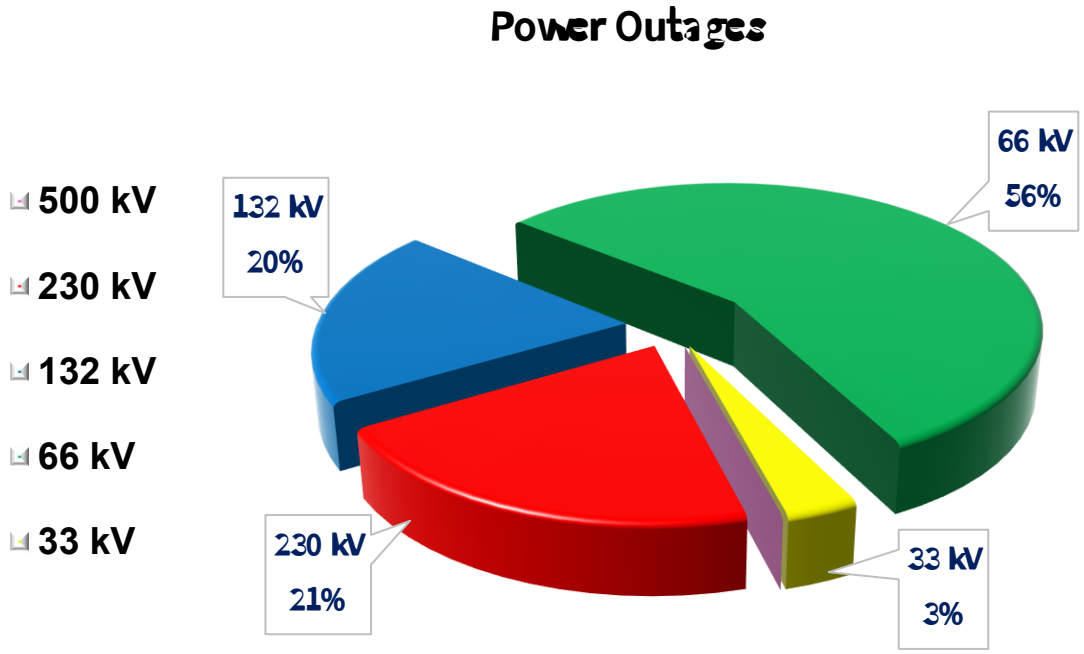
Lower Regions
(8) Offices

Fair Way (Right of Way) for Power Transmission Lines

Voltage Level	Center of Tower (Left & Right)	Total length of Fair Way
500 kV (or) 500,000 V	100 Feet	200 Feet
230 kV (or) 230,000 V	75 Feet	150 Feet
132 kV (or) 132,000 V	75 Feet	150 Feet
66 kV (or) 66,000 V	50 Feet	100 Feet
33 kV (or) 33,000 V	25 Feet	50 Feet

Power Outages of Transmission Lines in Year 2025

Voltage Level	Power Outages of Transmission Lines in 2025					
	500 kV	230 kV	132 kV	66 kV	33 kV	Total
Total	0	191	181	522	30	924



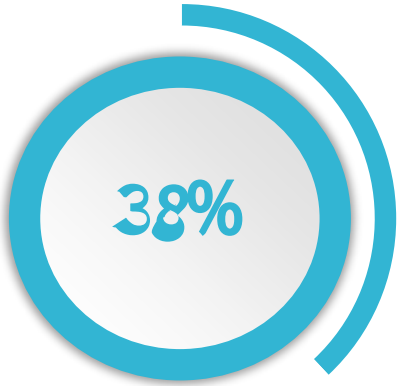
Power Outages in Transmission Lines

Weather and natural events

Storms, lightning, wind, snow can physically damage lines or towers.

Human & Wildlife errors

Animals can cause short circuits and vehicles hitting poles/towers



Equipment Failure

Breakdown of conductors, insulators, hardware, or towers

Others

Such as overloads and system stress

Photo Records for Causes of Power Outages in Transmission Lines

Power Outage by Flying Devices

Power Outage by Carbon Conduct

Power Outage by Animals (Bird)

Transmission Line Preventive Maintenance Works

Best Practice in Maintenance of Transmission System

Preventive Maintenance

Regular inspections, cleaning, tightening of fittings, checking conductors and insulators to prevent faults.

Corrective (Reactive) Maintenance

Repairing faults or failures after they occur, such as broken conductors, damaged insulators, or tower defects.

Predictive Maintenance

Using monitoring tools and sensors (thermography, corona cameras, vibration analysis) to predict failures before they happen.

Condition-Based Maintenance

Maintenance actions triggered by the actual condition of equipment rather than fixed schedules.

Emergency Maintenance

Urgent repair work in case of storms, accidents, or system outages.

Routine/Periodic Maintenance

Scheduled tasks such as line patrolling, vegetation control, and checking grounding systems.

Photo Record in Preventive Maintenance Works

Photo Record in Preventive Maintenance Works

Training Courses

On Job and ground training courses

- On job and ground training courses for power line maintenance are being offered at the central training school in Naypyitaw, along with on-site training at relevant line offices.

On Job and Ground Training Courses

Hands-on Line Maintenance:
Practical training on tower inspections, conductor stringing, hardware installation.

1

Field Safety & PPE:
Training on grounding, personal protective equipment, and high-voltage safety protocols.

2

Live Line Techniques:
Hot-stick and bare-hand methods for safe maintenance on energized lines.

3

Tools & Equipment Handling:
Practical use of maintenance tools, climbing gear, and testing instruments.

4

Fault Detection & Repairs:
On-site practice for identifying line faults a nd performing corrective maintenance.

5

Photo Records in Training Courses

- Trainings for hands-on line maintenance, and field safety & PPE.
- On-site practice for identifying line faults and performing corrective maintenance.
- Practical use of maintenance tools, climbing gear, and testing instruments.

Integrated Power Facilities Inspection Diagnosis Device

01 **Name of Product**
INSPECO P1

02 **Type of Product**
Ultrasonic Device

03 **Company of Origin**
Korea Inspeco Co.,Ltd

04 **Country of Origin**
Korea

05 **Brand of Model**
INSPECO, P1

Ultrasound drive-by inspection technology

- **INSPECO P1** is designed for detecting degraded apparatus of overhead power facility.
- It is the only Ultrasound detection system with patent drive-by inspection which enables you to **inspect distribution facility while your vehicle is running as fast as 30 km/hr.**
- **INSPECO P1 is so sensitive which allows to detect ultrasound emissions from objects over 30m distance. Furthermore, it can pinpoint exact location of degraded equipment, less influenced by the surrounding noises.**

Using Ultrasound Inspection Technology

Benefits

- To predict the failure conditions in transmission line accessories.
- Interconnects with personal smartphones through wireless Wi-Fi and sends analysis reports of any defects directly to the smartphones for evaluation.
- By using interface and real-time dB information, P1 performs FFT waveform analysis that can accurately and efficiently analyze & determine a defect.

Using Ultrasound Inspection Technology

STEP 01 This device requires settings before taking measurements.

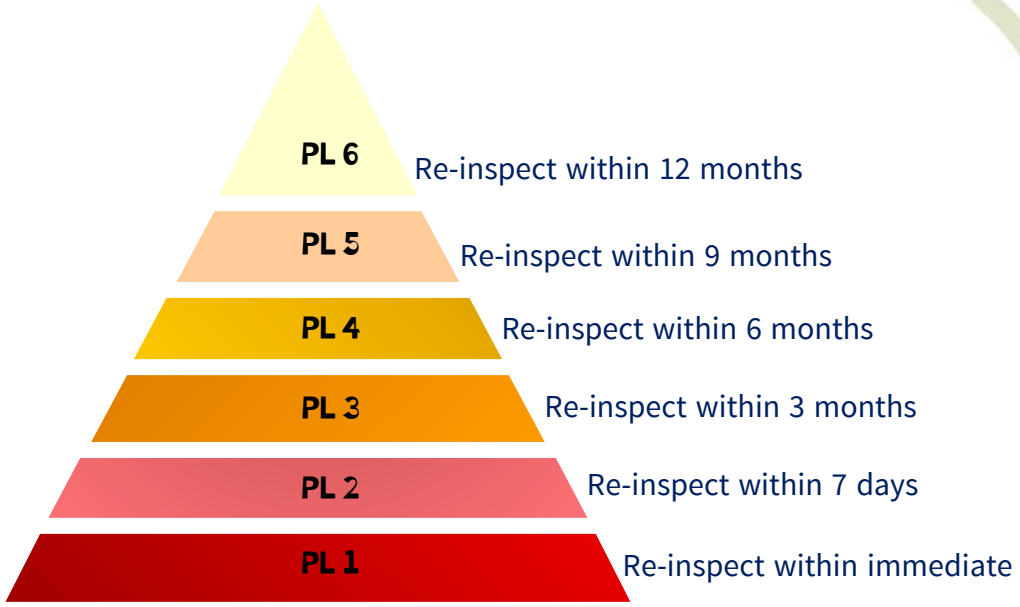
STEP 02 Temperature and humidity are automatically read directly from the device

STEP 03 The voltage level must be set to this device externally.

STEP 04 The ultrasound output is captured within 20 to 30 meters by directly weighing the object to be measured.

STEP 05 Results can be generated in 6 levels of Damage Priority Level of the measured object.

6 Levels of Priority

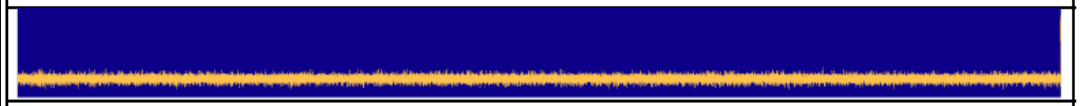


Sample for Inspection Report

Ultrasonic Diagnosis Results Report

Line Name	Tharyarkhone-Kamanat	Pole No.	212	Line	Transmission	kV	230
Distance(m)	13	Temperature (°C)	36.0	Humidity (%)	70.2	Real dB	9.86
Kinds of equipment	Suspension Insulator			Conditions of equipment	Cracked		
Defect Content	error found in C Phase tension insulator (Two side)						

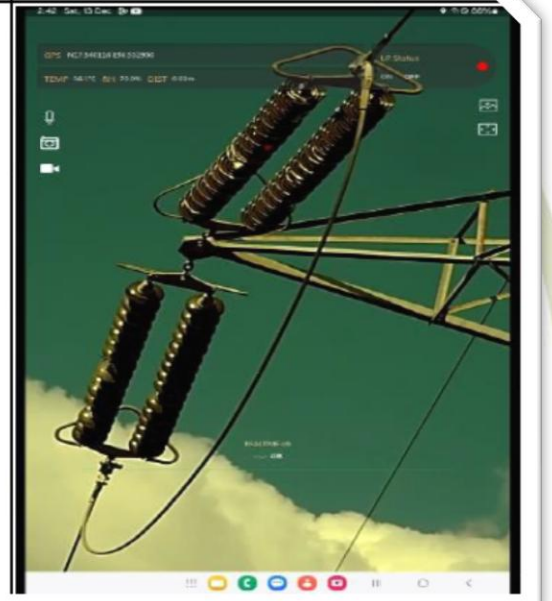
Waveform



Priority Level

Priority Level [PL2]

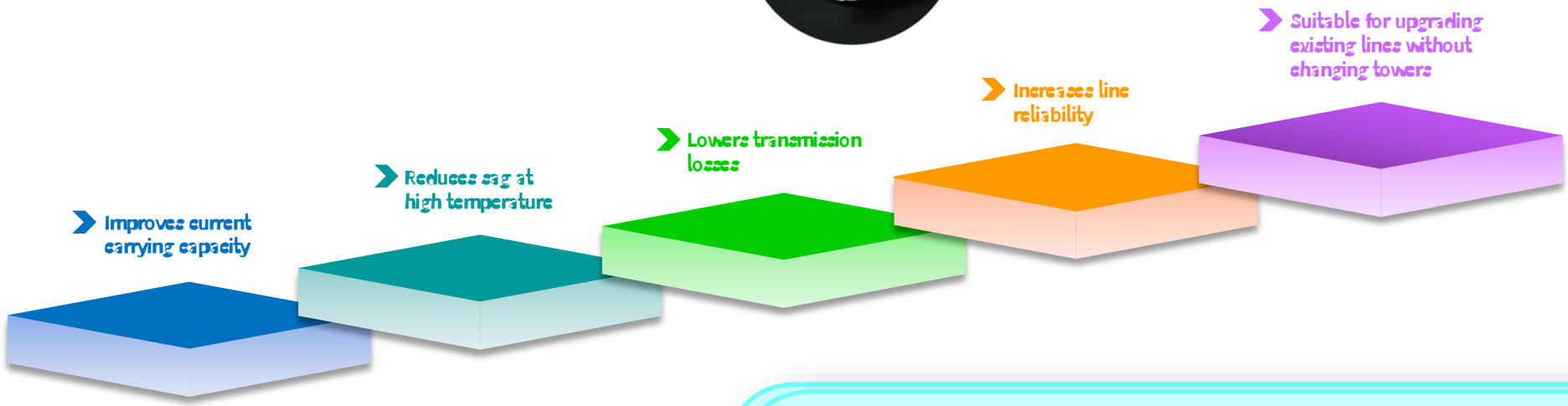
▶ Re-inspect within 7days !

Photo of Pole	Photo of Equipment
	

- This report details an inspection of the 230 kV Tharyarkone-Kamanat transmission Line's insulator.

Uprating of the Power Transmission Capacity

Replacement of ACSR with ACCC Conductor



- The existing ACSR conductors on five (5) of 132 kV power transmission lines, which are the tie lines and lines connecting the Myanmar power grid to the generation plants, are being replaced with ACCC conductors
- It reduces thermal limits that cause bottlenecks.
- System reliability and stability are enhanced.

Uprating of the Power Transmission Capacity

Photo Record of ACCC Conductor Replacing

- These are documents showing the replacement of ACSR conductor with ACCC conductor in Myanmar.

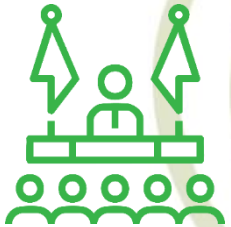
Risks and Challenges for Maintenance in Transmission Lines

Aging & Deteriorating Infrastructure

Many transmission lines in Myanmar, especially 132 kV lines, have aged and required a lot of maintenance because they were built using outdated technologies.

modernization capacity

Maintenance personnel and modern equipment are required to minimize maintenance efficiency and safety.



Renovation & Upgrading

Aging transmission lines, conductors, insulators, and accessories need to be renovated and upgraded.

Financial requirements

Financial resources are needed to modify the power line design to align with modern expectations and to construct higher towers.

Key Recommendations

The government is also implementing renovation projects such as ACCC cable replacement and upgrading of transmission lines with the national budget. Regarding transmission line maintenance, we would like to make the following requests:

Financial Investment	Funding for transmission line upgrades and modern maintenance tools & equipment.
Training & Capacity Building	Advanced technical and safety training for engineers and technicians
Opportunities	Knowledge exchange, workshops, and joint projects
Other Support	Policy guidance, technical collaboration, research assistance, and career development opportunities.

Conclusion

Together with BIMSTEC, Myanmar can build a safer, smarter, and more resilient power transmission network.


Thanks
for Your Attention.