

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.2231
ANSWERED ON 08.08.2023

USE OF SCADA TECHNOLOGY IN THE GRID

2231 SHRI S. NIRANJAN REDDY:

Will the Minister of **POWER** be pleased to state:

- (a) the details of the measures being taken to implement centralized remote monitoring and operation of substations, including the deployment of Supervisory Control and Data Acquisition (SCADA) systems;
- (b) whether Government has set a timeline for the deployment of these systems across the State transmission grids;
- (c) whether Government plans to predictive maintenance techniques using AI/ML algorithms, cyber security measures, and robots and drones for construction and inspection of transmission assets;
- (d) if not, the reasons therefor; and
- (e) the details of the steps taken by Government to improve efficiency of substations in the country and the overall electric transmission system?

A N S W E R

THE MINISTER OF POWER AND NEW & RENEWABLE ENERGY

(SHRI R.K. SINGH)

(a) : GRID-INDIA, a PSU under the Ministry of Power, monitors the real time parameters from various Sub-stations and Generating stations at National and Regional Load Despatch Centres (NLDC/RLDCs) through the well-established Supervisory Control and Data Acquisition (SCADA)/ Energy Management Systems (EMS) for monitoring of power system by State Load Despatch Centres (SLDCs) and RLDCs. Regular upgradation of these systems is being done.

Further, Regulation 43(4) of the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 specifies the centralized remote monitoring and operation of substations including the deployment of SCADA systems.

(b) : SCADA systems at various SLDCs are under process of replacement/upgradation which is expected to be completed by 2026.

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(c) : Steps taken by Government for predictive maintenance techniques using AI/ML algorithms, cyber security measures, and robots and drones for construction and inspection of transmission assets are as under:

- i. All grid substations use sensors for measuring various parameters of power system asset viz., oil temperature, winding temperature, Dissolved Gas analysis of a transformer, contact resistance of Circuit breakers etc. These parameters are further analyzed with computer aided tools for predictive maintenance.
- ii. Central Electricity Authority (CEA) has issued Guidelines for Cyber security in Power Sector in October 2021 leading to development and implementation of Cyber Security measures.
- iii. A Computer Security Incident Response Team for Power sector (CSIRT-Power) under guidance of CERT-In has been setup at CEA, to coordinate and support the response to cyber security incidents and hand-hold utilities for preventing, detecting, handling, and responding to cyber security incidents.
- iv. Regulation 87 of the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 specifies the provision for use of Unmanned Aerial Vehicle for construction and inspection of transmission assets in difficult and inaccessible terrains.

(d) : Question does not arise.

(e) : In order to improve efficiency of substations in the country and the overall electric transmission system, CEA has brought out the manual on “Transmission planning criterion” in March 2023 for planning Transmission and Substations.
