

**GOVERNMENT OF INDIA  
POWER  
LOK SABHA**

UNSTARRED QUESTION NO:5225  
ANSWERED ON:10.12.2010  
SECURITY OF POWER GRIDS AND INSTALLATIONS  
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**Will the Minister of POWER be pleased to state:**

- (a) whether the Government is giving due consideration to secure its power grids and installations from being hacked online through embedded malware (malicious software);
- (b) if so, the details of the steps taken to address the issue;
- (c) whether the Government has any proposal under consideration to reduce loss of electricity during transmission; and
- (d) if so, the details thereof?

**Answer**

THE MINISTER OF STATE IN THE MINISTRY OF POWER (SHRI BHARATSINH SOLANKI)

(a) & (b) : Power System Operation Corporation (POSOCO) is responsible for grid operation of Indian Electric Power Grid at national and regional level. It has incorporated adequate measures in the system of National Load Despatch Centre (NLDC)/ Regional Load Despatch Centres (RLDCs) as a part of cyber security. The details of the measures taken are as under:

(1) Password Protection: All the machines have password protected access and passwords are maintained as per the level of responsibility at all NLDC and RLDCs. Users are having minimal rights as per their requirements and other administrative rights are kept by Supervisory Control and Data Acquisition (SCADA) / IT department of RLDCs and NLDC. This security feature helps in protection of data and network from virus effects.

(2) Backups: At present Data security at NLDC and RLDCs is ensured by having periodic back-ups on CD, DAT and DVD on regular basis.

(3) Antivirus Protection: Currently at NLDC and RLDCs, a limited interfacing of SCADA with IT LAN has been implemented for the purpose of getting Schedule data in SCADA. IT LAN has all the safeguards like antivirus server. Proper Virus updates are done through antivirus Server for the entire network.

(4) Redundancy of Server: Redundancy for WEB/E-mail, File Server is available both hardware-wise and software-wise. Critical functions have redundant configuration with redundant power supply units. Failure of one single server does not affect the whole system.

(5) Firewall Protection for Network: Currently at NLDC and RLDCs a firewall that separates various sub-systems is designed for the entire computer network.

(6) De-Militarized Zone (DMZ): DMZ used to distinguish between internal and external networks and keep systems more secure. Currently, At NLDC, NRLDC & SRLDC, DMZ is implemented. In other RLDCs the same is envisaged to be implemented shortly.

The New Unified Load Despatch & Communication (ULDC) systems being implemented for Grid Monitoring are being provided with adequate security in terms of firewall and DMZ (De-Militarized Zone) segregation.

Further the system is audited through computer Indian Emergency Response Team (CERT-In) approved Auditors to assess protection against malwares.

(7) Vulnerability Assessment and Penetration Tests: This analysis is carried out from the position of a potential attacker, and can involve active exploitation of security vulnerabilities. Any security issues that are found will be presented to the system owner together with an assessment of their impact and often with a proposal for mitigation or a technical solution. The intent of a penetration test is to determine feasibility of an attack. It is a component of a full security audit. NLDC and all RLDCs have subjected their networks to Vulnerability Assessment and Penetration Tests by external agency and the follow up action is taken on the observations recorded.

(c) & (d) : As per the Electricity Act 2003, transmission planning is carried out in a coordinated manner by the Central Electricity Authority (CEA) and the Central Transmission Utility (CTU) in consultation with all the stakeholders. Detailed studies are carried out under different load-generation balance scenarios and losses are factored for optimization and planning a system for optimal

utilization of resources.

Power Grid Corporation of India Limited (PGCIL) follows the best operation and maintenance practices. The transmission losses are primarily technical losses due to inherent resistance of the transmission line (conductor)/ equipment. Losses in Inter-State transmission system of PGCIL vary from 4% plus or minus 1%, which is as per international standards, depending on the seasonal variation of generation and load.

All efforts are made and due care is taken for optimal utilization of resources & minimization of losses during both planning and operational stages.