

- (2) While holding an inquiry, the adjudicating officer shall have power to summon and enforce the attendance of any person acquainted with the facts and circumstances of the case to give evidence or produce any document which in the opinion of the adjudicating officer, may be useful for or relevant to the subject-matter of the inquiry, and if, on such inquiry, he is satisfied that the person has failed to comply with the provisions of section 29 or section 33 or section 43, he may impose such penalty as he thinks fit in accordance with the provisions of any of those sections."

Prevention of grid failure

1675. SHRI M.P. ACHUTHAN: Will the Minister of POWER be pleased to state:

- (a) whether it is a fact that on 30 and 31 July, the country experienced grid failures of Northern, Eastern and North-Eastern grids plunging half of the country into darkness;
- (b) if so, the details thereof;
- (c) whether Government has tried to find out the causes of grid failures;
- (d) if so, the details thereof;
- (e) whether Government is considering to put such mechanisms in supply points to prevent grid failure due to overdrawal by any State;
- (f) if so, the details thereof; and
- (g) by when such a mechanism would be installed?

THE MINISTER OF STATE IN THE MINISTRY OF POWER (SHRI K.C. VENUGOPAL): (a) and (b) Yes, Sir, there were two major grid disturbances on the 30th and 31st July, 2012. The Grid disturbance on 30th July, 2012, affected supply of power to the Northern Region constituent states and the disturbance on 31st July, 2012 affected power supply to States in the Northern, Eastern and North-Eastern Region.

(c) and (d) The Committee studied in detail technical data inter-alia concerning analysis of data from Disturbance Recorders (DR), Event Loggers (EL), relay indications, Phasor Measurement Units (PMU), Wide Area Frequency Measurement System (WAFMS), SCADA (Supervisory Control and Data

Acquisition) data, reports submitted by SLDCs, RLDCs/NLDC, POWERGRID, generation utilities. It also conducted simulation studies, *etc.*, with the help of an expert team. Based on this study and analysis, the Committee has come to the conclusion that no single factor was responsible for the grid disturbances on both the occasions, that is 30th and 31st July, 2012. The Committee has concluded that the disturbances were caused by a combination of factors, inter-alia, weak inter-regional corridors due to multiple outages, high loading on 400 kV Bina-Gwalior-Agra link, inadequate response by State Load Despatch Centres (SLDCs) to the instructions of Regional Load Despatch Centres (RLDCs) to reduce overdrawal, loss of 400 kV Bina-Gwalior link. On 31st July, 2012, apart from the aforementioned reasons, the system was weakened by outages of transmission lines in the Eastern Region network near the Eastern Region - Western Region interface.

The Committee has made a number of recommendations, both long-term and short-term to avoid recurrence of such incidents, some of which are:

- (1) Extensive review and audit of the protection systems should be carried out.
- (2) Frequency control through generation reserves/Ancillary services should be adopted and the present UI mechanism should be reviewed in the light of recent disturbances.
- (3) Primary response from generators and operation of defense mechanisms, like under frequency and rate of frequency based relays as well as special protection schemes should be ensured in accordance with the provisions of the grid code.
- (4) Review of Total Transfer Capability should be carried out and revised periodically as per changes in the system.
- (5) Coordinated outage planning of the transmission elements should be carried out.
- (6) Installation of adequate static and dynamic reactive power compensators.
- (7) Penal provisions of the Electricity Act 2003 need to be reviewed to ensure better compliance of instructions of Load Despatch Centres and directions of Central Commissions.
- (8) Synchrophasor based Wide Area Monitoring Systems (WAMS) should be widely employed.

- (9) Load Dispatch Centres should be equipped with dynamic security assessment tools.
- (10) Islanding schemes need to be planned and implemented so as to ensure power supply to essential services and faster recovery in case of grid disruptions.
- (11) Need to grant more autonomy to SLDCs.
- (12) Proper telemetry and communication systems between all constituents.

(e) to (g) The under frequency relays and 'Rate of change of frequency with time' relays have been installed at various locations in the network which provide load relief when the frequency falls below certain preset levels. The Enquiry Committee has inter-alia recommended extensive review and audit of the protection systems.

Failure of grids due to overdrawing by States

1676. SHRI T. M. SELVAGANAPATHI:

SHRI BALWINDER SINGH BHUNDER:

Will the Minister of POWER be pleased to state:

- (a) the details and the reasons of the failure of Northern and Eastern grids on 30 and 31 July, 2012;
- (b) whether the Northern Regional Load Dispatch Centre (NRLDC) and the State load dispatch centres were fully aware that States were indulging in massive overdrawing;
- (c) whether except for filing petitions with the Central Electricity Regulatory Commission, they hardly took an action to save the situation;
- (d) if so, the details thereof;
- (e) whether the control rooms have failed to isolate those States from the grid and prevent a complete collapse; and
- (f) if so, the details thereof and the preventive steps taken in this regard?

THE MINISTER OF STATE IN THE MINISTRY OF POWER (SHRI K.C. VENUGOPAL): (a) The Enquiry Committee constituted to enquire into the grid disturbances has come to the conclusion that no single factor was responsible for