

**GOVERNMENT OF INDIA
MINISTRY OF POWER**

**LOK SABHA
UNSTARRED QUESTION NO.2999
TO BE ANSWERED ON 04.08.2016**

SMOOTH AND RELIABLE INTEGRATION OF RENEWABLE ENERGY

2999. SHRI K. ASHOK KUMAR:

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

- (a) whether the Government has prepared 15-point action plan to ensure smooth and reliable integration of renewable energy with conventionally generated electricity carried by the national and State grids, if so, the details thereof;
- (b) whether the country's ambitious programme of creating 175 GW of installed renewable energy capacity by 2022 not only requires setting up of plants but ensuring that the power they generate is promptly evacuated and integrated with conventional supplies, if so, the details thereof; and
- (c) whether a committee has suggested a range of steps, including bringing greater flexibility to conventional generation, having generation reserves, frequency control, introducing forecasting, scheduling and deviation settlement mechanisms to address any problems that may arise more so given the erratic nature of solar and wind energy and the very limited availability of storage, if so, the steps taken/proposed to be taken in this regard?

A N S W E R

**THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER,
COAL, NEW & RENEWABLE ENERGY AND MINES**

(SHRI PIYUSH GOYAL)

(a) to (c): India has an ambitious target of adding 175 GW of renewable generation capacity by 2022. In order to integrate such high penetration of renewables into the grid, a Technical Committee was constituted for "Large Scale Integration of Renewable Energy, need for balancing, Deviation Settlement Mechanism (DSM) and associated issues". The Technical Committee has prepared a 15 point action plan.

The report also mentions the need for augmenting the transmission corridors from renewable rich states with coordinated transmission planning.

The Technical Committee, based on detailed deliberations with different stakeholders and analysis, recommended the action points, which is given at Annex. The detailed report of the Technical Committee, which also gives steps to be taken by different agencies, is also available at the website of Ministry of Power.

ANNEX REFERRED TO IN REPLY TO PARTS (a) TO (c) OF UNSTARRED QUESTION NO. 2999 TO BE ANSWERED IN THE LOK SABHA ON 04.08.2016.

Sl. No.	Required Action	Action By
1	Load Forecasting as per IEGC Section 5.3 <i>(Already Started at NLDC/RLDCs)</i>	All States
2	Demonstration of Adequacy of Balanced Portfolio	All States / SLDCs
3	Regulatory Framework for Intra-State Settlement System and Imbalance Handling Mechanism <i>(Already implemented at inter-state level in 5 states)</i>	FOR / SERCs / SLDCs
4	Regulatory Framework for Forecasting of Renewable Generation and Scheduling and Implementation at <i>inter-state level</i> <i>(Regulatory Framework already in place)</i>	CERC, NLDC, RLDCs, RE Generators, REMC
5	Regulatory Framework for Forecasting of Renewable Generation and Scheduling including Aggregators and Implementation at <i>intra-state level</i> <i>(FOR Model Regulations notified in November, 2015, States of MP, Rajasthan, Karnataka, Tamil Nadu, Odisha, Jharkhand floated draft regulations)</i>	SERCs / FOR / MNRE, SLDCs, RE Generator, REMCs
6	Regulatory Framework for Reserves <i>(Framework at inter-state level has already been specified by CERC on 13th Oct 2015)</i>	SERCs
7	Regulatory Framework for Ancillary Services Operation, (Implementation of Ancillary Services at Inter-state level done)	CERC, RPCs, NLDC, RLDCs
8	Implementation of Frequency Response (Primary Response). <i>(Roadmap already provided by CERC on 13th Oct 2015)</i>	CERC All Generators
9	Regulatory Framework for Secondary Response (AGC) <i>(Roadmap already provided by CERC on 13th Oct 2015)</i>	CERC, SERCs
10	Technical Standards and Protection Requirements for Renewables such as LVRT, FRT, etc. & implementation	CEA, CTU, STUs, RE Generators
11	Market Design – Frequent clearing, more opportunities, New entities (Aggregators) <i>(FOR Model Regulations notified in November, 2015 provide for Qualified Coordinating Agency (QCA) at state level)</i>	MNRE, CERC
12	Regulatory Framework for Communication in Power Sector, Availability of Real Time Data at the SLDCs/RLDCs/NLDC particularly of RE generators	CERC, RE Generators, SLDCs, POSOCO
13	Implementation of Renewable Energy Management Centres (REMCs)	CTU, STU, SLDCs, RLDCs, NLDC
14	Standards and Regulatory Framework for incentivizing “Flexibility” in Conventional Generation <i>(CERC IEGC Fourth Amendment Regulations regarding Technical Minimum Schedule for operation of Central Generating Stations and Inter-State Generating Stations notified on 06th April, 2016)</i>	CEA, CERC
15	Capacity Building of SLDCs particularly in RE Rich States	FOLD, POSOCO, States
