

Explanatory Memorandum

A comprehensive review of IEGC provisions has been carried out in view of recent developments. The major changes proposed are as under:

1. **Creation of Spinning Reserves:**

CERC constituted "Committee on Spinning Reserve" under the Chairmanship of Shri A.S.Bakshi, Member, CERC for adoption of the Spinning Reserve Services in Indian Power system. Committee submitted its report on 17.09.2015 and has recommended that Spinning Reserve Services shall be in place by 01.04.2017. The report of the Committee was accepted by the Commission vide order dated 13.10.2015 in Suo-moto petition no.11/SM/2015. Committee has observed that the existing definition of Spinning Reserves as provided in IEGC includes primary reserves also as the spinning reserves. Accordingly, to separate out the primary reserves (to be utilized through Governor action) from the secondary reserves (to be utilized through AGC), Committee has suggested that following definition of the Spinning Reserves may be replaced with the existing definition :

"Spinning reserves means the Capacity which can be activated on direction of the system operator and which is provided by devices including generating stations/units, which are synchronized to the grid and able to effect the change in active power."

Accordingly, the definition of spinning reserve has been modified suitably.

2. **Definitions under Ancillary including Spinning Reserves services:**

In view of accommodating new definitions with regard to introduction of Ancillary including Spinning Reserves services in Indian Power System through different CERC Regulations, it is to suggest that instead of amending IEGC every time for inclusion of new definitions under new CERC Regulations, the Regulation 2 (2) may be amended as follows:

"Words and expressions used in these regulations and not defined herein but defined in the Act or other relevant CERC Regulation shall have the meaning assigned to them under the Act or other relevant CERC Regulation."

3. **Inclusion of scheduling and despatch of power of ISGSs for operation of Ancillary Reserve Services, for utilization of Un-requisitioned power and for operation of Spinning Reserves Services:**

Tariff Policy dated 28.1.2016 mandates that the un-requisitioned power not scheduled by the original beneficiaries of ISGSs shall be utilized by way of allowing the generator to sell the same through market. Accordingly, to allow scheduling and despatch of power under these services, it is suggested to include the following para at the end Regulation 1.4 (v) of part-I of IEGC;

"This section would also cover scheduling and despatch of power of ISGSs for operation of Ancillary Reserve Services, for utilization of Un-requisitioned power and for operation of Spinning Reserves with the process of the flow of information

between the ISGS, National Load Despatch Centre (NLDC), Regional Load Despatch Centre (RLDC), Power Exchanges and the State Load Despatch Centres (SLDCs), and other concerned users."

4. Amendment of Part 2 of Principal Regulations:

The amendments of Regulation 2.2.1 (m), 2.2.2 (i), 2.3.2 (g), Regulation 2.4.2 (i) & (j) and introduction of 2.7.1 (f) have been suggested to cover the new roles and responsibilities entrusted to various organisations i.e NLDC, RLDCs, SLDCs and RPCs for operation of Ancillary Reserve Services, for utilization of Un-requisitioned power and for operation of Spinning Reserves Services.

5. Amendment of Part 5 of Principal Regulations

a) Amendment of regulation 5.2 (f), 5.2(f)(i)(b) and addition of 5.2(f)(i)(c) :

A number of state generators through petitions have prayed that governing system of old hydro stations of small capacity are of mechanical ball type and it is very difficult to get the spares for this type of governors as most of the OEMs have stopped the production of the spares. CERC constituted a Committee for 'Implementation of FGMO in generating units'. The Committee consisted of representative from CEA, CERC, POSOCO, ISTS Generating stations, State Generating stations, BHEL, and Alstom. Committee in consideration of vintage of small hydro units, small contribution these units make in terms of the required primary response and the fact that it is difficult to get the spare parts of the governors installed in these old units, has recommended as follows in its report:

"The current lower limit of 10 MW for hydro stations for providing primary response through FGMO/RGMO may be increased to 25 MW."

Further, the Committee has observed that gas stations/combined cycle power stations are capable of providing primary response through governor action, especially, within the narrow operating band under which the Indian grid is operating now.

Accordingly, it has been suggested to amend the Regulation 5.2 (f) and its sub-clauses for excluding the generators below 25 MW from the list of hydro stations which are required to provide the primary response through governor action and for including the Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each in the list of stations which are required to provide the primary response through governor action.

b) Amendment in Regulation 5.2 (f) (ii):

This amendment has been suggested to bring more clarity with respect to the extent of primary response required from ISGS by way of governor action. Accordingly, it has been suggested to replace the Regulation 5.2 (f) with following:

"There should not be any reduction in generation in case of improvement in grid frequency below 50.05 Hz (for example, if grid frequency changes from 49.9 to 49.95 Hz, there shall not be any reduction in generation). For any fall in grid frequency, generation

from the unit should increase as per generator droop limited to 5% of the generation level before frequency fall, with ceiling limit of 105% of the MCR of the unit subject to machine capability".

c) Amendment in Regulation 5.2 (f) (iii):

Committee on 'Implementation of FGMO in generating units', in its report has observed that gas stations/combined cycle power stations are capable of providing primary response through governor action, especially, within the narrow operating band under which the Indian grid is operating now. As such, this amendment has been suggested to exclude the gas stations/combined cycle power stations from the list of exempted power stations which were not required to provide primary response through governor action.

d) Amendment of Regulation 5.2 (h):

This suggestion is again based on the recommendation of the Committee on 'Implementation of FGMO in generating units'. It was observed by the Committee that desired primary response during frequency excursions is not being observed on sustainable basis as most of the thermal units are running on full capacity, sometimes on overload capacity with VWO and also due to the fact that even partly loaded generation units resort to operation with their valves wide open. Accordingly, Committee has suggested that RLDC/SLDC shall not schedule the units beyond bus generation corresponding to 100% of the installed capacity. Further, it has been opined by the Committee that Valve Wide Open (VWO) operation of units shall not be allowed so that there is margin available in valve opening for providing primary response upto 5% of the generation level. In case of gas/Liquid fuel based units also, adequate margins while despatching should be kept by RLDCs/SLDCs in due consideration of prevailing ambient conditions of temperature and pressure viz. a viz. site ambient conditions on which installed capacity of these units have been specified. Valve Wide Open term has been defined in technical documents like American Society of Mechanical Engineers (ASME) and hence not been specifically defined in this Regulation.

6. Amendment of Part 6 of Principal Regulations:

a) Amendment of Regulation 6.5:

1. Tariff Policy dated 28.1.2016 has introduced certain provisions to utilize the URS of ISGSs as quoted below:

"Power stations are required to be available and ready to dispatch at all times. Notwithstanding any provision contained in the Power Purchase Agreement (PPA), in order to ensure better utilization of un-requisitioned generating capacity of generating stations, based on regulated tariff under Section 62 of the Electricity Act 2003, the procurer shall communicate, at least twentyfour hours before 00.00 hours of the day when the power and quantum thereof is not requisitioned by it enabling the generating stations to sell the same in the market in consonance with laid down policy of Central Government in this regard. The developer and the procurers signing the PPA would share the gains realized from sale, if any, of such un-requisitioned power in market in the ratio of 50:50, if not already provided in the PPA. Such gain will be calculated as the difference between selling price of such power and fuel charge. It should, however, be ensured that such merchant sale does not result in

adverse impact on the original beneficiary(ies) including in the form of higher average energy charge vis-à-vis the energy charge payable without the merchant sale. For the projects under section 63 of the Act, the methodology for such sale may be decided by the Appropriate Commission on mutually agreed terms between procurer and generator or unless already specified in the PPA."

In order to incorporate the above provisions necessary amendments have been proposed in Regulation 6.5

2. To meet the time line of the Tariff Policy i.e ISGS shall have the communication regarding un-requisitioned power from the procurers at least 24 hours before 0.00 hours of the day of scheduling, it is being suggested that day ahead scheduling and despatch procedure shall be replaced with two day ahead scheduling. The time lines for each step of scheduling and despatch procedure are debatable subject to restriction that information of URS, which can be sold in the market, shall be available to ISGS at least 24 hours before 0.00 hours of the day of scheduling. The scheduling is proposed to start at 1 PM on D-2 day if D is the day on which implemented schedules are applicable .
3. After schedules are given by original beneficiaries as per their entitlement in a power station, it has been suggested that the original beneficiaries of an ISGS will have first right to give requisition for the URS power of the ISGS. Other original beneficiaries are proposed to be provided a window to reschedule a power left over by original procurer as per the procedure in vogue as per Order in Petition Nos. 310/mp/2014 dated 5.10.2015 and ROP in Petition No. 16/SM/2015 dated 5.1.2016.
4. After the original beneficiaries of a station has rescheduled the power, the original beneficiary whose power has still been left un-requisitioned may provide a formal communication to ISGS by 12PM on day before the day of implemented schedules. Such communication shall clearly specify the quantum of power and duration for which ISGS may sell the power in the market.
5. In case such power for which original beneficiary has allowed the generator to sell in the market has been sold in the market, beneficiary shall not be allowed to recall the power by rescheduling. In case power left unsold on the market, original beneficiaries may schedule the power from 4th time block as per procedure in vogue.
6. The gains made by the ISGS i.e the difference in selling price and the fuel cost including incidental expenses, shall be shared between the generator and the procurers who have surrendered their share, in the ratio of 50:50.

b) Inclusion of Regulation 6.5 (a)

The new regulation provides the methodology for scheduling and commercial settlement of energy exchanged under Ancillary services including Spinning Reserves and URS.