

Central Electricity Authority

**Scheme for National Level Optimization of surplus Generation Capacity**

A. **Background**

1. The generation capacity in the country may be categorized as under:
  - i. State owned generating capacity
  - ii. Central Generating Stations
  - iii. Private Sector: IPPs
  - iv. Captive generating Stations
2. Because of the present system of one to one PPA, the generating capacities are not being optimally utilized. Every year difficulties are observed in meeting the demand and some states do resort to power cuts. Especially during the April, May, September and October months the crisis is observed. The capacity is available in the country but due to one to one agreement constraint, even when the generating capacity is idle it cannot be utilized by the entity which needs power. There are States which do have surplus power and continue to bear the fixed charge burden without using it. This leads to high cost of power to the consumers.
3. The Distribution licensees tie up power from above generating sources mainly under following routes:
  - i. At regulated tariff determined by the Appropriate Commission under section 62 of the Electricity Act 2003.
  - ii. At bid tariff adopted by the Appropriate Commission under section 63 of the EA 2003.
  - iii. Banking of Power

**State owned Generating Capacity**

4. State owned generating companies supply power to Distribution companies of the same State and also supply seasonal surpluses to some other states under banking arrangements among such distribution companies.

**Central Generating Stations**

5. Central Generating companies supply power to the States under the allocation made by the Central Government. Some power which has been surrendered by the States have been reallocated to the other needy States. Some States have exited from the PPA after completion of 25 years, and such power is available for merchant sale as well.

6. The allocation of power is generally done to the states within the regions. There are five regions in the country i.e. Eastern, Western, Southern, Northern and North Eastern regions. Accordingly, the scheduling is also done among the beneficiaries of the region or the Power Purchase Agreement (PPA) holders from such power plant. In case there is un-requisitioned power within the region, it is available to only the original beneficiary of that power plant which means such power remains concentrated in the respective region only. There are following concerns:
  - i. Generally, there are similar demand pattern in the region and hence if demand is low, then some of the generating stations in the merit order dispatch has surplus capacity as they are not scheduled. As a result, most of the time, due to overall requisition being less than technical minimum (TM), the plant(s) do not generate and go under Reserve Shut Down (RSD). There are two consequences of this:
    - a. The plant is out of bar and is not available in the grid. Hence they cannot serve the grid under any contingencies or be used for Ancillary Services (Reserves).
    - b. Even the states who has power allocation and need power from such plant are deprived of the generation, as due to not attaining the TM, the plant is not generating and remains under reserve shutdown.
  - ii. The demand in some other region may be high or the states who do not have allocation from such power plants may be needing the power due to increased demand. Eg. Peak in Northern region is during summer whereas Peak in Southern region is during winter. Similarly, there is diversity in the time at which the peak occurs in the States.
7. At present, to facilitate use of surplus power by the constituents of the region, a portal is operational in Western Region (WR) and Eastern Region (ER). In order to have national level optimization, it is being proposed to have a national level mechanism and portal so that any state / Discom can use the surplus power from central generating stations of any region.

#### **Private Sector: IPPs**

8. Besides PPA holders, they may sell their surplus power in the power exchanges or sell in Term Ahead Market (TAM) or Day Ahead Market (DAM) or Real Time Market (RTM) or through DEEP e-portal.

#### **Captive Generating Stations**

9. They can sell their surplus power after meeting their own requirement.

### **B. The Scheme**

1.1 In the proposed scheme, a National portal would be created where temporary allocation of power from surplus (Seller) entity to deficit (buyer) entity would be made online amongst constituents in the country. In the proposed scheme none of the existing arrangements shall be disturbed, rather an additional avenue shall be provided to stakeholders for optimal use of surplus power. The proposed scheme envisages paperless working; and is subject to willingness of seller and buyer, confirmation of transmission corridor by NLDC and payment security by the seller before scheduling of such power. The Scheme shall be implemented with details as under:

- i. For surplus power with Central Generating Station (CGS):
  - a. Flexibility to use surplus power on day ahead basis (D-1) by all constituents in the country and;
  - b. Use of longer duration for surplus power
- ii. For surplus power with Inter- State Generating Stations (ISGS) (excluding CGS)
- iii. For surplus power with the States/ Distribution companies (whether State owned or Private)
- iv. For surplus power with IPPs and Captive Generating Stations

1.2 The power shall be bought / sold at the tariff as determined by the Appropriate Commission.

1.3 The transmission charges shall also be paid as applicable to the concerned transmission service providers (CTU or STU or as the case may be).

1.4 Payment security mechanism shall be maintained as per the mutually agreed terms and the same would be confirmed by the seller and the buyer on the portal. POSOCO to verify before actual despatch of power.

## **2.1 Standard operating Procedure (SOP) for flexibility to use the surplus power of CGS by all the States / Discoms irrespective of the original beneficiary of the region**

### **Temporary Allocation on Day Ahead (D-1) basis**

2.1.1 The original beneficiary of CGS shall submit through web-based National portal the surrendered quantum (MW), duration (block-wise). The tariff (as determined by the Appropriate Commission) shall be updated in advance at the portal by the concerned CGS. However, the tariff will be subject to any changes made by the Appropriate Commission.

2.1.2 The willing new beneficiary shall submit its requisition online for availing the surplus power through web-based National portal. The quantum and time period

shall be specified along with acceptance to pay the tariff as determined by the Appropriate Commission. The requisitions can be beyond MoP allocation.

2.1.3 CGS shall be permitted to revise its schedule for surplus power from its original beneficiary to any other beneficiary. The new beneficiary shall be liable to pay both variable charge (VC) and fixed cost (FC) for full requisition and original beneficiary shall have no right to recall as entire FC liability is shifted to the new beneficiary because power being temporarily reallocated to him. The financial liability of new beneficiary shall be limited to quantum of temporarily allocated power.

2.1.4 The payment shall be secured through suitable payment security mechanism e.g. letter of credit (LC) or advance payment or any other mutually agreed payment security mechanism.

2.1.5 Consent and details of surrender and requisition of surplus power of the original beneficiary and the new beneficiary respectively shall be confirmed by CGS w.r.t. to availability of units during period of requisition on the portal for further processing to the National Power Committee (NPC)/CEA.

2.1.6 NPC/CEA shall allocate surplus power on portal to willing new beneficiaries based on following criteria, and communicate to NLDC.

- i. First preference shall be given to co-beneficiaries of the CGS.
- ii. In case multiple beneficiaries seek to avail surplus power from a CGS, the surplus power allocation will be on first come first serve basis.
- iii. In case, multiple beneficiaries request simultaneously (in the same time block) and the sum of their requisitioned power exceeds the available surplus power, then the surplus shall be apportioned & scheduled pro-rata in the ratio of the respective requisitions (in MW) made by the buyers.

2.1.7 NLDC shall check availability of margins in the transmission network and seek confirmation of payment security from the CGS on the portal for the allocated capacity.

2.1.8 Based on CGS confirmation of payment security, NLDC shall finalise on the portal the allocation of surplus power and communicate to the CGS, concerned beneficiaries, respective RLDCs/RPCs and NPC/CEA.

2.1.9 The concerned RLDC shall schedule the surplus power as per the requisition within the time blocks stipulated in IEGC.

2.1.10 The portal would be linked to Web based energy schedule (WBES) software of NLDC/ RLDCs through Application program Interface (API) for outputs/inputs.

2.1.11 Payment settlement will be as per the REAs (Regional Energy Accounts) prepared by the concerned RPC. This will be binding on all the buyers of power from CGS.

2.1.12 For smooth implementation, NLDC shall bring out a detailed timelines.

**Temporary Allocation of Power for longer duration (more than one day- eg week, fortnight, month, quarter or any period mutually convenient to seller and buyer)**

2.1.13 For temporary allocation of power for longer duration i.e. more than one day, the original beneficiary may also provide standing consent to the CGS specifying quantum and time period. The duration could be for a week, fortnight, month, quarter, annual or any duration assessed by the seller or buyer. For allocation of power, similar procedure as given in para 2.1.1 to 2.1.11 above shall be adopted except in case desired duration exceeds STOA duration limit then CTU shall confirm availability of transmission network by following extant regulations.

2.1.14 To revive coal based units under Reserve Shut Down (RSD), maximum of around 36 hrs are required for cold start. CGS/Seller shall always keep updated status of generating units under reserve shutdown and planned shutdown at the portal so that buyers may submit their requisition accordingly.

**2.2 Standard operating Procedure (SOP) for flexibility to use the surplus power of ISGS (other than CGS) by all the States / Discoms irrespective of the original beneficiaries of the region**

2.2.1 Similar procedure as stated above i.e. clause 2.1.1 to 2.1.4 and 2.1.7 to 2.1.13 shall be adopted for ISGS as well.

2.2.2 Consent and details of surrender and requisition of surplus power of the original beneficiary and the new beneficiary respectively shall be confirmed by ISGS (other than CGS) w.r.t. to availability of units during period of requisition on the portal for further processing to the National Load Despatch Centre or Regional Load Despatch Centre, as the case may be.

**2.3 Standard operating Procedure (SOP) for flexibility to use the Surplus power with the States / Distribution companies (whether State owned or Private) by the other States / Discoms**

2.3.1 At present some of the distribution companies are giving the surplus power to some other states through banking process and take back the power when they need it as per the mutual agreement.

2.3.2 It is also observed that due to the diverse nature of demand in different states at different time, there is a possibility of optimum utilization of resources.

2.3.3 Many times it is seen that the States which are surplus during some period of time are keeping their own generating stations under reserve Shutdown. But there are other states which are facing crisis. However, in the absence of any mechanism, the resources even though available in the country but is not used to meet the overall demand in the country and there are load shedding. As per proposed scheme, states can temporarily transact. As a result, the State generating companies can also improve their plant load Factor and the effective overall per unit cost of generation of such generating companies can also be reduced.

2.3.4 In regard to option of the states selling surplus power in the power exchanges, it is experienced that the states prefer to keep their units under reserve shutdown. Further, the state owned generating companies do not take risk of selling their power in the power exchanges mainly due to uncertainty of the Market clearing price.

2.3.5 Thus, if the tariff is assured by some other states, the generating stations will come on bar and generate power. This will also reduce the burden of fixed cost to the Discoms and the retail tariff will also reduce, thereby benefitting the consumers. The buying State / discoms shall also bear the transmission charges as applicable.

2.3.6 Willing States/Discoms may use National Portal to sell/buy surplus power subject to payment confirmation by seller and transmission availability by NLDC. Accordingly, the procedure similar to ISGS may be adopted for States/Discoms.

2.3.7 The concerned SLDC (State Load Despatch Centre) shall accordingly coordinate with the RLDC/ NLDC if the buyer is from other than the same State.

## **2.4 Standard operating Procedure (SOP) for flexibility to use the Surplus power with the IPP and CPP**

2.4.1 Based on mutually agreed terms, willing IPPs/CPPs may use the National Portal to sell their surplus power subject to confirmation of transmission availability by NLDC.

2.4.2 The portal will also have similar features to facilitate the use of surplus power with the IPPs and CPP.

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