

NTPC Limited

Comments on the Discussion Paper on “Re-Designing Ancillary Services Mechanism in India”

NTPC’s Comments:

At the outset, NTPC would like to compliment Hon’ble Commission for taking this important step of Re-designing the Ancillary Services Mechanism. As has been pointed out in the Discussion paper, Ancillary services mechanism has been in service for the last two and half years and the Hon’ble Commission has been trying to continuously expand the base of Ancillary Services in Indian Power Sector through various means such as a pilot for AGC and proposed FRAS.

Currently the power required for the Ancillary Services has been planned to be met only from the URS power of the ISGS, which suffers from the following limitations:

- a) It creates problems for the planning of reserves and balancing requirements, as there are uncertainty regarding availability of URS power which could be used for the Ancillary Services requirements in the real-time.
- b) The quantity of the power, which can be used for Ancillary Services requirement is, limited both due to its reliance only on the URS power as well as the fact that only a few ISGS stations being eligible to participate in the present RRAS mechanism. Moreover, during the peak hours or seasons, when the demand of power is highest, availability of the URS power is the lowest. Hence there is a need to broad-base the power pool which could be used for meeting the Ancillary Services requirement in the real-time.
- c) At present the power used for the Ancillary services purpose is not always cost-reflective. In the current mechanism, the URS power used for Ancillary services may or may not reflect the demand situation depending on the station from where such power is available.

The Paper has discussed some of these limitations in detail and proposed to redesign the existing mechanism and bring in market orientation in the Ancillary Services Mechanism.

With the initiatives regarding redesigning the real –time market operation already taken up through the earlier discussion paper of Hon'ble Commission, it is probably the right time to plan for a market oriented Ancillary Services Mechanism in the country and NTPC wholeheartedly supports this initiative.

NTPC would like to bring to the fore some broad principles which could be critical to have an efficient market design for the Ancillary Services Mechanism.

- 1) The reserves are predefined capacity, which are kept aside for use against any contingencies. In case the contingency actually materializes, energy is scheduled from these identified reserves to bring the system back from the deviations which occurs due to the contingency.

Hence from the market design point of view, there should be sufficient incentives for a generator to be willing to set aside a part of its capacity as reserves and at the same time it should also fulfill the objective of minimizing the cost of this reserve. The Ancillary reserves market can be thought of consisting of these two components:

- a. Cost of Reserves: The cost of reserves would be the cost to be serviced to the generator because of its commitment to be kept as reserves instead of getting scheduled for supply of energy. This would typically also include the capacity costs for the reserves capacity and the opportunity cost for a generator, as has been suggested in the paper.
- b. Cost of Usage: When this generator is asked to supply energy at the time of requirement, the usage (Energy) cost of this reserve capacity has to be serviced separately. The energy cost of the reserves is a separate cost and cannot be compensated through the opportunity cost and would have to be given separately.

- 2) The Market design should provide a mechanism to recover these costs for a generator with the provision that the lowest cost generator(s) would be selected for providing the service. An efficient market design should allow all participants to bid at their true marginal costs. It is felt that the proposed mechanism as suggested in the Discussion paper would lead to sub-optimality in certain circumstances and may not lead to bidding at the true marginal cost by the generators.
- 3) Based on the example quoted in the consultation paper, some of the concerns regarding the market design and recovery of costs are illustrated below:

- a. In the base case, when the reserve capacity is utilized from Unit-2 in the real-time, payment is made at the opportunity cost of generation (here Rs 1000/MWHR) plus the reserve availability offer price of Rs 200/MWHR. Hence the generator gets compensated @Rs 1200/MWHR though the cost of supply of energy i.e. its quoted cost of generation is Rs 3500/MWHR.

It is not clear whether this payment is only for blocking the capacity for reserves; in that case what about the payments to cover the fuel costs, when the generator is asked to run and supply energy.

- b. The offer price of Unit-4 for the DA Energy Market is Rs 5500/MWHR; but it is paid @ Rs 4500/MWHR for the 50 MW scheduled in the Day Ahead Energy market.

This is because the unit has been kept on bar to utilise the reserve from this unit. However, to keep it on bar, a minimum schedule of 25% (presumably its technical minimum operating level) has been provided which is scheduled at below bid price. Either, the unit runs at a loss or includes the cost of TM schedule in its offer price. The unit then has to guess the market (its likely scheduling level) to spread its TM running

cost. This may lead to bidding by these generators not at their marginal costs but at the expected market discovered price only.

- c. Unit-3 and Unit-4 are being paid @ Rs 200/MWhr for the Day Ahead Reserve quantum, whereas they have the offer prices of Rs 300/MWhr and Rs 400/MWhr respectively.
 - d. It may be pointed out that this kind of market design may lead to inefficient bidding and the price discovery will not be based on the true marginal costs of the generators. As illustrated in the cases above, for each case the payment and settlement is at a price that is below the bid price. The participants will not therefore be able to bid at their true marginal cost. This will require them to outguess the market and this is likely to lead to spurious and speculative bidding by the generators, away from their true marginal costs. The prices discovered will also not be optimal and efficient, as they will include a component of these speculative costs.
 - e. In all the calculation used in the examples in the consultation paper, the offer prices in the Day Ahead Market and the Real Time Market have been assumed to be the same, which perhaps shows that bidding will happen at the true marginal costs of the generators. However, the settlement process shows that the generators will be paid a price which is different from its marginal cost. This may lead to a sub-optimality.
 - f. It is also not clear about the mechanism for payment of the capacity costs for the energy scheduled in the Energy market. Is it to be recovered through the existing PPA mechanism or from the discovered price in the Energy market? In the latter case, the energy bids will not be at the marginal costs and will distort merit order dispatch.
- 4) The success of this entire process is dependent on the correct estimation of the reserve demand in the system. The requirement of reserves must be

calculated based on pre-defined clear rules and transparent process, which will avoid any kind of confusion among the stakeholders. One step will be to mandate that the reserves will be estimated to **Maintain the System Frequency to a specific value** (with allowable variation limits and times). This will eliminate any subjectivity in quantification of reserves as long as the contingencies are clearly defined. The methodology of calculation of the reserves can be documented and published in the web-site of NLDC/ RLDCs. This will go a long way in improving the confidence of market participants in the market processes.

- 5) As with the process of identification and earmarking reserves, the process of utilization of these reserves must also be based on a transparent process and should also be well documented and published in the web-site of NLDC/ RLDCs.

These are some of the broad observations on the Consultation paper, NTPC shall offer its detailed comments once the Draft Regulations are issued by Hon'ble Commission.

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