

PROCEDURE FOR DISPOSAL/PROCUREMENT OF SURPLUS/DEFICIT POWER
UNDER REAL TIME OPERATIONS

1. Background

1.1 HPSEBL has firm power available from the following sources:

- 1.1.1** Generation from own generating stations.
- 1.1.2** IPP owned power projects with whom HPSEBL has executed long term PPA (Power purchase Agreements).
- 1.1.3** State of Region (SOR) shares in Central Sector and Joint Sector power projects.
- 1.1.4** Shares in shared generation projects.
- 1.1.5** Equity power share of GoHP in NJHPS for entire project life.

1.2 In addition to above, HPSEBL avails power from following sources to meet up the demand of the state:

- 1.2.1** Free power entitlements of GOHP (Govt. of Himachal Pradesh) in HPSEBL's post 1990 projects throughout the year.
- 1.2.2** Free power entitlements of GOHP in Shanan, IPP owned Baspa-II/Malana HEPs and IPP owned other HEPs connected to HPSEBL System.
- 1.2.3** Free power entitlements of GOHP in NJHPS, B/suil, Chamera-I, Chamera-II, Chamera-III, Parbati –III & Rampur HEP with consent of both GOHP & HPSEBL.
- 1.2.4** Bilateral arrangements like energy banking/market purchase.
- 1.2.5** Purchase through IEX (Indian Energy Exchange).

More than 80% of the availability of HPSEBL mentioned above is from hydro power stations which are mostly run-off-the river type HEPs. Generation of these power houses is totally dependent on the water inflow and is affected because of changing climate conditions, day to day weather changes, floods, high silt etc. Thus unlike other States where major part of their availability is from firm sources like thermal/gas/nuclear/storage type HEPs, in HPSEBL the major part of availability is from hydro power stations wherein generation is highly unpredictable. Anticipation of availability of power in case of HPSEBL is further a complicated task as monitoring/online data in respect of HEPs of around 400MW installed capacity is not available at our control centre.

2. Procedure

Keeping in view of the above facts we need to put in place a system to work out the load as well as generation availability for working out the surplus/deficit in 15 minutes time blocks for the next day and the same shall be as under:

2.1 Procedure to workout Day ahead demand of the State:-

The Shift In-charge of morning shift in HPSEBL's ALDC Control Room will work out the surplus/deficit in 15 minutes time blocks for the next day as below:

- 2.1.1** The trend for un-restricted demand in 15 minutes time block will be taken as average of the preceding 4 No. same weekly days i.e. if next day is Monday, the preceding 4 Mondays will be considered for arriving the average trend. However, any odd day will be excluded. Similarly for some special days like Holi, Diwali, Vishwakarma Day, 15th August, 26th January, Labour Day etc. the trend of previous years on these days will be considered.

- 2.1.2 The un-restricted demand for next day will be taken duly considering the current trend/Sundays/holidays/weather etc.
- 2.1.3 All planned shutdowns will be considered to arrive restricted demand.

2.2 Procedure to workout day ahead availability:-

- 2.2.1 Availability from Central Sector hydro stations/nuclear will be taken based on revision in force during 8.00 AM to 9.00 AM as obtained from NRLDC through SLDC. Thermal share will be taken as shares available from these sources at that time. However, surrender/URS booking of such shares will be excluded.
- 2.2.2 Own generation of major HEPs and Baspa-II HEP generation will be taken from concerned HEPs.
- 2.2.3 The generation of unmonitored HEPs will be based on available actual data and will be updated regularly.
- 2.2.4 All bilateral transactions will be taken as per approvals of NRLDC through SLDC.
- 2.2.5 The power purchase by OA consumers and sale by OA generators will be accounted for as per schedules given by them.

2.3 Procedure to work out surplus/deficit

Based on the above, day ahead will be prepared. Adjustments based on real time situation, if required, will also be made while finalizing the 15 minutes surplus/deficits.

3 Procedure for Disposal of Surplus Power/Arrangement of power to mitigate anticipated deficit

By 10:45 Hrs.

3.1 Shift In-charge Morning shift will forward the 15 minutes surplus/deficit to ASE/Sr. XEN-cum-PC by 10:45 Hrs who in further consultation with SE (PR&ALDC) will take action as under:

3.1.1 Will enquire for disposal/requirement of power from the utilities under “As & When Available/Required” banking arrangement, if any existing. However, in case such banking is not economical/required, banking will not be considered. AEE/AE will thereafter prepare sale/purchase bid as below:

3.1.1.1 In case of sale the quantum and rates will be considered as below:

- i) The entire surplus will be offered, if rate is above the rate of Gas shares.
- ii) The quantum of gas shares will be deducted from 3.1.1.1 (i) above for bidding at the rate which is above the thermal shares rates of Unchar-I, II & III and Kehalgoan.
- iii) The quantum of Unchar-I, II & III & Kehalgoan will be deducted from 3.1.1.1 (ii) above for bidding at the rate which is above thermal share rate of Rihand-I, II & III.
- iv) Bid for a minimum quantum will be made below this rate in such a way that power is not underdrawn at zero rate/penalty of UD is not paid. In such cases, may go for bid for such minimum quantum at a rate of even below Rs.1/- per unit to ensure sale of such minimum quantum.

By 11:00 Hrs.

3.1.2 The Sale/Purchase bid so prepared will be sent by 11.00 hrs. to Chief Engineer (SOP) and Director (Tech.) HPSEBL by PC/AEE/AE through e-mail for their approval.

By 11:30 Hrs.

3.1.3 Director (Tech.) and Chief Engineer (SOP) will convey their approval to the bid or will suggest changes in the bid by 11.30 hrs. failing which it will be deemed that no suggestions are made by these officers and the bid will be considered as approved for making the bid.

By 12:00 Hrs.

3.1.4 AEE/AE/PC will put on line sale/purchase bid in Indian Energy Exchange by stipulated period i.e by 12.00 hrs. of the day.

3.1.5 On receiving the obligation report from Indian Energy Exchange, the same will be emailed to Director (Tech.) Chief Engineer (SOP), SE (PR&ALDC) and Power Controller by AEE/AE.

3.1.6 In case the sale bid is not fully cleared, efforts will be made to sell the remaining quantum through Day ahead contingency in Indian Energy Exchange for which the bidding officer will be authorised for going for sale bid upto 25 paise per unit below the Day ahead rates or above the likely rate of power which is to be surrendered in case of under drawl of this surplus power. Similarly in case the purchase bid does not fully materialize, efforts will be made to purchase the power through Day ahead contingency in Indian Energy Exchange for which the bidding officer will be authorised to go for purchase at a rate which is upto 25 paise per unit above the Day ahead rates or in such a way that the overall purchase rate through IEX for the day remain below Rs. 4.50/- per unit.

3.1.7 In case sale/purchase bids are still not cleared fully, efforts will be made again through Intra-day-module of IEX for which rates will be as mentioned at Sr. No. 3.1.4 above. Since such sale/purchase is allowed from 14.00 hrs. onwards, the system operators at control room will take necessary action for surrender of gas/thermal share to the extent permissible/economical or will allow underdrawl duly considering the grid parameters and the provisions of grid code/regulations. In the extreme situation when underdrawls are not allowed or grid frequency goes above 50.10 Hz, the system operators will be authorised to go for spilling of water by IPP owned HEPs/HPSEBL owned duly considering the line loadings & other parameters of the system. However, such spilling will be made only when all means such as surrendering of shares, regulations of generation, lifting of power cuts, bringing the generations/consumers to their schedules etc are undertaken. Such back downs of generating stations will be carried out after giving at least one hours advance notice to the control room operators of the affected power house through e-mail/fax/telephonic message. In case of telephonic message, the same shall be recorded by the shift Incharge in the event register duly indicating the name & designation of the Officer to whom message has been conveyed. The shift Incharge in ALDC control room will also intimate such events to higher authorities on real time basis.

3.1.8 Similarly, in case the purchase bids are not cleared, efforts will be made for purchase of power through Intra-day module of IEX. Since, such purchases are allowed for 14.00 hrs. onwards, the system operators will be authorised to meet the demand of the State by booking the URS power, if available and to the extent possible, duly considering the power situation of the full day and overdrawing power from grid to the extent permissible/economical duly considering the grid parameters and provisions of grid code/applicable regulations. In case, it is still not possible to meet the demand of the State, the System operators will be fully authorised to impose load shedding as per the rotational Schedule. The system operators will ensure that the load shedding so imposed is uniform on all the sub-stations. Wherever possible, advance notice of one hours will be sent to concerned 220/132/66 KV substations staff and intimation to higher authorities i.e., SE (OP) of concerned area, Director (Tech.), Director (OP), Chief Engineer (SOP) will also be given by Shift Incharge, ALDC.

3.1.9 The system Operators in ALDC control room will also be authorised to impose load shedding in case of sudden outage of power system/ power house to the minimum possible

quantum i.e., upto 50 MW. The system operators will send flash message on the prescribed format to all concerned and will also intimate higher authorities telephonically of such events for their information and approval shall be sought for imposition of load shedding above 50 MW. Also, in the eventuality of restrictions extending for longer periods or there is repeated disturbance, efforts shall be made to minimise the load shedding by rotational load shedding.

3.1.10 Apart from above, efforts will also be made by SE(PR&ALDC) office to dispose off the surplus power/procure power through banking arrangements in force.

4 Intimation of disposal of surplus power/the deficit met:-

- 4.1** The details of actual power supply, outage of lines/substation/ P/Hs, load shedding during a day shall be placed by on website of ALDC by shift incharge(s), ALDC and also hard copies be sent to Director (Tech.), Chief Engineer (SOP), SE (PR&ALDC) for their information by 11.00 hrs of next day. Also, the major variations vis-a-vis anticipated demand and availability in a graphical shape supported by data and comments shall be put by offline staff through ASE (PC) on website.
- 4.2** SE (PR&ALDC) will put up the weekly actual/anticipated power supply to CE (SO&P) for information of Director (Tech.) on Tuesday of succeeding week. In case, there is holiday on Tuesday, it will be submitted on Wednesday.