CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

No. L-1/265/2022/CERC

CORAM:

Shri Jishnu Barua, Chairperson
Shri Arun Goyal, Member
Shri P. K. Singh, Member

Date of Order: 16th April 2024

In the matter of:

Approval of "Detailed Procedure for Security Constrained Unit Commitment (SCUC), Unit Shut Down (USD) and Security Constrained Economic Despatch (SCED) at Regional Level" under Regulation 46(4)(i), 47(2), 46(4)(j), 46(5)(a), 46(5)(b) and 49(2)(a)(iv) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023.

Order

The Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 (hereinafter called 'Grid Code') were published on 11.07.2023 in the Gazette of India Extraordinary (Part-III, Section-4, No. 488).

2. Regulations 46(4)(i) and 46(4)(j) of the Grid Code require NLDC to prepare a detailed procedure for the participation of the generating stations in SCUC, including the time to start a unit under different conditions such as Hot, Warm and Cold and submit the same for approval of the Commission. Further, Regulation 46(5)(a) requires NLDC to specify the criteria for assessment of the adequacy of reserves and

identification of the generating stations or units thereof for SCUC three days in advance in the detailed procedure. Regulation 47(2) requires the preparation of a detailed procedure for the USD, and Regulation 49(2)(a)(iv) requires the preparation of a detailed procedure for the SCED.

3. Accordingly, NLDC, vide its letter dated 29.09.2023, has submitted the "Detailed Procedure for Security Constrained Unit Commitment (SCUC), Unit Shut Down (USD) and Security Constrained Economic Despatch (SCED) at Regional Level" after stakeholder consultation, for the Commission's approval.

4. The Commission has examined the Detailed Procedure submitted by NLDC and after incorporating suitable changes, the Commission hereby approves the "Detailed Procedure for Security Constrained Unit Commitment (SCUC), Unit Shut Down (USD) and Security Constrained Economic Despatch (SCED) at Regional Level" in terms of Regulations 46(4)(i), 47(2), 46(4)(j), 46(5)(a), 46(5)(b) and 49(2)(a)(iv) of the Grid Code. The approved Detailed Procedure is enclosed as Annexure to this order which is effective from date of issue of this Order.

5. NLDC is directed to provide detailed feedback within one month after 6 months of the effective date of this procedure is completed, or earlier if required, to evaluate the operation of this procedure in practice.

Sd/	**Sd/**	**Sd/**
(P. K. Singh)	**(Arun Goyal)**	**(Jishnu Barua)**
Member	**Member**	**Chairperson**

Annexure-I

Detailed Procedures
for
Security Constrained Unit Commitment (SCUC),
Unit Shut Down (USD), and
Security Constrained Economic Despatch (SCED)
at Regional Level

1.0 Background

1.1 CERC (Indian Electricity Grid Code) Regulations, 2023, hereinafter referred to as the IEGC 2023, includes provisions on Security Constrained Unit Commitment (SCUC), Unit Shut Down (USD), and Security Constrained Economic Despatch (SCED).

1.2 This procedure is in accordance with Regulations 46(4)(i), 47(2), 46(4)(j), 46(5)(a), 46(5)(b), 49(2)(a)(iv), 49(2)(a)(x), 49(2)(a)(xi) of the IEGC 2023.

1.3 All the words and expressions used in the Procedure shall have the same meaning as assigned to them in various CERC Regulations.

2.0 Objective

2.1 The objective of this procedure is to lay down the roles of various entities and methodologies for the operation of SCUC, USD, and SCED mechanisms.

2.2 The objective of SCUC is to commit a generating station or unit thereof, for maintaining reserves in the interest of grid security.

2.3 The objective of SCED is to optimise generation despatch and achieve National Merit Order after gate closure in the real time market and after finalisation of schedules under RTM by incrementing generation from the generating stations with cheaper charge and decrementing commensurate generation from the generating station with higher charge, after considering the operational and technical constraints of generation and transmission facilities.

3.0 Scope

3.1 This procedure shall be applicable to regional entity thermal generating stations or units thereof, for which tariffs are determined under section 62 of the Act (hereinafter referred to as "section 62 generating stations"), and other regional entity thermal generating stations which may opt to participate under SCUC/SCED. A regional entity thermal generating station which opts to participate in SCUC is required to participate mandatorily in SCED.

4.0 Definitions

4.1 All the words and expressions used in the Procedure shall have the same

definition as assigned to them in the Electricity Act, 2003 and various CERC Regulations.

4.2 SCUC-Up means the incremental generation scheduled under the head "SCUC" in the scheduling system, in order to bring the schedule up to a minimum turndown level.

4.3 SCUC-Down means the decremental generation scheduled under the head "SCUC" in the scheduling system in order to balance the SCUC-Up, scheduled in other generating stations.

4.4 "Cold Start" in relation to steam turbine means start up after a shutdown period exceeding 72 hours (turbine metal temperatures below approximately 40% of their full load values).

4.5 "Hot Start" in relation to steam turbine, means the start up after a shutdown period of less than 10 hours (turbine metal temperatures below approximately 80% of their full load values)

4.6 "Warm Start" means the start up after a shutdown period between 10 hours and 72 hours (turbine metal temperatures between approximately 40% to 80% of their full load values) in relation to the steam turbine.

4.7 "Minimum Up Time" means the minimum time for which a unit shall be kept on bar once committed under SCUC.

4.8 "Minimum Down Time" means the minimum shutdown duration that would be provided between de-synchronization and synchronization of a generator under SCUC.

5.0 Roles and Responsibilities

5.1 Role of NLDC

5.1.1 NLDC shall be the nodal agency for coordinating and overseeing SCUC and SCED processes.

5.1.2 NLDC, in coordination with RLDCs, shall prepare a tentative list of generating stations or units that are likely to be scheduled below their minimum turndown levels for the 'D' day and publish the tentative list on its website by 1400 hrs of D-1 day.

5.1.3 NLDC may schedule incremental energy from the generating units to bring them to their minimum turndown levels to maximize the availability of on-bar units if a shortfall of reserves on D day is anticipated.

5.1.4 NLDC shall indicate the quantum of reserves to be kept in the generating stations or units brought under SCUC.

5.1.5 NLDC shall conduct SCUC three days in advance of the actual day of scheduling under certain conditions specified in the IEGC 2023, notifying generating stations about their commitments.

5.1.6 NLDC shall ensure proper coordination with RLDCs, generating stations, and beneficiaries for the entire SCUC process.

5.1.7 NLDC shall perform Security Constrained Economic Despatch (SCED) to manage and optimize the generation schedule based on real-time conditions.

5.1.8 NLDC shall issue the National SCED Monthly Statement, Statement of Compensation due to Part Load Operation on Account of SCED, and SCED benefit sharing statement.

5.2 Role of RLDCs

5.2.1 RLDC shall be the nodal agency for overseeing the USD process in consultation with NLDC, and other stakeholders.

5.2.2 RLDC shall prepare entitlements and declare each beneficiary's share for the 'D' day on 'D-1' day.

5.2.3 RLDC shall prepare injection and drawl schedules based on the availability of generating units and beneficiary schedules.

5.2.4 RLDC shall provide necessary data and information to NLDC for the SCUC and SCED processes.

5.2.5 RLDC shall facilitate coordination between NLDC and regional generating stations for the entire SCUC and SCED processes.

5.3 Role of Generating Stations

5.3.1 The generating stations shall provide necessary data and information to Regional Load Despatch Centres (RLDCs) and National Load Despatch Centre (NLDC) for scheduling and despatch.

5.3.2 The generating stations which are willing to participate in SCED/SCUC shall declare the Energy charge, or SCED Compensation Charge, and other data, as applicable as per the IEGC 2023. NOAR shall be the single point entry and the master repository for submitting the Energy charge/SCED compensation charge applicable for SRAS, TRAS, SCUC, and SCED. The same energy charge/compensation charge shall be used for despatch under all the mechanisms and/or applications.

5.3.3 The generating stations which have declared DC and choose to go under Unit Shut Down (USD) due to schedule below minimum turndown level shall fulfil their obligations to supply electricity to the beneficiaries by arranging alternate supply by entering into contracts or by arranging supply from other generating stations, or through SCED, for the periods they have declared the Declared Capacity (for section 62 generating stations) or as per the contracts (for the generating stations other than section 62 generating stations).

5.3.4 The generating stations shall facilitate with NLDC, RLDCs, and beneficiaries to ensure proper implementation of SCUC and SCED processes.

5.3.5 The generating stations under USD shall follow the directives of NLDC to come on bar under hot, warm, and cold conditions as necessary for maintaining grid security.

5.3.6 The participating SCED generators other than section 62 generating stations shall also communicate to respective RLDC and RPCs the details of constituent-wise share in the generating station and requisition (day-ahead and last revision) from the generating station.

5.3.7 In case of participating SCED generator with no tied capacity (merchant generator), if it enters into a contract, shall inform about such contracts for power sale and other related information before the commencement of scheduling of the same to the concerned RLDC and RPCs, as per the Grid Code.

5.3.8 The participating SCED generator other than section 62 generating stations with part tied capacity shall inform about any change in status of the tied-up capacity in advance before the commencement/ termination of scheduling due to such change in status to the concerned RLDC and RPCs as per the Grid Code.

5.3.9 The SCED generators shall reconcile the amount paid and received due to participation in SCED and the benefits accrued in National Pool Account (SCED) with NLDC on a quarterly basis based on the statements issued by RPCs and Statements issued by NLDC.

5.4 Role of Beneficiaries

5.4.1 The beneficiaries shall submit their requisitions to the RLDCs based on their demand forecasts and requirements.

5.4.2 The beneficiaries may revise their requisitions upward based on the tentative list of generating stations or units likely to be scheduled below their minimum turndown levels, as communicated by NLDC.

5.4.3 The beneficiaries shall coordinate and cooperate with NLDC, RLDCs and the generating stations to ensure proper implementation of Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Despatch (SCED) processes.

5.5 Role of RPCs

5.5.1 RPCs shall prepare Energy and Deviation Accounts of the SCUC and SCED participants based on energy charge or compensation charge, as the case may be, as per IEGC.

5.5.2 The RPCs shall prepare weekly SCUC and monthly SCED accounts as per schedule data provided to them by the RLDCs. Any post-facto revision in rates/charges by participating SCUC/SCED generators shall not be permitted.

5.5.3 The RPCs shall issue monthly "Statement of Compensation due to Part Load Operation due to SCUC/SCED" separately in its accounts for participating SCUC/SCED Section 62 generating stations along with monthly REA by the 20th of every month for the preceding month

5.5.4 The RPCs shall issue the statement of Details of Beneficiary schedule energy from the SCED generator as per "Format SCED_EE: RPC".

6.0 Procedure for Security Constrained Unit Commitment (SCUC)

6.1 The generating stations shall submit their declared capability/Pmax, along with ramp rate and minimum turndown level/Pmin for the 'D' day by 0600 hrs of the 'D-1' day.

6.2 Regional Load Despatch Centres (RLDCs) shall prepare the entitlements and declare each beneficiary's share by 0700 hrs of 'D-1' day. The beneficiaries shall submit their requisitions/schedules from ISGS by 0800 hrs of 'D-1' day.

6.3 Based on the station availability and the schedules submitted by beneficiaries/procurers, RLDCs shall prepare and publish the injection and dr6awl schedules [by 0945 hrs]. The power station can then participate in the Day-ahead Energy Market (DAM-Energy) and/or Day-ahead TRAS Market (DAM-TRAS). The DAM-Energy shall be cleared [by 1300 hrs], and Power Exchanges shall convey DAM results to NLDC after clearing of the market.

6.4 The bids for Tertiary Reserve Ancillary Services TRAS-DAM-Up and TRAS-DAM-Down collected by the power exchanges shall be consolidated and cleared by NLDC, and the TRAS-DAM-Up-Cleared quantum shall be, say, "X" MW.

6.5 The injection and drawal schedules by the regional entities and the results of the Day-ahead market would be available with NLDC [by 1430 hrs].

6.6 The block-wise TRAS-RTM-Up reserves expected to be available (say "Y" MW) shall be considered as the minimum of the last 7 days' data.

6.7 The quantum of TRAS reserve requirement (say "Z" MW) would be estimated in line with the extant approved procedure by CERC.

(As per the CERC Order dated 28th September 2023 in the matter of Approval of "Detailed Procedure for the Assessment of Quantum of Secondary and Tertiary Reserve Capacity, along with Information Exchange and Timelines" under IEGC-2023).

6.8 If the Total TRAS Reserve Requirement say "Z" MW is more than the total cleared MW in TRAS-DAM and TRAS-RTM (i.e., X+Y MW), for some time blocks, then the system would need additional reserves for such duration.

6.9 Additional Up reserve required (R=Z-X-Y) MW would be committed from two categories of generators (including section 62 generating stations and other generating stations):

6.9.1 Cat#1: Units that are likely to go below their minimum turndown level

6.9.2 Cat#2: Units under Shut Down

6.10 By 1400 hrs of D-1, NLDC, in coordination with RLDCs, shall publish a tentative list of generating stations or units thereof that are likely to be scheduled below the minimum turndown level of the respective stations for some or all the time blocks of the D day. Refer **Format-1**.

6.11 The beneficiaries of such generating stations, whose units are likely to be scheduled below minimum turndown level for some or all-time blocks of the D day, shall be permitted to revise their requisitions from such stations by 1430 Hrs of D-1 day in order to enable such units to be on bar. The data are thus

available with NLDC/RLDCs by 1430 hrs of D-1 day and shall be used for the purpose of the SCUC exercise. After 1430 Hrs, NLDC, in coordination with RLDCs, shall prepare the final list of such generating units that are likely to go below their minimum turndown level.

6.12 The allowable time for revival of units under hot, warm and cold start up shall be 4 hours, 8 hours, and 12 hours, respectively. The total time available for the revival of the unit would be the duration between the time of instruction by NLDC/RLDCs and the target time for synchronization of the unit.

6.12.1 In case the unit is under wet preservation, an additional 6 hours start up time shall be allowed for units under cold start up.

6.12.2 In case all the units in a generating station are under shutdown, an additional 6 hours shall be allowed for the deaeration of feedwater. This activity shall be carried out in parallel with revival of unit from wet preservation stage.

6.12.3 A generator can submit a lower time limit than the above to NLDC/RLDCs.

6.12.4 A generating station which has difficulty in achieving the specified revival time under cold start up, under sub-clause 6.12 of this Procedure, with details of difficulties being encountered, may approach the Grid-India (NLDC) for relaxing the timeline.

6.13 For SCUC, the following Minimum Up time and Minimum Down Time shall be considered

6.13.1 A minimum dispatch duration of forty-eight (48) time blocks i.e., twelve hours (12) hours shall be given to the thermal (coal/lignite based) generators by default.

6.13.2 A minimum dispatch duration of twelve (12) time blocks i.e., three (3) hours shall be given to the gas/RLNG/liquid-based thermal generators by default.

6.13.2.1 For combined cycle mode of operation, a minimum dispatch duration of forty-eight (48) time blocks i.e., twelve hours (12) hours shall be given.

6.13.3 A minimum shutdown duration of 4 hours would be provided before synchronizing an off-bar generator to the grid.

6.13.4 A generator can submit a lower time limit than the above to NLDC/RLDCs.

6.14 Further steps under the SCUC exercise shall be carried out as follows:

6.14.1 NLDC may schedule incremental power from the generating units which are likely to go below their minimum turndown level so as to bring such units to their minimum turndown level, in order to maximize availability of on bar units, by 1500 hrs of D-1 day. The list of generating stations which are committed under SCUC shall be updated on the respective RLDC website. Refer **Format-2.**

(i) Such generation shall be scheduled as per merit order, in the order of the lowest energy charge to the highest energy charge.

(ii) Changes in drawal schedule shall not be considered between 1430 hrs to 1500 hrs to enable the SCUC exercise.

6.14.2 If the entire incremental reserve (R=Z-X-Y) requirement is not fulfilled by Cat#1 units, the new units have to be committed from Cat#2 units for future resource and reserve adequacy management. While bringing units on bar from the Cat#2 stack, the three-day ahead block-wise inter-state generation requirement forecast shall be considered, including Up and

Down reserves. Information of units committed for the periods under Cat#1 shall be factored in while bringing units on bar under Cat#2.

6.14.3 The system security constraints and the power plant constraints that would be considered by NLDC for SCUC, are provided in **Annexure-1**.

6.14.4 Subsequently, the units under USD may be selected by the NLDC algorithm to come on bar under hot, warm and cold conditions as per the time period specified.

6.14.5 The selected units would be scrutinized by the NLDC for plausibility checks, and the list would be finalized based on up-to-date information, practical considerations due to exigencies, extreme weather conditions, and other situations impacting grid security.

6.14.6 The list of units that are required to come on bar on the 'D' day under hot, warm, and cold conditions shall be published on the NLDC website every day at 1500 hrs, with date and time. Refer **Format-3(a).**

6.14.7 Additionally, the units with longer start up time that are required on bar on day 'D', shall be published on a D-2 basis at 1000 hrs, considering the startup time and anticipation/forecast. Refer **Format-3(b).**

Note: the units that have been intimated to be brought on bar by advance intimation through Format 3(b) [at 1000 hrs] would be factored while preparing the additional list of units to be brought on bar on the next day through Format 3(a) [at 1500 hrs].

6.14.8 The updated schedule [at 1500 hrs] would then be compared with the initial schedule at [1430 hrs].

6.14.9 For the generating stations or units committed through SCUC, the corresponding initial drawal schedule shall be considered against the requisition from the beneficiaries, under a separate head in the scheduling system, "SCUC".

6.14.10 For the units which have been committed under SCUC by NLDC (intimated to the scheduling system by SCUC software), downward

revision of requisition by the beneficiaries below the minimum turndown level of those units would be blocked from 1500 hrs of D-1.

6.14.11 NLDC shall indicate the reserve quantum earmarked in each unit brought on bar under SCUC by 1500 hrs to the scheduling system. Such quantum of power identified as reserves shall not be available for scheduling by the beneficiaries or for sale by the generating station through the market. The quantum of power over and above the identified quantum of reserves and cleared in DAM can be rescheduled by the beneficiaries or scheduled by the beneficiaries or the generating stations by way of selling in the market.

6.14.12 A 96 time block multi-period day-ahead optimization shall be run at NLDC starting 1500 hrs of D-1 for day "D". Where SCUC stations have to be scheduled SCUC-Up, the commensurate reduction shall be done in generation from some of the other generating station(s) as SCUC-Down, subject to technical constraints, following merit order. This is a continuous time-blockwise exercise which shall incorporate changing schedules of sellers and buyers in the software and would help to assess the situation of the grid with such SCUC-UP.

6.14.13 Typically, the net sum of generation schedules under SCUC-UP and SCUC-down head would be zero, as only the reserves are created through SCUC, and extra energy is not being scheduled downwards.

6.15 The schedules as per the exercise carried out under SCUC-UP and SCUC-down shall be provisional and shall continuously vary with changing requisitions of the beneficiaries or the sale of power by the generating station in the market. These schedules shall be finalised in the final SCUC run in real time, along with SCED. Since the SCUC-down exercise shall be carried out to have a stock of balancing injection and drawal schedules, such schedules will have no bearing on the final schedules to be released at the time of real time SCED run. Such provisional schedules shall be kept in the SCUC software and only the final

schedules shall be published. The units committed under SCUC and the amount of reserve kept in such units shall be published, which shall provide certainty as the specific units that are required to be kept at least at minimum turndown level and the amount of reserve kept in such units shall not be available for sale in the market or scheduling by beneficiaries. Illustrations are provided in **Annexure-2**.

7.0 Unit Shut Down (USD)

7.1 The generating stations or units not brought on bar under SCUC shall have the option to operate at a level below the minimum turn down level or to go under Unit Shut Down (USD).

7.2 In case a generating station opts to go under unit shut down (USD), the generating company owning such generating station shall fulfil its obligation to supply electricity to its beneficiaries who had made requisition from the said generating station prior to it going under USD [i.e., before 1430 hrs of D-1], by arranging supply either -

7.2.1 by entering into a contract(s) covered under the Power Market Regulation; or

7.2.2 by arranging supply from any other generating station or unit thereof owned by such generating company subject to honouring of rights of the original beneficiaries of the said generating station or unit thereof from which supply is arranged; or

7.2.3 through SCED

7.3 The power scheduled from alternate sources shall be reduced from the schedule of the generating station.

7.3.1 The power would be scheduled from the alternate source for the generating station obligated to supply in accordance with Clauses (2) and (3) of Regulation 48 of the IEGC, as the case may be.

7.3.2 In case the generating station under USD is unable to arrange alternate supply and gets a schedule from beneficiaries, such quantum shall appear as under-injection and shall be settled under DSM.

7.3.4 The net injection schedule after beneficiary schedule, DAM, RTM, TRAS schedule, SRAS instruction, bilateral minus the power scheduled from alternate source to the generating station shall form the basis of computation of deviation under DSM.

7.4 In case of emergency conditions, for reasons of grid security, a generating station or unit thereof, which is under USD, may be directed by NLDC/RLDCs to come on bar, and in such event, the generating station or unit thereof shall come on bar under hot, warm and cold conditions as per **Format-3(a) or Format-3(b).**

7.4.1 Once a generating station is brought on bar as per **Format-3(a) or Format-3(b)** of this Procedure, it shall be treated as a unit under SCUC.

7.5 The reserve quantum earmarked in each unit brought on bar under SCUC shall remain blocked for use by NLDC and shall not be available for requisition by beneficiaries or sale by the generating station.

8.0 Security Constrained Economic Despatch (SCED)

8.1 SCED shall run after the Real Time Market (RTM) dispatch and shall be conducted on the schedules of the thermal generating stations in real time, at least 30 minutes before the actual dispatch period.

8.2 All the generating stations (including the generating stations other than section 62 generating stations willing to participate in SCED) shall declare the energy charge or the SCED Compensation Charge (after factoring in the likely changes in fuel cost and part load compensation, if any), and other data, as applicable, to NLDC on a weekly basis**.**

8.3 The objective function and the constraints for SCED are provided in **Annexure-3.**

8.4 The net demand for performing SCED shall be the total schedule of all the generating stations including the total quantum in the "SCUC" head in the latest revision of the scheduling system.

8.5 In case a regional entity generating station gets scheduled below minimum turndown level and wishes to go under USD after arranging power scheduled by its buyers through SCED, it shall submit consent to NLDC before gate closure [at least 75 minutes before the delivery time block] for arranging the scheduled power for such generating station through SCED. NLDC shall consider the drawal schedules in respect of such generating station, under SCED, subject to availability of margin such that a full drawal schedule against such a generating station can be accommodated under SCED and the energy charge, or SCED Compensation Charge, is higher than that of the marginal generating station of SCED.

9.0 Accounting and Settlement under SCUC

9.1 Payments for the stations where incremental power is scheduled shall be made from the Deviation and Ancillary Services Pool Account.

9.1.1 The generating station from which incremental energy has been scheduled shall be paid an energy charge or compensation charge for the incremental energy from the Deviation and Ancillary Services Pool Account.

9.1.2 The generating station where decremental energy has been scheduled to balance the additional energy above shall pay back the energy charge or compensation charge for the decremental energy to the Deviation and Ancillary Services Pool Account.

9.1.3 Compensation for part load operation of a generating station or unit thereof brought on bar under SCUC shall be paid from the Deviation and Ancillary Services Pool Account

9.1.3.1. Plants whose schedule have been reduced by SCUC through SCUC-Down would also be eligible for compensation for part load operation for the said quantum.

9.2 Any deployment of Ancillary services from the additionally committed generating station under SRAS or TRAS shall be settled in accordance with the CERC Ancillary Services Regulations-2022.

9.3 Energy Accounting for the SCUC schedule shall be done on a weekly basis along with Accounting of SRAS & TRAS on a net basis, and for SCED schedules, Energy Accounting shall be done on a monthly basis by the respective RPCs for respective regional/ intra-state generators with day wise resolution figure made available in the SCUC/SCED account based on the data provided to them by the RLDCs. RPCs shall publish the SCED account latest by the 15th of every month for the preceding month.

9.4 Startup cost would be in line with IEGC 2023. Regulation 6.3B of Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016, along with Appendix-II "Mechanism for Compensation for Degradation of Heat Rate, Aux Consumption and Secondary Fuel Oil Consumption, due to Part Load Operation and Multiple Start/Stop of Units" as issued by CERC dated 5th May 2017 vide No. L-1/219/2017-CERC shall continue to be in force till the mechanism for part load compensation under IEGC 2023/ relevant regulations is notified by the Commission.

9.5 The RPCs shall publish Energy Accounting for SCUC schedule "Regional SCUC Weekly Statement" **(Format SCUC_AA)**. RPCs shall issue a consolidated Energy Accounting covering SRAS, TRAS & SCUC (**Format SCUC_BB).**

9.6 All payments to the SCUC generators shall be made on net basis. The concerned SCUC generators liable to pay back the indicated charges **(Format SCUC BB),** shall do so within seven (07) working days of the issue of the statement of SCUC by the RPCs. If payments are delayed beyond seven (7) working days the defaulting Generator shall pay simple interest @ 0.04% for each day of delay on the payable amount.

9.7 The concerned SCUC generators eligible for payment shall be paid the indicated charges **(Format SCUC BB)** within ten (10) working days of the issue of the statement of SCUC by the RPCs.

9.8 The RPCs shall issue monthly "Statement of Compensation due to Part Load Operation due to SCUC" **(Format SCUC CC)**, subject to yearly computation as the heat rate computation is being done on an annual cumulative basis, as per the provisions of part load compensation.

9.9 Compensation due to Part Load Operation due to the eligible SCUC generator shall be paid from the respective regional 'Deviation and Ancillary Service Pool Account'.

9.10 In case of a deficit in the Deviation and Ancillary Service Pool Account for payment (as per Format SCUC BB and Format SCUC CC) of one region, the surplus amount available in other regional Deviation and Ancillary Service Pool Account shall be used for such payment.

9.11 For section 62 generating stations that are regional entities, the heat rate compensation for part load operation shall be provided as per the IEGC, 2023/relevant regulations as amended from time to time.

9.12 For the generating stations other than section 62 generating stations that are regional entities, the heat rate compensation for part load operation shall not be provided. It shall be part of their compensation charge.

9.13 Any bank interest accumulated due to delay in payment by SCUC generator or bank interest, shall be considered surplus for the Deviation and Ancillary Service Pool Account. This surplus shall be utilized for payables for deviation and ancillary services charges, reactive energy charges, congestion charges and Ancillary Services charges.

10.0 Accounting and Settlement under SCED

10.1 The incremental/decremental day-ahead SCED schedules shall be maintained under a separate head in the scheduling system.

10.2 The schedule of beneficiaries shall not be changed on account of SCED. Buyers or beneficiaries shall continue to pay the charges for the scheduled energy directly to the generating station(s) participating in the SCED.

10.3 Gains from the SCED process shall be accumulated into the "SCED Account" and shall be shared with generating stations and their beneficiary states.

10.3.1 For any increment in the generation schedule on account of SCED, the participating generator shall be paid from the 'SCED Account' at the rate of its energy charge or SCED Compensation Charge declared upfront by the generator.

10.3.2 For any decrement in the generation schedule on account of SCED, the participating generator shall pay to the 'SCED Account' at the rate of energy charge or SCED Compensation Charge, as applicable.

10.3.3 The net savings shall be shared between the beneficiaries or buyers and the generating stations as per the mechanism stipulated in **Annexure-4**:

10.4 Part load compensation for a reduction in the schedule on account of SCED, in respect of a generating station or unit thereof whose tariff is determined under section 62 of the Act shall be paid from the savings in the SCED Account.

10.5 Part load compensation for the reduction in the schedule of a generating station or unit thereof other than those whose tariffs are determined under section 62 of the Act shall be factored in by such generating station while declaring the SCED Compensation Charge and shall not be paid separately.

10.6 SCED schedules are also required to be incorporated in the inter-regional schedules for each region and accordingly, NLDC shall compute the impact of SCED schedules on the inter-regional schedules for all regions. The incremental change in the inter-regional schedules shall be communicated by NLDC to the respective RLDCs for incorporation in the net inter-regional schedules being given to the RPCs for the purpose of accounting.

10.7 NLDC shall maintain and operate a separate bank account in the name of "National Pool Account (SCED)" for payments to/receipts from the SCED Generators. The details of the bank account will be displayed on the NLDC website.

10.8 The NLDC shall prepare a consolidated statement on a monthly basis indicating the SCED schedules.

10.9 For any decrement in the schedule of the SCED generator due to SCED, the SCED generator shall pay to the 'National Pool Account (SCED)' for the decrement in generation at the rate of its energy charges/compensation charge.

10.10 For any increment in the schedule of the SCED generator due to SCED, the SCED generator shall be paid from the 'National Pool Account

(SCED)' for the incremental generation at the rate of its energy charges/compensation charge.

10.11 The payments/receipts by/to the SCED generators shall be based on the "Regional SCED Monthly Statement" **(Format SCED AA)** issued by respective RPCs and consolidated "National SCED Monthly Statement" **(Format SCED BB)** issued by NLDC.

10.12 Day-wise details for SCED generators shall also be made available in the SCED account by RPCs/ SLDCs.

10.13 NLDC shall issue a consolidated "National SCED Monthly Statement" comprising of payment and receipts to/from all SCED generators based on the "Regional SCED Monthly Statements" issued by all the RPCs.

10.14 The concerned SCED generator shall pay the indicated charges for SCED decrement within seven (07) working days of the issue of the statement of SCED by the RPCs to the 'National Pool Account (SCED)'. Payments against SCED shall not be adjusted against any other payments by the SCED generator.

10.15 The concerned SCED generator shall be paid the indicated charges for SCED increment within ten (10) working days of the issue of the consolidated "National SCED Monthly Statement" by the NLDC from the 'National Pool Account (SCED)'.

10.16 If payments by the SCED Generator, due under the SCED, are delayed beyond seven (7) working days from the date of issue of the "Regional SCED Monthly Statement" by the RPCs, the defaulting SCED generator shall pay simple interest @ 0.04% for each day of delay on the payable amount.

10.17 If payments to the SCED generator, due under the SCED, are delayed beyond ten (10) working days from the date of issue of the consolidated "National SCED Monthly Statement" by NLDC, the SCED generator shall be paid simple interest @ 0.04% for each day of delay on the receivable amount.

10.18 The RPCs shall issue monthly "Statement of Compensation due to Part Load Operation due to SCED" **(Format SCED CC)**, subject to yearly computation as the heat rate computation is done on an annual cumulative basis, as per mechanism for part load compensation.

10.19 For section 62 generating stations that are regional entities, the heat rate compensation for part load operation shall be provided as per CERC (Indian Electricity Grid Code) Regulations, 2023 / relevant regulations as amended from time to time.

10.20 The generating stations other than section 62 generating stations that are regional entities, the heat rate compensation for part load operation shall not be provided. It shall be part of their compensation charge.

10.21 NLDC shall issue monthly "National Statement of Compensation due to Part Load Operation due to SCED" **(Format SCED_DD)** on the compensation to be paid to the SCED generator for heat rate degradation from the National Pool Account (SCED) based on Format SCED_CC statement issued by respective RPCs.

10.22 The concerned SCED generator shall be paid the indicated charges of compensation for heat rate degradation as per the statement issued by "National Statement of Compensation due to Part Load Operation due to SCED" by the NLDC from the National Pool Account (SCED) within seven (07) working days of the issue of the monthly statement subject to yearly computation, as the heat rate computation is done on annual cumulative basis.

10.23 If payments are delayed beyond seven (7) working days from the date of issue of the "National Statement of Compensation due to Part Load Operation due to SCED" by the NLDC, the SCED generator shall be paid simple interest @ 0.04% for each day of delay.

10.24 In case of any recovery on account of Heat rate compensation due to part load operation from the SCED generator, the concerned SCED generator shall pay back to the 'National Pool Account (SCED)' the indicated charges within seven (07) working days of the issue of "National Statement of Compensation due to Part Load Operation due to SCED" by the NLDC.

10.25 If payments are delayed beyond seven (7) working days from the date of issue of the "National Statement of Compensation due to Part Load Operation due to SCED" by the NLDC, the defaulting SCED generator shall pay simple interest @ 0.04% for each day of delay.

10.26 NLDC shall maintain a record of all savings on an accrual basis in the 'National Pool Account (SCED)'.

10.27 NLDC shall issue the statement of interest due to delay in payment on a quarterly basis. The concerned SCED generator shall pay back to the 'National Pool Account (SCED)' the indicated charges within seven (07) working days from the issue of "National Statement of Interest due to delay in payments". NLDC shall disburse the interest amount from the 'National Pool Account (SCED)' to the eligible SCED generators due to delay in receipt of Monthly SCED payment for net SCED down.

10.28 If the SCED generator concerned fails to pay the interest amount within the stipulated period as mentioned, NLDC shall adjust that amount from the amount receivable by the particular generator either in "Monthly SCED statement" and/or "Monthly SCED statement due to part load operation due to SCED" and/or "Monthly benefit sharing statement".

Format-1: Tentative list of generating stations, scheduled below the minimum turndown level

Time: 1400 hrs Date <published on D-1 basis>: DD/MMM/YYYY

For Date "D": DD/MMM/YYYY

S. No.	Name of generator (Multiple entries allowed)	From time block	To time block	Schedule (MW)	Turndown level (MW)	ECR /compensation charge (Paise/kWh)
1	Gen-A	10	20	225	275	330
2	Gen-A	25	35	180	275	330
3	Gen-B	5	96	200	275	375

Note: The expected station schedule is indicated. Stations are advised to maintain as many units as possible on bar. The generators are arranged in ascending order of ECR or compensation charge, as the case may be.

Format-2: List of generating stations with incremental power scheduled to achieve minimum turndown level

Time: 1500 hrs Date <published on D-1 basis>: DD/MMM/YYYY

For Date "D": DD/MMM/YYYY

S. No.	Name of generator (Multiple entries allowed)	Time block	Schedule (MW) @1430 hrs	ECR /compensation charge(Paise/kWh)	Whether committed under SCUC-UP
1	Gen-A	10-20	225	330	YES
2	Gen-A	25-35	180	330	YES
3	Gen-B	5-96	200	375	NO

Generating Station	Total Reserves to be kept under Cat#1 units (MW)
Gen-A	
--	

Note: The expected station schedule is indicated. Stations are advised to maintain as many units as possible on bar.

Annexure-1: Objective Function, Constraints and Inputs for SCUC

Objective of SCUC

The objective of SCUC is to commit a generating station or unit thereof, for the creation of reserves in the interest of grid security, without altering the entitlements and schedule of the buyers of the said generating station in the day ahead time horizon.

Mathematical Formulation

Objective function of the optimization module (for purpose of running of software and shall have no bearing on SCUC objective as per Grid Code)

To minimize the 3 day-ahead power plant variable operation cost. The operation costs comprise of energy cost and startup cost.

Note: Heat rate degradation has been neglected to keep the formulation in the linear domain.

Constraints

1. **Meeting the 3 days ahead forecasted demand**

   The 3 days ahead total thermal generation requirement will be forecasted by NLDC in section 62 generating stations and other generating stations opting for SCUC) based on the block-wise historical data of the previous 7 days.

2. **Maintaining the required spinning reserve**

   The methodology has been dovetailed with TRAS reserve procurement. TRAS reserves procurement process considers the historical surplus reserves available in section 62 generators and other generating stations opting for SCUC as deemed available reserves.

   X MW = TRAS-DAM Cleared MW

   Y MW = Historical data minimum of the previous 7 days TRAS-RTM Cleared MW

   Z MW = Total Reserve Requirement

Z MW factors anticipated Section 62 reserves, advance procured reserves, reserve position intimated by the States, and past SCUC created reserves

Additional Up reserve requirement (R=Z-X-Y) would be committed from two categories of generators (including section 62 generators, and other opting generators):

Cat#1: Units that are likely to go below their minimum turndown level (Refer Format-2.

Cat#2: Units under Unit Shut Down

If the entire incremental reserve requirement (R=Z-X-Y) is not fulfilled by Cat#1 units, then new units have to be committed from Cat#2 units, for serving the remaining requirement.

3. **Honouring transmission constraints**

SCUC will ensure that the unit commitment honours the ATC constraints.

4. **Must RUN**

This provision allows the operator to factor uncertainties related to weather, outages, live information, etc. Intervention in D day can be due to (i) extreme variation in weather conditions; (ii) high load forecast; (iii) the requirement of maintaining reserves on a regional or an all India basis for grid security; and (iv) network congestion.

5. **Capacity and Ramp constraints**

The DC, technical minimum and ramp rates declared by the plants will be honoured while deciding the unit commitment. For DC and technical minimum, the previous 7 days data would be used as a proxy. Unit wise availability information also would be collected from the power plant on a look-ahead basis. Technical minimum would be considered as 55%*Normative IC by default.

6. **Minimum Up Time and Minimum Down Time**

When a unit is committed, it has to remain ON for a certain minimum time called Minimum Up Time. Similarly, when a unit is decommitted, it has to remain OFF for a certain minimum time called Minimum Down Time, before it can be brought back

on bar. The same would be honoured, and the status of each unit for Hot/Warm/Cold would be maintained in the NLDC database on a continuous basis.

7. Crew constraint

Typically, the number of crew in a power plant will be just sufficient to start one unit at a time. This constraint ensures a minimum time gap between startup of two units in the plant. Since all the units in a stage will have the same energy cost, SCUC would commit them at the same time if crew constraint is not modelled. Hence, the same would be considered.

Inputs

For the purpose of unit commitment, the following inputs would be suitably considered. Suitable assumptions shall be made by NLDC, in case of non-availability of the data.

1. Blockwise unit availability considering planned/forced outages
2. Technical Minimum and Ramp Rate
3. Unit Minimum Up Time and Minimum Down Time
4. Crew constraint time
5. Energy charge / Compensation charge, as applicable
6. Startup costs (Hot/Warm/Cold)
7. Startup time (Hot/Warm/Cold) and unit boiler status ISGS
8. Time required for combined cycle operation under cold/warm conditions
9. Cat#1 unit commitment details

Outputs of SCUC [by 1500 hrs]

1. List of units to be brought on bar (SCUC-Up flag)
2. Units scheduled to at least 55%
3. Earmarked reserves in each unit brought on bar under SCUC to the scheduling system
4. SCUC Up/Down MW for load-generation balance

Annexure-2: Illustrations of SCUC re-run outputs after changes in beneficiary schedules on D-1

Table-1: Illustration of SCUC re-run at 2315 hrs of D-1, to factor in changes in requisitions made by the beneficiaries of the plants not committed under SCUC

	VC (Rs/kWh)	DC (MW)	Minimum turn down level (MW)	Net Beneficiary Requisitions (MW) against DC @ 1430 hrs	Net Schedule (MW) @ 1430 hrs	SCUC (MW) @ 1500 hrs	Net Schedule (MW) @ 1500 hrs	Net Beneficiary Requisition (MW) against DC @ 2315 hrs	SCUC re-run (MW) @ 2315 hrs	Net Schedule (MW) @ 2315 hrs re-run
Plant-A	3.00	1000	550	1000	1000	0	1000	1000	0	1000
Plant-B	3.50	1000	550	1000	1000	-150	850	1000	-350	650
Plant-C	4.00	1000	550	1000	1000	-450	550	800	-250	550
Plant-D	4.5	1000	550	300	300	250	550	300	250	550
Plant-E	5	1000	550	200	200	350	550	200	350	550

Explanation: Please notice the net beneficiary requisition for Plant-C. The beneficiaries in Plant-C have surrendered 200 MW requisition, making the net beneficiary requisition (MW) against DC 800 MW from 1000 MW. The SCUC re-run at 2315 hrs has adjusted the SCUC-Down quantum of Plant-C and Plant-B to balance the net SCUC schedule while maintaining the minimum turn down level for all stations and following the merit order.

Table-2: Illustration of SCUC re-run at 2315 hrs of D-1, to factor in changes in requisitions made by the beneficiaries of the plants not committed under SCUC, as well as plants committed under SCUC.

	VC (Rs/kWh)	DC (MW)	Minimum turn down level (MW)	Net Beneficiary Requisitions (MW) against DC @ 1430 hrs	Net Schedule (MW) @ 1430 hrs	SCUC (MW) @ 1500 hrs	Net Schedule (MW) @ 1500 hrs	Net Beneficiary Requisition (MW) against DC @ 2315 hrs	SCUC re-run (MW) @ 2315 hrs	Net Schedule (MW) @ 2315 hrs re-run
Plant-A	3.00	1000	550	1000	1000	0	1000	1000	0	1000
Plant-B	3.50	1000	550	1000	1000	-150	850	1000	-258	742
Plant-C	4.00	1000	550	1000	1000	-450	550	800	-250	550
Plant-D	4.50	1000	550	300	300	250	550	312	238	550
Plant-E	5.00	1000	550	200	200	350	550	280	270	550

Explanation: Please notice the net beneficiary requisition for Plant-D and Plant-E. The beneficiaries in these plants have requisitioned additional quantum (surrender prohibited for SCUC plants), making the net beneficiary requisition (MW) to 312 MW and 280 MW, respectively. The SCUC re-run at 2315 hrs has reduced the SCUC-Up quantum of Plant-D and Plant-E. To balance the net SCUC schedule, the

SCUC-Down quantum in Plant-B and Plant-C have been adjusted to -258 MW and -250 MW, respectively, while maintaining the minimum turn down level for all stations and following the merit order.

Format-3(a): List of units that are required to come on bar on the next day

Time: 1500 hrs Date <published on D-1 basis>: DD/MMM/YYYY

For Date "D": DD/MMM/YYYY

Sno	<Station Name>#<unit number>	Unit synchronization time	Unit synchronization date
1	Gen-A#1	0000 hrs	D
2	Gen-A#2	0800 hrs	D
3	Gen-A#3	1300 hrs	D
4	Gen-B#1	1600 hrs	D

Format-3(b): Advance intimation of the list of units that are required to come on bar on the next two days

Time: 1000 hrs Date <published on D-2 basis>: DD/MMM/YYYY

For Date "D": DD/MMM/YYYY

Sno	<Station Name>#<unit number>	Unit synchronization time	Unit synchronization date
3	Gen-C#3	0100 hrs	D
4	Gen-D#1	0200 hrs	D

Annexure-3: Objective Function and Constraints for SCED

SCED Objective Function

Minimize Variable Cost of Generation

SCED Constraint Equations

Import ATC limit constraint

Export ATC limit constraint

SCED equality Constraint for demand supply balance

Maximum generation limit constraint

Minimum generation limit constraint

Ramp up limit on movement of generators

Ramp down limit on movement of generators

Plant level Maximum check (for Gas)

Plant level Minimum check (for Gas)

Inputs:

1. SCUC-Up Flag for each station from the SCUC engine, Ug
2. Earmarked MW reserves in each station, Eg
3. Net Schedule of the station after RTM clearing
4. Variable charge / Compensation charge, as applicable

Outputs:

1. Adjusted/re-evaluated SCUC-Up/SCUC-Down quantum for each station
2. SCED-Up/SCED-Down quantum for each station

Annexure-4: Sharing mechanism of SCED benefits

1. Beneficiary(ies) of SCED Generators shall provide the Bank account details to NLDC as per the format published in the Grid-India website to facilitate payments to/from the beneficiary of participating SCED generator due to net benefits accrued in National Pool Account (SCED).
2. As a first step, the share towards 'untied capacity' of merchant generators as well as generators with part capacity tied shall be segregated from the net benefits in the ratio of contribution of such generators to SCED, for every time block.
3. The remaining benefits (the final net benefits) shall be shared in the ratio of 50:50 between the generators with tied up capacity and the concerned beneficiaries, aggregated on a monthly basis as per Regional Energy Account (REA)/ State Energy Account (SEA) and NLDC monthly SCED accounts.
4. The share of the generators with tied capacity (i.e. 50% of the final net SCED benefit) shall be allocated in the following manner:
   (i) The benefits corresponding to such SCED generators shall be based on the block wise SCED Up and SCED Down energy aggregated on a monthly basis. Benefits as computed above for the SCED generators, would then be summed up for the month.
   (ii) The generators' share shall be allocated to such SCED generators in the ratio of their total schedule under SCED Up and SCED Down, respectively, subject to a ceiling of 7 paise/kWh.
   (iii) The gain over and above 7 piase/kWh shall be shared among beneficiaries in proportion to their final schedule from all such SCED generators as per the Regional Energy Account (REA)/ State Energy Account (SEA).
5. The beneficiaries' share (50% of the final net SCED benefit) shall be allocated in the following manner:
   (i) The benefit corresponding to the beneficiaries shall be aggregated on a monthly basis as per the Regional Energy Account (REA)/ State Energy Account (SEA) and NLDC monthly SCED accounts. Only the schedules under GNA shall be considered for the calculation of 50% of such sharing, and schedules under T-GNA shall not be considered for such sharing.
   (ii) The total final net SCED benefits corresponding to the Beneficiary shall be distributed in proportion to their final schedule from the

SCED generators as per the Regional Energy Account (REA)/ State Energy Account (SEA).

(iii) RPCs/SLDCs shall issue the "Detail of Beneficiary schedule energy from SCED generator" **(Format SCED EE),** and RPCs/SLDCs shall transfer such details through a suitable electronic interface such as API (Application Programming Interface) to NLDC.

(iv) NLDC would issue a Monthly "National net SCED Benefits Distribution Statement" (after adjusting the heat rate compensation) indicating the payment to SCED generators **(Format SCED FF)** and beneficiaries of SCED generator **(Format SCED GG)** based on statements issued by respective RPCs/SLDC. This would be made available to the stakeholders through the NLDC website.

(v) The payment to the SCED Generator and Beneficiary shall be paid within ten (10) working days of the issue of the monthly "National net SCED Benefits Distribution Statement" by the NLDC from the 'National Pool Account (SCED)'.

(vi) The payment of Net SCED benefits to the SCED Generator will be made by NLDC after deducting any pending interest on delay payment of variable / refund of Compensation charges from the respective SCED generator.

Format SCUC_AA: RPC "Regional SCUC Weekly Statement"

(To be issued by concerned RPC)

SCED Account for Week <<from date>> <<to date>>

***(+) means payable from the Deviation and Ancillary Service Pool Account to the SCUC Generator**

/ (-) means receivable by 'Regional Deviation and Ancillary Service Pool Account' from SCUD Generator

S.N.	SCUC Generator	Increment due to SCUC schedule **(MWHr)** **(A)**	Decrement due to SCUC scheduled **(MWHr)** **(B)**	Charges To be Paid to SCUC Generator **(in ₹)** **(C) = (A) x (V.C. or C.C)**	Charges To be Refunded by SCUC **(in ₹)** **(D) = (B) x (V.C. or C.C)**	Net Charges Payable for SCUC (+) / Receivable (-) **(in ₹)** **(E)* = (C) – (D)**
1	SCUC Generator 1					
2	SCUC Generator 2					
….	…….					
	Total	Total of (A)	Total of (B)	Total of (C)	Total of (D)	Total of (E)

Format SCUC_BB: RPC "Net Regional Shortfall/emergency and SCUC weekly Statement"

(To be issued by concerned RPC)

***(+) means payable from the Deviation and Ancillary Service Pool Account**

/ (-) means receivable by 'Regional Deviation and Ancillary Service Pool Account'

SRAS/shortfall/ emergency/SCUC Generator	net charges payable for SRAS Rs **(A)**	Net charges payable for Shortfall/Emergency Condition Rs **(B)**	Net Charges Payable for SCUC Rs **(C)**	Net Payable or receivable by Generator (Rs) **(D)= (A)+(B)+(C)**
Generator 1				
Generator 2				
.....				
Total				

Format SCUC_CC: RPC "Statement of Compensation due to Part Load Operation due to SCUC"

(To be issued by concerned RPC)

***(+) means payable from the Deviation and Ancillary Service Pool Account to SCUC Generator**

/ (-) means receivable by 'Regional Deviation and Ancillary Service Pool Account' from SCUD Generator

For Month:

SCUC Generator	Decrement due to SCUC **(MWHr)**	Compensation Amount Payable due to SCUC for the month**(in ₹)***	Compensation Amount Payable due to SCUC up to the month**(in ₹)***
SCUC Generator 1			
SCUC Generator 2			
…..			
Total			

Format SCED_AA: RPC "Regional SCED Monthly Statement"

(To be issued by concerned RPC)

SCED Account For Month <<from date>> <<to date>>

***(+) means payable from the 'National Pool Account (SCED)' to SCED Generator**

/ (-) means receivable by 'National Pool Account (SCED)' from SCED Generator

S.N.	SCED Generator	Increment due to SCED scheduled to VSCED [Region] **(MWHr)** **(A)**	Decrement due to SCED scheduled to VSCED [Region] **(MWHr)** **(B)**	Charges To be Paid to SCED Generator from National Pool (SCED) **(in ₹)** **(C) = (A) x V.C.**	Charges To be Refunded by SCED Generator to National Pool (SCED) **(in ₹)** **(D) = (B) x V.C.**	Net Charges Payable (+) / Receivable (-) **(in ₹)** **(E)* = (C) – (D)**
1	SCED Generator 1					
2	SCED Generator 2					
….	……					
	Total	Total of (A)	Total of (B)	Total of (C)	Total of (D)	Total of (E)

Format SCED_BB: NLDC "National SCED Monthly Statement"

For Month <<from date>> <<to date>>

***(+) means payable from the National Pool Account (SCED) to SCED Generator**

/ (-) means receivable by National Pool Account (SCED) from SCED Generator

S.N.	SCED Generator	Region	Increment due to SCED scheduled to VSCED **(MWHr)** **(A)**	Decrement due to SCED scheduled to VSCED **(MWHr)** **(B)**	Charges To be Paid to SCED Generator from National Pool (SCED) **(in ₹)** **(C) = (A) x V.C.**	Charges To be Refunded by SCED Generator to National Pool (SCED) **(in ₹)** **(D) = (B) x V.C.**	Net Charges Payable (+) / Receivable (-) **(in ₹)** **(E)* = (C) – (D)**	
1	SCED Generator 1	NR						
2	SCED Generator 2	WR						
….	……	……						
	Total		Total of (A)	Total of (B)	Total of (C)	Total of (D)	Total of (E)	

Format SCED_CC: RPC "Statement of Compensation due to Part Load Operation due to SCED"

(To be issued by concerned RPC)

***(+) means payable from the National Pool Account (SCED) to SCED Generator**

/ (-) means receivable by National Pool Account (SCED) from SCED Generator

For Month:

SCED Generator	Decrement due to SCED upto the month for FY (MWHr)	Decrement due to SCED for the month (MWHr)	Compensation Amount Payable on account of SCED from National Pool Account (SCED) to SCED Generator upto the month (Rs)	Compensation Amount Payable on account of SCED from National Pool Account (SCED) to SCED Generator for the month (in ₹)*
SCED Generator 1				
SCED Generator 2				
.....				
Total				

Format SCED_DD: NLDC "National Statement of Compensation due to Part Load Operation due to SCED"

***(+) means payable from the National Pool Account (SCED) to SCED Generator**

/ (-) means receivable by National Pool Account (SCED) from SCED GeneratorFor

Month:

SCED Generator	Region	Decrement due to SCED **(MWHr)**	Compensation Amount Payable on account of SCED from National Pool Account (SCED) to SCED Generator upto the month (Rs)	Compensation Amount Payable on account of SCED from National Pool Account (SCED) to SCED Generator for the month (in ₹)*
SCED Generator 1	NR			
SCED Generator 2	WR			
.....	.....			
Total				

Format SCED_EE: RPC "Details of Beneficiary schedule energy from SCED generator"

Details from REA* <<Month>>

Entity	Beneficiary 1	Beneficiary 2	Beneficiary 3	Beneficiary …	Total
Plant	Schedule energy(MWh)	Schedule energy(MWh)	Schedule energy(MWh)	Schedule energy(MWh)	Schedule energy(MWh)
SCED Gen1					
SCED Gen2					
SCED Gen3					
SCED Gen…					

** **Each RPC will furnish beneficiary data for the SCED generators under the respective RLDC Control Area.***

Format SCED_FF: NLDC " National net SCED Benefits Distribution Statement"- SCED Generator

For the Month <<Month>>

Table 1: System Savings

Total Saving for the month (Rs.) (A)	Heat Rate Compensation (Rs.) (B)	Net Saving for the month (Rs.) (C)	SCED UP + DOWN in MW (D)

Table 2:Share of System Savings for SCED Generator

Sl. No.	SCED Generators	SCED Schedule (E) (Up+Down)	Generator's Contribution (%) (F)=(E)/ (D)	Final Benefit to Generator for tied Capacity(G) (Rs.) =(F)*(.5)*(C)	benefit to Generator for merchant Capacity(H) (Rs.)	Total Benefit (I)= (G)+(H) (Rs)
1	SCED Gen1					
2	SCED Gen2					
3	SCED Gen3					
n	SCED Gen…..					
All India Total						

Format SCED_GG: NLDC " National net SCED Benefits Distribution Statement"" - Beneficiary

Sl no	Beneficiary/Entity	REGION	Total schedule Energy(Mwh) as per REA from SCED Generators (MWH)	Share in 50% ofSystem Savings in (Rs)
1	Beneficiary 1			
2	Beneficiary 2			
3	Beneficiary 3			
n	Beneficiary …n			
n+1	Generator1			
	All India			