सत्यमेव जयते

भारत सरकार/Government of India
विद्युत मंत्रालय/Ministry of Power
केन्द्रीय विद्युत प्राधिकरण/Central Electricity Authority
एन.पी.सी. प्रभाग/National Power Committee Division
6th Floor (North), Sewa Bhawan, R.K. Puram, New Delhi-66

No. CEA-GO-15-14/1/2021-NPC Division/108 Date: 13.10.2026

To
(As per distribution list)

विषय: 18.09.2026 को राजगीर, बिहार में आयोजित एनपीसी की 18वीं बैठक का कार्यवृत्त के संबंध में।
Subject: Minutes of the 18th Meeting of NPC held on 18.09.2026 at Rajgir, Bihar -reg.

18.09.2026 को राजगीर, बिहार में आयोजित एनपीसी की 18वीं बैठक का कार्यवृत्त आपकी जानकारी और आवश्यक कार्रवाई के लिए संलग्न है।

The Minutes of the 18th meeting of NPC held on 18.09.2026 at Rajgir, Bihar is enclosed herewith for your kind information and necessary action, please.

भवदीय/Yours faithfully

Encl: As above

13/10/2026

(ऋषिका शरण/Rishika Sharan)
मुख्य अभियन्ता एवं सदस्य सचिव,रा.वि.स /
Chief Engineer & Member Secretary, NPC

confirmed that the finalized workflow will be developed and implemented within three months.

2.28.2 **MS, SRPC** highlighted that the deployment of PGCIL officials at NMT requires close attention. Presently it is being manned by OEM personnel. However, there is presently no clearly defined mechanism or dedicated team for resolving NMT-related issues. He emphasized the need to clearly define the responsibility and establish an appropriate team so that such issues are addressed promptly.

2.28.3 **Chairperson, CEA/NPC** suggested that unresolved NMT issues may be formally reported and taken up with **PowerGrid**, wherever required. CTUIL was advised to submit a letter to CEA detailing the issues so that the matter could be taken up at the appropriate level to PowerGrid.

2.28.4 The status of the communication audit was also discussed. It was informed that the audit activity had already commenced in some form, although certain aspects had been missed. The members agreed that the pending issues should be addressed and, if necessary, an alternative mechanism/model for undertaking the communication audit should be examined. The matter could also be taken up separately under the appropriate agenda.

2.28.5 **Decision of the NPC:**

i. **CTUIL shall submit a letter to CEA detailing the outstanding NMT-related issues, enabling the matter to be taken up with PowerGrid at the appropriate level.**

(Action: CTUIL)

2.29 Review of Status of Islanding schemes:

2.29.1 Briefing the agenda**, MS, NPC** informed that status of islanding schemes is being reviewed periodically by respective RPCs through OCC/PCM meetings. She further informed that the status of all islanding schemes under implementation was reviewed in a meeting held on 09.07.2026 under the chairmanship of Secretary, Power. She also informed that the SOP for the Islanding Scheme (attached at **Annexure-VII**) has been revised to incorporate RE generation into the Islanding Scheme and to address the operational feedback received from SRPC.

2.29.2 **Chairperson, CEA/NPC** suggested that the status of islanding schemes may be kept as a regular agenda item in the OCC/PCM meetings of RPCs. He further suggested that RPCs may periodically monitor and verify whether the already implemented islanding schemes are functional and available for operation.

2.29.3 **Decisions of the NPC:**

i. **The Revised SOP for Islanding Schemes was approved by the NPC forum.**

ii. **The status of islanding schemes may be kept as a regular agenda item in OCC/PCM meetings of RPCs. RPCs may periodically monitor and verify whether the already implemented islanding schemes are functional and available for operation.**

(Action: All RPCs)

Revised Standard Operating Procedure for Islanding Schemes

1. Design Protocol:

i. As per Clause 10 of the Central Electricity Authority (Grid Standards), Regulations, 2010:

"Islanding Schemes: (1) The Regional Power Committees shall prepare Islanding schemes for separation of systems with a view to save healthy system from total collapse in case of grid disturbance. (2) The Entities shall ensure proper implementation of the Schemes referred to in sub regulation *(1).*"

ii. As per Indian Electricity Grid code (IEGC), 2023 Sub-Clause 10 of Clause 29:

"RPCs shall prepare the islanding schemes in accordance with the CEA Grid Standards for identified generating stations, cities and locations and ensure their implementation. The islanding schemes shall be reviewed and augmented depending on the assessment of critical loads at least once a year or earlier, if required."

iii. As per Indian Electricity Grid code amended from time to time, all regional constituents shall ensure that the islanding schemes are always functional.

iv. Islanding Schemes may be designed:

a. For survival of some predefined generations and loads at the time of grid disturbance to avoid total blackout and quicker restoration of failed grid.
b. for major cities having Essential Loads such as Super Critical and Critical Loads.

v. **Predefined Generation of Islanding Schemes:** Islanding schemes shall be designed to ensure survival and stable operation of predefined generation resources, including renewable energy sources (solar and wind) with adequate storage systems, in order to:

a. Maintain grid stability.
b. Ensure supply to Super Critical and Critical Loads.
c. Enable black-start capability and faster grid restoration.

vi. **Consideration of Essential Loads in Design of Islanding Schemes:** The Essential loads falling under an Islanding schemes may be taken under consideration while designing Islanding schemes. Generally, the essential loads are classified into two categories (i) Super Critical Loads and (ii) Critical Loads. The detailed categorisation of Super Critical Loads and Critical Loads are tabulated below:

(i) Super Critical Loads			
Sl. No.	**Priority Level**	**Category Description**	**Illustrative Loads**
1.	Priority–1	National Security	Loads of Defence area
		Constitutional & Strategic Governance Infrastructure	Rashtrapati Bhawan, Parliament House/State Legislative Assemblies, Raj Bhawan, High-Level Constitutional Offices (such as Supreme Court, High Court).

		Grid Control Functions	NLDC, RLDCs, SLDCs
2.	Priority–2	Life-Saving & Emergency Services	Hospitals (Government & Private)
		Strategic Urban Lifeline Infrastructure	Metro Rails, Water Supply Pumping Stations, Water Treatment Plants, Major Oil & Gas Pipeline Control Systems, Disaster Management Control Centre, etc.
(ii) Critical Loads			
Sl. No.	**Priority Level**	**Category Description**	**Illustrative Loads**
1.		Strategic Public Infrastructure	Airport, Railways, Ports
		Designated High-Priority VIP Residences	VIP Residences
2.	Priority-2	Economic Continuity Infrastructure	Important Industries
		Governance & Digital Infrastructure	Critical Data Centres of Central and State Government Bodies.

<u>Note:</u> The Super Critical and Critical Load of the major city may be considered in consultation with the DISCOMs/SLDC, Concerned Authorities and Ministry of Defence (MoD).

vii. Ministry of Defence (MoD) may be consulted to include their defense loads in such Islanding schemes. In case MoD requests any of their locations for which Islanding schemes is to be designed, the same would be considered. Only those defence establishments may be included in the Islanding Schemes for which MoD is agreed. The Ministry of Defence/Dept. of Military Affairs shall furnish information regarding their requirements as per format given at **<u>Annexure-I.</u>** All the existing islanding scheme may be reviewed to include the Defence load in the scheme. Defence load of small capacity (upto 2 MW) not falling under any major cities may be continued with their arrangement of backup supply.

viii. If there is need to establish a power plant in/around such a city for the purpose, the proposal may be submitted for consideration of the concerned State /Utility under intimation to MoP. Possibility of installation of storage system at such location may also be explored. This provision may be suitably qualified for Essential Loads only.

ix. Islanding Schemes are to be formed with anticipated load-generation balance and with tripping of predetermined feeders/ ICTs/ generators. In every islanding scheme, adequate

automated mechanism should be implemented for achieving load generation balance in the islanded sub-system.

x. Islanding schemes shall be treated only as schemes to enable survival of pre-identified portion(s) of the grid and shall not replace separate emergency supply arrangements for Super Critical and Critical loads.

xi. Studies are to be carried out for verifying the operation of the Islanded system by the respective control area LDC (SLDC in case of state).

xii. The cyber security in the power system for Islanding schemes must be in accordance with the Regulations/Guidelines issued by Government of India.

2. <u>Monitoring of Vital Parameters :</u>

i. Since formation of Island can take place at any time, monitoring of the following vital parameters, which have a significant role in on successful Island formation, is of paramount interest:

   a. Anticipated/ Actual Generation within the electrical boundary of the Island. RE generation within the Island to be monitored separately
   b. Anticipated/ Actual Load within the electrical boundary of the Island
   c. Voltage, Frequency & Power Flows along the peripheral lines which are required to be tripped to form the Island

ii. Above parameters are to be monitored in real-time basis in the Control Room/ Despatch Centre (i.e. Sub SLDCs/SLDC/RLDC/NLDC) of the area by creating a dedicated page specific to the Islanding Scheme in the SCADA display. For this purpose, suitable provisions may be made, wherever required, for the installation of adequate measuring instruments (such PMUs/RTUs) at appropriate locations within the islanded subsystem, and the application for islanding detection may be based on measured (such as PMU/RTUs) data. The monitoring framework may be supported by redundant telemetry systems, time-stamped data acquisition, defined alarm thresholds, and backup communication channels to ensure reliability and continuity of monitoring at all critical islanding points.

3. <u>Certification of Healthiness of Islanding Scheme:</u>

i. Since healthiness of an integrated system depends on the healthiness of its constituting components, healthiness of Islanding Scheme has to be ascertained/ ensured by seeking monthly certificate for healthiness of batteries, installed at all Substations located within the electrical boundary of the Islanding Scheme. The idea is since these battery banks provide power supply to Relays, RTUs and PLCC equipment, healthiness of the former is critical to operation of the latter when called for.

ii. It is to confirm the healthiness of islanding schemes by participating Generators as well as concerned transmission utilities/DISCOMs for their respective portion in the monthly OCC / Protection Committee meeting/Communication Committee meeting.

iii. The data in the formats at **<u>Annexures-II</u> (Format I to IV)** may be submitted by RLDCs/SLDCs/Generators/Transmission utilities/DISCOMs etc to RPCs on monthly basis to certify the healthiness of Islanding Schemes.

4. Role and Responsibility and Coordination Activities:

i. The Role and Responsibility of the Organizations / Officers/Officials in designing and operating the Islanding Schemes is defined at **Annexure-III.**

ii. This is proposed to be achieved by having a Nodal Officer for each participating Utility in the Island [i.e., those who own assets (Generating stations, substations, transmission lines, distribution lines, etc.) within the Island], and a Chief Nodal Officer from the concerned Despatch/ Control Centre. The Chief Nodal Officer from LDC and Utility- specific Nodal Officers ensure free flow of information among them w.r.t. Islanding Scheme Operational status, and ensure correct & prompt communication between the SCADA Control Centre and various stations (Generating Stations/ Substations). There will be a coordination officer in each region from each RLDCs.

iii. An updated list of contact details of all Nodal Officers as mentioned above shall be maintained with LDC & all Utilities involved. The Details of officials as mentioned above may be obtained in the in the **Format V** of **Annexures-II.**

5. Sensitization and Training of Officers involved:

i. Even though chances of Island formation in a strongly integrated grid are remote, since the Islanding schemes are designed to protect major essential loads/ sensitive generation in the unfortunate event of failing of all other defence mechanisms. The Nodal Officers & concerned field staff associated with O& M of various stations (generating stations as well as substations) within the electrical boundary of the Island should be sufficiently sensitized about the colossal loss of those critical assets on account of Island failure, and consequent disruption to various sectors & businesses

ii. To ensure this, apart from conducting periodic orientation training programmes, the concerned Officers/ Staff should also be involved in the activities concerning management of grid under stressed conditions, SCADA, communication upkeep, and in the activities relating to audit/ inspection of critical loads & sensitive stations within the Island.

iii. The Officials and Officers in the Generating Station/Substation/Utilities / LDC/ RLDC / RPCs would be sensitized about the (concerned) Islanding Scheme. They also to be trained to handle the Critical and Emergency Load Management in the system.

iv. Training shall be focused on individual Islanding Schemes and integration of Islanding schemes with rest of the grid until restoration of normalcy to the national and regional grid.

v. All the concerned utilities shall organise periodic training program for the nodal officers and concerned field officers. The training programs shall be in consultation and coordination with the RPCs. The training and sensitization program may be conducted once in six months and additionally, as and when required in emergency.

6. Periodic Inspection/ Audit of Essential Components:

i. Periodic Inspection/ Audit includes Internal audit as well as Third-party audit of all essential components as given below and shall be carried out regularly as per the periodicity mentioned below and Inspection/ audit report may be submitted to respective RPCs:

a. Under Frequency Relays (UFR) on Island forming elements (Lines & ICTs).
b. Associated communication equipment at all stations within Island.
c. Associated DC supply for Control panel & communication system.
d. Verification of relay settings, trip logic, communication paths, SCADA visibility.

ii. **Periodicity of Internal Audit and Third-Party Audit:** Internal audit by concerned utilities shall be carried out annually and Third-party audit shall be carried out once in five (5) years, aligned with the periodic third-party protection audits for 220 kV and above voltage levels, and separately for 132/110 kV systems.

iii. Apart from the internal audit and third-party audit, the data in the formats at **Annexures-II (Format I to IV)** may be submitted by RLDCs/SLDCs/Generators/Transmission utilities/DISCOMs etc to RPCs on monthly basis to certify the healthiness of Islanding Schemes.

7. Mock drill: As per IEGC 2023, Sub-Clause 11 of Clause 29:

"Mock drill of the islanding schemes shall be carried out annually by the respective RLDCs in coordination with the concerned SLDCs and other users involved in the islanding scheme. In case mock drill with field testing is not possible to be carried out for a particular scheme, simulation testing shall be carried out by the respective RLDC."

8. Review Plan of Islanding Schemes:

i. Considering the fact that Network Changes (additions/ deletions/ reconfigurations of transmission elements & generators) in an evolving grid such as Indian electrical grid are unavoidable/ inevitable, it is but necessary to review the Islanding scheme operation w.r.t. prevailing grid conditions at regular intervals, and incorporate requisite changes so as to make them reliable & dependable.

ii. RLDC /SLDC to periodically update and inform RPC regarding any changes or additions of elements in the Islanding scheme. RLDC to submit monthly report of element additions in all Islanding schemes in respective region to RPC.

iii. In such review, all details as used in the existing scheme have to be re-collected including the new changes for studying the modifications to be carried out in the In- service Island. These details, among others, include participating generators, anticipated generation, participating loads, anticipated load, elements (lines and/ or ICT's) to be tripped to form the modified Island, geographical map & SLD of the modified Island, AUF load relief, df/dt load relief, pumped loads details, etc. Using these details, system studies may also be carried out to verify stability (including voltage profile & line loadings profile) of the modified Island.

iv. It is recommended to carry out above review of the In-Service Islanding scheme at least once a year, or earlier upon any material network change, by all concerned utilities. However, the review may also be carried out as soon as any network change, which may affect the operation of the Islanding Scheme, comes to notice.

9. Identification of Short-comings & Remedial action:

i Based on the shortcomings identified by the RLDC/SLDC during monitoring of vital islanding parameters, assessment of island healthiness, periodic inspection/audit of essential islanding

components, and other related activities, the observed deficiencies/shortcomings shall be taken up with the respective entities for timely corrective action on a monthly basis.

ii The period of redressal from the instant of noticing shortcomings shall be at most one week/ fortnight. The compliance report may be submitted to RPCs in this regard.

10. Post Islanding survival:

i. In every islanding scheme, adequate automated mechanism should be implemented for achieving load generation balance in the islanded sub-system. Also, for frequency control of islanded subsystem there should be generating units in the island on free governor mode of operation. Also, load connection/ disconnection should preferably be automatic based on the Load generation balance from the Control Centre/ the dispatch centre of the islanded sub-system. Health of all facilities in the islanding scheme should be closely monitored so as keep necessary electrical, mechanical, electronics and communication systems in good health all the time.

ii. For Islanding Systems involving more than one control area, the RLDC/SLDC may have the necessary provision for load connection and disconnection of the Islanding Scheme for the islanded subsystem. Further, periodic end-to-end testing of the same may be ensured, as applicable.

11. Pre Islanding Survival:

In addition to Post Island Survival, necessary Pre Islanding load Disconnection in Islanding schemes shall be ensured to avoid load generation mismatch.

12. Review Plan for SOP of Islanding Scheme:

i. Standard Operating Procedure (SOP) for the Islanding Scheme shall be subject to periodic review and revision to ensure its continued relevance, effectiveness, and compliance with prevailing regulatory and operational requirements. The review shall be undertaken at regular intervals, or as and when necessitated by changes in the guidelines, regulations, or directives issued by Ministry of Power (MoP), Central Electricity Authority (CEA), Central Electricity Regulatory Commission (CERC), or any other statutory authority.

ii. All revisions to the SOP may be approved by the competent authority, and communicated to all concerned stakeholders for implementation. The updated SOP may supersede the previous version from the date of approval.

13. SOP Template for designing of Islanding Schemes is at Annexure-IV.

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Annexure-I

MINISTRY OF POWER
CENTRAL ELECTRICITY AUTHORITY

Details of information to be furnished by Defence Establishments for the purpose of designing the Electrical Islanding schemes:

Item No.	Description	Details
1.	**Basic Details:**	
1.1	Service: Army/Navy/Airforce/MES etc.	
1.2	Name of the Establishment	
1.3	Location (State, District, Taluk & Village)	
1.4	Name of the nearest City & Distance from it	
2.	**Power Supply Details:**	
2.1	Name of the DISCOM (Power Supply Distribution Company) from which supply is being availed:	
2.2	Name of the DISCOM Substation from which supply is being availed:	
2.3	Number of incoming lines/feeders of supply and Voltage level	
3.	**Load Details:**	
3.1	Contracted Capacity in kVA/MVA	
3.2	Maximum Demand in kVA/ MVA	
3.3	Connected Load in kW/MW	
3.4	Critical Load(kW/MW)/ Non-Critical Load(kw/MW)	
3.5	Any other information on Load details	
4.	**Backup Power Supply:**	
4.1	Details of DG sets: (Number of DG sets & their Rating in kVA/MVA & No. of hours they can run/sustain)	
4.2	Battery Banks/ UPS Rating (with/without BESS)	
4.3	In-house Renewable (Solar/Wind (with/without BESS)) Generation in kW/MW	

4.4	Captive Generation, if any, in kW/ MW	
5.	**Specific Requirement from Ministry of Power, CEA/RPCs, NLDC, RLDC, STU, SLDC and Discoms w.r.t uninterrupted power supply to Defence installation**	
6.	**Other Relevant Information, if any**	

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Annexure-II

Formats for collection of information regarding Islanding Schemes:

a. **Format - I** for RLDC/SLDCs

S. No.	Name of Islanding Scheme	Healthiness of Communication Channel	End-to-End Trip Signal Testing Status	SCADA Visibility Status	Communication Latency (ms)	SCADA Discrepancy Observed*	Details of Discrepancy (if any)	Outage Details (if any)	Rectification Status	Date of Testing	Remarks

*Detailed Analysis of SCADA discrepancy to be furnished by RLDC to RPC.

b. **Format - II** for Generating Station

S.No	Name of Islanding Scheme	Healthiness of Islanding Relay	Healthiness of Communication channel

c. **Format - III** for Transmission Utility/ DISCOMs

S.No.	Name of Islanding Scheme	Elements considered for tripping to from Island	For communication based tripping logic of feeders	For UFR based tripping logic of feeders	
			Healthiness of Communication channel	Healthiness of PT Fuse and status of DC supply to UFR relay*	Healthiness of Relay#

* Where dedicated UFR relay have been installed for tripping of the feeders under islanding scheme

Where UFR function have been enabled within backup protection relay of the line.

d. **Format - IV** for collecting Relay details of the Islanding scheme.

The following format may be used to get Relay details of the Islanding scheme:

S.No.	Description	UFRs-for load relief (A)	df/dt -for load relief (B)	Relay for Island creation(C)
1.	Relay location (S/s name)			
2.	Relay make & model			
3.	Frequency setting of the relay (at which load shedding is envisaged)			
4.	Feeder name (voltage level and source-destination name) signalled by the Islanding Relay for separation /load shedding/separation from outside grid			
5.	Quantum of load relief due to tripping of feeder (as per state's peak of previous year)			
6.	Quantum of load (Min, Avg, Max in MW) on the feeder (as per state's peak of previous year)			

e. **Format - V** for Contact details of all Nodal Officers

Utility Name &Location	Name	Designation	Organization	Email ID	Mobile No.

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Annexure –III

Roles and Responsibilities of Officers involved in Islanding Schemes:

S.No.	Entity	Roles and Responsibilities of Officers
1.	**RPCs**	i. In compliance with CEA (Grid Standards) 2010 and its amendments, MS, RPCs shall be responsible for preparation of Islanding Schemes. The designing/ implementation and Review of Islanding Scheme may be discussed in appropriate Committee/Sub-Committee of RPCs or a separate Sub-group may be formed. ii. MS, RPC may Nominate Officer at the level of Superintending Engineer for Coordinating the Islanding Schemes in the Region. iii. MS, RPC shall be responsible to review and augment Islanding Schemes depending on the assessment of critical loads at least once a year or earlier, if required.
2.	**RLDCs**	i. There shall be a Nodal Officer at the level of General Manager & above appointed by the appropriate Authority of the RLDC. Nodal officer of RLDCs may act as Coordinating Nodal officer. ii. The Nodal Officer of RLDCs shall coordinate the Chief Nodal officers of SLDCs, Gencos & STU's in their respective regions. iii. Coordinating Nodal Officer shall ensure real-time monitoring of vital parameters of all operational Islanding Schemes and shall immediately take up any SCADA discrepancies with SLDC/Utility concerned and ensure time-bound rectification. iv. To ensure proper monitoring, measuring instruments (like PMUs etc.) and communication systems may be recommended by Co coordinating nodal officer to the concerned utility. v. Coordinating Nodal Officer shall monitor and ensure the healthiness of the components involved in the Islanding Scheme like SCADA system, communication channel etc. at their end. vi. Coordinating Nodal Officer shall certify overall readiness of Islanding Schemes on monthly basis, covering communication system and SCADA visibility. vii. Coordinating Nodal Officer shall ensure follow-up of the recommendation of the Internal / third party Audit conducted by entity concerned in a time bound manner. viii. Coordinating Nodal Officer shall plan and coordinate periodic mock drills for islanding schemes in consultation with SLDCs and utilities concerned. ix. Coordinating Nodal Officer shall facilitate availability of redundant communication paths for all critical islanding signals and monitor their performance.

S.No.	Entity	Roles and Responsibilities of Officers
3.	**Nodal officer of LDCs**	i. There shall be a Nodal Officer at the level of Chief Engineer & above for all Islanding Schemes in the respective state appointed by the appropriate Authority of the LDCs. ii. Nodal Officer of LDCs shall act as Chief Nodal officers for nodal officers of DISCOMs, TRANSCOs & GENCOs of the state and shall ensure proper communication among all the nodal officers. iii. Chief Nodal Officer shall coordinate and responsible for implementation of newly designed Islanding Schemes in coordinated manner with all utilities involved. iv. Chief Nodal Officer is responsible for collection of data from the concerned utilities and submission the same to committee for study purpose in respect of existing/new IS for review/design purpose. v. Chief Nodal Officer shall ensure monitoring of the vital parameters of operational/implemented Islanding Schemes in the state, which have a significant role in successful Island formation. vi. To ensure proper monitoring, measuring instruments (like PMUs etc.) and communication system etc. may be recommended by nodal officer to the concerned utility. vii. Chief Nodal Officer shall ensure the healthiness of the components involved in the Islanding Scheme like SCADA system, communication channel etc. at their end. viii. Chief Nodal Officer shall conduct monthly self-certification of healthiness of the components at their end involved in the Islanding scheme and communicate it to the concerned RPC in the format prescribed in the SOP. ix. Chief Nodal Officer shall be responsible for Internal & third-party audit of the components of an Islanding Scheme. x. Chief Nodal Officer shall ensure follow-up of the recommendation of the internal & third-party Audit conducted by Entity in a time bound manner.

S.No.	Entity	Roles and Responsibilities of Officers
4.	**Nodal officer of Participating GENCOs**	i. There shall be a Nodal Officer at the level of General Manager / Chief Engineer & above for Islanding Schemes appointed by the appropriate Authority of the Generation Company. ii. Nodal Officer shall be responsible for the implementation of newly designed Islanding Schemes for GENCOs part. iii. Nodal Officer is responsible for submission of data for GENCOs part to committee for study in respect of existing/new IS for review/design purpose. iv. Nodal Officer shall ensure the healthiness of the components involved in the operational Islanding Scheme like Generating Units, Substations /Switch yards, Relays, communication channel etc. at their end. v. Nodal Officer shall conduct monthly self-certification of healthiness the components at their end involved in the Islanding scheme and communicate it to the concerned RPCs in the format prescribed in the SOP. vi. Nodal Officer shall be responsible for Internal & third-party audit of the components of an Islanding Scheme. vii. Nodal Officer shall ensure follow-up of the recommendation of the Internal & third-party Audit conducted by Entity in a time bound manner.
5.	**Nodal officer of STUs/ ISTS Licensee.**	i. There shall be a Nodal Officer at the level of General Manager / Chief Engineer & above for all the Islanding Schemes appointed by the appropriate Authority of the Transmission Company. ii. Nodal Officer shall be responsible for the implementation of newly designed Islanding Schemes at transmission part. iii. Nodal Officer is responsible for submission of data to committee for study in respect of existing/new IS for review/design purpose for Transmission part. iv. Nodal Officer shall ensure the healthiness of their components involved in the operational Islanding Scheme like Substations, Transmission Lines, Relays, communication channel etc. at their end. v. Nodal Officer shall conduct monthly self-certification of healthiness of the components at their end involved in the Islanding scheme and communicate it to the concerned RPC in the format prescribed in the SOP. vi. Nodal Officer shall be responsible for Internal & third-party audit of the components of an Islanding Scheme. vii. Nodal Officer shall ensure follow-up of the recommendation of the Internal & third-party Audit conducted by Entity in a time bound manner.

S.No.	Entity	Roles and Responsibilities of Officers
6.	**Nodal officer of DISCOMs**	i. There shall be a Nodal Officer at the level of General Manager /Chief Engineer & above for each Islanding Schemes appointed by the appropriate Authority of the Distribution Company. ii. Nodal Officer shall be responsible for identification of essential loads and defence load for the Islanding Scheme. iii. Nodal Officer shall be responsible for the implementation of newly designed Islanding Schemes at their end. iv. Nodal Officer is responsible for submission of data for their part to committee for study in respect of existing/new IS for review/design purpose. v. Nodal Officer shall ensure the healthiness of the components involved in the Islanding Scheme like Feeders, Relays, communication channel etc. at their end. vi. Nodal Officer shall conduct monthly self-certification of healthiness of the components involved in the Islanding scheme at their end and communicate it to the concerned RPC in the format prescribed in the SOP. vii. Nodal Officer shall be responsible for Internal & third-party audit of the components of an Islanding Scheme. viii. Nodal Officer shall ensure follow-up of the recommendation of the Internal & third-party Audit conducted by Entity in a time bound manner.

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Annexure-IV

SOP Template for Designing of Islanding Schemes:

1. **Purpose**
2. **Design**
   i. **Generation**
      a. Coal
      b. Gas
      c. Nuclear
      d. Hydro
      e. Solar
      f. Wind
      g. Total generation
      h. PLF or availability /scheduling
      i. Generation considered
      j. Generators on prolonged outage
      k. Probability of the anticipated generation
      l. Pumped storage
      m. ISGS
      n. SGS
      o. IPP/MPP
   ii. **Load**

      a. Loads of Defence area
      b. Rashtrapati Bhawan/ Raj Bhawan
      c. Parliament House/ State Legislative Assemblies
      d. High-Level Constitutional Offices (such as Supreme Court, High Court).
      e. NLDC, RLDCs, SLDCs
      f. Metro Rails
      g. Water Supply Pumping Stations
      h. Water Treatment Plants
      i. Major Oil & Gas Pipeline Control Systems
      j. Disaster Management Control Centre.
      k. Hospitals (Government & Private)
      l. Airport, Railways, Ports
      m. VIP Residences
      n. Important Industries
      o. Critical Data Centres of Central and State Government Bodies.
      p. Drinking water
      q. Irrigation
      r. Agriculture
      s. Commercial

t. Domestic
u. Lift Irrigation System/Scheme

iii. **Load relief**
a. df/dt-I
b. df/dt-II
c. AUFR-I
d. AUFR-II
e. AUFR-III
f. AUFR-IV

iv. **Transmission lines in the islanded area**
a. 765 kV
b. 400 kV
c. 220/230 kV
d. 132/110 kV
e. 66 kV
f. 33/22/11 kV
g. Inter-regional lines
h. Inter-state lines
i. Intra-state lines/Substations in the area
j. CTU
k. STU
l. ISTS

v. **Transmission lines that get disconnected on operation of df/dt and AUF relays**
a. 220/230 kV
b. 132/110 kV
c. 66 kV
d. 33/22/11 kV

vi. **Transmission lines to be tripped for forming Island**
a. 765 kV
b. 400 kV
c. 220/230 kV
d. 132/110 kV
e. 66 kV
f. 33/22/11 kV

vii. **Name of the cities covered having population >=**
a. 10 million
b. 1 million
c. Defence locations

viii. **Diagrams**
a. SLD map of the island
b. Geographical map of the island with boundary
c. Major cities/Super Critical Loads & Critical Loads /defence loads marked

d. Substations marked

3. SCADA mapping

Island generation and island loads on the SCADA display

4. Constraints

i. Generation limits
ii. Line loading limits
iii. ICT loading limits o Frequency set points
iv. df/dt-I
v. df/dt-II
vi. AUFR-I
vii. AUFR-II
viii. AUFR-III
ix. AUFR-IV
x. Load Islanding Scheme (LIS) relief frequency
xi. RE generation disconnection frequency
xii. Islanding frequency

5. Controlling generation in islanded area

i. AGC
ii. RGMO/FGMO

6. Controlling load in islanded area

i. Automatic
ii. Flow based
iii. Voltage based
iv. Frequency based
v. Manual

7. Validation check list

i. Generation > Load?
ii. Non-Hydro only islanding?
iii. Less number of disconnecting lines? All disconnecting lines with AUFR?
iv. RE-solar/wind included?
v. LIS loads excluded?
vi. LF studies for islanded area, converging?
vii. In the converged LF studies, line loadings profile & voltage profile are within permissible limits?
viii. All critical load/defence loads included?
ix. Critical/defence loads are not part of SPS, df/dt or AUFR schemes?
x. Islanding frequency - (47.9 Hz)?
xi. Adequate margin between lower frequency of IEGC band and first stage AUFR?
xii. Adequate margin between islanding frequency and AUFR last stage?
xiii. Scheme was discussed & approved in OCC/ PCC?
xiv. Scheme approved in RPC?

50.20		
50.10		
50.05		**IEGC band**
50.00		
49.90		
49.80		**Urgent load Mgt.**
49.70		
49.60		**Emergency Load Mgt.**
49.50		
49.40		**UFR load shedding**
49.30		
49.20		
49.10		
49.00		
48.90		
48.80		
48.70		
48.60		
48.50		
48.40		

48.30		
48.20		
48.10		
48.00		
47.90		**Islanding Frequency**
47.80		

Note:

i. Above values are subject to change as per newly adopted frequency settings in NPC.

ii. The pre-Islanding load shedding through UFR or df/dt shall start at 48.4Hz so that the desired load generation balance is achieved before Island formation at 47.9Hz.

8. Operation

i. **Successful**

a. Generation in the island area
b. Load in the islanded area
c. Date & time island formation
d. Date & time of island closed/shutdown
e. Frequency of the islanded area
f. Voltage profile of the buses
g. Flows/ Loadings on critical lines
h. Duration of island survival
i. Whether anticipated generation was there?
j. Whether anticipated load was there?
k. All the lines were disconnected as per the plan?
l. Reason for islanding success
m. Any measures to further improve

ii. **Failure**

a. Generation in the islanded area
b. Load in the islanded area
c. Date & time island formation
d. Date & time of island closed/shutdown
e. Duration of island survival
f. Whether anticipated generation was there?
g. Whether anticipated load was there?
h. All the lines were disconnected as per the plan?
i. Reason for islanding failure

j. Remedial measures

9.Review plan

i. Island formed and approved date

ii. Change in generation

a. Addition

b. Deletion

c. Alteration

iii. Change in load

a. Addition

b. Deletion

c. Alteration

iv.Change of the lines to be disconnected

v. Any new lines to be included for disconnecting

vi.Requirement of additional df/dt & AUFR relays

10. Nodal officers of Islanding Scheme

i. RLDC

ii. SLDC

iii. STU

iv. SGS

v. ISGS

vi. ISTS

11. Sensitization Training of nodal officers

i.Training by RLDC

ii. Training by NPTI/PSTI

iii. Training by SLDC

iv. RPCs special meetings

12. Periodic Inspection of Essential components of Islanding Scheme

i. Inspection of UF relays of disconnecting lines

ii. Ensuring adequate relief under df/dt and AUFR stages

iii. Ensuring relays for disconnecting RE sources

iv. Ensuring relays for disconnecting LIS

v. Ensuring critical/defence loads are not under df/dt & AUFR stages

vi. Monitoring the anticipated generation and load in the islanded area

13. Mock drill (Earlier, there was no provision in the IEGC; however, as per the IEGC 2023, the provision has now been incorporated in the SOP as mentioned above.**)**

14. Certifications of healthiness of IS

i. Batteries

ii. Relays

iii. Lines within the islanded area

15. Identifications of short comings

16. Further updations.

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