

Annexure III – Framework

Framework to enable Advanced Technologies¹ in Power Distribution

1. Background

- 1.1. The Ministry of Power (MOP), Government of India (GOI) has introduced the “Revamped Distribution Sector Scheme - A Reform-based and Result-linked Scheme” with the total expected outlay of INR 3,03,758 Cr.
- 1.2. The Scheme has two key components:
 - 1.2.1. **Part A:** Rollout of smart prepaid metering for all consumers, deployment of communicable meters for DTs and feeders and unified software. The Scheme is also focused on strengthening and upgradation of distribution infrastructure.
 - 1.2.2. **Part B:** Training and capacity building and other enabling and supporting activities.
- 1.3. The key objectives of the Scheme are:
 - 1.3.1. Reduce Aggregate Technical and Commercial (AT&C) losses at pan India level to 12-15% by 2024-25
 - 1.3.2. Reduce the Average Cost of Supply-Average Revenue Realized gap to zero by 2024-25, and
 - 1.3.3. Improve the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient distribution sector.
- 1.4. Under the scheme, release of funds to the distribution company (DISCOM) is contingent on initiation of reforms and achievement of results. The scheme lays special emphasis on leveraging advanced technologies to analyze data generated through Information Technology (IT)/ Operational Technology (OT) devices including system meters and prepaid smart meters. The system-generated monthly energy accounting reports will enable DISCOMs to make informed decisions on loss reduction, demand forecasting, Time of Day (ToD) tariff, renewable energy (RE) integration, and for other predictive analysis. This is linked directly with increasing operational efficiency and financial sustainability of the DISCOMs.
- 1.5. The MOP is committed to developing advanced technology-based applications in the distribution sector and promoting Technology Solution Providers (TSP)² including startups³ focused on this domain. In this regard, a Task Force has been constituted by MOP vide Notification No. F.No. 10/01/2021-UR&SI-II-(E-258003), dated 22nd July 2021. Chairman and Managing Director (CMD), REC Limited has been designated as the Chairman of the Task Force to enable finalization of the implementation modalities. A Designated Agency (DA) will be notified for implementation of this initiative.

¹ Advanced technologies include AI/ ML/ Blockchain/ IOT and any other new and upcoming technologies

² Technology solution providers shall mean any company/ firm/ institution/ startups and similar entities providing advanced technology solutions as defined in this document.

³ A Startup means an entity recognized as such by the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India, vide notification No. G.S.R. 127(E) dated February 19, 2019, or such other policy of the Central Government issued in this regard from time to time

The DA shall adopt a two-pronged strategy that at one hand will leverage the existing network of TSPs to test and scale-up use cases at DISCOMs; and on the other hand, create power distribution focused incubator(s) that will provide for continuous innovation in the sector. The focus of this document is on the former, i.e., enabling TSPs to test and scale-up use cases at DISCOMs. This framework document has been developed with the support from USAID SPARC Program⁵.

2. The Framework

The framework includes the following:

- a) selection of DISCOMs and identification of key intervention areas,
- b) empanel incubator(s) to select TSP through a competitive screening process, and
- c) establish governance mechanism for the pilot projects and their scale-up.

3. Onboard DISCOMs and identify key intervention areas

- 3.1. The DA shall consult with various DISCOMs (public and private) and onboard DISCOMs on the basis of interest. A few DISCOMs will be selected initially to begin this initiative. However, this will be an ongoing exercise.
- 3.2. The DISCOMs shall be selected based on the following parameters:
 - o Commitment from top management of the DISCOM to work closely with TSPs, incubator and the DA on this initiative over the defined period
 - o Willingness to provide necessary approvals, clearances as required
 - o Availability of historic data from system meters and consumer meters etc.
- 3.3. DA and the selected DISCOMs shall undertake focused consultations to identify key intervention / problem areas. The areas may be chosen from but not limited to the following themes:
 - o Consumer indexing and energy accounting
 - o AT&C loss reduction
 - o Asset management including real time condition monitoring to enable proactive maintenance by DISCOMs
 - o Consumer experience enhancement
 - o Demand forecasting and power procurement
 - o RE integration
- 3.4. DISCOMs shall identify specific intervention / problem areas in consultation with the DA that will benefit most from advanced technology-based interventions.

⁴ A separate note shall be prepared at a later stage for creation of a power distribution focused incubator

⁵ USAID's Smart Power for Advancing Reliability and Connectivity (SPARC) is a three year bilateral program with Ministry of Power, Government of India. The objective of the program is to improve the operational and financial performance. KPMG Advisory Services Pvt. Ltd. is the implementing partner for the SPARC Program.

- 3.5. Each DISCOM shall share the relevant data set for development of necessary problem statements. The format for sharing the data set by the DISCOMs is given in Annexure I.
- 3.6. Each selected DISCOM shall nominate one nodal officer/ single point of contact for facilitating data collection, approvals, stakeholder interactions etc. (as needed).

4. Empanelment of incubators

- 4.1. The DA shall initially empanel an incubator to manage the competitive screening process to select the TSPs. The incubators to be empaneled shall meet the following eligibility criteria:
 - Incubator must be a legal entity
 - A society registered under Societies Registration Act 1860, OR
 - A Trust registered under the Indian Trusts Act 1882, OR
 - A private limited company registered under the Companies Act 1956 or the Companies Act 2013, OR
 - A statutory body created through an Act of Legislature
 - Incubator should be operational for at least two years on the date of notification of this framework
 - Incubator must have a full time Chief Executive Officer, experienced in business development and entrepreneurship supported by a capable team responsible for mentoring startups in testing and validating ideas in various functions/ domain such as technical, finance, legal, human resource etc.
 - Incubator must have minimum 2 years of cumulative experience of working with Government Authorities/ Agencies or Government of India or State Government or any entity controlled by them
 - Incubator must possess prior experience of incubating startups in advanced technology solutions preferably (but not limited to) in the power distribution sector
 - Any additional criteria as may be decided by the DA from time to time
- 4.2. Based on the above eligibility criteria, the DA in consultation with DPIIT will identify the incubator for empanelment. The identified incubator will be empaneled with the approval of the Monitoring Committee.
- 4.3. The Incubator shall implement the challenge / competition process for problems approved by the Expert Panel as mentioned below, select the entities to solve the problem, provide the selected entities with grants released by the Expert Panel, provide timely facilitation, monitoring, handholding and other services as may be necessary for the success of the projects to the selected entities.
- 4.4. The DA shall enter into a Memorandum of Understanding (MOU) with the empaneled incubator. The MOU shall clearly define the roles and responsibilities of each party, arrangement on disbursement of funding package to the TSP, timelines etc.

5. Expert Panel

- 5.1. The empaneled incubator shall constitute an Expert Panel with representation from the DA and participating DISCOMs on rolling basis. One of the members from the empaneled incubator shall be the convenor for the Expert Panel.
- 5.2. The DA may nominate in the expert panel, members from Ministry, reputed experts from industry, academic institutions, Government research institutions, and civil society etc.
- 5.3. The DA may enter into partnerships with national and international platforms/ academic institutions/ R&D organizations etc. to leverage their expertise for this purpose.
- 5.4. The Expert Panel shall approve the intervention/ problem area; guide the overall selection process of TSPs and generally oversee the implementation of pilot projects.
- 5.5. The Expert Panel shall monitor the milestones completed by the TSPs and release the grant amount to TSP through the empaneled incubator.
- 5.6. The Expert Panel in association with nodal officer from respective DISCOMs shall facilitate the TSP in matters related to data collection, consultations with the DISCOMs etc.

6. Challenge/ Competition Process

- 6.1. The Expert Panel shall approve the intervention/ problem area, guide the overall selection process of TSPs and oversee implementation of pilot projects.
- 6.2. For one problem statement, 4-5 TSPs will be shortlisted based on their Proof of Concept (POC).
- 6.3. The empaneled incubators shall run a challenge/ competition to select TSP to solve the problem.
- 6.4. There shall be definite criteria/ parameters for shortlisting TSPs. The eligible criteria for TSPs are as follows (only indicative):
 - Must possess a ready/ customizable solution to solve the problem
 - Prior implementation/ deployment/ demonstration experience of such technologies preferably (but not limited to) in the power sector
 - Must not be blacklisted by any of the Government Authorities/ Agencies or by Government of India or State Government or any entity controlled by them.
- 6.5. The empaneled Incubator may adopt the following evaluation criteria (indicative):
 - Scale and size of past deployments (as applicable)
 - Replication potential of the solution
 - Solution architecture and focus on advanced technology solutions
 - Impact demonstrated in past deployment/ pilot project(s)
 - Scalability

- Others as applicable (e.g. work plan, timelines, proposed results etc.)
- 6.6. The eligible TSPs will respond to the above challenge/ competition by providing, at the minimum, the following details:
- Description of the solution and the problem statement that the solution addresses
 - Solution architecture and how the solution leverages advanced technology solutions
 - Details of past implementations/ pilot projects at DISCOMs and/ or demonstrations at national/ international platforms
 - Results of past implementations (as applicable)
 - Details of past awards/ recognitions/ client references
 - Details of the organization - years into existence, profile of the founding team, etc.
 - Timelines and workplan
- 6.7. The TSPs may participate in the screening process either as an individual entity or through a joint venture.
- 6.8. In cases where a joint venture has been formed between a startup and a TSP, then the joint venture shall be treated as a TSP and the associated terms and conditions of TSP shall apply.
- 6.9. These shortlisted TSPs will be provided with fees of INR 5 lakhs towards cost of developing the POC. TSPs must submit their POC within 3 weeks from the time of receipt of such POC fees.
- 6.10. For one problem statement, 4-5 TSPs will be shortlisted based on their Proof of Concept (POC). The selected POCs shall be pilot tested at Discom test-bed. In the selection process, 2-3 Established players (non Start-Ups) and 1- 2 Start-ups for each problem Statement shall be selected. [1] [SEP]
- 6.11. Normally, each TSPs shall be allowed a maximum 3 pilot projects under this initiative
- 6.12. Upon finalization, a tri-partite agreement will be signed between DISCOM, Incubator and the TSPs. The agreement will cover but not limited to the following:
- Roles and responsibilities
 - Scope of work
 - Milestones, timelines and expected outcome
 - Mechanism of disbursement of grant for the pilot implementation
 - Payment milestones and schedules
 - Project review and monitoring mechanism
 - Other contractual clauses like data confidentiality, dispute resolution

7. Sustainability & Scale-Up

- 7.1. Based on the outcome of the pilot project, DA shall develop avenues for scale-up of the solutions.
- 7.2. This may include multiple options such as:
 - DA/its subsidiary and/or other Central Public Sector Enterprises (CPSE) in the power sector may enter into partnerships with the TSPs to approach the DISCOMs with a concrete value proposition for large scale deployments of the successful pilot solutions.
 - A revenue sharing mechanism shall be arranged between the TSP and DA/its subsidiary and/or other CPSEs in the power sector. A portion of the proceeds received from the TSP through the revenue sharing mechanism shall be utilized to build a corpus to make the programme self-sustaining.
 - Alternative procurement mechanisms such as the Swiss Challenge method may also be considered to bring in best-in-class innovations in the DISCOMs.
- 7.3. Partnership with leading national and international platforms/ academic institutions/ R&D organizations etc. to leverage the complimentary skills and expertise of such forums shall be explored by the DA.

8. Intellectual Property Rights

- 8.1. Since the commercial solution has already been developed by the TSPs, the intellectual property rights shall stay with the respective TSPs

9. Funding

- 9.1. A corpus of INR 4 Cr shall be created from the Part A-2 budget of Revamped Distribution Sector Scheme to manage implementation of this program for a period of 1 year. The fund may be expanded, based on need assessment by the DA, with support from MOP.
- 9.2. The grant will be provided to the empaneled incubator in phases - initially INR 2 Cr will be provided to the empaneled incubator. Subsequent grants will be released on submission of utilization certificate by the empaneled incubator.
- 9.3. The grant will be used for implementation of the program including the administrative expenditure of the incubator center.
- 9.4. The maximum funding available for implementation of each pilot is provided below:
- 9.5. Startup TSPs would be provided with a maximum grant of upto INR 40 lakhs, while no financial assistance will be provided to non-startup TSPs. In exceptional and deserving cases, higher assistance can also be given by the expert committee under information to the Monitoring Committee.
- 9.6. The empaneled incubator may release the payment to the TSP on successful completion of project milestones. The milestones shall be clearly defined by the empaneled incubator and linked with achievement of specific outcomes.

- 9.7. The TSP shall submit final report clearly highlighting the solution deployed, architecture, outcome delivered, critical success factors/ major reasons of failure (if applicable) etc.
- 9.8. In case the results of the pilot project are not satisfactory, Startup TSPs will be allowed to withdraw the installed asset(s) in cases where the asset(s) have been partially funded through the grant amount. In cases where the asset(s) have been fully funded with the grant amount, withdrawal of asset(s) shall not be permitted. In such cases, all such assets will become property of the DISCOM.
- 9.9. The empaneled incubator shall be entitled to a fixed administration fee at the rate of 5% of the amount disbursed to TSP for services rendered as per the MOU signed between the DA and the empaneled incubator.

10. Reporting

- 10.1. The empaneled incubators shall report to the DA each quarter the progress report of its activities.
- 10.2. The DA shall periodically update the MOP, GOI on the progress of the initiative.
- 10.3. The DA may also organize an annual symposium to present results of such pilots. Other similar national and international platforms shall also be leveraged by DA to enable faster adoption of the solutions by the DISCOMs.