

- ii. Aligning costs of new and renewable energy products and services with international levels;
- iii. Carrying out Renewable Energy Resource Survey, Assessment and Mapping.
- iv. Providing sustained feed-back to manufacturers on performance parameters of new and renewable energy products and services with the aim of effecting continuous up-gradation;
- v. Providing cost-competitive new and renewable energy supply options;
- vi. International collaboration for joint technology development and demonstration, testing and standardization.

## B. Components

The Programme has been structured to support research, design, technology development and demonstration for renewable energy sector including solar thermal systems, solar photovoltaic systems, biogas systems, waste to energy systems, wind energy systems, hybrid systems, storage systems, control and integration systems, hydrogen and fuel cell systems, geothermal, etc. The details of the components of the scheme are given in table below:

Components	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-2024)	Year 4 (2024-2025)	Year 5 (2025-2026)	Total
	Physical	Physical	Physical	Physical	Physical	Physical
1. Support for R&D for Research / Design / Technology / Development / Demonstration	(i) 10 Nos. of new projects in the identified thrust areas and support to on-going projects, including international collaboration.  (ii) Support for new test labs / centres.	(i) 10 Nos. of new projects in the identified thrust areas and support to on-going projects, including international collaboration.  (ii) Support for new test labs / centres.	(i) 10 Nos. of new projects in the identified thrust areas and support to on-going projects, including international collaboration.  (ii) Support for new test labs / centres.	(i) 10 Nos. of new projects in the identified thrust areas and support to on-going projects, including international collaboration.  (ii) Support for new test labs / centres.	(i) 10 Nos. of new projects in the identified thrust areas and support to on-going projects, including international collaboration.  (ii) Support for new test labs / centres.	(i) 50 Nos. of New projects and support to on-going projects including international collaboration  (ii) Support for ten new Test labs / centres.
2. Support for Start-ups	Three nos. for prototype development / Scaling up of business opportunity for One Start up	Three nos. for prototype development / Scaling up of business opportunity for One Start up	Three nos. for prototype development / Scaling up of business opportunity for One Start up	Three nos. for prototype development / Scaling up of business opportunity for One Start up	Three nos. for prototype development / Scaling up of business opportunity for One Start up	Fifteen nos. for prototype development / Scaling up of business opportunity for Five Start ups

3. Innovation competition / studies / meetings / conclaves / monitoring	Awards for innovation, studies on policy research and field evaluation, sharing technology development achievements and monitoring.	Awards for innovation, studies on policy and field evaluation, sharing technology development achievements and monitoring.	Awards for innovation, studies on policy and field evaluation, sharing technology development achievements and monitoring.	Awards for innovation, studies on policy and field evaluation, sharing technology development achievements and monitoring.	Awards for innovation, studies on policy and field evaluation, sharing technology development achievements and monitoring.	Prizes for innovation. Reports on policy research and analysis on new and renewable energy.
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The annual physical target mentioned above is indicative, and can be rolled over or exceeded in any given year, as long as the overall financial limits are not breached.

### C. Funding Pattern:-

The Ministry encourages research and technology development proposals in collaboration with the industry and provides upto 100% financial support to Government/non-profit research organizations/academic institutions/research institutions and upto 50% to Industry/Start-ups/Private Institutes/Entrepreneurs. Ministry may also provide financial support up to 70% of the project cost to Industry/ Private Institutes/ Research Organization/Start-ups for upgrading the technology from Low Technology Readiness Level (TRL) to High TRL with the endorsement of R&D Project Appraisal Committee (RDPAC).

### D. Outcomes:

The scheme will lead to research, design, technology development & demonstration in New & Renewable Energy which will be measured in terms of improvement of process/efficiency, cost reduction and technology validation for scaling up for demonstration and commercialization. The outcome for R&D Projects will be measured in terms of product/ process/technology development, patents, publications, test labs for performance and reliability testing, policy research reports, scaling up for demonstration projects etc.

In addition, the scheme will lead to strengthening expertise of R&D/academic institutions in specific advance areas for technology development and demonstration.

### E. Implementation:

The MNRE has been funding R&D projects following policy *vide* OM. No. 223/90/2017 - R&D dated 21.02.2019 respectively. It contains procedure for R&D project appraisal, evaluation, sanctioning, monitoring, and terms and conditions of grant sanctioned/released for the projects, including IPR sharing and assets acquired under the projects.

The implementation mechanism of the programme would be as follows:-

**E.1 Research, Design, Technology Development & Demonstration, Test Set Ups, Centres of Excellence and Start Ups :-**

- (i) The scheme will be implemented by the following:-
- a. R & D / Academic Institutions including Engineering Colleges (both Public & Private duly accredited by Government bodies),
  - b. Public/Private Industries,
  - c. Societies registered under the Societies Registration Act 1860,
  - d. Trusts registered under the Indian Trusts Act 1882,
  - e. NGOs,
  - f. Start Ups duly recognized by Department for Promotion and Internal Trade (DPIIT) and
  - g. Organizations engaged in Research & Development for promotion of new & renewable energy.

The above will be supported for taking up research, design, technology development & demonstration.

(ii) The RE-RTD Programme will be implemented as per policy and thrust areas identified by MNRE and its implementations guidelines.

(iii) The scheme will be implemented in form of projects with identified deliverables. The project proposals will be invited in thrust areas of the Ministry via MNRE's website/ National Dailies from time to time. The Proposals will be submitted as per the prescribed format. The proposals would be supported with proper appraisal by R&D Project Appraisal Committee (RDPAC) taking into consideration the assessment for scalability with commercial potential.

(iv) The project's cost will include project manpower, equipment, instrumentation, fabrication and installation, performance evaluation, manpower, travel, contingency, overhead charges for the implementing institutions, etc. as per policy and guidelines of MNRE.

(v) For implementation of the project, temporary manpower i.e SRF, JRF and RA etc. shall be hired in the R&D project based on their qualification in RE field depending upon availability. The hiring of manpower will be purely on temporary basis with a condition that there will be no liability of such staff for confirmation by government. The staff services shall discontinue immediately after the project duration expires.

(vi) The projects as such do not involve hiring of consultants as the projects are implemented by experts in the respective areas, hence hiring of consultants under the project will not be allowed.

(vii) The project administrative structure comprises of Principal Investigator and Co-Principal Investigators from the Implementing Institutions. In the case of collaborative projects, a Co-PI will be designated by such institutions.

(viii) Centre of Excellence will be supported/ created in project form for pursuing research in advanced areas with clear-cut goals and deliverables. Centers of Excellence will also be supported in consortia of institutions and industry for advanced research with clear cut long terms goals.

(ix) Testing and standardization is a key component for the growth of RE sector, and therefore test labs would be strengthened and expanded at par with international practice for quality assurance of renewable energy supply in the country. Test labs will be strengthened with adequate trained manpower including staff for delivering efficient and quality testing services to industry/project developers. New test labs will be set up to meet the demand of deployment. Necessary support will be provided for setting-up Labs. These labs will be supported in partnership and on self-sustaining basis.

(x) Start-up is a major intervention for promoting setting up small scale industries for indigenous development and manufacture of new and renewable energy systems/components/devices. The start-ups would be supported in transparent manner with proper assessment for their potential for entrepreneurship development. The Innovation Award Scheme would be utilized for supporting start-ups. An ecosystem with proper appraisal and financing mechanism will be evolved for supporting start-ups/scale-ups raised out of innovation for scaling up business development.

(xi) In addition, the MNRE will also support projects under MHRD led initiatives, IMPRINT and UAY matching MNRE thrust areas and approved by the Apex Committees of these initiatives.

(xi) The international cooperation for taking up joint research, design and development activities in advanced areas of new and renewable energy will be supported. Collaboration with institutions of ISA Member countries will also be supported in mutually identified areas. A suitable MoU for implementation will be signed between the participating organizations/agencies as per requirements of collaboration.

(xii) The projects will be examined by the R&D divisions to decide whether the same covers the thrust areas of MNRE. The R&D division then will seek comments of experts on the projects. The projects qualified will be taken up in the meetings of the R&D Project Appraisal Committee (RDPAC) of the MNRE for appraisal and recommendation. The projects recommended by the committee will be sanctioned as per MNRE Policy & Guidelines.

(xiii) Proposals for test labs will also be evaluated by experts as per policy and guidelines. The proposal shall be submitted in prescribed format. The proposals qualified will be appraised by the Standard, Testing and Quality Control Committee (STQCC) as per Lab Policy. The proposals recommended by the committee will be

processed for approval by the Ministry. The projects approved by Ministry will be sanctioned to concerned organizations for implementation.

(xiv) Project review, submission of progress reports, completion, extension will be regulated as per policy and guidelines.

## **E 2. Awards for Innovation/start-ups**

The purpose is to provide innovations at national level wherein innovators will be given opportunity to present their innovative ideas/innovation/prototypes before a judging committee. Nominations will be invited through MNRE website /national/regional dailies, and also through relevant state and central government departments/organizations/ institutions. The winners may be given awards in form of cash prize or in form of support mechanism for transforming their ideas/prototypes to commercial products or both. Innovative ideas/innovations awarded will be considered for support for start-ups. The scheme will be implemented following the guidelines for "Awards for Innovative Ideas in New and Renewable Energy-" "Abhinav Soch - Nayee Sambhwanayen" instituted by MNRE in July 2017.

## **E 3. Study on Policy Research**

Study on policy research and analysis of implementation of various programmes of MNRE, including impact of technology development support and field implementation of projects/programmes will be supported for drawing conclusion for improvement in technology/systems/components/process/schemes. This may include study on impact of systems design, integration, resource assessment, optimum utilization of resources and systems, quality control, regulatory mechanism and socio-economic impact of renewables. The proposals will be approved by the concerned RDPAC.

## **F. Sanction and Release of Funds**

Funds will be sanctioned/ released directly to the institutes/implementing agencies, which will be operated by the administrative set up already existing in those institutes. Funding pattern and central contribution in individual projects, including administrative/overhead charges for implementing agencies will be regulated as per the policy and guidelines of R & D Programme. The Pattern of release is as below: -

i. The Pattern of release of CFA will on milestone basis. In order to facilitate procurement of equipment early, upto 50% of the total assistance minus the institutional overheads would be released initially along with the sanction depending on the requirements of equipment in the project. For projects where equipment cost exceeds 50% of the project cost, higher initial release may be considered by the Ministry. The balance assistance minus the institutional overheads would be sanctioned as per the annual allocation based on the progress/milestone achieved in the project. The utilization of the grants released towards purchase of

equipment may be within 1 year of date of release, subsequent grant will be released after full utilization of previous release and submission of required documents etc.

ii. The institutional overheads would be released only after successful completion of the project and review by a Project Monitoring Committee and on receipt of the project completion report and financial due diligence as per GFR.

### G. Monitoring & Evaluation

(i) The monitoring of the progress of the projects will be done by project monitoring committee (PMC) comprising of the experts identified by MNRE. IFD representative may also be included in the PMC, if required.

(ii) The achievements claimed under the projects will be subjected to validation of the technology/process so that appropriate action is taken on furthering the technology development and demonstration in the area. On completion, the outcome of the project will be screened by expert committee to be constituted with the approval of RDPAC. The achievements will be subjected to measurements in relevant accredited test labs in the country or outside country.

(iii) In addition, interactive meets, R&D Conclaves will be organized annually to share the achievements with researchers, experts from R&D/academic institutions/industries, and other related stakeholders for taking corrective steps for improvement in implementation of projects.

(iv) Panel of Experts from lead R&D/academic institutions will be constituted for independent evaluation at the end of the programme period.

### H. Budget

(i) The budget includes funding for R&D projects, test labs, start-ups, innovation prizes, policy research, monitoring, meetings, conclave etc. The R&D project cost would involve project manpower, equipment, instrumentation, fabrication and installation, manpower, travel, contingency, overhead charges for the implementing institutions, etc. as per policy and guidelines of MNRE. Projects in partnership with industry will involve cost sharing with them. The year-wise budget of the programme is given in table below:

Components	Year 1 (2021-22)	Year 2 (2022-23)	Year 3 (2023-24)	Year 4 (2024-25)	Year 5 (2025-26)	Total
	<i>Amount in crores</i>					
1. Support for R&D for Research / Design / Technology / Development / Demonstration						
a) Non-recurring	20	25	25	25	25	120
b) Recurring	15	14	15	15	17	76
2. Support for Start-	4	5	6	6	6	27

ups						
3.Innovation competition/studies/meetings/conclaves/monitoring	1	1	1	1	1	5
<b>Total</b>	<b>40</b>	<b>45</b>	<b>47</b>	<b>47</b>	<b>49</b>	<b>228</b>

(ii) The budget will be spent on the basis of projects received in respective subjects/sub-heads and recommended by the respective Appraisal Committees. Accordingly, the budget will be allocated depending on projects.


(iii) The grantee institutions/organizations/industry, etc. will submit the progress report, audited statement of accounts and Utilization Certificate for the grant released/utilized annually. The UC will be furnished as per GFR 12-A (2017) as uploaded on MNRE website.

(iv) The projects are subjected to audit as per GOI policy for audit of projects in Scientific Departments.

(v) Guidelines for Implementation of Research and Technology Development Programme are enclosed as *Annexure*.

3. This issues in exercise of delegated powers of this Ministry and with the concurrence of IFD vide Dy.No. 217 dated 07.12.2021

Yours Faithfully

  
(Dr. Anil Kumar)  
Scientist D

To,

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Copy for information to:

1. Secretary, MNRE
2. AS&FA, MNRE
3. Joint Secretaries/ Advisers/Scientist-G, /Economic Advisers
4. PS to Minister (NRE)
5. Sr. PPS to Secretary (MNRE)
6. All State Nodal Agencies.
7. Additional Secretary (Energy), NITI Aayog, New Delhi.
8. Director (PF-II), Ministry of Finance , Department of Expenditure, North Block, New Delhi -110 001.
9. Director Generals, NISE, Gurgaon, NIBE, Kapurthala, NIWE, Chennai.
10. Managing Director, IREDA, New Delhi.
11. Managing Director, Solar Energy Corporation of India, New Delhi
12. NIC Cell (for publishing on the Ministry's website)

  
9/12/2021  
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