



Minutes of the 15th Governing Council Meeting of NISE held on September 27, 2024 under the Chairmanship of Secretary, MNRE and President, NISE

1. The 15th Meeting of the Governing Council of National Institute of Solar Energy (NISE) was held on September 27, 2024, in hybrid mode under the Chairmanship of Sh. Bhupinder S. Bhalla, Secretary, MNRE and President, NISE. A list of members who attended the meeting is given at Annexure-I along with the mode of joining.
2. At the outset, Dr. Mohammad Rihan, Director General, NISE welcomed the Chairman and all members of the Governing Council. He thanked the previous governing council members for their support. Dr. Rihan appraised the members about NISE and the meeting started with a formal introduction of the members of the Governing Council.
3. Shri Bhupinder S. Bhalla, Secretary MNRE and Chairman of Governing Council, NISE also welcomed the members. Thereafter, with the permission of the Chairman, Dr. Mohammad Rihan, Director General, NISE presented the Item-wise Agenda of the meeting to the members. The discussion held on the item-wise agenda and decisions taken are as follows:

Agenda Item No. 1.0	To grant leave of absence to the Members, not present in the meeting
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The leave of absence was granted to the following members as they could not attend the meeting:

- i. Joint Secretary, MNRE
- ii. Joint Secretary (Solar) /Advisor (Solar), MNRE
- iii. Mr. K.P. Rudrappaiah, Managing Director, KREDL
- iv. Shri Manoj K. Upadhyay, Founder and Chairman, ACME solar
- v. Representative nominated by Secretary, Department of Science and Technology (DST), New Delhi

Agenda Item No. 2.0	Confirmation of minutes of 14th Governing Council meeting held on 14-12-2023
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DG NISE informed that the minutes of the 14th Meeting of the Governing Council of NISE held on December 14, 2023, were circulated to all members and no comments were received.

Decision

The GC confirmed the minutes of the 14th Meeting of the Governing Council held on December 14, 2023.

Agenda Item No. 3.0	Action Taken Report on the decisions taken in previous Governing Council meetings
3.1 Submission of Audited Annual Accounts and draft Annual Report of NISE for the year 2022-23	

DG NISE informed that GC accorded its approval to the Audited Accounts for the Financial Year 2022-23 and with the addition of the president and DG's message in the Annual Report of NISE for 2022-23. Recommended the same for placing before the 7th AGM for adoption.

After adoption of Annual Report of NISE along with the Audited Accounts of NISE for FY 2022-23 in 7th AGM held on 14th December 2023, the same was laid on the table of both the houses of Parliament on 08.02.2024 (Lok Sabha) and 07.02.2024 (Rajya Sabha), respectively.

Decision

The GC noted the matter.

3.2 Approval to issue Purchase Orders for two (02) single-bid global tenders under the DST-funded Secondary Reference Solar Cell Project

DG NISE informed that GC accorded its approval for issuing purchase orders to M/s Sinton Instruments, USA for the supply, installation, and commissioning of the Minority Carrier Lifetime Tester. The instrument was Purchased and Installed in NISE.

In case of IV-cum-LIR Tester, the detailed technical and cost justification were submitted to President, NISE and as per the approval, a PO was issued for procurement.

Decision

The GC noted the matter.

The chairman of Governing Council also suggested to place the technical and cost justification for IV-cum-LIR Tester for information of all Governing Council members.

The same is placed in Annexure-II.

3.3 Decision on fund received from IREDA for creation of World Renewable Energy Museum and creation of IREDA-NISE Award on Solar Energy

DG NISE informed that discussions with CMD IREDA on this matter are going on.

Decision

The GC noted the matter.

3.4 Suggestions/ recommendations on Presentation About NISE

DG NISE informed that GC in its 14th meeting had given various suggestions on the presentation of NISE's R&D and technical activities. These suggestions include increased focus on technical activities and revenue, collaboration with industry for development of solar based products, provide customized training to solar industries, commercialization of patents, etc.

DG NISE highlighted how NISE has made efforts in these directions and taken various new initiatives. He provided details of seminars, stakeholders' meet and customized training programs organized by NISE to enhance its outreach and collaborations.

Decision

The GC noted the matter.

3.5 Construction of Quarters

DG NISE informed that GC in its 14th meeting, accorded the approval for Construction of 31 Staff Quarters with an estimated cost of Rs. 29.03 crores at NISE campus.

Regarding above matter, NISE submitted request to PD (NISE), MNRE for approval of initiation of work order. A demand letter for RE-2024-25 has also been submitted to MNRE, for further consideration.

Decision

The GC noted the matter.

3.6 Creation of one Sr. Director & one Director posts in the Administrative and finance Wings of NISE

DG NISE informed that GC accorded its approval and these posts have been included in consolidated requirement to be presented at Agenda No. 6 in the current GC.

Decision

The GC noted the matter.

3.7 Creation of one post of Junior Translation Officer in NISE

DG NISE informed that GC accorded its approval and these posts have been included in consolidated requirement to be presented at Agenda No. 6 in the current GC.



Decision

The GC noted the matter.

Agenda Item No. 4.0	Presentation about NISE & its vision document
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Dr. Mohammad Rihan, Director General, NISE gave a presentation on R&D, technical activities and achievements of NISE. The presentation, highlighted key R&D, solar product development, technical consultancy, skill development and capacity building activities ongoing at NISE. The presentation also summarized NISE's role in implementation of various MNRE's schemes and key achievements of NISE in the last 5 years. Revenue generation from various technical activities was also presented.

Dr. Mohammad Rihan, Director General, NISE also informed the GC that NISE is in the process of making its vision document. He presented key points of the draft of NISE's vision document 2030 and the new verticals of solar energy in which NISE is planning to work for supporting the Government of India's Panchamrit goals. In the presentation Dr. Rihan also highlighted the main challenges that NISE is facing and stressed that NISE is committed to overcome these challenges with its dedicated efforts, and support of MNRE.

Decision

The GC made a note of the presentation and gave the following suggestions/ comments:

- Key achievements and initiatives since the previous governing council meeting should also be included in the presentation.
- While presenting any research output/ product development activity, a representative TRL (Technology Readiness Level) indicator should also be mentioned.

New Agenda Items for approval of Governing Council	
Agenda Item No. 5.0	Confirmation of Deputy Directors (Tech.) in NISE (Pay Level-11 as per 7th CPC)

DG NISE informed that a Departmental Promotion Committee under the Chairmanship of Shri Bhupinder S. Bhalla, President NISE and Secretary MNRE, recommended the confirmation of below mentioned 05 Deputy Directors (Tech.) of NISE from their respective due dates.

Sl. No.	Name (s) of Officer Sh./Mrs./Ms./Dr	Mode of Recruitment	Date of joining	Date of completion of probationary period
1.	Dr. Birinchi Bora	Direct Recruitment	19.06.2020	18.06.2022
2.	Dr. Vikrant Sharma	Direct Recruitment	16.06.2020	15.06.2022
3.	Dr. Mrinal Dutta	Direct Recruitment	02.09.2020	01.09.2022

4.	Mrs. Richa Parmar	Direct Recruitment	01.07.2020	30.06.2022
5.	Mr. Kishore Kumar Menon	Direct Recruitment	17.12.2020	16.12.2022

Submitted for soliciting the approval of Governing Council for confirmation of services of 05 Deputy Directors (Tech.) of NISE as recommended by DPC.

Decision

The GC accorded its approval for confirmation of services of 05 Deputy Directors (Tech.), NISE as recommended by DPC.

Agenda Item No. 6.0	Implementation of Gratuity, Leave Encashment Scheme and compensation policy for staff of NISE
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DG NISE informed that a duly constituted committee explored the options with various insurance companies in the market for implementation of Gratuity, Leave Encashment and Group Insurance scheme for staff of NISE. The committee received proposals from LIC (A govt. of India Undertaking) for Gratuity scheme and Leave encashment scheme. Regarding the compensation scheme, LIC confirmed the committee that Group insurance scheme as per CCS rules has been discontinued.

Proposal for Gratuity Scheme: proposal of Rs. 79,66,190/- dated 20.06.2024 for 27 regular staff for adopting gratuity scheme in NISE, which includes the past service gratuity benefits as per the date of joining in NISE.

Proposal for Leave Encashment Scheme: proposal of Rs. 81,22,178/- dated 21.06.2024 for 27 regular staff for adopting leave Encashment scheme in NISE, which includes the past service leave benefits as per the date of joining in NISE.

DG NISE informed that the proposal was presented in the 17th FC and FC accorded in-principle approval for adoption of Gratuity Scheme & Leave Encashment Scheme offered by LIC. The Proposal for Compensation Scheme will be further discussed in subsequent FC meetings.

Submitted for soliciting the approval of GC for Implementation of Gratuity and Leave Encashment Scheme as concurred by FC.

Decision

The GC accorded its approval for Implementation of Gratuity and Leave Encashment Scheme in NISE.

The GC also asked to include the recurring annual outlay amount for adopting these 02 schemes. The proposal submitted by LIC for the same is given in Annexure-III.

Agenda item No. 7.0	Requirement of Regular Manpower in NISE on account of significant increase in the Technical & R&D activities
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DG NISE informed that in the 2nd GC meeting of NISE, it was proposed that a total of 133 regular

personnel (technical and administrative) would be required to fulfil the institute's mandate and align with the nation's vision for renewable energy set under NSM. However, only 40 regular positions (30 technical and 10 administrative) were sanctioned.

With significantly expanded responsibilities of NISE due to rapidly evolving solar energy sector, it is essential to augment the existing manpower.

Based on the requirement, a proposal to create additional regular posts was submitted to 15th FC. After discussion, FC recommended to create a total of **28 posts (24 technical and 04 Administration)** with the estimated annual expenditure of Rs. 4.74 crores as per below details:

S. No.	Name of the Post	Pay Level	Number of Post required	Requirement for (Name of Activity/division)
Scientific/Technical				
1.	Deputy Director General/ Scientist-F	13A	01	Solar Photovoltaic & Green Hydrogen Activity
2.	Director/ Scientist D	12	03	Solar Photovoltaic/Energy Storage/Green Hydrogen



3.	Deputy Director/ Scientist C	11	09	02 posts for Solar PV Potential Assessment & Forecasting 02 post for Circular Economy & Sustainability (PV Recycling) 02 posts for Battery Energy Storage 02 posts for Distributed generated & Localized grid (Mini/Micro-Grid) 01 post for Training & Skill Development Activities
4.	Assistant Director/ Scientist B	10	07	01 posts for Solar PV Potential Assessment & Forecasting 02 post for Circular Economy & Sustainability (PV Recycling) 02 post for Battery Energy Storage 01 Industrial Research & Technical Consultancy 01 post for PV Modules and systems
5.	Sr. Technical Officer (Technical Support)	10	04	01 post to support PV Modules and systems 01 post to support Thermal Energy storage activities 01 post to lead all the testing labs @NISE 01 post to lead all the testing labs @MPIDC
Total (A)			24	
Administration				
1.	Sr. Director (Admin/ Finance)	13	01	Admin/ Finance



2.	Director (Admin/Finance)	12	01	Finance Division
3.	Junior Account Officer	08	01	Finance Division
4.	Junior Translation Officer	08	01	Admin Division
Total (B)			04	

Submitted for soliciting the approval of GC for creation of **28 posts (24 technical and 04 Administration)** as accorded by FC with the estimated annual expenditure of Rs. 4.74 crores, for further submission to MNRE.

Decision

The GC accorded its approval.

The GC also pointed out that the name of the post at Sr. No. 4 under administration should be corrected as "Junior Translation Officer" in-line with the accepted norms.

Agenda item No. 8.0	Engagement of manpower for scientific and research activities of NISE on short term contract basis
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DG NISE informed that NISE seeks to engage scientific/ technical (subject matter experts and Research Associates) manpower on short-term contract basis to support its expanding research activities particularly in emerging areas.

Accordingly, a proposal was submitted to FC for approval and FC recommended the engagement of manpower for scientific and research activities of NISE on short term contract basis as per below details:

Subject Matter Expert (SME) - 04 no. of manpower on grade pay basis not above the level - 11 from the revenue budget of NISE. The 04 posts include, 01 for Solar PV potential assessment & Forecasting, 01 for circular economy & Sustainability (PV Recycling), 01 for Battery Energy Storage, and 01 for PV modules and system (asset management and center of excellence in Agro PV). Engagement of manpower will be for 03 years and extendable up to maximum 07 years' subject to availability of funds and requirement of the institute. The Estimated budget for the engagement of SME (from NISE's Revenue budget) will be Rs. 58.50 Lakh/-.

Post-Doctoral Fellow / RA - 09 no. of RA / Post-Doctoral fellowship as per the DST norms from the grant in aid with an **estimated budget of Rs 81.43 Lakhs/per year.**

Submitted for soliciting the approval of GC for engagement of 04 Subject Matter Expert & 09 Research Associate (post- doctoral fellows) on short term contract basis, as accorded by FC.

Decision

GC discussed the requirement of manpower in detail and NISE's proposed technical activities in new

areas of solar energy and associated fields. After deliberation, the GC opined that in case of subject matter expert (SME), where the salary is paid from NISE's revenue budget, flexibility should be maintained (not restricted to pay level – 11) while hiring, so that a suitable candidate with desired technical expertise and relevant experience can be hired.

The GC accorded its approval for a) engagement of 04 Subject Matter Experts on grade pay basis in the pay levels of 10, 11 or 12 of 7th CPC (as per the suitability of the candidates for the position), b) engagement of 09 Research Associate/ post- doctoral fellows on short term contract basis as per the applicable DST norms. The expenditure for the Subject Matter Experts to be met from NISE's revenue budget, and for Research Associate, the expenditure will be from Grant-in-aid of NISE.

Agenda Item No. 9.0	Initiation of process for construction of Staff quarters at NISE
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DG NISE informed that NISE submitted a proposal of Rs. 29.03 crores for construction of staff quarters in NISE campus for its regular staff. The same has been concurred by 15th FC of NISE and subsequently approved in 14th GC meeting of NISE.

16th FC approved additional capital budget of Rs. 9.67 crores (Being 1/3rd of total estimate of Rs. 29.03 crores) for initiating the tendering process by CPWD for FY 2024-25.

Submitted for soliciting the approval of GC to issue work order to CPWD for construction of quarters by allowing to use the NISE revenue budget till allocation of budget from MNRE. If the additional budget (for construction of quarters) from the Ministry of Finance (MOF) is not approved, NISE may use its own funds from the Revenue Budget for the construction of staff quarters.

Decision

The GC accorded its approval for the proposal.

GC also highlighted that NISE should submit the revised RE budget to MNRE including the budget required for the construction of quarters for the FY 2024-25. PD MNRE should initiate the process of taking approvals at appropriate levels for release of funds.

Agenda Item No. 10.0	Hiring of residential accommodation for DG, NISE
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DG NISE informed that NISE does not have residential accommodation for DG NISE and the same needs to be hired.

FC opined that as per the Department of Expenditure (DoE), Ministry of Finance O.M. No. 1(16)/E. II(A)/2008 dated 8th May 2009 may be considered as a base (50% of entry pay i.e., Rs.72,100/- of Rs.1,44,200/- - Entry pay in pay Level 14). However, NISE being on outskirts of the main city, there are limited options for leased accommodation as per the leased value of 50% of entry pay of Level 14. Moreover, the nearest residential areas are very costly and market survey has shown that it will be difficult to find a suitable accommodation, i.e., Type VI-A, as per the said provisions.

FC noted the constraints and recommended that in such a situation, variations in upper limit may be considered (subject to a ceiling of 1.00 Lakh p.m.) with the condition that the net financial implication on NISE towards the proposed leased accommodation shall not exceed Rs. 45,000/- p.m. The expenditure over and above the lease value shall be met out from the internal earnings of NISE.



FC also directed to place a suitable agenda in the next GC meeting for its approval.

Submitted for soliciting the approval of GC the proposal for hiring residential accommodation for DG, NISE as per the recommendations of FC.

Decision

The GC accorded its approval for the proposal.

Agenda Items for information of Governing Council	
Agenda Item No. 11.1	National Center for Hydrogen Safety (NCHS) at the National Institute of Solar Energy (NISE) a nodal agency on Safety Under MNRE National Green Hydrogen Mission

DG NISE informed that MNRE, under the National Green Hydrogen Mission (NGHM) has decided to set up National Center for Hydrogen Safety (NCHS) at NISE, Gurugram to act as a Nodal Agency to work on safety related aspects under the Mission. NCHS will facilitate in developing expertise on safety aspects of Green Hydrogen and Fuel Cell technologies and to develop safety regulations in consonance with globally accepted safety norms, to build trust among users with robust quality and performance requirements regarding safety across the Green Hydrogen value chain.

Decision

GC noted the matter.

Agenda Item No. 11.2	Scheme Implementation agency (SIA) for the NGHM Testing Infrastructure Development Scheme
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DG NISE informed that MNRE has sanctioned NISE as the Scheme Implementation agency (SIA) for the MNRE Scheme of "Funding of testing facilities, infrastructure, and institutional support for development of Standards and Regulatory framework" under the National Green Hydrogen Mission (NGHM) for implementation during the period 2024-26 at a total cost of Rs. 200 crores.

Decision

GC noted the matter.

Agenda Item No. 11.3	Engagement of Technical manpower on short term contract for the Revenue Generation activities of NISE
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DG NISE informed that NISE is initiating the recruitment of technical manpower on a short-term contractual basis to enhance the institute's capacity to manage various revenue generating programs more efficiently, such as, industrial research, technical consultancy, program implementation support for the MNRE, and skill development & training.

NISE requires 15 skilled professionals as per following details: 03 Nos. Project Manager (monthly

consolidated salary of Rs. 1,20,000/-), 01 No. Sr. Project Engineer (monthly consolidated salary of Rs. 70,000/-), 03 Nos. Project Engineer (monthly consolidated salary of Rs. 50,000/-) and 08 Nos. Jr. Project Engineer (monthly consolidated salary of Rs. 35,000/-). Engagement will be a maximum of up to 03 years. The remuneration will be funded through the revenue generated by NISE at a Total estimated expenditure of Rs. 1.03 crores.

The above mentioned agenda was presented in the 17th FC meeting. FC noted the information and directed NISE to engage the manpower on need basis for the short-term contract on consolidated remuneration.

Decision

GC noted the matter.

Agenda Item No. 12.0	Any other item with the approval of Chairman of Governing Council.
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With the permission of Chairman of Governing Council, additional below agenda item was presented to the governing council:

Agenda Item No. 12.1	Procurement of solar simulator for testing of large size PV module with a budgetary estimation of more than INR 5 Cr.
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DG NISE informed that The size of solar PV modules has been trending towards larger dimensions over recent years. At present the solar simulators available at NISE for PV module performance testing have limitations in terms of small module size (up to 2.1 x 1.3 m), lack of integrated spectral response measurement, and lack of Variable Angle of Incidence test facility for large size modules.

As reported by Clean energy review the maximum size of PV module available in the market is 2.4 m x 1.35 m. To cater for the testing of larger dimension modules under the PLI scheme as well as for regular testing and calibration services of large size PV modules offered by NISE to solar industry, a new solar simulator with larger dimensions is required.

After finalization of technical specifications by a duly constituted committee with an external expert, a budgetary estimate of INR 8.99 Cr (inclusive of GST) was received.

The matter was placed before the Executive Committee (EC) of NISE to discuss the necessity of the said equipment. The EC agreed with the requirement and suggested to place it before the upcoming governing council meeting for approval.

As per Sr. No 5 of the delegation of financial and administrative powers purchase of equipment costing more than INR 5.0 Cr., Governing Council has full power subject to following the relevant provisions of GFR 2017.

Submitted for soliciting the approval of GC for initiating the procurement of solar simulator for testing of large size PV module with an estimated cost of INR 8.99 Cr.

Decision

GC discussed the matter and gave in-principle-approval for the procurement considering the necessity. However, GC directed to place the agenda item before FC for consideration. Further,



order should be placed only after confirmation of availability of funds.

The meeting ended with a vote of thanks to all members.



Jai Prakash
(Member Secretary)



Bhupinder S. Bhalla
(President NISE, & Secretary, MNRE)

Annexure-I**List of members who attended the 15th Meeting of the Governing Council of NISE, held on 27th September, 2024.**

Sl. No.	Name, Designation & Organization	Status	Mode of Joining
1.	Shri Bhupinder S. Bhalla Secretary, MNRE	President of the Society and Chairman (Ex-officio)	Physical
2.	Financial Advisor, MNRE	Member (Ex-officio)	Online
3.	Joint Secretary, MNRE	Member (Ex-officio)	Absent
4.	Joint Secretary (Solar) /Advisor (Solar), MNRE	Member	Absent
5.	Shri Sanjay Sharma, Director (Solar), SECI	Member	Online
6.	Shri SS Reddy, Director, CPRI	Member	Online
7.	Yogender Mathur, General Manager, RRECL	Member	Online
8.	Mr. K.P. Rudrappaiah, Managing Director, KREDL	Member	Absent
9.	Shri Ravi Reddy, Chairman, NSEFI	Member	Online
10.	Shri Manoj K Upadhyay, Founder and Chairman, ACME Solar	Member	Absent
11.	Dr. Mohammad Rihan Director General, NISE	Member	Physical
12.	Dr. Chandan Banerjee, Deputy Director General, NISE	Member	Physical
13.	Dr. Avadhesh Yadav, Deputy Director General, NISE	Member	Physical
14.	Prof. Nilanjan Senroy, Electrical Engineering Dept, IIT Delhi Power Grid Chair Professor, IIT Delhi	Member	Online
15.	Prof. Asheesh Kumar Singh, Professor, Department of Electrical Engineering, MNIT, Allahabad	Member	Online
16.	Prof. Dinesh Kabra, Department of Physics, IIT Bombay	Member	Online
17.	Prof. Vamsi Krishna, Department of Energy Science and Engineering, IIT Delhi	Member	Online
18.	Member Secretary: - Dr. Jai Prakash, Deputy Director General, NISE	Member	Online
19.	Special Invitee: - Representative nominated by Secretary, Department of Science and Technology (DST), New Delhi	Member	Absent

Apart from the above mentioned members, the following officials were also present in the meeting:

Sl. No.	Name, Designation & Organization	Mode of Joining
1.	Dr. Kuldeep Singh Rana, Scientist 'E', MNRE	Physical
2.	Shri Kailash Chand, Deputy Secretary (IFD), MNRE	Physical
3.	Dr. Prashant Misra, Director (Technical), NISE	Physical
4.	Dr. Anish Malan, Deputy Director (Technical), NISE	Physical



राष्ट्रीय सौर ऊर्जा संस्थान
(नवीन एवं नवीकरणीय ऊर्जा मंत्रालय, भारत सरकार का स्वायत्त संस्थान)
National Institute of Solar Energy
(An Autonomous Institute of Ministry of New and Renewable Energy, Govt. of India)

Subject: Approval to issue Purchase Order to M/s. Photo Emission Tech. Inc. for the supply, installation and commissioning of one unit of IV-cum-LIR Tester under the DST funded Secondary Reference Solar Cell Project.

This file has reference to the e-file no. R and D-201/1/2021-SDD. IV-cum-LIR tester system is proposed to be procured under the DST funded project, titled "Design, Development and Qualification of Large Area (156 mm X 156 mm) Secondary Reference Solar Cells".

2.0 Upon obtaining the approval for retendering process for the global tender to procure one unit of IV-cum-LIR Tester, the global e-tender was floated on April 13th, 2023. The technical specifications of the tender were designed in such a way that a bidder can apply either for IV Tester (part A) and LIR Tester (Part B) together or only for IV cum LIR Tester (Part C). No bidder participated in the supply, installation and commissioning of separate IV tester and LIR tester even extended twice (total 68 days). Only a single bid received for the combined equipment I-V and LIR. A copy of the tender document is placed in the file as "Flag A".

3.0 The Technical Evaluation and Purchase Committee (TEPC-II), NISE has recommended the procurement of IV-cum-LIR tester system after following the through tender evaluation process on the single tender basis as per Rule 173 (XX) of GFR 2017. A copy of MOM financial bid evaluation and documents related to IV-cum-LIR tester system is placed in the file as "Flag B".

4.0 Being a single tender enquiry and the cost being more than rupees one crore, the matter was placed before the GC in its 14th meeting held on December 14th, 2023. In the meeting, it was decided that the final approval may be taken from the President of NISE with the submission of proper cost justification. A copy of MOM of 14th GC meeting is placed in the file as "Flag C".

5.0 The following is submitted for cost justification:

5.1 During the evaluation cost justification committee obtained previous POs from the bidder for the similar systems installed at various Indian institutes and organizations. A comparison table of technical specifications of the systems procured by IIT Bombay; BHEL ASSCP, Gurgaon; IICT, Hyderabad; NIT Durgapur and Shivaji University, Kolhapur is placed in the file as "Flag D". The comparison has been done as per the available PO and tender documents and same has been attached with the comparison table.

5.2 The details of delivery terms, year of procurement and technical specifications which leads to cost variation is shown in the table given below

Item	Technical Specifications of NISE	Technical Specifications of IIT Bombay	Technical Specifications of BHEL – ASSCP	Technical Specifications of IICT, Hyderabad	Technical Specifications of NIT Durgapur	Technical Specifications of Shivaji University	Remarks
Price of the system	USD 1,33,500/- (excluding extended warranty)	USD 65,930/-	USD 94,250/-	USD 61,250/-	INR 40,70,667/-	USD 69,240/-	The total price quoted for NISE is USD 1,45,500 which includes USD 1,33,500 equipment price and USD 12,000 extended warranty

Contd.

Terms of Delivery	CIF NISE, Gurugram	FCA LAX Airport USA, Freight and Insurance arranged by IIT Bombay	CIF Hyderabad Airport	FCA Los Angeles USA. Freight and Insurance covered by IICT	Delivery at NIT Durgapur	Delivery at Shivaji University, Kolhapur	The price quoted for the equipment of NISE includes freight and insurance and all taxes & duties.
Year of Procurement	2023 (Price bid year)	2018	2018	2013	2022	2012	The escalation in the price of NISE can be subjected to inflation over the years
Basic Function	<ul style="list-style-type: none"> • Testing of 192 mm x 192 mm c-Si solar cells • Testing of 20 cm x 20 cm single-cell modules • Testing of light-induced degradation and regeneration of c-Si solar cells. 	Testing of 156 mm x 156 mm solar cells	Testing of 160 mm x 160 mm solar cells	Testing of 100 mm x 100 mm solar cells	Testing of 80 mm x 80 mm solar cells	Testing of 156 mm x 156 mm solar cells	The system to be supplied at NISE has additional facility of single cell module I-V measurement and light-induced degradation & regeneration of c-Si solar cells.
Area of uniform illumination	220 mm x 220 mm	156 mm x 156 mm	160 mm x 160 mm	100 mm x 100 mm	80 mm x 80 mm	156 mm x 156 mm	The system to be supplied at NISE has the highest illumination area as compared to all the other five institute/organization
Spatial non-uniformity of irradiance	< + 1.5% (at 1 SUN)	Not mentioned	< ±2%	Not mentioned	<= ±2%	Not mentioned	The system to be supplied at NISE has best non-uniformity as compared to all the other five institute/organization

Max. and Min. intensity	Variable intensity from 0.5 Sun (or lower) to 1.5 Sun without changing spectrum	Intensity control provide d. Value not mentioned	900 (0.9 Sun) to 1100 (1.1 Sun) W/m ²	0.1 Sun to 1 Sun	1 Sun ± 15% adjustable	Intensity control provide d. Value not mentioned	The system to be supplied at NISE has the option of highest intensity as compared to all the other five institute/organization
Temperature range for the chuck (°C)	15 —75 deg C with an accuracy of +0.5 °C or better 76-180 deg C with an accuracy of +1 °C or better	Not mentioned	10 —70 deg C	5 —75 deg C	Not mentioned	5 —75 deg C	The equipment to be supplied at NISE is for the higher temperature range up to 180 deg C which is not available in all the other five institute/organization
Source meter range	+20A, +20V (max) with an accuracy of 0.001%	±20A, ±10V, accuracy not mentioned	±15A, ±10V, accuracy <0.2%	5 A	Up to 1 A, ±20 V, accuracy better than 0.5%	5 A	The system to be supplied at NISE has the highest current & voltage measurement range
Light I-V testing for hysteresis	For forward and reverse voltage sweeps. Should have an option for changing voltage slew rate for hysteresis measurements	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned	NISE has asked for specifically designed I-V test software to do the measurement of solar cell with better accuracy as the system will be used for calibration of secondary reference solar cell.
Other control parameters for light I-V test	Voltage sweeps range, voltage step,	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not mentioned	

	and bias voltage						
Arrangement for I-V testing of single-cell modules	Provided arrangement for I-V testing of single-cell module with LEMO connector	Not provided	Not provided	Not provided	Not provided	Not provided	NISE has asked for the arrangement for I-V testing of single cell module with LEMO connector as the secondary reference solar cell will be packaged as single cell module with LEMO connector.
Customized software and arrangement for doing LID/LIR testing of solar cell	Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	NISE has asked for specifically designed software to do the LID/LIR test as the system will be used for stabilizing the solar cell in order to make secondary reference solar cell.
Extended warranty	24 months post-normal warranty to be quoted separately (as per financial bid)	Not provided	Not provided	Not provided	Not provided	Not provided	NISE has asked for extended warranty for the system

5.3 NISE equipment is composed of both IV tester and LIR tester. For a composite system, following components become common,

- The Ozone Lamp (Ozone free, class AAA, AM 1.5G spectrum etc.)
- Optics: Monochromator, grating, lens and mirror alignment etc.
- Chuck for holding wafers (Temperature controlled with probes)
- Black box for sample irradiation and the frame for holding above mentioned parts

Therefore, in a composite system, we can reduce the cost of above mentioned optical and instrumental parts as compared to a separate IV tester and LIR tester system.

5.4 For the DST-sponsored Secondary Reference Solar Cell Project, there is a need of simultaneous IV measurements and light degradations that will only be possible if we go for the composite system.

5.5 Further, some additional features are needed to be added to a normal IV measurement system to customize it to form an IV-cum-LIR system. These customizations are as follows:

- To perform LIR, the instrument has to be customized to upgrade the IV measurement software to enable LIR measurement combining light, temperature and voltage bias to increase the stress level on cells.
- The light IV testing during LIR test measurement can only be done according to the script program or via external command. Therefore, LIR test cycle has to be enabled as per the script.
- To perform LIR, light soaking feature has to be added to the software with continuous monitoring of IV.
- For simultaneous current injection separate extra electrical arrangements that include current probes, power source etc. will be provided.

5.6 Division also obtained opinion of renowned researchers / scientists of different Indian institutions regarding the customization of IV cum LIR tester. Their views are attached as "Flag E".

5.7 Based on the above clarification, the file is submitted for the approval of the President of NISE to issue purchase Order to M/s Photo Emission tech. Inc. USA with the quoted price USD 145500 (USD 133,500/- for supply, installation and commissioning and USD 12,000 for extended warranty) for supply, installation and commissioning of a Solar cell IV-cum-LIR Tester at the National Institute of Solar Energy Gurugram, Haryana.

Submitted please.

3333
hrc/2/24

B. Bora
24.01.24
(Birinchy Bora)
Deputy Director (Tech.)
Co - PI of the project

PI of the project (Dr. Chandan Banerjee, Deputy Director General)

Submitted for soliciting approval of President, NISE.
B. Bora
24/01/2024

DG/NISE During GC meeting of NISE held on 14th Dec, 2023 it was decided to provide detailed cost justification for the single bid received for IV-cum-LIR system. (Minutes of GC meeting placed at Flag C). Based on cost justification mentioned in Table under Para 5.2, kind approval requested from President NISE.

President (NISE)

Approved, as proposed.
This may be placed before the next GC for post-facto approval.
K. Sanghvi
09/02/2024

DDG(CCB)

DG/NISE As directed. *K. Sanghvi*
5/2/24

N 05/02/24

Annexure - II



भारतीय जीवन बीमा निगम
LIFE INSURANCE CORPORATION OF INDIA

Ref. P&GS/GLES

LIFE INSURANCE CORPORATION OF INDIA
Pension and Group Schemes Department
P & GS Unit, Noida
LIC of India, IInd Floor, E-3, Sector-1, Noida
Noida UP, Noida
Pin Code -201301

Ref : P&GS/301604/10153
Version : 24.09/09

Date : 21/06/2024

Phone No: 01202535701
Email : bo_g210@licindia.com

NATIONAL INSTITUTE OF SOLAR ENERGY
GWAL PAHARI, GURUGRAM-FARIDABA
GURUGRAM

HARYANA
122003

Dear Sir/Madam,

RE: Group Leave Encashment Scheme of Your Employees

1	Proposal No/Quot. No	:	6260/1
	Date Of Commencement	:	01/06/2024
2	Membership Data		
	No. of Members	:	27
	Average age	:	38
	Average Monthly Salary	:	115117
3	VALUATION METHOD	:	Projected Unit Credit Method
4	ACTUARIAL ASSUMPTIONS		
	Mortality Rate	:	LIC(2006-08) ultimate
	Withdrawal Rate	:	1% to 3% depending on age
	Discount rate	:	7.25% p. a.
	Salary Escalation	:	7%
5	RESULTS OF VALUATION		
	a. PV PSG	:	6416467
	b. Current Service Cost	:	1705306
	c. LCSA	:	135000
	d. LC Premium	:	343
	e. G S T @18%	:	62
	Ser Tax, EC/EB Cess, KK Cess	:	(61.74+0+0)
6	RECOMMENDED CONTRIBUTION RATE		
	a. Initial Contribution	:	6416467
	b. Additional Contribution for existing fund	:	0
	c. Current Service Cost	:	1705306
7	Total Amount Payable (Rs)	:	8122178
	(6.a + 6.c + 5.d + 5.e)		

.....Contd 2



भारतीय जीवन बीमा निगम
LIFE INSURANCE CORPORATION OF INDIA

Ref: P&GS/GLES

--2--

Proposal No/Quot. No : 6260/1
Date of Commencement : 01/06/2024

Benefits Valued

Category	NRA	LC	RTA TABLE	Benefit Option
1	60	5000	X04	1

The following points may be noted in this matter:

- 1) The above advice is in respect of liability arising in case of exit of the members only
- 2) The amount of OYRGTA Premium for group insurance cover may be worked out at your end and may be charged in addition to the amount quoted by us.
- 3) The annual contribution may change in future and the data of employees may be collected every year for actuarial valuation

Yours Faithfully,

Rajesh
e/ MANAGER (P&GS)

राजेश गड़कोटी
Rajesh Garkoti
LIFE INSURANCE CORPORATION OF INDIA
E-3, Sector-1, 11nd Floor, Noida-201301

Annexure-III

lic_id	employee_name	salary	p_leave_credit	m_leave_credit	ts	ps	lifer_c	lcp	accr_liabil	version	date_of_bir	date_of_app
							over		ity	_no	th	ointment
1	Dr. Chandan Banerjee	249150	167	0	19	8	5000	29.9	1386935	12	15/12/1974	13/06/2016
2	Dr. Jai Prakash	202500	81	0	20	3	5000	17.75	546750	12	01/07/1980	10/12/2020
3	Dr. Avadhesh Yadav	202500	35	0	18	1	5000	16.15	236250	12	01/08/1981	13/04/2023
4	Shri Anil Kumar Yadav	129150	60	0	14	2	5000	26.9	258300	12	07/12/1975	13/12/2021
5	Dr. V. Siva Reddy	121800	37	0	18	1	5000	17.75	150220	12	11/07/1980	19/12/2022
6	Dr. Prashant Misra	121800	32	0	18	1	5000	17.75	129920	12	11/07/1980	30/12/2022
7	Shri Rahul Kumar	104550	31	0	20	1	5000	13.6	108035	12	10/01/1983	02/02/2023
8	Shri Sandeep Sehwat	104550	144	0	23	5	5000	14.8	501840	12	11/01/1982	19/03/2019
9	Shri A Vijay Kumar	104550	23	0	24	2	5000	10.25	80155	12	14/03/1987	28/09/2022
10	Dr. Birinchi Bora	114300	100	0	25	4	5000	11.7	381000	12	31/12/1984	19/06/2020
11	Dr. Vikrant Sharma	114300	82	0	22	4	5000	14.8	312420	12	03/06/1982	16/06/2020
12	Dr. Marinal Dutta	111000	89	0	21	4	5000	16.15	329300	12	09/10/1981	02/09/2020
13	Ms. Richa Parmar	114300	33	0	31	4	5000	8.4	125730	12	27/09/1991	01/07/2020
14	Shri Kishore K Menon	111000	46	0	24	3	5000	11.7	170200	12	25/05/1985	17/12/2020
15	Dr. Umakant Sahoo	104550	45	0	28	2	5000	8.75	156825	12	08/07/1990	23/11/2022
16	Shri Dhananjay Pandey	97500	117	0	27	5	5000	10.9	380250	12	24/06/1986	05/04/2019
17	Dr. Nikhil P.G.	101550	38	0	26	4	5000	10.9	128630	12	11/05/1986	02/03/2020
18	Dr. Anish Malan	101550	54	0	33	4	5000	7.85	182790	12	04/03/1993	28/02/2020
19	Shri Arup Dhar	101550	116	0	30	4	5000	8.75	392660	12	09/08/1990	28/02/2020
20	Shri Vikrant Yadav	101550	122	0	30	4	5000	8.75	412970	12	20/04/1990	25/02/2020
21	Shri Yogendra Singh	101550	101	0	30	4	5000	9.15	341885	12	28/10/1989	25/02/2020
22	Shri Kamlesh Yadav	101550	97	0	29	4	5000	9.15	328345	12	13/01/1989	25/02/2020
23	Shri Deepak Khandelwal	84150	10	0	30	1	5000	7.7	28050	12	07/02/1994	16/02/2024
24	Shri Aniket Deshpande	86700	30	0	27	4	5000	10.25	86700	12	25/02/1987	06/07/2020
25	Shri Sandeep Tiwari	73500	60	0	32	4	5000	8.1	147000	12	21/05/1992	06/08/2020
26	Shri Siddharth Saroha	73500	47	0	32	4	5000	8.1	115150	12	03/03/1992	13/07/2020
27	Shri Deepak Yadav	73500	58	0	36	3	5000	7.4	142100	12	22/08/1996	04/12/2020

Rajesh
 राजेश गड़कोटी
Rajesh Garkoti
LIFE INSURANCE CORPORATION OF INDIA
E-3, Sector-1, 11nd Floor, Noida-201301



भारतीय जीवन बीमा निगम
LIFE INSURANCE CORPORATION OF INDIA

Ref: P&GS/GGCA

LIFE INSURANCE CORPORATION OF INDIA
Pension and Group Schemes Department
P & GS Unit, Noida
LIC of India, IInd Floor, E-3, Sector-1, Noida
Noida UP, Noida
Pin Code -201301

Ref : P&GS/301604/10184
Version : 24.09/09

Date : 20/06/2024

Phone No: 01202535701
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NATIONAL INSTITUTE OF SOLAR ENERGY
GWAL PAHARI, GURUGRAM-FARIDABA
GURUGRAM

HARYANA
122003

Dear Sir/Madam,

RE: Group Gratuity Scheme of Your Employees

1	Proposal No/Quot. No	:	6261/3
	DATE OF COMMENCEMENT	:	01/07/2024
2	MEMBERSHIP DATA	:	
	Number Of Members	:	27
	Average age	:	38.11
	Average Monthly Salary	:	115116.66
	Average Past Service	:	3.52
3	VALUATION METHOD	:	Projected Unit Credit Method
4	ACTUARIAL ASSUMPTIONS	:	LIC(2006-08) ultimate
	Mortality Rate	:	1% to 3% depending on age
	Withdrawal Rate	:	7.25% p. a.
	Discount rate	:	7%
	Salary Escalation	:	
5	RESULTS OF VALUATION	:	
	a. PV of Past Service Benefit	:	6207777
	b. Current Service Cost	:	1663769
	c. Total Service Gratuity	:	43262140
	d. Accrued Gratuity	:	6541716
	e. LCSA	:	36720424
	f. LC Premium	:	80207
	g. GST @18%	:	14437
	(S Tax + Ec / SB Cess + KK Cess	:	14437.26 + 0 + 0)
6	RECOMMENDED CONTRIBUTION RATE	:	
	a. Initial Contribution (Rs.)	:	6207777
	b. Additional Contribution	:	
	for existing fund	:	0
	c. Current Service Cost	:	1663769
7	Total Amount Payable (Rs)	:	7966190
	(6.a + 6.c + 5.f + 5.g)	:	

.....Contd 2



भारतीय जीवन बीमा निगम
LIFE INSURANCE CORPORATION OF INDIA

Ref: P&GS/GGCA

--2--

Proposal No/Quot. No : 6261/3
Date of Commencement : 01/07/2024

8 Benefits Valued

Category	NRA	Gratuity Ceiling	Slab	Rate	LCSA Ceiling	RTA TABLE
1	60	2500000		99	15	2000000 X03

Please note that the contribution rate may change in future depending upon the experience of the scheme. It is necessary to carry out the Actuarial Valuation periodically. It may be noted that the above results are as per the Actuarial Valuation which is based upon certain assumptions about future experience of the scheme. Further, the results are particularly sensitive to the difference between assumed valuation rate of discount and the assumed rate of escalation in salary. The valuation is done on the basis of members data.

Yours Faithfully,

Rajesh
MANAGER (P&GS)

LIC राजेश गड़कोटी
Rajesh Garkoti
LIFE INSURANCE CORPORATION OF INDIA
E-3, Sector-1, IInd Floor, Noida-201301

Annexure-III

llc_id	employee_name	emp	date_of_birt	date_of_apj	salary	ps	ts	tsg	psg	life_cover	annual_rene	age	policy_no	lcp	category	cross_nra
1	Dr. Chandan Banerjee	1	15/12/1974	13/06/2016	249150	8	19	2500000	1149924	1350076	01/07/2024	50	10184	7708.93	1	N
2	Dr. Jai Prakash	2	01/07/1980	10/12/2020	202500	4	20	2336539	467308	1869231	01/07/2024	44	10184	5738.54	1	N
3	Dr. Avadhesh Yadav	3	01/08/1981	13/04/2023	202500	1	18	2102885	116827	1986058	01/07/2024	43	10184	5541.1	1	N
4	Shri Anil Kumar Yadav	4	07/12/1975	13/12/2021	129150	3	14	1043135	223529	819606	01/07/2024	49	10184	4220.97	1	N
5	Dr. V. Shva Reddy	5	11/07/1980	19/12/2022	121800	2	18	1264847	140539	1124308	01/07/2024	44	10184	3451.63	1	N
6	Dr. Prashant Misra	6	11/07/1980	30/12/2022	121800	2	18	1264847	140539	1124308	01/07/2024	44	10184	3451.63	1	N
7	Shri Rahul Kumar	7	10/01/1983	02/02/2023	104550	1	20	1206347	60318	1146029	01/07/2024	41	10184	2693.17	1	N
8	Shri Sandeep Sehrawat	8	11/01/1982	19/03/2019	104550	5	23	1387299	301587	1085712	01/07/2024	42	10184	2779.42	1	N
9	Shri A Vijay Kumar	9	14/03/1987	28/09/2022	104550	2	24	1447616	120635	1326981	01/07/2024	37	10184	2362.03	1	N
10	Dr. Birinchi Bora	10	31/12/1984	19/06/2020	114300	4	25	1648558	263770	1384788	01/07/2024	40	10184	3018.84	1	N
11	Dr. Vikrant Sharma	11	03/06/1982	16/06/2020	114300	4	22	1450731	263770	1186961	01/07/2024	42	10184	3038.62	1	N
12	Dr. Marinal Dutta	12	09/10/1981	02/09/2020	111000	4	21	1344808	256154	1088654	01/07/2024	43	10184	3037.34	1	N
13	Ms. Richa Parmar	13	27/09/1991	01/07/2020	114300	4	31	2044212	263770	1780442	01/07/2024	33	10184	2599.45	1	N
14	Shri Kishore K Menon	14	25/05/1985	17/12/2020	111000	4	24	1536924	256154	1280770	01/07/2024	39	10184	2599.96	1	N
15	Dr. Umakant Sahoo	15	08/07/1990	23/11/2022	104550	2	28	1688885	120635	1568250	01/07/2024	34	10184	2383.74	1	N
16	Shri Dhananjay Pandey	16	24/06/1986	05/04/2019	97500	5	27	1518750	281250	1237500	01/07/2024	38	10184	2338.88	1	N
17	Dr. Nikhil P.G.	17	11/05/1986	02/03/2020	101550	4	26	1523250	234347	1288903	01/07/2024	38	10184	2436.03	1	N
18	Dr. Anish Malan	18	04/03/1993	28/02/2020	101550	4	33	1933356	234347	1699009	01/07/2024	31	10184	2327.64	1	N
19	Shri Arup Dhar	19	09/08/1990	28/02/2020	101550	4	30	1757597	234347	1523250	01/07/2024	34	10184	2315.34	1	N
20	Shri Vikrant Yadav	20	20/04/1990	25/02/2020	101550	4	30	1757597	234347	1523250	01/07/2024	34	10184	2315.34	1	N
21	Shri Yogendra Singh	21	28/10/1989	25/02/2020	101550	4	30	1757597	234347	1523250	01/07/2024	35	10184	2421.97	1	N
22	Shri Kamlesh Yadav	22	13/01/1989	25/02/2020	101550	4	29	1699010	234347	1464663	01/07/2024	35	10184	2328.81	1	N
23	Shri Deepak Khandelwal	23	07/02/1994	16/02/2024	84150	0	30	1456443	0	1456443	01/07/2024	30	10184	1951.63	1	N
24	Shri Aniket Deshpande	24	25/02/1987	06/07/2020	86700	4	27	1350520	200077	1150443	01/07/2024	37	10184	2047.79	1	N
25	Shri Sandeep Tiwari	25	21/05/1992	06/08/2020	73500	4	32	1356924	169616	1187308	01/07/2024	32	10184	1674.1	1	N
26	Shri Siddharth Saroha	26	03/03/1992	13/07/2020	73500	4	32	1356924	169616	1187308	01/07/2024	32	10184	1674.1	1	N
27	Shri Deepak Yadav	27	22/08/1996	04/12/2020	73500	4	36	1526539	169616	1356923	01/07/2024	28	10184	1750.43	1	N

Rajesh

LIC राजेश गडकोटी
Rajesh Garkoti
 LIFE INSURANCE CORPORATION OF INDIA
 E-3, Sector-1, 11nd Floor, Noida-201301