

Grant Agreement

A. Grant Details< EPRC/58-2025-020-01>

Once completed, this document, together with each set of Grant Details and BEPRC Standard Grant Conditions (Schedule 1), forms an Agreement between BEPRC and the Grantee.

Parties to this Agreement

Bangladesh Energy and Power Research Council (1st Party)

Bangladesh Energy and Power Research Council (BEPRC), established on 26 October 2015, enacted by “Bangladesh Energy and Power Research Council Act, 2015” is a GOB run council under Power Division, Ministry of Power, Energy & Mineral Resources. BEPRC is the first party in this agreement and represented by its secretary.

The Grantee (2nd Party)

Full name of Grantee	Major Shah Mohazzem Hossain, PhD
Legal entity type (e.g. individual, incorporated association, company, partnership, etc)	Individual
Trading or business name (If required)	Not applicable
Any relevant licence, registration or provider number	Not applicable
Business Identity Number or other entity identifiers	Not applicable
Tax Identification Number (TIN) (if applicable)	138767878427
Date from which VAT registration certificate was effective? (if applicable)	Not applicable
Registered office (physical/postal)	EECE Department, MIST, Mirpur Cantonment
Relevant business place (if different)	-
Telephone	+880 1769-008925
Email	mohazzem_hossain@eece.mist.ac.bd

A1 Purpose of the Grant

BEPRC grant focuses to fund applied research-based projects that would unfold technologies, tools, and strategies paving the way for sustainable and secured energy and power in Bangladesh. Specifically, funded projects under this grant solicitation will develop and upgrade technologies, strategies, and tools in the six research focus areas on energy and power of BEPRC. These projects will develop technologies which can be replicated at different locations in Bangladesh and will introduce an economically competitive variable price market of electricity and cost-effectiveness of investments. BEPRC research grant will strengthen and mobilize research capabilities at universities, public/private research organizations, and industry practitioners as well as assist individual researchers to enhance their research capacity, develop applicable technologies and systems and becoming entrepreneurs for the development of the energy and power sector.

A2 Activity

The Activity is made up of the project and all eligible project activities as specified in these Grant Details.

Project title: DEVELOPMENT OF AN ARTIFICIAL INTELLIGENCE ENABLED DIGITAL TWIN OF A SOLAR PHOTOVOLTAIC PLANT TO ENHANCE RENEWABLE PENETRATION IN POWER GRID OF BANGLADESH

Short Project description:

Bangladesh plans to expand its solar power capacity, but challenges like weather-dependent output, lack of real-time monitoring, and high computational demands for modelling hinder progress. To overcome these, this research will develop an artificial intelligent (AI) enabled Digital Twin (DT) of a solar PV system that can monitor real-time output and perform forecasting using advanced machine learning techniques. A 100-kWp test bed at MIST will serve as a test-bed, later scaled to a larger plant for validation. The project aims to improve grid reliability, operational efficiency, and renewable integration, while promoting AI-based DT adoption through research, policy briefs, and workshops. The overall research work is structured around the following key objectives:

- To develop a scalable DT model for a 100 kWp grid-connected rooftop PV system as a test-bed, designed to replicate the behavior of a large-scale solar farm.
- To integrate AI-based algorithms into the DT model for real-time monitoring and forecasting of PV output across various future time intervals.
- To evaluate the accuracy of the developed DT by comparing its outputs with actual measurements from the pilot scale 100 kWp test-bed system.
- To demonstrate and validate the scalability of the DT architecture by applying it to smaller PV systems, such as 20 kWp and 50 kWp installations.
- To assess the scalability and accuracy of the AI-driven DT model by comparing its performance with real-world data from a large-scale 7.6 MWp solar farm in Sirajganj, Bangladesh.
- To develop a comprehensive, multi-featured real-world solar PV dataset specific to Bangladesh for use in further research and applications.

Project Description and Outcomes

Project Description:

Bangladesh is poised to significantly expand its solar generation capacity over the next decade, potentially transforming its current fossil fuel-based grid into a renewable energy-driven system. As the output of such generation units is highly dependent on weather conditions, particularly solar irradiance, and temperature, it introduces technical challenges for transmission and distribution energy management operators to ensure reliable dispatch due to the unavailability of real-time monitoring facilities at their respective centres. Additionally, modelling PV plants in an EMT platform for transmission or distribution network studies demands considerable computational power.

This challenge is further amplified when simulating large-scale systems with numerous PV plants. To address these challenges, this research proposes to develop an AI enabled DT for a solar PV plant, incorporating the necessary data collection. This innovative platform will provide real-time estimation, forecasting, and visualization of solar PV generation, enhancing both efficiency and decision-making. It will empower system operators of Bangladesh power grid utilities to make data-driven, real-time decisions, improving situational awareness and operational performance, while ensuring the smooth integration of renewable energy into the grid. Additionally, this model could serve as a simplified equivalent plant model in EMT simulations, replicating real-time behaviour without physically modelling numerous components. This approach would significantly reduce the computational burden in large-scale grid network analysis.

In this research, a 100-kWp grid-connected solar PV test bed will be established at Military Institute of Science and Technology (MIST) premises, equipped with data loggers, weather sensors, and internet of things (IoT) devices for real-time data acquisition.

An AI-enabled DT model will be developed for the test bed by integrating machine learning and deep learning algorithms. This will enable real-time power generation monitoring and forecasting for the testbed PV system. Since it is a small-scale representation, it will be further scaled up and validated against a large-scale solar PV plant in Bangladesh to assess its scalability and accuracy in real world scenarios.

Outcomes:

The outcome of this research will enhance grid resiliency and operational performance by enabling real-time monitoring, predictive analytics, and intelligent optimization of solar power generation. It will also facilitate the implementation of DT models in energy management centres across Bangladesh, helping grid operators improve load management, enhance situational awareness, and strengthen grid stability. This model would also offer an intelligent, simplified PV plant modelling tool for relevant researchers, fostering the advancement of renewable energy research in Bangladesh. At the end, the research findings will be disseminated through reports, policy briefings, workshops, and academic publications, aiming to promote the adoption of AI-based DT technology in the renewable energy sector of Bangladesh.

Pilot Project Location and method for implementation:

Pilot Project Location: A 100 kWp solar PV test bed, along with its DT model, will be installed on the rooftop of the Electrical and Computer Engineering (ECE) Faculty Building (Tower-3) at MIST.

Method for implementation:

This research aims to develop a scalable DT model of a grid-connected PV system integrated with battery storage, designed to accurately replicate the dynamic behaviour of real-world PV installations. To support this objective, a small-scale rooftop solar PV test bed will be established on the MIST campus. This setup will include essential components such as a weather monitoring station and digital instrumentation to enable high-resolution data acquisition. These datasets will be analysed using advanced AI techniques to construct a robust scalable DT of the PV system, capable of delivering accurate real-time estimations of electrical power output. To evaluate the scalability and real-world applicability of the developed DT model will subsequently be deployed and validated using data from large-scale, operational PV plants in Bangladesh. The key steps in the implementation process are outlined below:

- Step-1: Implementation of Physical Layer (Grid-Connected 100 kWp PV Test-Bed)
- Step-2: Development of Data Communication infrastructure
- Step 3: Development of an AI-Enabled Digital Twin
- Step 4: AI Advanced Analytics
- Step 5: Validation on a Large-Scale real-world Solar PV Plant

In undertaking the Activity, the Grantee must comply with the requirements of BEPRC Innovation Guideline 2023 and Grant Agreement Guidelines (Version-1) (as in force from time-to-time).

The grantee must notify BEPRC about events relating to the Project and, if appropriate, provide an opportunity for the representative of BEPRC to attend.

A3 Project participants

Project participants include the Principal Investigator (PI) and all other participants contributing to the project which are included in ST1 of the Supplementary Terms. Under this Agreement the Principal Investigator is the Grantee.

The Grantee may substitute or

project participants during the Agreement period, with prior written approval **from BEPRC**.

The Grantee must notify BEPRC 30 days prior to any proposed substitution or change of a project participant. This notice must include:

- the details of the existing project participant and their reason for leaving, and details of any incoming project participant and a breakdown showing comparison of their contributions to enable side by side comparison of component parts;
- an assessment as to the degree to which the viability or capacity to undertake the project and achieve the Milestones/ Deliverables is likely to be affected.

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If after receiving a notice of a change of project participants, BEPRC is reasonably satisfied that the proposed substitution or change of a project participant is likely to impact on the Grantee's capacity to undertake the project or achieve the Milestones/ Deliverables, BEPRC, at its sole discretion and on 10 business days' notice to the Grantee, may without limiting any of its other rights under this Agreement, reduce or suspend payment of the Grant until BEPRC is satisfied that a suitable substitute or replacement project participant is proposed.

A4 Participants Agreement and obligations

The Grantee must ensure that all project participants enter into an agreement (the Participants Agreement) to undertake the project. For the entire term of this Agreement, the Participants Agreement will require the participants to:

- undertake the project at the times and in the manner specified in this Agreement;
- cooperate with and provide to the Grantee any information about the participant contributions and other activities reasonably required by the Grantee;
- Comply with the Intellectual Property Rights mentioned in the Section 20 of the Bangladesh Energy and Power Research Council Act, 2015.
- be bound to equivalent terms and conditions to those of this Agreement, except where due to the context it is not relevant to do so; and
- where terms of this Agreement are expressed to survive termination or expiry of this Agreement, the equivalent terms used in the Participants Agreement will also be expressed to survive termination or expiry of the Participants Agreement.

The Grantee must:

- (a) Ensure the Participants Agreement and any other contractual arrangements allow the Grantee to meet its obligations under this Agreement, and ensure the Participants Agreement requires the project participants to comply with obligations consistent with those in this Agreement relating to:
- i. Breach of the Participants Agreement (below);
 - ii. Intellectual property (Schedule 1 clause 17);
 - iii. Access/monitoring/inspection (ST4);
 - iv. Fraud (ST11);
 - v. Compliance with legislation (ST16, including ST16.4)
 - vi. Work health and safety (ST17);
 - vii. Acknowledgements (Schedule 1 clause 3)
 - viii. Relationship between the Parties (Schedule 1 clause 5);
 - ix. Conflict of interest (Schedule 1 clause 7);

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- x. Record keeping (Schedule 1 clause 12)
 - xi. Reporting and liaison (Schedule 1, clause 13)
 - xii. Privacy (Schedule 1 clause 14);
 - xiii. Confidentiality (Schedule 1 clause 15);
 - xiv. Insurance (Schedule 1 clause 16); and
 - xv. Survival (Schedule 1 clause 21)
- (b) make reasonable endeavours to enforce any rights BEPRC may have in the Participants Agreement were directed to do so by BEPRC;
- (c) ensure no variation or alteration is made to the Participants Agreement that is, or may be, inconsistent with this Agreement without the prior written consent of BEPRC; and
- (d) provide BEPRC with a copy of any variation to the Participants Agreement within 10 business days of completion of the change.

A5 Breach of the Participants Agreement

The Grantee must, within 5 business days of becoming aware of a breach or suspected breach of the Participants Agreement that would affect the Grantee's ability to comply with its obligations under this Agreement:

- (a) provide notice to BEPRC of that breach or suspected breach;
- (b) provide all information reasonably required by BEPRC in relation to the breach or suspected breach;
- (c) identify to BEPRC the steps the Grantee intends to take to remedy the matter;
- (d) keep BEPRC informed of any action it takes to remedy the breach; and
- (e) provide notice to BEPRC once the breach is remedied.

A6 Use of Grant funds

The Grantee must ensure that the Grant funds are spent only on eligible BEPRC funded activities as defined in BEPRC Grants Proposal Submission and Evaluation Guidelines (Version-1) for the purposes of undertaking the project.

A7 Duration of the Grant

The Activity starts on 01/10/2025 and ends on 30/09/2025, the Completion Date.

A8 Activity Schedule

Gantt chart

Month	Year	Implementation of a Grid-Connected Test-Bed Solar PV Plant	Development of Data Communication Infrastructure	Development of AI-enabled Digital Twin	AI-enabled Advanced Analytics	Validation on Large Scale Real-World Solar Plant
October	28					
September	28					
August	28					
July	28					
June	28					
May	28					
April	28					
March	28					
February	28					
January	28					
December	27					
November	27					
October	27					
September	27					
August	27					
July	27					
June	27					
May	27					
April	27					
March	27					
February	27					
January	27					
December	26					
November	26					
October	26					
September	26					
August	26					
July	26					
June	26					
May	26					
April	26					
March	26					
February	26					
January	26					
December	25					
November	25					
October	25					

Details Activity Schedule

No.	Title and description	Due date
1	Project start date	01/10/2025
2	Implementation of a Grid-Connected Test-Bed Solar PV Plant	
	2.1 Tender documents preparation and tender floating	01/01/2026
	2.2 Tender Evaluation, NOA Issuance, Contract Signing, and Project Kick-off	01/4/2026
	2.3 Execution of 100kWp Solar Installation	01/7/2026
3	Development of Data Communication Infrastructure	
	3.1 Installation and Commissioning of Data Acquisition and Communication Equipment	01/10/2026
	3.2 Establishment and Commissioning of Net-Metering System	01/01/2027
	3.3 Data Collection and Storage System Setup	01/4/2027
4.	Development of AI-enabled Digital Twin	
	4.1 Development of DT Model Architecture Using Collected Data	01/7/2027
	4.2 DT Model Enhancement Using Advanced Machine Learning with Six Months of Data	01/10/2027
5.	AI-enabled Advanced Analytics	
	5.1 Development of a Scalable DT Model and Integration of BESS Systems	01/01/2028
	5.2 Development of DT Model for Large-Scale Real-World Solar PV Plant	01/4/2028
6.	Validation on Large Scale Real-World Solar Plant	
	6.1 Validation of DT Model Using Output Data from Large-Scale Plant	01/7/2028
	6.2 Dissemination of Research Findings	01/10/2028
7.	Project end date	30/09 /2028

A9 Payment of the Grant

The total amount of the Grant is 1,63.00 Lakh taka (inclusive of all VAT and Taxes).

The Grant will be provided as defined in this contract agreement subject to satisfactory progress towards Milestones/ Deliverables and availability of Program funds.

Maximum Number of Disbursements 13

The Grant will be paid in accordance with schedule 1.

The Grant will be paid according to the following schedule. Payments are subject to satisfactory progress of the project and compliance by the Grantee with its obligations under this Agreement.

Payment event	Payment amount in Lakh taka (VAT and Tax included)	Payment date
Project commencement, providing the grant agreement has been executed	2.00	01/10/2025
Acceptance of Inception Report and submission of Participants Agreement	1.60	15/10/2025
Acceptance of Quarterly Progress (Quarter-1) and Procurement plan (disbursement will be based on progress)	108.00	15/01/2026
Acceptance of Quarterly (Quarter-2)	7.20	15/04/2026
Acceptance of Quarterly Progress (Quarter-3)	3.20	15/07/2026
Acceptance of Quarterly Progress (Quarter-4)	8.30	15/10/2026
Acceptance of Quarterly Progress (Quarter-5)	3.70	15/01/2027
Acceptance of Quarterly Report (Quarter-6)	5.70	15/04/2027
Acceptance of Quarterly Progress (Quarter-7)	3.70	15/07/2027
Acceptance of Quarterly Progress (Quarter-8)	4.00	15/10/2027
Acceptance of Quarterly Progress (Quarter-9)	6.60	15/01/2028
Acceptance of Quarterly Progress (Quarter-10)	5.00	15/04/2028
Acceptance of Quarterly Progress (Quarter-11)	4.00	15/07/2028
Total	163.00	

A10 Invoicing

The Grantee agrees to pay all the VAT and Tax related expenses for any taxable supplies it makes in relation to the Activity and submit relevant documents to BEPRC.

A11 Reporting

The Grantee agrees to provide the following reports to BEPRC representative in accordance with the Reporting Templates (Schedule 2).

Report type	Period start date	Period end date	Agreed evidence	Due date
Inception Report	01/10/2025	01/10/2025	Detailed Project plan	10/10/2025
Quarterly progress report (Quarter-1)	01/10/2025	01/01/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement	07/1/2026
Quarterly progress report (Quarter-2)	01/01/2026	01/04/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/04/2026
Half yearly report	01/10/2025	01/04/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/04/2026

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Quarterly progress report (Quarter-3)	01/04/2026	01/07/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/07/2026
Quarterly progress report (Quarter-4)	01/07/2026	01/10/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/10/2026
Yearly report (Year-1)	01/10/2025	01/10/2026	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/10/2026
Quarterly progress report (Quarter-5)	01/10/2026	01/01/2027	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/01/2027
Quarterly progress report (Quarter-6)	01/01/2027	01/04/2027	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/04/2027

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Half yearly report	01/10/2026	01/04/2027	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/04/2027
Quarterly progress report (Quarter-7)	01/04/2027	01/07/2027	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/07/2027
Quarterly progress report (Quarter-8)	01/07/2027	01/10/2027	Major output of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/10/2027
Yearly report (Year-2)	01/10/2026	01/10/2027	Major progress of the research Statement of expenditure Procurement invoice Bank statement Achievements %	07/10/2027
Quarterly progress report (Quarter-9)	01/10/2027	01/01/2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Achievements %	07/01/2028

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Quarterly progress report (Quarter-10)	07/01/2028	01/04/2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Achievements %	07/04/2028
Half yearly report	01/10/2027	01/04/2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Achievements %	07/04/2028
Quarterly progress report (Quarter-11)	01/04/2028	01/07/2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Achievements %	07/07/2028
Quarterly progress report (Quarter-12)	01/07/2028	30 /09 /2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Achievements %	07/10/2028
End of Project (PCR including Independent Audit Report)	01/10/2025	30/09/2028	Major progress of the research Statement of expenditure Piloting performance Procurement invoice Bank statement Bank reconciliation statement Final research report	30/11/2028

During the Agreement period, **BEPRC may require for ad-hoc** reports on the project. You must provide these reports in the timeframes notified by BEPRC.

A12 Party representatives and address for notices

BEPRC (1st Party) representative and address

Name of representative	Goutam Barai
Position	Council Secretary
Postal/physical address(es)	Bangladesh Energy and Power Research Council under the Power Division Ministry of Power Energy and Mineral Resources 11 th Floor, Bidyut Bhaban, 1 Abdul Gani Road, Ramna, Dhaka-1206
Business hours telephone	55110320
E-mail	council.secretary@eprc.gov.bd

Grantee's (2nd Party) representative and address

Grantee's representative name	Major Shah Mohazzem Hossain, PhD
Designation	Instructor Class B (Assistant Professor)
Postal/physical address(es)	EECE Department, MIST, Mirpur Cantonment, Dhaka-1216
Business hours telephone	+880 1769-023966
Mobile	+880 1769-008925
E-mail	mohazzem_hossain@eece.mist.ac.bd

The Parties' representatives will be responsible for liaison and the day-to-day management of the Grant, as well as accepting and issuing any written notices in relation to the Grant.

B. Supplementary Terms

ST1. Participant List

ST1.1 In this Agreement, the details of the participants involved in the research project are set out in the following table:

Participant Name/Business Entity	Designation/Business Entity Representative (With Designation)	Address	Telephone No. and E-Mail	Contribution Type
Major Shah Mohazzem Hossain, PhD	Instructor Class B (Assistant Professor)	MIST, Mirpur Cantonment	01769008925, mohazzem_hossain@eece.mist.ac.bd	PI
Major Mohammad Naim Uddin	Instructor Class B (Assistant Professor)	MIST, Mirpur Cantonment	01714313406, naim@eece.mist.ac.bd	Co-PI
Md Ahsan Kabir	Assistant Professor	MIST, Mirpur Cantonment	01926662864, ahsan@eece.mist.ac.bd	Co-PI
Hasan Monir	Assistant Professor	MIST, Mirpur Cantonment	01823622001, monir@eece.mist.ac.bd	Lead Research Engineer
Major Shah Mohazzem Hossain, PhD	Instructor Class B (Assistant Professor)	MIST, Mirpur Cantonment	01769008925, mohazzem_hossain@eece.mist.ac.bd	Project Handover Party

ST2. Activity budget

ST2.1 The Grantee agrees to use the Grant and undertake the Activity consistently with the activity budget in the following table:													Amount in BDT
Eligible Expenditure Budget	Estimated Expenditure (1st Year)				Estimated Expenditure (2nd Year)				Estimated Expenditure (3rd Year)				Total Expenditure
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8	Quarter 9	Quarter 10	Quarter 11	Quarter 12	
Honorariums for Research Assistant	75000	75000	150000	150000	150000	150000	150000	150000	150000	150000	150000	150000	1650000
Honorariums for Principal Investigator	36000	36000	36000	36000	36000	36000	36000	36000	36000	36000	36000	36000	432000
Honorariums for Co-Principal Investigators	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000	720000
Honorariums for Lead Research Engineer	21000	21000	21000	21000	21000	21000	21000	21000	21000	21000	21000	21000	252000
Total honorariums (a)	192000	192000	267000	267000	267000	267000	267000	267000	267000	267000	267000	267000	3054000
Purchase of Solar PV Module		2158320											2158320
Purchase of Inverter		465750											465750
Purchase of Inverter(hybrid)		1299500											1299500
Purchase of Mounting Structure		1142640											1142640
Purchase of Weather Station		546250											546250
Purchase of High Configuration Data Concentrator PC		517500											517500
Purchase of ESS		1380000											1380000
Purchase of PMU		1035000											1035000
Purchase of DC Cables		310500											310500
Purchase of AC Cables		205850											205850
Purchase of Earthing/Groundings		172500											172500
Civil Works		230000											230000
Transportation, Labor cost, Installation & Commissioning		253000											253000
Purchase of Other Equipment		1153623											1153623
Total Equipment & Products (b)		10559933											10559933
Local Travel	24000	24000	24000	24000	24000	24000	24000	24000	27000	27000	27000	27000	300000
Total Travel (c)	24000	24000	24000	24000	24000	24000	24000	24000	27000	27000	27000	27000	300000
Purchase of Consumables (cartridge, paper and other stationary)	33000				33000				33000				99000
License Fees for software (Py Charm Pro, PVsyst and MATLAB)					300000								300000
Conference									200000				200000
Cloud Service Fees					124067								124067
Contingencies			400000				150000				150000		700000
Tender evaluation	15000												15000
Publication Fees							50000		50000				100000
Plant Maintenance					50000	50000	50000	50000	50000	50000	50000	50000	400000
Advertisement	70000												70000
Operation and maintenance service fees	31500	31500	31500	31500	31500	31500	31500	31500	31500	31500	31500	31500	378000
Total other direct cost (d)	149500	31500	431500	31500	538567	81500	281500	81500	114500	331500	231500	81500	2386067
Total Project Cash Expenditure (a+b+c+d)	365500	10807433	722500	322500	829567	372500	572500	372500	408500	625500	525500	375500	16300000
Sub-total		1,22,17,933				21,47,067				19,35,000			1,63,00,000

Figures in the above table are VAT and Tax inclusive.

ST2.2 Subject to sufficient appropriation being available, the Grant will be paid up to the Annual Capped Amounts over the financial years specified in the following table.

Annual Capped Amounts

Financial year	Annual capped amount in Lakh Taka (VAT and Tax Inclusive)
2025-26	1,18.80
2026-27	20.90
2027-28	19.30
2028-29	4.00
Total	1,63.00

ST2.3 BEPRC is not required to make a payment if it would result in the amount paid in a financial year exceeding the Annual Capped Amount for that financial year specified in the table under clause 0.

ST2.4 In accordance with the activity budget under clause ST2, the Annual Capped Amounts may not be exceeded unless BEPRC specifically approves an increase of that amount under clause ST2.7.

ST2.5 Subject to this clause, the Grantee may reallocate expenditure in respect of categories of expenditure in the activity budget, provided it does not materially change the Activity, any milestone(s) set out in this Agreement, or cause the Grantee to be in breach of any of its obligations under this Agreement.

ST2.6 The Grantee must give BEPRC:

- (a) at any time, the Grantee wishes to request a variation to any one or more of the Annual Capped Amounts; or
- (b) if otherwise requested by BEPRC,

a revised activity budget in a form acceptable to BEPRC. The revised activity budget must clearly identify any proposed changes, including of any proposed changes to the Annual Capped Amounts, and explain the reasons for the proposed changes.

ST2.7 BEPRC may, at its discretion, approve or reject a revised activity budget provided under clause ST2.6 and/or any proposed changes to the Annual Capped Amounts. BEPRC's approval may be granted subject to conditions.

ST2.8 If a revised activity budget and any proposed changes to the Annual Capped Amounts are approved by BEPRC, then it will become the activity budget and, if relevant, the Annual Capped Amounts will be adjusted accordingly.

ST2.9 The payment will be made according to Government rules.

ST2.10 Condition Precedents for First Disbursement:

In addition to the Condition Precedents under Section ST2.10, the obligation of BEPRC to make first Disbursement to Grantee is subject to the fulfilment of the following preconditions unless otherwise waived by BEPRC in writing:

- (a) Letter from Grantee containing the following particulars:
 - (i) No objection to carry out the Activity of the Research Project;
 - (ii) No objection on entering into an agreement with BEPRC;
 - (iii) No objection on receiving grant from BEPRC;
 - (iv) Confinement of the Project Activities within the designated area (If Applicable);
 - (v) Undertaking any other activities as required from time to time to implement the Project;

ST2.11 Conditions Precedent for All Disbursements

Unless otherwise waived by BEPRC in writing, the obligation of BEPRC to make any Disbursement under this Agreement is subject to the fulfilment of the following preconditions, namely that,

- a. The Availability Period has not expired;
- b. The numbers of the Disbursement Requests have not exceeded the maximum number of Disbursements as stated in the Grant details;
- c. Disbursement Milestones/ Deliverables along with the prescribed tasks as per Activity Schedule for respective Disbursement has been achieved;
- d. Grantee has submitted report(s) as required as per Reporting for respective Disbursement to the satisfaction of BEPRC;
- e. Supporting documents showing the utilization of the previously disbursed Grant as and when applicable e.g. money receipt, copy of Letter of Credit if any, distinctive photographs of the equipment procured and installed under the Project Activities have been delivered;
- f. Submission of all the relevant documents of the procurement process under the **Public Procurement Act 2006 & Public Procurement Rules 2008**
- g. No Event of Default has occurred, is continuing or likely to occur;
- h. No change in the condition of the Grantee has occurred which is likely to materially or adversely affect the operation of the Sub-project; and
- i. No litigation or other proceedings have been current, or is likely to be instituted, which if adversely determined would materially affect the operation of the Project.
- j. If BEPRC carries out any audit on the project activity and disbursed grant, then clearance from Audit Committee/ Monitoring & Evaluation Committee is required.

ST3. Financial management (FM)

ST3.1 Financial responsibilities: PI will be responsible for FM activities of BEPRC funded projects and will be accountable to Member/ Secretary of BEPRC for all financial matters concerning project implementation.

The main duties regarding FM will include but are not limited to the following:

- Checking invoices for goods, works, and services and processing for payments
- Maintain Bank books and payroll registers
- Maintain all ledgers and registers
- Maintain vouchers/bills/receipts/contracts/work orders/and or the important financial transaction and procurement documents in systemic order
- Collect bank statements and reconcile bank balance
- Prepare reply to audit observations
- Prepare quarterly and annual budget expenditure of the projects
- Any other finance related task, if required.

Additionally,

- PI/ Co-PIs will carry out the project resources with due diligence and efficiencies and in accordance with sound practices and standards satisfactory to BEPRC.
- The Co-PIs/ PIs will send all information on grant received and utilized in prescribed reporting format periodically to BEPRC.
- The finance unit of BEPRC shall be responsible for the supervision of FM of the resources allocated to projects.

ST4. Procurement Management

ST4.1 Responsibility: The primary responsibility will lie with the concerned Co-PIs/ PIs of BEPRC funded projects.

ST4.2 The legal framework: Bangladesh government has made it mandatory for all institutions, organizations and agencies to follow the Public Procurement Act 2006 (PPA-2006) and the Public Procurement Rule 2008 (PPR-2008) for the purchase of all kinds of goods, works and services.

ST4.3 Procurement Plan:

- All the procurement activities must have to be done according to the Public Procurement Act 2006 (PPA-2006) and the Public Procurement Rule 2008 (PPR-2008).
- Procurement plan must be made according to the Activity Budget ST2 in this guideline. The PIs will have to submit annual procurement plan to BEPRC before the first disbursement of each year. The year will be counted from project starting date.
- If the PIs/ CO-PIs wish to procure any equipment's/ instruments/ software's to carry out research work in any university/ institution, then the head of the department/ concerned authority shall have to endorse that any such equipment's/ instruments/ software's are not available in the university/ institution.

ST5. Access/ monitoring/ inspection

ST5.1 The Grantee agrees to give BEPRC, or any persons authorised in writing by BEPRC:

- (a) access to premises where the Activity is being performed and/ or where Material relating to the Activity is kept within the time specified in a BEPRC notice; and
- (b) Permission to inspect and take copies of any Material relevant to the Activity.

ST6. Equipment and assets

Ownership of equipment and assets of the project will belong to BEPRC provided that those materials are purchased by BEPRC Grant. **However, the Grantee Entity can retain it for academic/ research purposes and will provide access to another entity with written approval from BEPRC.**

ST7. Jurisdiction

ST7.1 This Agreement is governed by and shall be construed with the laws of the People's Republic of Bangladesh ("Governing Law") and the Court of Law of People's Republic of Bangladesh will have the exclusive jurisdiction in case of any dispute arisen between the parties under this Agreement.

ST8. Grantee trustee of trust (if applicable)

ST8.1 In this Agreement, Trust means the trust specified in the Parties to the Agreement section of this Agreement.

ST8.2 The Grantee warrants that:

- (a) it is the sole trustee of the Trust; and
- (b) it has full and valid power and authority to enter into this Agreement and perform the obligations under it on behalf of the Trust; and
- (c) it has entered into this Agreement for the proper administration of the Trust; and
- (d) all necessary resolutions, consents, approvals and procedures have been obtained or duly satisfied to enter into this Agreement and perform the obligations under it; and
- (e) it has the right to be indemnified out of the assets of the Trust for all liabilities incurred by it under this Agreement.

ST9. Fraud

ST9.1 In this Agreement, Fraud means dishonestly obtaining a benefit, or causing a loss, by deception or other means, and includes alleged, attempted, suspected or detected fraud.

ST9.2 The Grantee must ensure its personnel and subcontractors do not engage in any Fraud in relation to the Activity.

ST9.3 If the Grantee becomes aware of:

- (a) any Fraud in relation to the performance of the Activity; or
- (b) any other Fraud that has had or may influence the performance of the Activity;

then it must within 5 business days report the matter to BEPRC and all appropriate law enforcement and regulatory agencies.

ST9.4 The Grantee must, at its own cost, investigate any Fraud referred to in clause ST9.3 in accordance with the Law of the People's Republic of Bangladesh ("Governing Law")

ST9.5 BEPRC may, at its discretion, investigate any Fraud in relation to the Activity. The Grantee agrees to co-operate and provide all reasonable assistance at its own cost with any such investigation.

ST9.6 This clause survives the termination or expiry of the Agreement.

ST9.7 Any kind of fraudulent activity related to this project will be subjected to THE PENAL CODE, 1860 and Code of Criminal Procedure, 1898.

ST10. Indemnities

ST10.1 The Grantee indemnifies BEPRC, its officers, employees and contractors against any claim, loss or damage arising in connection with the Activity.

ST10.2 The Grantee's obligation to indemnify BEPRC will reduce proportionally to the extent any act or omission involving fault on the part of BEPRC contributed to the claim, loss or damage.

ST11. Compliance with legislation

ST11.1 In this Agreement:

Legislation means a provision of a statute or subordinate legislation of BEPRC, or of the State.

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ST11.2 The Grantee agrees to comply with all Legislation applicable to its performance of this Agreement.

ST11.3 The Grantee agrees, in carrying out its obligations under this Agreement, to comply with any of BEPRC's policies as notified, referred or made available by BEPRC to the Grantee (including by reference to an internet site).

ST12. Work health and safety

ST12.1 The Grantee agrees to ensure that it always complies with all applicable work health and safety legislative and regulatory requirements and any additional work health and safety requirements set out in the Grant Details.

ST12.2 If requested by BEPRC, the Grantee agrees to provide copies of its work health and safety management plans and processes and such other details of the arrangements it has in place to meet the requirements referred to in clause ST12.1.

ST12.3 When using BEPRC's grants, the Grantee agrees to comply with all reasonable directions and procedures relating to work health and safety and security in effect at those premises or in regard to those facilities, as notified by BEPRC or as might reasonably be inferred from the use to which the premises or facilities are being put.

ST13. Corporate Governance

ST13.1 The Grantee warrants that nothing in its constitution conflicts with its obligations under this Agreement.

ST13.2 The Grantee agrees to provide a copy of its constitution to BEPRC upon request and inform BEPRC whenever there is a change in the Grantee's constitution, structure or management.

ST14. Counterparts

ST14.1 This Agreement may be executed in any number of counterparts. All counterparts, taken together, constitute one instrument. A Party may execute this Agreement by signing any counterpart.

Schedule 1: BEPRC Standard Grant Conditions

1. Undertaking the Activity

1.1 The Grantee agrees to undertake the Activity for the purpose of the Grant in accordance with this Agreement.

1.2 The Grantee is fully responsible for the Activity and for ensuring the performance of all its obligations under this Agreement in accordance with all relevant laws. The Grantee will not be relieved of that responsibility because of:

- (a) the grant or withholding of any approval or the exercise or non-exercise of any right by BEPRC; or
- (b) any payment to, or withholding of any payment from, the Grantee under this Agreement.

2. Payment of the Grant

2.1 BEPRC agrees to pay the Grant to the Grantee in accordance with the Grant Details.

2.2 Notwithstanding any other provision of this Agreement, BEPRC may by notice withhold payment of any amount of the Grant and/or take any other action specified in the Supplementary Terms if it reasonably believes that:

- (a) the Grantee has not complied with this Agreement
- (b) the Grantee is unlikely to be able to perform the Activity or manage the Grant in accordance with this Agreement; or
- (c) there is a serious concern relating to this Agreement that requires investigation.

2.3 A notice under clause 2.2 will contain the reasons any action taken under clause 2.2 and, where relevant, the steps the Grantee can take to address those reasons.

2.4 BEPRC will only be obliged to pay the withheld amount once the Grantee has addressed the reasons contained in a notice under clause 2.2 to BEPRC's reasonable satisfaction.

3. Acknowledgements

3.1 The Grantee agrees not to make any public announcement, including by social media, in connection with the awarding of the Grant without BEPRC's prior written approval.

3.2 The Grantee agrees to acknowledge BEPRC's support in all Material, publications and promotional and advertising materials published in connection with this Agreement. BEPRC may notify the Grantee of the form of acknowledgement that the Grantee is to use.

4. Notices

4.1 Each Party agrees to promptly notify the other Party of anything reasonably likely to adversely affect the undertaking of the Activity, management of the Grant or its performance of any of its other requirements under this Agreement.

4.2 A notice given by a Party under this Agreement must be in writing and addressed to the other Party's representative as set out in the Grant Details or as most recently updated by notice given in accordance with this clause.

5. Relationship between the Parties

5.1 A Party is not by virtue of this Agreement the employee, agent or partner of the other Party and is not authorised to bind or represent the other Party.

6. Subcontracting

6.1 The Grantee is responsible for the performance of its obligations under this Agreement, including in relation to any tasks undertaken by subcontractors.

6.2 The Grantee agrees to make available to BEPRC the details of any of its subcontractors engaged to perform any tasks in relation to this Agreement upon request.

7. Conflict of interest

7.1 Other than those which have already been disclosed to BEPRC, the Grantee warrants that, to the best of its knowledge, at the date of this Agreement, neither it nor its officers have any actual, perceived or potential conflicts of interest in relation the Activity.

7.2 If during the term of the Agreement, any actual, perceived or potential conflict arises or there is any material change to a previously disclosed conflict of interest, the Grantee agrees to:

- (a) notify BEPRC promptly and make full disclosure of all relevant information relating to the conflict; and
- (b) take any steps BEPRC reasonably requires resolving or otherwise deal with that conflict.

8. Variation, assignment and waiver

8.1 This Agreement may be varied in writing only, signed by both Parties.

8.2 The Grantee cannot assign its obligations, and agrees not to assign its rights, under this Agreement without BEPRC's prior approval.

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8.3 The Grantee agrees not to enter into negotiations with any other person for the purposes of entering into an arrangement that will require novation of, or involve any assignment of rights under, this Agreement without first consulting BEPRC.

8.4 A waiver by a Party of any of its rights under this Agreement is only effective if it is in a signed written notice to the other Party and then only to the extent specified in that notice.

9. Taxes, duties and government charges

9.1 The Grantee agrees to pay all taxes, duties and government charges imposed or levied in Bangladesh or overseas in connection with the performance of this Agreement, except as provided by this Agreement.

9.2 Applicable VAT, TAX, Duties and government charges related to goods and services purchased by this project participants must be paid by him as per existing government Acts and Rules during the period of purchase.

9.3 The Parties acknowledge and agree that they each:

- (a) are registered for VAT and Tax purposes;
- (b) have quoted their Bangladeshi Business Number to the other; and
- (c) must notify the other of any changes to the matters covered by this clause.

9.4 The Grantee agrees to submit VAT, Tax and duties invoices to BEPRC in respect of any taxable supplies it makes under this Agreement.

9.5 If the Grantee is not, or not required to be, registered for VAT and Tax , then:

- (a) clauses 9.3(a) and 9.4 do not apply; and
- (b) The Grantee agrees to notify BEPRC in writing within 7 days of becoming registered for VAT and Tax if during the term of the Agreement it becomes, or is required to become, registered for VAT and Tax.

10. Spending the Grant

10.1 The Grantee agrees to spend the Grant for the purpose of performing the Activity and otherwise in accordance with this Agreement.

10.2 The Grantee agrees to provide BEPRC with an independently audited financial acquittal report verifying that the Grant has been spent in accordance with this Agreement. This independent audited report must be included in the PCR.

10.3 The reports under clause 10.2 must be audited by:

- (a) a Registered Company Auditor registered under the existing laws of the People's Republic of Bangladesh ("Governing Law"); or
- (b) a certified Practising Accountant; or
- (c) a member of the Institute of Chartered Accountants of Bangladesh;

who is well reputed but not a principal member, shareholder, officer or employee of the Grantee or a related body corporate.

11. Repayment

11.1 If any amount of the Grant:

- (a) has been spent other than in accordance with this Agreement; or
- (b) is additional to the requirements of the Activity

then BEPRC may, by written notice:

- (c) require the Grantee to repay that amount to BEPRC;
- (d) require the Grantee to deal with that amount as directed by BEPRC; or
- (e) Deduct the amount from subsequent payments of the Grant or amounts payable under another agreement between the Grantee and BEPRC.

11.2 If BEPRC issues a notice under this Agreement requiring the Grantee to repay a Grant amount:

- (a) the Grantee must do so within the time specified in the notice;
- (b) the Grantee must pay interest on any part of the amount that is outstanding at the end of the time specified in the notice until the outstanding amount is repaid in full; and
- (c) BEPRC may recover the amount and any interest under this Agreement as a debt due to BEPRC without further proof of the debt being required.

12. Record keeping

12.1 The Grantee agrees to keep financial accounts and other records that:

- (a) detail and document the conduct and management of the Activity;
- (b) always identify the receipt and expenditure of the Grant and any Other Contributions separately within the Grantee's accounts and records so that the Grant is identifiable;
- (c) enable all receipts and payments related to the Activity to be identified and reported.

12.2 The Grantee agrees to keep the records after the Completion Date and provide copies of the records to BEPRC upon request.

13. Reporting and liaison

13.1 The Grantee agrees to provide the Reporting Material specified in the Grant Details to BEPRC.

13.2 In addition to the obligations in clause 13.1, the Grantee agrees to:

- (a) liaise with and provide information to BEPRC as reasonably required by BEPRC; and
- (b) comply with BEPRC's reasonable requests, directions, or monitoring requirements,

in relation to the Activity.

13.3 If BEPRC acting reasonably has concerns regarding the performance of the Activity or the management of the Grant, BEPRC may by written notice require the Grantee to provide one or more additional reports, containing the information and by the date(s) specified in the notice.

13.4 The Grantee acknowledges that the giving of false or misleading information to BEPRC is a serious offence under the THE PENAL CODE, 1860 and Code of Criminal Procedure, 1898

14. Privacy

14.1 When dealing with Personal Information in carrying out the Activity, the Grantee agrees:

- (a) to comply with the requirements of *Contract Act 1872, Information and Communication Technology Act 2006*
- (b) not to do anything which, if done by BEPRC, would be a breach of a Privacy Act of Bangladesh;
- (c) to ensure that any of the Grantee's subcontractors or personnel who deal with Personal Information for the purposes of this Agreement are aware of the requirements of the *Privacy Act of Bangladesh* and the Grantee's obligations under this clause;
- (d) to immediately notify BEPRC if the Grantee becomes aware of an actual or possible breach of this clause by the Grantee or any of the Grantee's subcontractors or personnel.

15. Confidentiality

15.1 The Parties agree not to disclose each other's confidential information without the other Party's prior written consent unless required or authorised by law or Parliament to disclose.

15.2 BEPRC may disclose the Grantee's confidential information where;

- (a) BEPRC is providing information about the Activity or Grant in accordance with BEPRC accountability and reporting requirements;
- (b) BEPRC is disclosing the information to high officials of concerned or other ministries of Bangladesh Government.

16. Insurance

16.1 The Grantee agrees to maintain adequate insurance for as long as any obligations remain in connection with this Agreement and provide proof of insurance to BEPRC upon request.

17. Intellectual property

17.1 In accordance with the Section 20 of the Bangladesh Energy and Power Research Council Act, 2015-

(a) The outcome of this research project shall be the property of the Council, and it shall be patented under the existing law, provided the Grantee be given royalty from the commercial income of the outcome of the research work at a rate determined by the Council through discussion with the Grantee.

(b) The outcome of the research work under sub-section (a) may be given, subject to the procedure or terms and conditions made by the Bangladesh Energy and Power Research Council Act and its rules, to any person or institution in the use of energy and power related research work.

17.2 This Agreement does not affect the ownership of Intellectual Property Rights in Existing Material.

18. Dispute resolution

18.1 The Parties agree not to initiate legal proceedings in relation to a dispute arising under this Agreement unless they have first tried and failed to resolve the dispute by negotiation.

18.2 The Parties agree to continue to perform their respective obligations under this Agreement when a dispute exists.

18.3 Failing settlement by negotiation in accordance with clause 18.1, the Parties may agree to refer the dispute to an independent third person with power to intervene and direct some form of resolution, in which case the Parties will be bound by that resolution. If the Parties do not agree to refer the dispute to an independent third person, either Party may initiate legal proceedings.

18.4 Each Party will bear their own costs in complying with this clause 18, and the Parties will share equally the cost of any independent third person engaged under clause 18.3.

18.5 The procedure for dispute resolution under this clause does not apply to any action relating to termination, cancellation or urgent interlocutory relief.

19. Reduction, Suspension and Termination

19.1 Reduction in scope of agreement for fault

19.1.1 If the Grantee does not comply with an obligation under this Agreement and BEPRC believes that the non-compliance is incapable of remedy, or if the Grantee has failed to comply with a notice to remedy, BEPRC may by written notice reduce the scope of the Agreement.

19.1.2 The Grantee agrees on receipt of the notice of reduction, to:

- (a) stop or reduce the performance of the Grantee's obligations as specified in the notice;
- (b) take all available steps to minimise loss resulting from the reduction;
- (c) continue performing any part of the Activity or the Agreement not affected by the notice if requested to do so by BEPRC;
- (d) report on, and return any part of the Grant to BEPRC, or otherwise deal with the Grant, as directed by BEPRC.

19.1.3 In the event of reduction under clause 19.1.1, the amount of the Grant will be reduced in proportion to the reduction in the scope of the Agreement.

19.2 Suspension

19.2.1 If:

- (a) the Grantee does not comply with an obligation under this Agreement and BEPRC believes that the non-compliance is capable of remedy
- (b) BEPRC reasonably believes that the Grantee is unlikely to be able to perform the Activity or manage the Grant in accordance with this Agreement; or
- (c) BEPRC reasonably believes that there is a serious concern relating to this Agreement that requires investigation;

BEPRC may by written notice:

- (d) immediately suspend the Grantee from further performance of the Agreement (including expenditure of the Grant); and/or
- (e) require that the non-compliance be remedied, or the investigation be completed, within the time specified in the notice.

19.2.2 If the Grantee:

- (a) remedies the non-compliance or inability specified in the notice to BEPRC's reasonable satisfaction, or BEPRC reasonably concludes that the concern is unsubstantiated, BEPRC may direct the Grantee to recommence performing the Activity; or
- (b) fails to remedy the non-compliance or inability within the time specified, or BEPRC reasonably concludes that the concern is likely to be substantiated, BEPRC may reduce the scope of the Agreement in accordance with clause 19.1 or terminate the Agreement immediately by giving a second notice in accordance with clause 19.3.

19.3 Termination for fault

19.3.1 BEPRC may terminate this Agreement by notice where the Grantee has:

- (a) failed to comply with an obligation under this Agreement and BEPRC believes that the non-compliance is incapable of remedy or where clause 19.2.2(b) applies
- (b) provided false or misleading statements in relation to the Grant; or
- (c) become bankrupt or insolvent, entered a scheme of arrangement with creditors, or come under any form of external administration.

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19.3.2 The Grantee agrees on receipt of the notice of termination, to:

- (a) stop the performance of the Grantee's obligations;
- (b) take all available steps to minimise loss resulting from the termination; and
- (c) report on, and return any part of the Grant to BEPRC, or otherwise deal with the Grant, as directed by BEPRC.

20. Cancellation or reduction for convenience

20.1 BEPRC may cancel or reduce the scope of this Agreement by notice, due to:

- (a) a change in government policy; or
- (b) a Change in the Control of the Grantee which BEPRC reasonably believes will negatively affect the Grantee's ability to comply with this Agreement.

20.2 On receipt of a notice of reduction or cancellation under this clause, the Grantee agrees to:

- (a) stop or reduce the performance of the Grantee's obligations as specified in the notice; and
- (b) take all available steps to minimise loss resulting from that reduction or cancellation; and
- (c) continue performing any part of the Activity or the Agreement not affected by the notice if requested to do so by BEPRC;
- (d) report on, and return any part of the Grant to BEPRC, or otherwise deal with the Grant, as directed by BEPRC.

20.3 In the event of reduction or cancellation under this clause, BEPRC will be liable only to:

- (a) pay any part of the Grant due and owing to the Grantee under this Agreement at the date of the notice; and
- (b) reimburse any reasonable and substantiated expenses the Grantee unavoidably incurs that relate directly and entirely to the reduction in scope or cancellation of the Agreement.

20.4 In the event of reduction, the amount of the Grant will be reduced in proportion to the reduction in the scope of the Agreement.

20.5 BEPRC's liability to pay any amount under this clause is:

- (a) subject to the Grantee's compliance with this Agreement; and
- (b) limited to an amount that when added to all other amounts already paid under the Agreement will not exceed the total amount of the Grant.

20.6 The Grantee will not be entitled to compensation for loss of prospective profits or benefits that would have been conferred on the Grantee but for the cancellation or reduction in scope of the Agreement under clause 20.1.

20.7 BEPRC will act reasonably in exercising its rights under this clause.

21. Survival

21.1 The following clauses survive termination, cancellation or expiry of this Agreement:

- clause 10 (Spending the Grant);
- clause 11 (Repayment);
- clause 12 (Recordkeeping);
- clause 13 (Reporting);
- clause 14 (Privacy);
- clause 15 (Confidentiality);
- clause 16 (Insurance)
- clause 17 (Intellectual property);
- Clause 19 (Reduction, Suspension and Termination);
- clause 21 (Survival);
- clause 22 (Definitions); and
- any other clause which expressly or by implication from its nature is meant to survive.

22. Definitions

22.1 In this Agreement, unless the contrary appears:

- **Activity** means the activities described in the Grant Details.
- **Availability period** means, unless otherwise agreed by the parties in writing, the period that shall be available from the date of this Agreement to the Project End date
- **Agreement** means the Grant Details, Supplementary Terms (if any), BEPRC Standard Grant Conditions and any other document referenced or incorporated in the Grant Details.
- **Bangladeshi Privacy Principle** has the same meaning as in the *Privacy Act of Bangladesh*.
- **Change in the Control** means any change in any person(s) who directly exercise effective control over the Grantee.
- **BEPRC** means Bangladesh Energy and Power Research Council as represented by BEPRC entity specified in the Agreement and includes, where relevant, its officers, employees, contractors and agents.
- **BEPRC Standard Grant Conditions** means this document.
- **BEPRC Purposes** includes the following:
 - (a) BEPRC verifying and assessing funding proposals, including a grant application;

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- (b) BEPRC administering, monitoring, reporting on, auditing, publicising and evaluating a grant program or exercising its rights under this Agreement;
- (c) BEPRC preparing, managing, reporting on, auditing and evaluating agreements, including this Agreement;
- (d) BEPRC developing and publishing policies, programs, guidelines and reports, including BEPRC annual reports;

but in all cases:

- (e) excludes the commercialisation (being for-profit use) of the Material by BEPRC.

- **Completion Date** means the date or event specified in the Grant Details.
- **Grant** means the money, or any part of it, payable by BEPRC to the Grantee for the Activity as specified in the Grant Details and includes any interest earned on that money.
- **Grantee** means the legal entity other than BEPRC specified in the Agreement and includes, where relevant, its officers, employees, contractors and agents.
- **Grant Details** means the document titled Grant Details that forms part of this Agreement.
- **Intellectual Property Rights** means all copyright, patents, registered and unregistered trademarks (including service marks), registered designs, and other rights resulting from intellectual activity (other than moral rights under the ***Copyright Act, 2000***).
- **Material** includes documents, equipment, software (including source code and object code versions), goods, information and data stored by any means including all copies and extracts of them.
- **Party** means the Grantee or BEPRC.
- **Personal Information** has the same meaning as in the *Privacy Act of Bangladesh*.
- **Records** include documents, information and data stored by any means and all copies and extracts of the same.
- **Reporting Material** means all materials which the Grantee is required to provide to BEPRC for reporting purposes.

Signatures

Executed as an agreement:

BEPRC (1st Party)

Signed for and on behalf of BEPRC

Name	Goutam Barai
Designation	Council Secretary
Signature and date	

Grantee (2nd Party)

Name	Major Shah Mohazzem Hossain, PhD
Designation	Instructor Class B (Assistant Professor) Department of EECE
Name of Authorised Representative-Institution/Entity	Military Institute of Science and Technology (MIST) Mirpur Cantonment, Dhaka-1216
Signature and date	

Annexture 1

Sustainability Plan

To ensure the long-term sustainability, relevance, and broad-based impact of the research infrastructure established under the project “DEVELOPMENT OF AN ARTIFICIAL INTELLIGENCE ENABLED DIGITAL TWIN OF A SOLAR PHOTOVOLTAIC PLANT TO ENHANCE RENEWABLE PENETRATION IN POWER GRID OF BANGLADESH” a structured and inclusive facility management and resource utilization plan will be implemented as per BEPRC’s Acts/ rules/ Guidelines.

Environmental Management (Disposal Plan)

The project will follow environmentally responsible practices throughout the lifecycle of the 100 kWp solar test-bed. All components will be sourced from certified manufacturers by following PPR 2008, ensuring durability and minimal environmental impact. Waste generated during installation and maintenance will be minimized and disposed of through MIST’s waste system or authorized recyclers. Upon getting permission from BEPRC, at the end-of-life, solar panels, inverters, and other electronics will be sent to licensed e-waste handlers, while metal parts will be recycled through the respective organization. As batteries are used for energy storage, they will be managed through manufacturer take-back programs or approved recycling facilities. A designated team at MIST will monitor disposal activities, maintain records, and ensure compliance with environmental standards.

Publication Acknowledgement

The project team fully acknowledges and will strictly adhere to BEPRC’s policy of encouraging patents over publications. Any publication arising from this project will only be pursued after obtaining prior approval or consent from BEPRC. Furthermore, all approved publications will include clear acknowledgment of funding support from BEPRC, as per the guidelines. The team is committed to protecting intellectual property and ensuring compliance with all regulatory and funding conditions set forth by BEPRC.

EXCHANGE RATE OF TAKA

Exchange rates of the Bangladeshi Taka for inter-bank and customer transactions are determined by dealer banks based on market-driven demand and supply. Bangladesh Bank (BB) may intervene by buying or selling USD at prevailing inter-bank rates to maintain orderly market conditions. The exchange rates provided (on June 01, 2025) are used by BB for official transactions with the Government and international organizations.

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The USDBDT buying and selling rates reflect the highest and lowest inter-bank rates in Dhaka, while cross rates with other foreign currencies are based on closing rates from both New York and Dhaka. **For the purpose of this proposal, these exchange rates will be considered for any foreign equipment or service-related financial estimations.**

A. Interbank USDBDT exchange rate and Volume as on Jun 01, 2025:				
Currency	Day's lowest	Day's highest	Current WAR	Spot Volume
USD	122.8000	123.0000	122.9621	45.00 million

B. Cross rates as on Jun 01, 2025:		
Currency	Buying/Low Rate	Selling/High Rate
EUR	139.3412	139.5927
GBP	165.2765	165.5826
AUD	78.9727	79.1136
JPY	0.8523	0.8539
CAD	89.3676	89.5197
SEK	12.7874	12.8401
SGD	95.0759	95.2971
CNH	17.0425	17.0738