

# Project Administration Manual

Project Number: 50088-002  
Loan and Grant Numbers: LXXXX; GXXXX; GXXXX  
August 2018

## Mongolia: Upscaling Renewable Energy Sector Project

## ABBREVIATIONS

ADB	–	Asian Development Bank
AUES	–	Altai-Uliastai Region Energy System State-Owned Joint Stock Company
CAP	–	corrective action plan
EA	–	executing agency
EARF	–	environmental assessment and review framework
EIA	–	environmental impact assessment
EMP	–	environmental management plan
FSR	–	feasibility study report
GRM	–	grievance redress mechanism
IA	–	implementing agency
IEE	–	initial environmental examination
JFJCM	–	Japan Fund for the Joint Crediting Mechanism
kWh	–	kilowatt-hour
PAM	–	project administration manual
PDD	–	project design document
PIU	–	project implementing unit
PMU	–	project management unit
PV	–	photovoltaic
MOE	–	Ministry of Energy
MOF	–	Ministry of Finance
MW	–	megawatt
NREC	–	National Renewable Energy Center
SCF	–	Strategic Climate Fund
SOE	–	statement of expenditure
WA	–	withdrawal application
WRES	–	Western Region Energy System State-Owned Joint Stock Company

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FUND FOR THE JOINT CREDITING MECHANISM (JFJCM) GRANTS

### **Project Administration Manual Purpose and Process**

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Energy, executing agency; and the Western Region Energy System State-Owned Joint Stock Company, Altai-Uliastai Region Energy System State-Owned Joint Stock Company, and the National Renewable Energy Center, implementing agencies, are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan/grant agreements. Such agreements shall be reflected in the minutes of the loan/grant negotiations. In the event of any discrepancy or contradiction between the PAM and the loan/grant agreements, the provisions of the loan/grant agreements shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.



## I. PROJECT DESCRIPTION

1. Mongolia currently has a total of 1,158 megawatt (MW) of installed capacity, but because of aging power facilities that are well past their economic life, only 969 MW is available. Growing power demand since 2007 has stressed the country's power system. Imported electricity met around 20% of power demand in 2017.<sup>1</sup> The energy sector in Mongolia relies heavily on coal-fired power generation which accounts for 91% of total installed capacity, and contributes over 63% of carbon dioxide emissions. Mongolia is the world's fifth most carbon-intensive economy, but has tremendous renewable energy potential which could theoretically meet all long-term domestic demand. Promoting a diversified energy mix with a higher share of renewable energy is a core priority of the government, both to reduce dependence on high-cost imported electricity and to decarbonize the energy sector. The Government of Mongolia has taken several initiatives for renewable energy deployment since 2000, most notably (i) implementing the successful 100,000 Solar Ger Electrification Program (2000–2012) which provided access to modern energy to nomadic herders through solar home systems; and (ii) enacting the Law on Renewable Energy, which involves a set of regulatory arrangements with a US dollar denominated feed-in-tariff (FIT), which has facilitated the development of 137 MW of solar photovoltaic (PV) and wind power plants.<sup>2</sup> However, as of late 2017 renewable energy in terms of total capacity is 12%.

2. The project is aligned with the following impact: greenhouse gas emissions reduced and imported electricity reduced. The project will have the following outcome: clean sources of energy supply in the country increased.

3. The project targets geographically scattered demand centers in the less-developed Western and Altai-Uliastai regions in the country.<sup>3</sup> The project will have three outputs:

- (i) **Output 1: Distributed renewable energy system developed.** A total of 40.5 MW of solar photovoltaic (PV) and wind power subprojects will be set up in the western and Altai–Uliastai regions. The project will also demonstrate advanced battery storage technology with energy management systems, a first-of-its kind application in the country.<sup>4</sup> The subprojects will be implemented in two batches: (i) core subprojects with 25.5 MW capacity in the first batch (2018–2021), and (ii) noncore subprojects with 15 MW capacity in the second batch (2019–2022), as detailed in Table 1.

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<sup>1</sup> Renewable energy is competitive with imported electricity which currently costs \$0.12–\$0.15 per kilowatt-hour (kWh). Total expenditure for electricity import in 2017 amounted to \$116 million.

<sup>2</sup> The Law on Renewable Energy guarantees long term payment for feed-in-tariff at \$0.08–\$0.095 per kWh for wind power, \$0.15–0.18 per kWh for solar photovoltaic, and \$0.045–\$0.06 per kWh for hydropower. It was amended in 2015 to introduce renewable energy surcharge on end-user bill for financially sustainable feed-in-tariff payment.

<sup>3</sup> Targeted regions comprise of six provinces (aimags): Uvs, Hovd, Bayan-Olgii, Khovsgol, Zavhan, and Govi-Altai. These aimags are also the less developed with respect to educational attainment, life expectancy, and monetary income. Average Human Development Index (HDI) in these regions is around 0.657 whereas HDIs in national average and in Ulaanbaatar are 0.735 and 0.812 respectively. The regional disparity in HDI is correlated strongly to electricity consumption per capita: 381 kWh per month of average electricity consumption per capita in these regions against 1,776 kWh in national average and 1,536 kWh in Ulaanbaatar. The targeted regions are also vulnerable to the fluctuating macro economy which is implicated in fragile livelihood, and highly vulnerable to falling back into poverty. The incidence of poverty has fallen back to 29.6% in 2016 from 21.6% in 2014 in national average, and 36.0% in 2016 from 26.0 in 2014 in the project targeted regions.

<sup>4</sup> Japan Fund for the Joint Crediting Mechanism (JFJCM) is supporting the installation of advanced battery technology resilient up to –40°C with a minimum of 4,400 charge–discharge cycles. The energy management system manages the battery system by controlling the charging and discharging of batteries according to the load demand forecast, and uses the weather forecast as basis for estimates of renewable energy power generation.

- (ii) **Output 2: Shallow-ground heat pump system developed.** In selected targeted regions, 500 kilowatts-thermal of shallow-ground heat pump capacity will be installed in public buildings in three batches.<sup>5</sup> This will supply air pollutant-free space heating for 10,000 square meters of floor area. The subprojects will demonstrate the performance of the heat pump systems and increase experience in design, installation, operation, and maintenance for future scale-up.
- (iii) **Output 3: Institutional framework strengthened and organizational capacity enhanced.** This output will (i) enhance the technical capacity of local utilities and the national dispatching center for renewable energy investment planning, renewable electricity dispatching, and grid control and protection; (ii) support the preparation of a renewable energy investment plan (2023–2030) for the targeted regions, and (iii) support the project management unit for the project implementation. It will also support the evolution of the FIT system into a more economically efficient tariff mechanism that reflects actual capital costs, while ensuring sufficient commercial financial viability.

**Table 1: Subprojects**

Location/Province	Applied Renewable Energy Technology	Capacity (MW)	Construction Period
<b>Output 1: Distributed renewable energy system developed</b>			
Umunogovi, Uvs	Wind power	10.0	2018-2021
Altai City, Govi-Altai	Solar PV	10.0	2018-2021
Altai <i>soum</i> (county), Govi-Altai	Solar PV and wind with battery storage	0.5	2018-2021
Uliastai, Zavhan	Solar PV and battery storage	5.0	2018-2021
Telmen, Zavhan	Wind power	5.0	2019-2022
Moron, Khovsgol	Solar PV	10.0	2019-2022
<b>Subtotal</b>		<b>40.5</b>	
<b>Output 2: Shallow-ground heat pump Developed</b>			
Hovd, the other <i>soums</i> (counties)	Shallow-ground heat pump	0.5	2018-2023
<b>Total</b>		<b>41.0</b>	

MW = megawatt, PV = photovoltaic.

Source: Project feasibility study report approved by the Ministry of Energy in 2018.

<sup>5</sup> The subproject will be implemented in three batches, starting with a 100-kilowatt installation in the Uvs *aimag* center (core subproject), followed by a rollout in four *aimag* centers in the western Mongolia.



## II. PROJECT MODALITY AND NON-CORE PROJECT SELECTION

4. **Subproject eligibility criteria.** The project will be implemented as a sector loan under ADB's Operations Manual Section D3–Sector Lending. The sector lending approach is deemed suitable as subproject implementation complexity due to geographically scattered load demand centers is minimized, and the capacity of local utilities in managing grid system is appropriately enhanced through learning-by-doing. Non-core subprojects are comprised of 5 MW of wind power plant in Telmen, 10 MW of solar PV power plant in Moron, and shallow-ground heat pumps in four soum centers in Western Mongolia. The approval of non-core subprojects will be based on satisfactory technical, economic, social, and environmental assessments compliance with eligibility criteria agreed on between the government and ADB.

5. Five core subprojects for distributed renewable energy systems in Umunogovi (10 MW of wind power), Altai (10 MW solar PV), Altai-Soum (0.5 MW of solar-wind-battery storage hybrid), Uliastai (5 MW of solar PV and battery storage), and Hovd (shallow-ground heat pump) have been prepared and met the eligibility criteria. Initial non-core subproject feasibility studies have been prepared for 5 MW of wind power in Telmen, and 10 MW of solar PV power plant in Moron. Finalization of due diligence for technical feasibility, economic and financial analysis, and environmental and social safeguards will be prepared during project implementation. Selection of non-core subprojects will be guided by eligibility criteria. These include:

- (i) **Technical viability.** Subproject shall demonstrate technical viability with resource assessment, electricity yield forecasting, electricity load demand forecasting, geological and topological assessment, capital and operation and maintenance costs estimates, layout design, and grid integration simulation. For shallow-ground heat pump subprojects, technical viability shall be demonstrated with the geo-technical surveys. In addition, the installation shall be made in the well-insulated public buildings in accordance with the latest building code under the Ministry of Construction and Urban Development.
- (ii) **Economic efficiency.** The subprojects must be economically viable and shall have demonstrated an economic internal rate of return (EIRR) equal to or greater than 9%, or not less than 6% for subprojects with significant unquantifiable benefits. An economic analysis shall be conducted in accordance with ADB's Guidelines for the Economic Analysis of Projects (2017, as amended from time to time). Each subproject will be assessed for its contribution to: (a) savings in electricity imports, (b) savings in transmission losses, and (c) savings in reduced carbon dioxide emissions.
- (iii) **Financial viability.** The financial rate of return shall be greater than weighted average cost of capital and must be robust under various adverse conditions; and the subproject investment cost, operation and maintenance cost, and cash inflows must be clearly presented and reasonable. The electricity tariff to be applied shall be set at the latest end-users' tariff.
- (iv) **Environmental impact, involuntary resettlement, and indigenous peoples.** Subproject environmental selection criteria shall exclude subprojects that are likely to cause major environmental impacts (environmental category A), according to ADB's Safeguard Policy Statement (SPS, 2009). Subproject shall also be category C in involuntary resettlement and C in indigenous people in accordance with ADB's SPS. Subsequent non-core subprojects will be screened, categorized and

environmental impacts assessed in accordance with the requirements of the environmental assessment and review framework (EARF).

6. **Subproject selection procedure.** For non-core subprojects, the Ministry of Energy (MOE), the executing agency (EA), will undertake the required appraisal in accordance with the eligibility criteria. Appraisal will involve collecting and analyzing baseline data to assess feasibility and expected impact using methods and tools established for the sample subprojects. Each non-core subproject appraisal will cover (i) a technical feasibility study, (ii) an economic analysis in accordance with ADB's Guidelines on the Economic Analysis of Projects, (iii) a financial analysis, (iv) a social and poverty analysis in accordance with the method and procedure used in core-subprojects, (iv) social safeguard assessment confirming category C in involuntary resettlement and indigenous people, and (v) an initial environmental examination (IEE) and environmental management plan (EMP) in accordance with the EARF.

7. The subproject appraisal report prepared by the EA will then be submitted to ADB for approval. ADB will review the appraisal report and, if necessary, may request additional materials and studies. ADB's formal approval for non-core subprojects must be obtained before initiating bid preparation for any subproject.

### III. IMPLEMENTATION PLANS

#### A. Project Readiness Activities

**Table 2: Project Readiness Activities**

Indicative Activities	2018							Responsible
	May	June	July	Aug	Sep	Oct	Nov	
Establish project implementation arrangements								MOF, MOE
Advance contracting actions								MOE
Loan/grant negotiation								ADB, MOE, MOF
ADB Board consideration								ADB
Loan/grant signing								ADB, MOE, MOF
Government legal opinion provided								MOE, MOF
Loan/grant effectiveness								ADB, MOF

ADB = Asian Development Bank, MOE = Ministry of Energy, MOF = Ministry of Finance.

Sources: Asian Development Bank estimates.

**B. Overall Project Implementation Plan**

**Figure 1: Project Implementation Schedule**

Activities	2018		2019				2020				2021				2022				2023				
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>A. DMF</b>																							
<b>Output 1: Distributed Renewable Energy System Development</b>																							
Activity 1.1 Bidding and Contract Awards (Core subprojects)		■	■																				
Activity 1.2 Construction Works (Core subprojects)				■	■	■	■	■	■	■													
Activity 1.3 Supervision (Core Subprojects)				■	■	■	■	■	■	■													
Activity 1.4 Commercial Operation (Core Subprojects)											■												
Activity 1.5 Defect liability (Core subprojects)											■	■											
Activity 1.6 Bidding and Contract Awards (Non-core subprojects)					■	■																	
Activity 1.7 Construction Works (Non-core subprojects)							■	■	■	■	■	■	■										
Activity 1.8 Supervision (Non-core subprojects)							■	■	■	■	■	■	■	■									
Activity 1.9 Commercial Operation (Non-core subprojects)														■									
Activity 1.10 Defect liability (Non-core subprojects)															■								
<b>Output 2: Shallow Ground Heat Pump Demonstration</b>																							
Activity 2.1 Bidding and Contract Awards		■	■							■	■	■	■				■	■					
Activity 2.2 Construction Works				■	■	■	■				■	■	■	■					■	■	■	■	
Activity 2.3 Supervision				■	■	■	■				■	■	■	■					■	■	■	■	
Activity 2.4 Commercial Operation							■						■	■							■	■	
Activity 2.5 Defect liability								■					■	■							■	■	
<b>Output 3: Institutional Strengthen and Capacity Enhancement</b>																							
Activity 3.1 Recuritement of the consulting firms		■																					
Activity 3.2 Bidding and supervision assistance		■																					
Activity 3.3 Capacity Enhancement Training																							
Activity 3.4 Institutional Strengthening															■	■	■	■	■	■	■	■	■
<b>B. Management Activities</b>																							
Operationalize Project Management Unit		■																					
Implement Environment Management Plan			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Inception/Reviews/Mid-term Review		■	■	■	■	■									■	■	■	■			■	■	
Project Completion Report																							■

Q = quarter.

Sources: Asian Development Bank estimates.

### III. PROJECT MANAGEMENT ARRANGEMENTS

#### A. Project Implementation Organizations: Roles and Responsibilities

**Table 3: Roles and Responsibilities**

Project Implementation Organizations	Management Roles and Responsibilities
Borrower: Ministry of Finance (MOF)	<ul style="list-style-type: none"> <li>➤ Act as representative of the Borrower</li> <li>➤ Conclude onlending or subgrant agreements with the implementing agencies (IAs)</li> <li>➤ Submit withdrawal applications (WA) to the Asian Development Bank (ADB)</li> </ul>
Project Steering Committee	<ul style="list-style-type: none"> <li>➤ Comprising Ministry of Energy (MOE), MOF and IAs</li> <li>➤ Provide overall guidance on project management and implementation</li> </ul>
Executing Agency: MOE	<ul style="list-style-type: none"> <li>➤ Take overall responsibility of project implementation</li> <li>➤ Provide overall guidance and oversight to project management unit</li> <li>➤ Submit required annual audit reports and financial statements of project accounts, and annual audited financial statements of IAs to ADB</li> <li>➤ Cause PMU to upload necessary project document to MOF's ODA MIS.</li> <li>➤ Take the overall responsibility for project implementation including environmental and social safeguards</li> <li>➤ Establish Project Management Unit (PMU), and recruit PMU staffs, and project management consultant.</li> <li>➤ Finalize draft bid document, bid evaluation report, and contracts, and submit them to ADB for necessary approval.</li> <li>➤ Authorize WA and submit it to MOF</li> <li>➤ Ensure to timely submit budget proposals in line with the budget law.</li> </ul>
Project Management Unit (PMU) under MOE	<ul style="list-style-type: none"> <li>➤ Responsible for managing, coordinating, and supervising the implementation of all subcomponents</li> <li>➤ Provide guidance on the day-to-day activities of the project and assistance to the IAs to ensure smooth project implementation</li> <li>➤ In coordination with the IAs, prepare bidding documents, bid evaluation reports, contracts, and other necessary documentations.</li> <li>➤ Submit project progress reports, environment monitoring reports, project financial audit report, and entity audited financial statements to ADB</li> <li>➤ Oversee the implementation of environmental management plan (EMP)</li> <li>➤ Establish and manage advance accounts</li> <li>➤ Check invoices from contractors and prepare WA to be submitted to h MOE and MOF</li> <li>➤ Report project implementation progress and compliance to ADB</li> <li>➤ Retain necessary financial information and evidences related to payment and claim</li> <li>➤ Recruit a qualified national institute to conduct EIA reports for domestic approval</li> <li>➤ Prepare Initial Environmental Examination (IEE) including EMP for non-core subprojects</li> <li>➤ Update IEE/EMP to reflect detailed designs if needed</li> </ul>
IAs: (i) Western Region Energy System State-Owned Joint Stock Company (WRES) (ii) Altai-Uliastai Region Energy System State-Owned Joint Stock Company (AUES) (iii) National Renewable Energy Center (NREC)	<ul style="list-style-type: none"> <li>➤ Responsible for day-to-day management of project activities</li> <li>➤ WRES will be responsible for the subproject in Umunogovi; AUES for subprojects in Altai, Altai Soum, Uliastai, Telmen, and Moron; and NREC for shallow-ground heat pump subproject</li> <li>➤ Assist PMU to conduct environment, land acquisition, and social monitoring</li> <li>➤ Assist PMU to prepare semi-annual environmental and social monitoring reports during construction and annual environmental and social monitoring reports during operation</li> <li>➤ Assist PMU for an implementation of EMP</li> <li>➤ Assist the EA in preparing bidding documents, bid evaluation reports, contracts, and other necessary documentations with assistance of PMU</li> <li>➤ Submit annual audited entity financial statements to PMU</li> </ul>
Project Management Consultants	<ul style="list-style-type: none"> <li>➤ Assist the PMU and IAs on day-to-day activities of the project</li> <li>➤ Assist the PMU and IAs in reviewing feasibility study report and carry out engineering design</li> <li>➤ Assist the PMU and IAs to prepare bid document, carry out bid evaluation and/or contract negotiation, and award contracts in accordance with ADB guidelines</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Assist the PMU and IAs to process invoices and prepare WA</li> <li>➤ Assist the PMU to fulfill reporting requirements of ADB</li> <li>➤ Assist IAs to conduct environment, land acquisition, and social monitoring and prepare environmental monitoring reports</li> </ul>
ADB	<ul style="list-style-type: none"> <li>➤ Monitor and support project implementation compliance to obligation and responsibilities in accordance with ADB's policies and procedures</li> <li>➤ Review the updated IEE/EMP</li> </ul>

Sources: Asian Development Bank estimates.

## B. Key Persons Involved in Implementation

### Executing Agency

Ministry of Energy

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### Asian Development Bank

Energy Division, East Asia

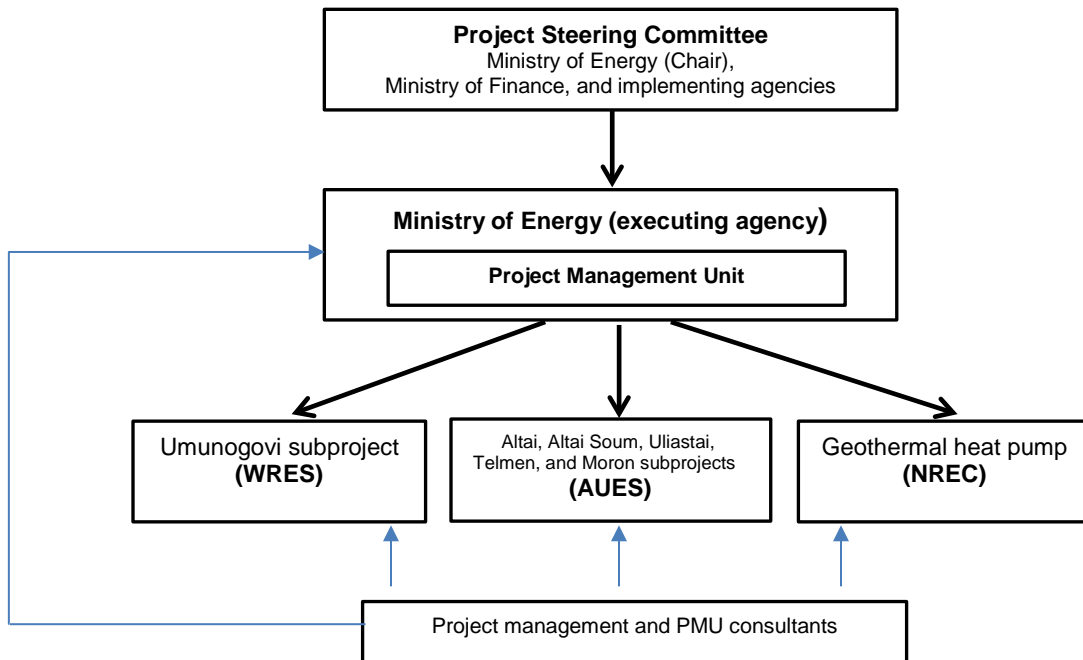
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## C. Project Organization Structure

**Figure 2: Project Organization Structure**



AUES = Altai-Uliastai Region Energy System State-Owned Joint Stock Company, NREC = National Renewable Energy Center, PMU = project management unit, WRES = Western Region Energy System State-Owned Joint Stock Company.

#### IV. COSTS AND FINANCING

8. The project is estimated to cost \$66.22 million.

**Table 4: Project Investment Plan**  
(\$ million)

Item	Amount <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
Output 1: Distributed renewable energy system developed	
a. Umunogovi wind power	15.61
b. Altai solar photovoltaic	11.05
c. Altai <i>soum</i> (county) renewable energy hybrid system and battery storage	1.05
d. Uliastai solar photovoltaic and battery storage	9.05
e. Telmen wind power	6.83
f. Moron solar photovoltaic	10.24
Output 2: Shallow-ground heat pump system developed	1.14
Output 3: Institutional framework strengthened and organizational capacity enhanced	1.76
<b>Subtotal (A)</b>	<b>56.73</b>
<b>B. Contingencies<sup>c</sup></b>	<b>4.37</b>
<b>C. Financial Charges during Implementation<sup>d</sup></b>	<b>5.12</b>
<b>Total (A + B + C)</b>	<b>66.22</b>

<sup>a</sup> Includes taxes and duties of \$5.62 million. Such amount does not represent an excessive share of the project cost.

<sup>b</sup> In April 2018 prices.

<sup>c</sup> Physical contingencies computed at 5.0% of base cost. Price contingencies computed at an average of 3.9% on foreign exchange costs and 20.3% on local currency costs; include provision for potential exchange rate fluctuation assuming a purchasing power parity exchange rate.

<sup>d</sup> Includes interest and commitment charges. Interest during construction for the loan from ordinary capital resources has been computed at the 5-year United States dollar fixed swap rate plus an effective contractual spread of 0.5% and maturity premium of 0.1%. Commitment charges for this loan are 0.15% per year, to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

9. The government has requested a loan of \$40 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years; an annual interest rate determined in accordance with ADB's London interbank offered rate - based lending facility; a commitment charge of 0.15% per year (interest and other charges during construction to be capitalized in the loan); and such other terms and conditions set forth in the draft loan and project agreements. Based on the straight-line method, the average maturity is 15.25 years, and the maturity premium payable to ADB is 0.10% per year. The Strategic Climate Fund (SCF)<sup>6</sup> and Japan Fund for the Joint Crediting Mechanism (JFJCM) will provide grant cofinancing equivalent to \$14.6 million and \$6.0 million, respectively, to be administered by ADB. Both SCF and JFJCM grants will be front-loaded. The Government will finance \$5.62 million of taxes and duties through exemption, except taxes applicable to the institutional strengthening and capacity enhancement component, and the project management unit operation cost. The financing plan is in Table 5.

<sup>6</sup> Under the Scaling Up Renewable Energy Program in Low-Income Countries. Administered by the Asian Development Bank.



**Table 5: Financing Plan**

<b>Source</b>	<b>Amount (\$ million)</b>	<b>Share of Total (%)</b>
Asian Development Bank		
Ordinary capital resources (regular loan)	40.00	60.40
Strategic Climate Fund <sup>a</sup> (grant)	14.60	22.05
Japan Fund for the Joint Crediting Mechanism <sup>b</sup> (grant)	6.00	9.06
Government	5.62	8.49
<b>Total</b>	<b>66.22</b>	<b>100.00</b>

<sup>a</sup> Under the Scaling Up Renewable Energy Program in Low-Income Countries. Administered by the Asian Development Bank.

<sup>b</sup> Administered by Asian Development Bank.

Source: Asian Development Bank estimates.

10. The loan will be used for civil works, related procurement of equipment and materials, and consulting and other services, and will also cover related transportation, insurance, and installation costs, as well as project administration cost, contingencies, and interest and commitment charges during construction. The SCF grant cofinancing, to be administered by ADB, will be front-loaded for the procurement and installation of the Umunogovi wind power and Altai solar photovoltaic plants, and shallow-ground heat pumps. The JFJCM grant cofinancing, to be administered by ADB, will be front-loaded for (i) the procurement and installation of the Uliastai solar photovoltaic plant with an advanced battery storage system; and (ii) related consulting services, procurement support, project design document preparation and validation, and monitoring and verification. All procurement financed by ADB loan, and the SCF and JFJCM grants will be carried out in accordance with ADB's Procurement Guidelines (2015, as amended from time to time) and Guidelines on the Use of Consultants (2013, as amended from time to time). Because the project will be cofinanced by SCF grant, universal procurement will be applied except for the cofinancing component of the JFJCM grant.

11. **Onlending and subgranting arrangement.** The government will be the loan borrower and the grant recipient, and will make the loan and the grants available to the implementing agencies (IAs) on the same terms and conditions as those of ADB loan, and the SCF and JFJCM grants. The IAs will assume the foreign exchange and interest rate risks of the ADB loan.

#### **A. Cost Estimates Preparation and Revisions**

12. The cost estimates were prepared by MOE, Altai-Uliastai Region Energy System State-Owned Joint Stock Company (AUES), Western Region Energy System State-Owned Joint Stock Company (WRES), National Renewable Energy Center (NREC), and the project preparatory technical assistance consultants in accordance with ADB's Guide on Preparing and Presenting Cost Estimates for Projects and Programs Financed by ADB.<sup>7</sup>

#### **B. Key Assumptions**

13. The following key assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: MNT2,406 = \$1.00
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

<sup>7</sup> ADB. 2014. *Preparing and Presenting Cost Estimates for Projects and Programs Financed by the Asian Development Bank*. Manila.

**Table 6: Escalation Rates for Price Contingency Calculation**

<b>Item</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>Average</b>
Foreign rate of price inflation	0%	1.5%	3.0%	4.6%	6.3%	8.0%	3.9%
Domestic rate of price inflation	0%	6.0%	14.4%	23.6%	33.5%	44.1%	20.3%

Sources: Asian Development Bank estimates.

### C. Detailed Cost Estimates by Expenditure Category

**Table 7: Detailed Cost Estimates by Expenditure Category**

Item	MNT million			US\$ million			% of Total	% of Total Base Cost
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost		
<b>A. Investment Cost</b>								
1. Umunogovi Wind Power	29,687.63	3,298.63	32,986.26	12.34	1.37	13.71	20.70%	24.17%
2. Govi-Altai Solar PV power	21,026.03	2,336.23	23,362.26	8.74	0.97	9.71	14.66%	17.12%
3. Altai-Soum RE Hybrid	1,992.17	221.35	2,213.52	0.83	0.09	0.92	1.39%	1.62%
4. Uliastai Solar PV power	17,214.93	1,912.77	19,127.70	7.16	0.80	7.95	12.00%	14.01%
5. Telmen Wind power	12,992.40	1,443.60	14,436.00	5.40	0.60	6.00	9.06%	10.58%
6. Moron Solar PV power	19,466.95	2,162.99	21,629.94	8.09	0.90	8.99	13.58%	15.85%
7. Shallow Gound Heat Pump Demonstrat	2,165.40	240.60	2,406.00	0.90	0.10	1.00	1.51%	1.76%
8. Institutional and Capacity Enhancemer	3,356.37	372.93	3,729.30	1.40	0.16	1.55	2.34%	2.73%
9. Project Administration	0.00	3,079.68	3,079.68	0.00	1.28	1.28	1.93%	2.26%
10. Tax and Duties	11,869.21	1,657.57	13,526.77	4.93	0.69	5.62	8.49%	9.91%
<b>Subtotal/Total Base Cost (A)</b>	<b>119,771.09</b>	<b>16,726.34</b>	<b>136,497.43</b>	<b>49.78</b>	<b>6.95</b>	<b>56.73</b>	<b>85.67%</b>	<b>100.00%</b>
<b>B. Contingencies</b>								
1. Physical	5,269.93	735.96	6,005.89	2.19	0.31	2.50	3.77%	-
2. Price	2,584.30	1,926.06	4,510.36	1.07	0.80	1.87	2.83%	-
<b>Subtotal (B)</b>	<b>7,854.23</b>	<b>2,662.02</b>	<b>10,516.25</b>	<b>3.26</b>	<b>1.11</b>	<b>4.37</b>	<b>6.60%</b>	<b>-</b>
<b>C. Financial Charges During Implementation</b>								
1. Interest during construction	11,974.35	0.00	11,974.35	4.98	0.00	4.98	7.52%	-
2. Commitment charges	344.25	0.00	344.25	0.14	0.00	0.14	0.22%	-
<b>Subtotal (C)</b>	<b>12,318.61</b>	<b>0.00</b>	<b>12,318.61</b>	<b>5.12</b>	<b>0.00</b>	<b>5.12</b>	<b>7.73%</b>	<b>-</b>
<b>Total Project Cost (A+B+C)</b>	<b>139,943.93</b>	<b>19,388.36</b>	<b>159,332.29</b>	<b>58.16</b>	<b>8.06</b>	<b>66.22</b>	<b>100.00%</b>	<b>-</b>

MNT = Mongolian tugrik, PV = photovoltaic.

Notes: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

#### D. Allocation and Withdrawal of Loan/Grant Proceeds

**Table 8a: Allocation and Withdrawal of Loan Proceeds**

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS				
Number	Item	Total Amount Allocated for ADB Financing US\$		Basis for Withdrawal from the Loan Account
		Category	Subcategory	
1	Works	28,680,000		
1A	Works-Umunogovi Wind** ***		5,940,000	100 % of total expenditure claimed*
1B	Works-Altai Solar PV** ***		3,880,000	100 % of total expenditure claimed*
1C	Works-Uliastai Solar PV** ****		2,950,000	100 % of total expenditure claimed*
1D	Works-others**		15,910,000	100 % of total expenditure claimed*
2	Consulting Service** ****	550,000		100 % of total expenditure claimed
3	Project Administration**	1,280,000		100 % of total expenditure claimed
4	Interest and Commitment Charges	5,120,000		100% of amounts due
5	Unallocated	4,370,000		
	<b>TOTAL</b>	40,000,000		

\* Exclusive tax and duties imposed within the territory of Borrower.

\*\* Subject to the condition for withdrawal described in paragraph 6 of Schedule 3 in the Loan Agreement.

\*\*\* Before starting withdrawal from these Categories, the amount under the corresponding Categories under SCF Grant Agreement shall be fully utilized, unless the remaining amount under such Category is insufficient to pay a claim under a particular withdrawal application.

\*\*\*\* Before starting withdrawal from this Category, the amount under the corresponding Categories under JFJCM Grant Agreement shall be fully utilized, unless the remaining amount under such Category is insufficient to pay a claim under a particular withdrawal application.

**Table 8b: Allocation and Withdrawal of Grant Proceeds (SCF)**

<b>ALLOCATION AND WITHDRAWAL OF GRANT PROCEEDS</b>				
<b>Number</b>	<b>Item</b>	<b>Total Amount Allocated for SCF grant Financing US\$</b>		<b>Basis for Withdrawal from the Grant Account</b>
		<b>Category</b>	<b>Subcategory</b>	
1	Works	14,600,000		
1A	Works-Umunogovi Wind**		7,770,000	100 % of total expenditure claimed*
1B	Works-Altai Solar PV**		5,830,000	100 % of total expenditure claimed*
1C	Works-Shallow-Ground Heat Pump**		1,000,000	100 % of total expenditure claimed*
	<b>TOTAL</b>	14,600,000		

\* Exclusive tax and duties imposed within the territory of the Recipient.

\*\* Subject to the condition for withdrawal described in paragraph 5 of Schedule 1 in the Grant Agreement.

**Table 8c: Allocation and Withdrawal of Grant Proceeds (JFJCM)**

<b>ALLOCATION AND WITHDRAWAL OF GRANT PROCEEDS</b>			
<b>Number</b>	<b>Item</b>	<b>Total Amount Allocated for JFJCM Financing (\$)</b>	<b>Basis for Withdrawal from the Grant Account</b>
1	Works-Uliastai Solar PV power**	5,000,000	100% of total expenditure claimed*
2	Consulting services**	1,000,000	100% of total expenditure claimed
	<b>TOTAL</b>	6,000,000	

\* Exclusive tax and duties imposed within the territory of the Recipient.

\*\* Subject to the condition for withdrawal described in paragraph 5 of Schedule 1 in the Grant Agreement.

## E. Detailed Cost Estimates by Financier

**Table 9: Detailed Cost Estimates by Financier**

Item	SCF <sup>a, c</sup>		JFJCM <sup>b, c</sup>		ADB		Government		Total Cost
	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)
<b>A. Investment Cost</b>									
1. Umunogovi Wind Power	7.77	56.70%	0.00	0.00%	5.94	43.30%	0.00	0.00%	13.71
2. Govi-Altai Solar PV power	5.83	60.00%	0.00	0.00%	3.88	40.00%	0.00	0.00%	9.71
3. Altai-Soum RE Hybrid	0.00	0.00%	0.00	0.00%	0.92	100.00%	0.00	0.00%	0.92
4. Uliastai Solar PV power	0.00	0.00%	5.00	62.90%	2.95	37.10%	0.00	0.00%	7.95
5. Telmen Wind power	0.00	0.00%	0.00	0.00%	6.00	100.00%	0.00	0.00%	6.00
6. Moron Solar PV power	0.00	0.00%	0.00	0.00%	8.99	100.00%	0.00	0.00%	8.99
7. Shallow Gound Heat Pump Demonstration	1.00	100.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	1.00
8. Institutional and Capacity Enhancement <sup>d</sup>	0.00	0.00%	1.00	64.50%	0.55	35.50%	0.00	0.00%	1.55
9. Project Administration <sup>d, e</sup>	0.00	0.00%	0.00	0.00%	1.28	100.00%	0.00	0.00%	1.28
10. Tax and Duties	0.00	0.00%	0.00	0.00%	0.00	0.00%	5.62	100.00%	5.62
<b>Subtotal/Total Base Cost (A)</b>	<b>14.60</b>	<b>25.73%</b> ✓	<b>6.00</b>	<b>10.58%</b> ✓	<b>30.51</b>	<b>53.78%</b> ✓	<b>5.62</b>	<b>9.91%</b>	<b>56.73</b>
<b>B. Contingencies</b>									
1. Physical	0.00	0.00%	0.00	0.00%	2.50	100.00%	0.00	0.00%	2.50
2. Price	0.00	0.00%	0.00	0.00%	1.87	100.00%	0.00	0.00%	1.87
<b>Subtotal (B)</b>	<b>0.00</b>	<b>0.00%</b> ✓	<b>0.00</b>	<b>0.00%</b> ✓	<b>4.37</b>	<b>100.00%</b> ✓	<b>0.00</b>	<b>0.00%</b>	<b>4.37</b>
<b>C. Financial Charges During Implementation</b>									
1. Interest during construction	0.00	0.00%	0.00	0.00%	4.98	100.00%	0.00	0.00%	4.98
2. Commitment charges	0.00	0.00%	0.00	0.00%	0.14	100.00%	0.00	0.00%	0.14
<b>Subtotal (C)</b>	<b>0.00</b>	<b>0.00%</b> ✓	<b>0.00</b>	<b>0.00%</b> ✓	<b>5.12</b>	<b>100.00%</b> ✓	<b>0.00</b>	<b>0.00%</b>	<b>5.12</b>
<b>Total Project Cost (A+B+C)</b>	<b>14.60</b>		<b>6.00</b>		<b>40.00</b>		<b>5.62</b>		<b>66.22</b>
<b>% Total Project Cost</b>		<b>22.05%</b>		<b>9.06%</b>		<b>60.40%</b>		<b>8.49%</b>	<b>100.00%</b>

ADB = Asian Development Bank, JFJCM = Japan Fund for the Joint Crediting Mechanism, PV = photovoltaic, RE = renewable energy, SCF = Strategic Climate Fund.

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> Under the Scaling Up Renewable Energy Program in Low-Income Countries. Administered by the Asian Development Bank.

<sup>b</sup> Administered by the Asian Development Bank.

<sup>c</sup> Front-loading arrangement applies.

<sup>d</sup> Tax inclusive.

<sup>e</sup> Includes salaries, travel, equipment, audit, and other administration expenses as detailed in Table 21.

Sources: Asian Development Bank estimates.

## F. Detailed Cost Estimates by Outputs and/or Components

**Table 10: Detailed Cost Estimates by Output**  
(\$ million)

Item	Total Cost (\$ million)	Distributed Renewable Energy System Development (Component 1)		Shallow Ground Geothermal Heat Pump Demonstration (Component 2)		Institutional Strengthen and Capacity Enhancement (component 3)	
		Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category
A. Investment Cost							
1. Umunogovi Wind Power	13.71	13.71	21.99%	0.00	0.00%	0.00	0.00%
2. Govi-Altai Solar PV power	9.71	9.71	15.58%	0.00	0.00%	0.00	0.00%
3. Altai-Soum RE Hybrid	0.92	0.92	1.48%	0.00	0.00%	0.00	0.00%
4. Uliastai Solar PV power	7.95	7.95	12.75%	0.00	0.00%	0.00	0.00%
5. Telmen Wind power	6.00	6.00	9.62%	0.00	0.00%	0.00	0.00%
6. Moron Solar PV power	8.99	8.99	14.42%	0.00	0.00%	0.00	0.00%
7. Shallow Gound Heat Pump Demonstration	1.00	0.00	0.00%	1.00	63.95%	0.00	0.00%
8. Institutional and Capacity Enhancement	1.55	0.00	0.00%	0.00	0.00%	1.55	66.86%
9. Project Administration	1.28	1.15	1.85%	0.06	4.09%	0.06	2.76%
10. Tax and Duties	5.62	5.06	8.12%	0.28	17.98%	0.28	12.12%
<b>Subtotal/Total Base Cost (A)</b>	<b>56.73</b>	<b>53.49</b>	<b>85.81%</b>	<b>1.35</b>	<b>86.02%</b>	<b>1.90</b>	<b>81.74%</b>
B. Contingencies							
1. Physical	2.50	2.25	3.60%	0.12	7.98%	0.12	5.38%
2. Price	1.87	1.69	2.71%	0.09	5.99%	0.09	4.04%
<b>Subtotal (B)</b>	<b>4.37</b>	<b>3.93</b>	<b>6.31%</b>	<b>0.22</b>	<b>13.98%</b>	<b>0.22</b>	<b>9.43%</b>
C. Financial Charges During Implementation							
1. Interest during construction	4.98	4.78	7.66%	0.00	0.00%	0.20	8.59%
2. Commitment charges	0.14	0.14	0.22%	0.00	0.00%	0.01	0.25%
<b>Subtotal (C)</b>	<b>5.12</b>	<b>4.92</b>	<b>7.88%</b>	<b>0.00</b>	<b>0.00%</b>	<b>0.20</b>	<b>8.83%</b>
<b>Total Project Cost (A+B+C)</b>	<b>66.22</b>	<b>62.34</b>	<b>100.00%</b>	<b>1.56</b>	<b>100.00%</b>	<b>2.32</b>	<b>100.00%</b>

PV = photovoltaic, RE = renewable energy.  
Sources: Asian Development Bank estimates.

## G. Detailed Cost Estimates by Year

**Table 11: Detailed Cost Estimates by Year**  
(\$ million)

Item	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>A. Investment Cost</b>							
1. Umunogovi Wind Power	13.71	0.00	12.34	1.37	0.00	0.00	0.00
2. Govi-Altai Solar PV power	9.71	0.00	8.74	0.97	0.00	0.00	0.00
3. Altai-Soum RE Hybrid	0.92	0.00	0.83	0.09	0.00	0.00	0.00
4. Uliastai Solar PV power	7.95	0.00	7.16	0.80	0.00	0.00	0.00
5. Telmen Wind power	6.00	0.00	1.20	3.60	1.20	0.00	0.00
6. Moron Solar PV power	8.99	0.00	1.80	5.39	1.80	0.00	0.00
7. Shallow Gound Heat Pump Demonstration	1.00	0.00	0.40	0.20	0.20	0.20	0.00
8. Institutional and Capacity Enhancement	1.55	0.00	0.62	0.31	0.31	0.31	0.00
9. Project Administration	1.28	0.05	0.26	0.26	0.26	0.26	0.20
10. Tax and Duties	5.62	0.01	3.67	1.43	0.41	0.08	0.02
<b>Subtotal/Total Base Cost (A)</b>	<b>56.73</b>	<b>0.06</b>	<b>37.00</b>	<b>14.42</b>	<b>4.18</b>	<b>0.85</b>	<b>0.23</b>
<b>B. Contingencies</b>							
1. Physical	2.50	0.00	1.63	0.63	0.18	0.04	0.01
2. Price	1.87	0.00	0.71	0.61	0.31	0.14	0.10
<b>Subtotal (B)</b>	<b>4.37</b>	<b>0.00</b>	<b>2.34</b>	<b>1.25</b>	<b>0.50</b>	<b>0.18</b>	<b>0.11</b>
<b>C. Financial Charges During Implementation</b>							
1. Interest during construction	4.98	0.00	0.34	0.89	1.19	1.27	1.29
2. Commitment charges	0.14	0.06	0.05	0.02	0.01	0.00	0.00
<b>Subtotal (C)</b>	<b>5.12</b>	<b>0.06</b>	<b>0.38</b>	<b>0.92</b>	<b>1.20</b>	<b>1.27</b>	<b>1.29</b>
<b>Total Project Cost (A+B+C)</b>	<b>66.22</b>	<b>0.12</b>	<b>39.72</b>	<b>16.58</b>	<b>5.87</b>	<b>2.30</b>	<b>1.62</b>
<b>% Total Project Cost</b>		<b>0.18%</b>	<b>59.99%</b>	<b>25.04%</b>	<b>8.87%</b>	<b>3.48%</b>	<b>2.45%</b>

PV = photovoltaic, RE = renewable energy.  
Source: Asian Development Bank estimates.

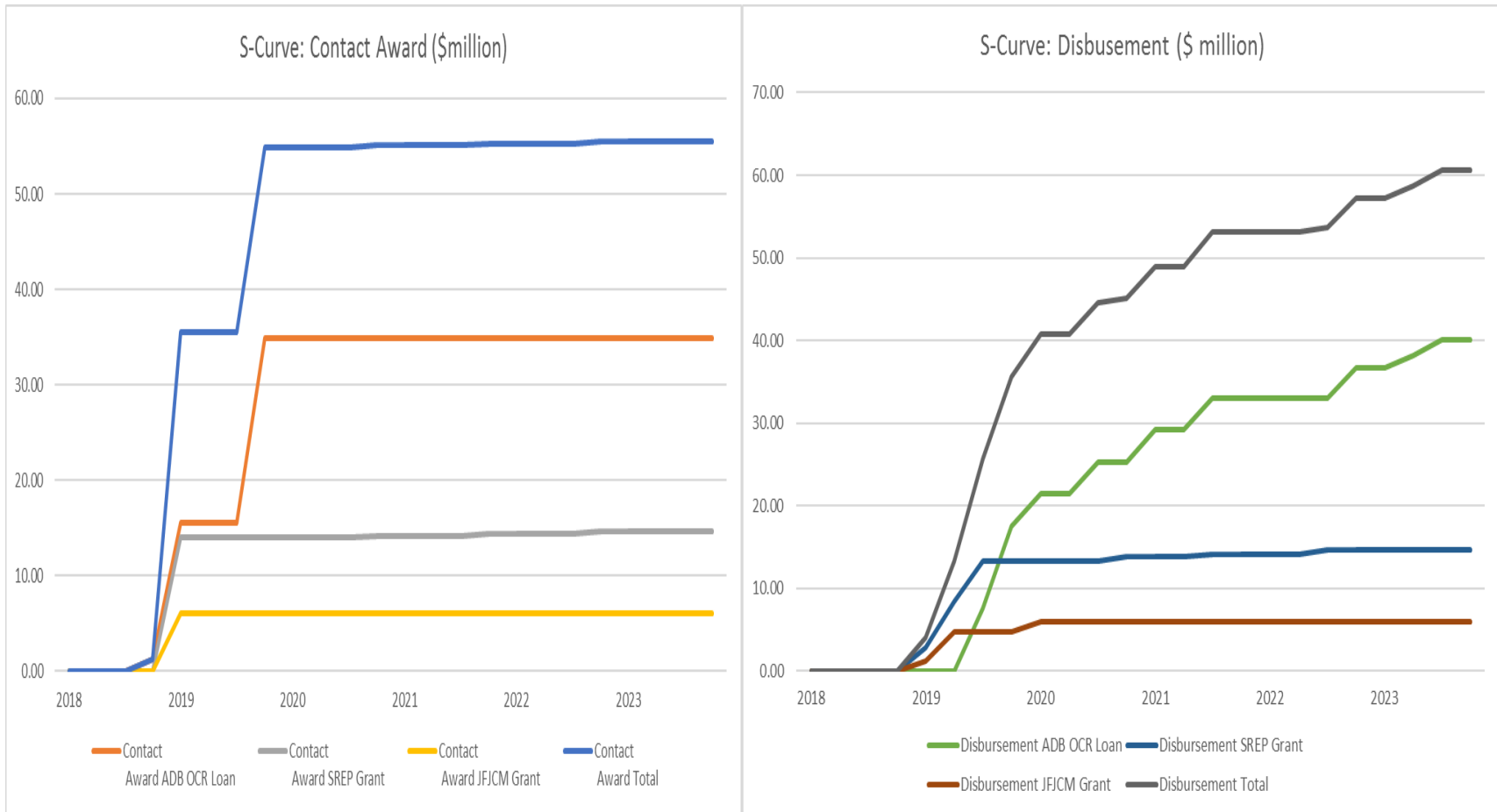


H. Contract and Disbursement S-Curve

Table 12. Contract and Disbursement Projection

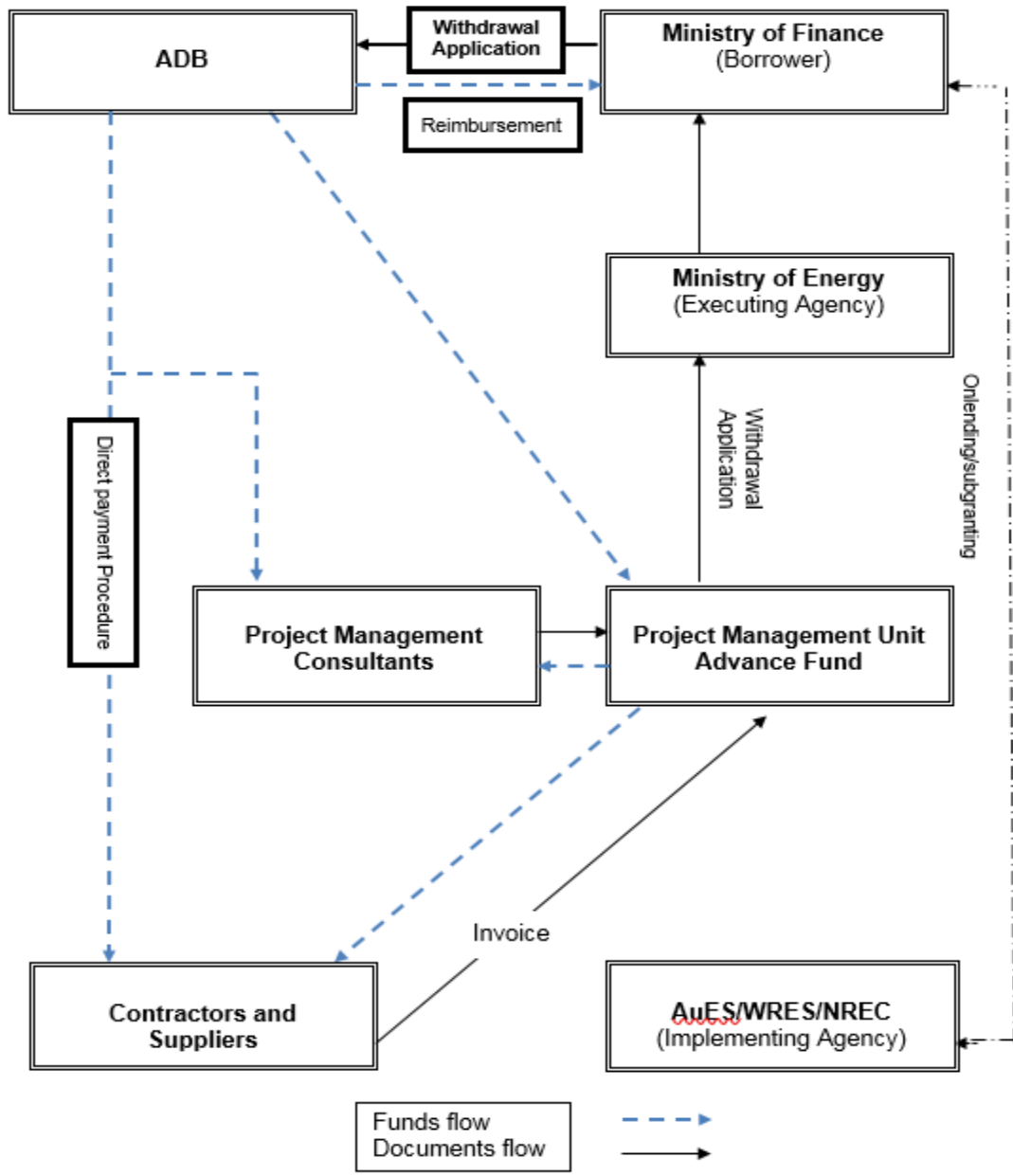
		2018				2019				2020				2021				2022				2023			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award	ADB OCR Loan	0.00	0.00	0.00	1.28	14.24	0.00	0.00	19.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SREP Grant	0.00	0.00	0.00	0.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	JFJCM Grant	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	1.28	34.24	0.00	0.00	19.36	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Disbursement	ADB OCR Loan	0.00	0.00	0.00	0.05	0.00	0.00	7.50	9.98	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	0.00	0.00	0.00	3.60	0.00	1.51	1.87	0.00
	SREP Grant	0.00	0.00	0.00	0.00	2.80	5.60	4.90	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00
	JFJCM Grant	0.00	0.00	0.00	0.00	1.20	3.60	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.05	4.00	9.20	12.40	9.98	5.07	0.00	3.87	0.50	3.87	0.00	4.17	0.00	0.00	0.00	0.50	3.60	0.00	1.51	1.87	0.00
		2018				2019				2020				2021				2022				2023			
CUMULATIVE		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award	ADB OCR Loan	0.00	0.00	0.00	1.28	15.52	15.52	15.52	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88	34.88
	SREP Grant	0.00	0.00	0.00	0.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.20	14.20	14.20	14.20	14.40	14.40	14.40	14.40	14.60	14.60	14.60	14.60	14.60
	JFJCM Grant	0.00	0.00	0.00	0.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Total	0.00	0.00	0.00	1.28	35.52	35.52	35.52	54.88	54.88	54.88	54.88	55.08	55.08	55.08	55.08	55.28	55.28	55.28	55.28	55.48	55.48	55.48	55.48	55.48
Disbursement	ADB OCR Loan	0.00	0.00	0.00	0.05	0.05	0.05	7.55	17.53	21.40	21.40	25.28	25.28	29.15	29.15	33.02	33.02	33.02	33.02	33.02	36.62	36.62	38.13	40.00	40.00
	SREP Grant	0.00	0.00	0.00	0.00	2.80	8.40	13.30	13.30	13.30	13.30	13.30	13.80	13.80	13.80	14.10	14.10	14.10	14.10	14.60	14.60	14.60	14.60	14.60	14.60
	JFJCM Grant	0.00	0.00	0.00	0.00	1.20	4.80	4.80	4.80	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	Total	0.00	0.00	0.00	0.05	4.05	13.25	25.65	35.63	40.70	40.70	44.58	45.08	48.95	48.95	53.12	53.12	53.12	53.12	53.62	57.22	57.22	58.73	60.60	60.60

**Figure 3. Contract and Disbursement S-Curve**



I. Fund Flow Diagram

Figure 4: Fund Flow Diagram



ADB = Asian Development Bank, AUES = Altai-Uliastai Region Energy System State-Owned Joint Stock Company, NREC = National Renewable Energy Center, WRES = Western Region Energy System State-Owned Joint Stock Company.

## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

14. The financial management assessment was conducted in December 2017 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note. The financial management assessment considered the capacity of MOE and the IAs, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. Based on the assessment, the key financial management risks identified are detailed in Table 13. It is concluded that the overall pre-mitigation financial management risk including administrating advance fund and Statement of Expenditure (SOE) of MOE and IAs is moderate. MOE also has past and ongoing similar experience in managing advance fund and SOE procedures under the projects financed by the World Bank. The MOE and the IAs have agreed to implement an action plan as key measures to address the deficiencies. The financial management action plan is provided in Table 13.

**Table 13: Financial Management Action Plan**

Identified Risks	Action for Mitigating Risks	Responsible Unit	Timeline
1. Outdated/lack of knowledge on ADB procedures	The executing and implementing agencies have experience in either ADB projects or projects with other donors in the past. PPTA provided training for accounting and audit staff before project implementation.	MOE, AUES, WRES, NREC	July 2018
2. No regulatory policy and procedures for managing foreign exchange and interest risks	The executing and implementing agencies will employ methods to hedge the foreign exchange and interest risk such as interest and foreign exchange contract and options.	MOE, AUES, WRES, NREC	September 2018

### B. Disbursement

#### 1. Disbursement Arrangements for ADB and ADB-administered Funds

15. The loan and grant proceeds, including ADB-administered funds, will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),<sup>8</sup> and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.<sup>9</sup> Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

<sup>8</sup> The handbook is available electronically from the ADB website (<http://www.adb.org/documents/loan-disbursement-handbook>)

<sup>9</sup> Disbursement eLearning. [http://wpqr4.adb.org/disbursement\\_elearning](http://wpqr4.adb.org/disbursement_elearning).

16. The disbursement arrangements will include: (i) direct payment procedure, and (ii) advance fund procedure.

17. The project management unit (PMU) will be responsible for (i) collecting and retaining supporting documents, (ii) preparing withdrawal applications (WAs), and (iii) submitting WAs to the Ministry of Energy (MOE). MOE reviews WAs and submit them to MOF who will be responsible for sending WAs to ADB.

18. **Advance fund procedure.** To facilitate project implementation through timely release of loan and grant proceeds, MOF authorizes the PMU to establish three advance fund accounts, one each for the loan and the grants for PMU management, promptly after loan and grant effectiveness at a commercial bank. All MNT subaccounts will be established in the MOF's Treasury Single Account (TSA). MOF is currently working towards enabling establishment of US dollar account under the TSA. Once this is fully introduced, advance accounts established under the commercial banks will be transferred to TSA, upon consultation with the ADB. The currency of the advance accounts is US dollar. The advance accounts are to be used exclusively for ADB's and ADB-administered cofinancier funds' share of eligible expenditures. The PMU who will administer the advance account is accountable and responsible for proper use of advances to the advance account. The total outstanding advance to the advance accounts should not exceed the estimate of ADB's share of expenditures to be paid through the advance accounts for the forthcoming 6 months. The PMU administering the advance accounts may request for initial and additional advances to the advance accounts based on an Estimate of Expenditure Sheet<sup>10</sup> setting out the estimated expenditures to be financed through the accounts for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by the PMU in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance accounts. For every liquidation and replenishment request of the advance accounts, the PMU will furnish ADB with (a) Statement of Account (Bank Statement) where the advance account is maintained, and (b) the Advance Account Reconciliation Statement reconciling the above-mentioned bank statement against the PMU's records.

19. **Statement of expenditure procedure.**<sup>11</sup> The SOE procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the advance accounts. The ceiling of the SOE procedure is the equivalent of \$100,000 per individual payment. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the WA to ADB.

20. Before the submission of the first WA, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the WAs on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per WA is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category

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<sup>10</sup> Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

<sup>11</sup> SOE forms are available in Appendix 7B of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD)<sup>12</sup> system is encouraged for submission of WAs to ADB.

21. **Condition for withdrawal.** No withdrawals for a particular subcomponent or subproject shall be made from the loan and the grant accounts until the Borrower have certified to ADB that the concerned onlending and subgranting agreements with the respective IAs have been duly executed and delivered between the government and the respective IAs.

## **2. Disbursement Arrangements for Counterpart Fund**

22. The government has assured ADB that additional funding will be provided in a timely manner, which might be required for any cost overruns. The Government will ensure, and cause the IAs to ensure, that operation and maintenance of all project facilities is fully funded without any delay.

### **C. Accounting**

23. MOE will cause the IAs, through the PMU, to maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following accrual-based accounting following the International Financial Reporting Standards. Each IA, through the PMU, will need to prepare annual financial statement in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices. At the PMU, a project financial management specialist will record the project costs, prepare loan disbursements and progress reports to ADB.

### **D. Auditing and Public Disclosure**

24. MOE will cause the project financial statements to be audited in accordance with International Standards on Auditing or equivalent national standards by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by MOE.

25. The audited entity financial statements, together with the auditor's report and management letter, will be submitted in the English language to ADB within 1 month after their approval by the relevant authority.

26. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan and grants were used only for the purposes of the project; and (iii) whether the borrower or EA was in compliance with the financial covenants contained in the legal agreements (where applicable).

27. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

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<sup>12</sup> The CPD facilitates online submission of WA to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>. CPD was rolled out in Mongolia in April 2018.

28. The government, MOE and IAs have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.<sup>13</sup> ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

29. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011.<sup>14</sup> After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.<sup>15</sup>

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<sup>13</sup> ADB's approach and procedures regarding delayed submission of audited project financial statements:

- (i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- (ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.
- (iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

<sup>14</sup> Public Communications Policy: <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

<sup>15</sup> This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting

30. All advance contracting will be undertaken in conformity with ADB Procurement Guidelines (2015, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The issuance of invitations to bid under advance contracting will be subject to ADB approval. The borrower, MOE, and IAs have been advised that approval of advance contracting does not commit ADB to finance the project.

31. Advance contracting is needed mainly for the project management consultant under institutional strengthening and capacity enhancement component and PMU staff engagement. The Finance and Development Department of MOE is responsible for such advance action. MOE has sufficient prior experience in procurement financed by the World Bank and the bilateral donors, but lacks experience in ADB-financed procurement. ADB and project preparatory technical assistance consultant provides necessary assistance. The advance action will enable the timely recruitment of consultants. Details of advance contracting is shown below.

**Table 14: List of Contracts for Advance Contracting**

General Description	Estimated Value (\$ million)	Procurement		Bidding Procedure	Comments
		Method/ Recruitment Method	Review		
Project management consultants	1.55*	QCBS	Prior	Full technical proposal	90:10 ratio; MOE requested ADB assistance in recruitment
PMU office staff	1.28*	Individual	Prior		National

ADB = Asian Development Bank, MOE = Ministry of Energy, PMU = project management unit, QCBS = quality- and cost-based selection.

\* Inclusive of taxes.

Source: Asian Development Bank estimates.

### B. Procurement of Goods, Works, and Consulting Services

32. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2015, as amended from time to time).

33. International competitive bidding procedures will be used for civil works contracts estimated to cost \$5 million or more, and supply contracts valued at \$2 million or higher. Goods contract packages costing more than \$100,000 and less than \$2 million will be procured using national competitive bidding (NCB), as well civil works contracts costing more than \$100,000 and less than \$5 million.

34. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure consistency with ADB's Procurement Guidelines (2015, as amended from time to time).

35. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.



36. All consultants, including PMU office support, will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).<sup>16</sup> The terms of reference for all consulting services are detailed in Section D.

37. An estimated 81 person-months (28 international, 53 national) of consulting services are required for project management support to facilitate project management and implementation. The consulting firm will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality–cost ratio of 90:10. MOE has requested assistance from ADB in the recruitment of project management consultants. An estimated 480 person-months of national inputs are also required for PMU office support, to be recruited using individual selection method. The project management consultant contract is estimated to cost \$1.55 million, exclusive of taxes and duties, while the PMU office support contract is estimated to cost \$1.28 million.

### C. Procurement Plan

**Table 15: Basic Data**

<b>Project Name:</b> Upscaling Renewable Energy Sector Project	
<b>Project Number:</b> 50088-002	<b>Approval Number:</b> Lxxxx, Gxxxx, Gxxxx
<b>Country:</b> MONGOLIA	<b>Executing Agency:</b> Ministry of Energy
<b>Project Procurement Classification:</b> B	<b>Implementing Agencies:</b> (i) Western Region Energy System State-Owned Joint Stock Company (ii) Altai-Uliastai Region Energy System State-Owned Joint Stock Company (iii) National Renewable Energy Center
<b>Procurement Risk:</b> Moderate	
<b>Project Financing Amount:</b> \$66,220,000 <b>ADB Financing:</b> \$40,000,000 <b>Cofinancing (ADB Administered):</b> Strategic Climate Fund: \$14,600,000 Japan Fund for the Joint Crediting Mechanism: \$6,000,000 <b>Non-ADB Financing:</b> \$5,620,000	<b>Project Closing Date:</b> 29 February 2024
<b>Date of First Procurement Plan:</b> 19 September 2018	<b>Date of this Procurement Plan:</b> 20 July 2018

#### 1. Methods, Thresholds, Review and 18-Month Procurement Plan

##### a. Procurement and Consulting Methods and Thresholds

38. Except as ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

<sup>16</sup> Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

**Table 16: Procurement of Goods and Works**

Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$5,000,000	Prior review
International Competitive Bidding for Goods	\$2,000,000	Prior review
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	The first NCB is subject to prior review, thereafter post review
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	The first NCB is subject to prior review, thereafter post review

**Table 17: Consulting Services**

Method	Comments
Quality- and Cost-Based Selection (QCBS)	Prior review, quality-cost ratio of 90:10, full technical proposal
Individual	Prior review.

**b. Goods and Works Contracts Estimated to Cost \$1 Million or More**

39. The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months. Any tax and duties relevant to the subcontracting goods and services shall be covered by the contractor, and the bidding document shall reflect accordingly.

Package Number	General Description	Estimated Value	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
1	10 MW of Umunogovi wind	13,710,000	ICB	Prior	1S2E	Q4 2018	SBD Plant. Universal procurement
2	10 MW of Altai solar PV and hybrid system of Altai soum	10,630,000	ICB	Prior	1S2E	Q4 2018	SBD Plant Universal procurement
3	5 MW of Uliastai solar PV	7,950,000	ICB	Prior	1S2E	Q4 2018	SBD Plant
4	5 MW of Telmen wind	6,000,000	ICB	Prior	1S2E	Q3 2019	SBD Plant Universal procurement
5	10 MW of Moron solar PV	8,990,000	ICB	Prior	1S2E	Q3 2019	SBD Plant Universal procurement

1S2E = single stage-two envelope, ICB = international competitive bidding, MW = megawatt, PV = photovoltaic, Q = quarter, SBD = standard bidding document.

**c. Consulting Services Contracts Estimated to Cost \$100,000 or More**

40. The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
6	Project management	1,550,000	QCBS	Prior	Q3 2018	Full	Advance contracting. International, 90:10 quality-cost ratio
7	PMU office support	1,280,000	Individual	Prior	Q3 2018	NA	Advance contracting. National.

NA = not applicable, PMU = project management unit, Q = quarter, QCBS = quality- and cost-based selection.

**d. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)**

41. The following table groups smaller-value goods, works, and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months. Any tax and duties relevant to the subcontracting goods and services shall be covered by the contractor, and the bidding document shall reflect accordingly.

Goods and Works								
Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
8	Shallow-ground heat pump demonstration Part 1	200,000	1	ICB	Prior	1S1E	Q4 2018	SBD works Universal procurement

1S1E = single stage-one envelope, ICB = international competitive bidding, Q = quarter.

**2. Indicative List of Packages Required Under the Project**

42. The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period). Any tax and duties relevant to the subcontracting goods and services shall be covered by the contractor, and the bidding document shall reflect accordingly.

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review	Bidding Procedure	Comments
9	Shallow-ground heat pump demonstration Part 2	400,000	1	ICB	Post	1S1E	SBD works Universal procurement
10	Shallow-ground heat pump demonstration Part 3	400,000	1	ICB	Post	1S1E	SBD works Universal procurement

1S1E = single stage-one envelope, ICB = international competitive bidding.

### List of Awarded and On-going, and Completed Contracts

43. The following tables list the awarded and on-going contracts, and completed contracts.

#### Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award <sup>1</sup>	Comments <sup>2</sup>

<sup>1</sup> Date of ADB Approval of Contract Award is the date of No-Objection letter to the EA/IA.

<sup>2</sup> Indicate the Contractor's name and the contract signing date.

Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award <sup>1</sup>	Comments <sup>2</sup>

<sup>1</sup> Date of ADB Approval of Contract Award is the date of No-Objection letter to the EA/IA.

<sup>2</sup> Indicate the Consulting Firm's name and the contract signing date.

#### Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award <sup>1</sup>	Date of Completion <sup>2</sup>	Comments

<sup>1</sup> Date of ADB Approval of Contract Award is the date of No-Objection letter to the EA/IA.

<sup>2</sup> The Date of Completion is the physical completion date of the contract.

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award <sup>1</sup>	Date of Completion <sup>2</sup>	Comments

<sup>1</sup> Date of ADB Approval of Contract Award is the date of No-Objection letter to the EA/IA.

<sup>2</sup> The Date of Completion is the physical completion date of the contract.

### 3. Non-ADB Financing

44. The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments

Consulting Services				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments

### 4. National Competitive Bidding

#### a. Regulation and Reference Documents

45. The procedures to be followed for national competitive bidding shall be those set forth in the Public Procurement Law of Mongolia of 1 December 2005, effective 1 February 2006, as amended in February 2007; July 2009; and February, June and December 2011 (hereinafter referred to as PPLM), with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the ADB *Procurement Guidelines*.

#### b. Procurement Procedures

##### i. Eligibility

46. The eligibility of bidders shall be as defined under section I of the Procurement Guidelines; accordingly, no bidder or potential bidder should be declared ineligible for reasons other than those provided in section I of the Guidelines, as amended from time to time.

47. Government-owned enterprises in Mongolia shall be eligible for projects only if they can establish that they: (i) are legally and financially autonomous; (ii) operate under the principles of commercial law; and (iii) are not dependent agencies of the Borrower, Beneficiary, Recipient EA and/or the IAs.

##### ii. Participation of Foreign Bidders

48. Except for JFJCM financing component, universal procurement is applied. The project International bidders from eligible and non-eligible countries of ADB shall be allowed to participate in local procurement and may not be denied participation due to nationality

iii. **Preferences**

49. No domestic preference shall be given for domestic bidders and for domestically manufactured goods.

iv. **Prequalification and Registration**

50. Prequalification is discouraged for procurement contracts using NCB. When used, particularly for works contracts, an individual prequalification exercise is acceptable for each contract as is the use of a registration system (or approved standing list) of contractors based on criteria such as experience, financial capacity, and technical capacity. Foreign bidders from eligible countries must, however, be allowed to register and to bid without unreasonable cost or additional requirements.

v. **Rejection of All Bids and Rebidding**

51. All bids shall not be rejected or new bids invited without ADB's prior written concurrence.

52. No bid shall be rejected merely on the basis of a comparison with the estimated cost or budget ceiling without ADB's prior written concurrence (with specific reference to Article 30 of the PPLM).

**5. Bidding Documents**

a. **Use of Bidding Documents**

53. National Standard Bidding Documents Goods and Works that have been approved for procurement in ADB-financed projects shall be used.

b. **Language**

54. Bidding documents may be prepared in other languages, but a copy of the bidding documents must be made available in English and submitted to ADB for review.

c. **Bid Validity**

55. Bidders shall be requested to extend the validity of their bids only under exceptional circumstances and the Executing or Implementing Agency, as the case may be, shall communicate such request for extension to all bidders before the date of expiry of their bids. When the procurement is subject to ADB's prior review, the Executing or Implementing Agency, as the case may be, shall obtain in a timely manner the prior written concurrence of ADB for the extension of the bid validity period.

d. **Bid Evaluation**

56. Evaluation and qualification criteria, and submission requirements, to be used in each bidding activity shall be clearly specified in the bidding documents. The evaluation of bids shall be done in strict adherence to the criteria specified in the bidding documents.

57. Negotiations with bidders shall not be undertaken before award of contract, except as provided in Paragraph 2.63 of ADB's Procurement Guidelines A bidder shall not be required, as a condition for award, to undertake obligations not specified in the bidding documents or otherwise

to modify its bid as originally submitted.

58. At the same time that notification on award of contract is given to the successful bidder, the results of the bid evaluation shall be posted on a well-known freely accessible website (namely Mongolia's Ministry of Finance e-procurement website: [www.e-procurement.mn](http://www.e-procurement.mn)) identifying the bid and lot numbers and providing information on the: (i) name of each bidder that submitted a bid; (ii) bid prices as read out at bid opening; (iii) names of bidders whose bids were rejected and the reasons for their rejection; and (iv) name of the winning bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. The EA or IAs, as the case may be, shall respond in writing to unsuccessful bidders who seek explanations on the grounds on which their bids were not selected.

#### **e. ADB Policy Clauses**

59. A provision shall be included in all NCB works and goods contracts financed by ADB requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have them audited by auditors appointed by ADB.

60. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that the Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question.

61. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or any integrity violation in competing for, or in executing, ADB-financed contract.

### **D. Consultant's Terms of Reference**

#### **1. Project Management Consultants**

62. Project management consultants will be recruited to support the PMU, WRES, AUES, and NREC during project implementation and to assist them in (i) detailed engineering design; (ii) procurement which includes assistance in tender document preparation, bid evaluation, and contract negotiation; (iii) social and environment impact monitoring; and (iv) JFJCM-related activities including PDD preparation and validation, and monitoring and verification. The consulting contract is estimated to cost \$1.55 million, inclusive taxes and duties. The consultants will be supported by PMU staff which will be recruited under the project. The inputs, cost estimates, terms of reference are summarized below.

**Table 18: Summary of Project Management Consultant Inputs (person-months)**

Expertise	International	National
1. Senior Renewable Energy Specialist/Team Leader	5	0
2. Renewable Energy Specialist/Deputy Team Leader	0	9
3. Solar PV Engineer	4	7
4. Wind Power Engineer	4	7
5. Battery Storage Specialist	6	0
6. Shallow-Ground Heat Pump Engineer	4	7
7. Environment Specialist	3	7
8. Financial Specialist	2	6
9. Project Management Specialist	0	10
<b>Total</b>	<b>28</b>	<b>53</b>

**Table 19: Cost Estimates and Financing Plan for Project Management**

Item	Amount (\$'000)*
1. Consultants	
a. Remuneration and per diem	
i. International consultants	718
ii. National consultants	220
b. International and local travel	115
2. Reports, translations, and communications	7
3. Studies and surveys <sup>a</sup>	
a. Wind measurement survey	30
b. Detailed environment impact assessment	40
c. Geotechnical survey for heat pumps	80
d. JFJCM (methodology, project design document, monitoring) <sup>b</sup>	170
e. JFJCM (carbon credit validation and verification) <sup>c</sup>	100
f. Environment monitoring	70
<b>Total</b>	<b>1,550</b>

JFJCM = Japan Fund for the Joint Crediting Mechanism.

<sup>a</sup> Prior ADB approval is required to start procurement.

<sup>b</sup> It includes joint crediting mechanism (JCM) methodology development, project design document (PDD) preparation and assistance in methodology approval, PDD validation and approval, and an implementation of monitoring and reporting for 5 MW of Uliastai solar PV and battery storage system. Selection among the firms having prior experience in the project with Joint Crediting Mechanism is required.

<sup>c</sup> It should be selected among accredited third-party entity accredited by the Mongolia-Japan JCM Joint Committee, and published on their website (<https://www.jcm.go.jp/mn-jp/tpes>) qualified to validate proposed JCM projects and to verify greenhouse gas emission reductions of JCM projects. It conducts validation of the proposed JCM project on Uliastai solar PV and battery storage subproject; and conduct verification of emission reductions from the subproject.

Note: Numbers may not sum precisely because of rounding.

\*Tax inclusive

Source: Asian Development Bank estimates.

63. **Senior Renewable Energy Specialist/Team Leader** (international, 5 person-months). The expert should have a postgraduate degree in engineering or relevant field, and at least 15 years working experience in MW class distributed renewable energy system development planning, and should have experience in grid stability analysis related to distributed renewable energy system integration into the existing grid. Working experience in Mongolia or other countries having similar condition is preferable. The activities to be undertaken will include but not limited to the following:

- (i) prepare medium term distributed renewable energy investment plan (2023–2030) for the Western and Altai-Uliastai regions which includes, but not limited to, (a)



- load demand update, (b) investment screening criteria development, (c) priority distributed renewable energy investment options (including capacity size and locations), and (d) grid stability assessment, to guide private sector led investment in renewable energy in the Western and Altai-Uliastai regions, in consultation with the EA and IAs;
- (ii) prepare policy assessment and recommendation report in mobilizing private sector investment in renewable energy in the Western and Altai-Uliastai regions which include, but not limited to, (a) market assessment including a consultation with potential investors and financiers to identify investment bottleneck in targeted regions, and (b) financial and non-financial incentives to mobilize private sector investment while stimulating to reduce cost of energy for affordable renewable electricity supply;
  - (iii) conduct capacity enhancement training for the staffs in the EA and IAs in investment planning (priority investment selection and its methodologies), grid stability assessment, and investment appraisal (methodologies in assessing renewable investment proposals in view of technical and financial feasibility);
  - (iv) provide assistance to the executing and the IAs in the subproject design, procurement and construction management, testing and commissioning, and operation and maintenance in coordination with the consultant team members;
  - (v) lead the consultant team to carry out due diligence for the non-core subprojects in compliance with ADB requirements which include feasibility study, financial and economic analysis, environment impact assessment, and social safeguard analysis. Assist PMU to obtain necessary approval for feasibility study and environment impact assessment; and
  - (vi) ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with engineering and environment specialists.

64. **Renewable Energy Specialist/ Deputy Team Leader** (national, 9 person-months). The expert should have a postgraduate degree in engineering or relevant field, and at least 10 years working experience in distributed renewable energy system development planning. Meaningful experience in grid stability analysis related to distributed renewable energy system integration into the existing grid is preferable. The expert will support all activities under the senior renewable energy specialist (international). The expert shall ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with team leader and environment specialists.

65. **Solar PV Engineer** (international, 4 person-months). The experts should have a postgraduate degree in engineering or relevant field, and at least 10 years working experience in utility scale (10 MW or more) solar PV plant design, construction supervision, and operation and maintenance. The expert will undertake the following activities.

- (i) prepare detailed technical specification, carry out solar resource (Global Horizontal Irradiation) assessment and forecasting based on satellite imagery data for the last 10 years for non-core 10 MW solar PV subproject in Moron;
- (ii) prepare the optimized solar PV system configuration design including the plant layout, cost estimate including operation and maintenance cost, and implementation schedule, for a construction of non-core 10 MW solar PV subproject in Moron, simulate electricity yield (daily, monthly, and annually) and estimate the levelized cost of energy, and prepare feasibility study report (FSR);
- (iii) prepare the technical part of draft bid document for the core and non-core solar PV subprojects including Altai Soum hybrid renewable energy subproject. Provide

assistance to the EA and the IAs in the subproject design, procurement and construction management, testing and commissioning, and operation and maintenance in coordination with the team leader;

- (iv) for 5 MW of Uliastai solar PV system, in cooperation with Battery Storage specialist, guide and assist the EA and IAs in preparing bid document (technical specification and bidder's qualification) in accordance with JFJCM requirement set forth in the project administration manual (PAM);
- (v) identify priority renewable energy investments in the Western and Altai Uliastai regions in cooperation with the team leader, and prepare medium term distributed renewable energy investment plan (2023–2030); and
- (vi) ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with team leader and environment specialists.

66. **Solar PV Engineer** (national, 7 person-months). The expert should have a postgraduate degree in engineering or relevant field, and at least 5 years working experience in solar PV plant design, construction supervision, and operation and maintenance. The expert will support all activities under the solar PV system engineer (international).

67. **Wind Power Engineer** (international, 4 person-months, intermittent). The expert should have a postgraduate degree in engineering or relevant field, and at least 10 years working experience in utility scale wind power plant design, construction supervision, and operation and maintenance. The expert will undertake the following activities:

- (i) carry out wind resource assessment and forecasting based on satellite imagery data for the last 10 years and the ground measurement data in the last 12 months for non-core subproject 5 MW of Telmen wind power;
- (ii) prepare the optimized wind power plant design, cost estimate including operation and maintenance cost, and implementation schedule. Simulate electricity yield (daily, monthly, and yearly) and estimate levelized cost of energy, and prepare FSR;
- (iii) prepare the technical part of draft bid document for the core and non-core solar PV subprojects including Altai Soum hybrid renewable energy subproject. Provide assistance to the executing and the IAs in the subproject design, procurement and construction management, testing and commissioning, and operation and maintenance in coordination with the team leader;
- (iv) identify priority renewable energy investments in the Western and Altai Uliastai regions in cooperation with the team leader, and prepare medium term distributed renewable energy investment plan (2023–2030); and
- (v) the expert shall ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with team leader and environment specialists.

68. **Wind Power Engineer** (national, 7 person-months, intermittent). The expert should have a postgraduate degree in engineering or relevant field, and at least 5 years working experience in utility scale wind power plant design, construction supervision, and operation and maintenance. The expert will support all activities under the wind power engineer (international).

69. **Battery Storage Specialist** (international, 6 person-months, intermittent). The expert should have a postgraduate degree in engineering or relevant field, and at least 10 years working experience in utility scale renewable energy system design with battery storage, installation, and operation and maintenance. The expert will undertake the following activities:

- (i) prepare technical part of the draft bid document for battery storage for Altai-Soum hybrid renewable energy system and 5 MW of Uliastai solar PV system in consultation with solar PV and wind power engineers. For the battery storage in 5 MW Uliastai solar PV system, the technical part of the draft bid document shall be based upon technical specification in accordance with JFJCM requirement set forth in the PAM;
- (ii) in consultation with solar PV and wind power engineers, prepare battery operation strategies (charging-discharging) for Altai-Soum hybrid renewable energy system and 5 MW of Uliastai solar PV system;
- (iii) provide assistance to the executing and the IAs in the subproject design, procurement and construction management, testing and commissioning, and operation and maintenance in coordination with the team leader;
- (iv) develop battery storage deployment strategy and identify priority renewable energy investments with battery storage in the Western and Altai Uliastai regions in cooperation with the team leader, to prepare medium term distributed renewable energy investment plan (2023–2030); and
- (v) the expert shall ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with team leader and environment specialists.

70. **Shallow-Ground Heat Pump Engineer** (international, 4 person-months, intermittent). The expert should have a postgraduate degree in engineering or relevant field, and at least 10 years working experience in shallow-ground heat pump installation design, construction supervision, and operation and maintenance. The expert will undertake the following activities:

- (i) carry out geological assessment (including geological age and structure, aquifer, and ground water) to prepare a shortlist of suitable locations (at least four suitable locations and public buildings) for shallow-ground heat pump installation;
- (ii) prepare an optimized heat pump system configuration design, construction methods and plan, cost estimate (including operation and maintenance), and implementation schedule, for suitable locations identified in (i). Simulate coefficient of performance, system coefficient of performance, and seasonal performance factor;
- (iii) prepare an FSR for at least four locations of shallow-ground heat pump installation in public buildings in western and Altai-Uliastai region, and assist the executing and implementing agency to obtain the government approval for FSR;
- (iv) prepare the technical part of draft bid document for the core and non-core solar PV subprojects including Altai Soum hybrid renewable energy subproject. Provide assistance to the executing and the IAs in the subproject design, procurement and construction management, testing and commissioning, and operation and maintenance in coordination with the team leader;
- (v) assess the performance of core shallow-ground heat pump subproject in Hovd to identify lesson learned, and develop shallow-ground heat-pump deployment strategy and identify priority investments in the Western and Altai Uliastai regions in cooperation with the team leader, to prepare medium term distributed renewable energy investment plan (2023–2030); and
- (vi) the expert shall ensure that environmental mitigation measures per IEE/EMP are incorporated into the subproject detailed designs and renewable investment plan through coordination with team leader and environment specialists.

71. **Shallow-Ground Heat Pump Engineer** (national, 7 person-months, intermittent). The expert should have a postgraduate degree in engineering or relevant field, and at least 5 years

working experience in shallow-ground heat pump installation design, construction supervision, and operation and maintenance. The expert will support all activities under the shallow-ground heat pump engineer (international).

72. **Environment Specialist** (international, 3 person-months, intermittent). The expert should have at least a postgraduate degree on environmental management or relevant fields, a minimum of 10 years work experience on environmental management and monitoring, or relevant fields, experience on environmental impact assessment of solar PV and wind energy projects including in respect of World Bank/IFC EHS Guidelines, the supervision of the implementation of EMP of renewable energy projects. The expert will perform the following tasks with the assistance from the national environmental specialist:

- (i) collect relevant information from the IAs and relevant local government agencies on environment related issues;
- (ii) assist the PMU in updating the IEE/EMP based on detailed designs including additional public consultation, environmental monitoring plan as necessary to revise or incorporate additional environmental mitigation and monitoring measures, budget and institutional arrangements, based on the detailed design and submit the revised IEE/EMP to ADB for approval and disclosure;
- (iii) develop an EMP training program and provide training to staff from the PMU, project implementing units (PMU) within the IAs, and contractors prior to the commencement of each construction package on topics, including but not limited to: ADB's Safeguard Policy Statement (2009), implementation of EMP and EMoP, monitoring and reporting requirements, grievance redress mechanism (GRM), preparation and implementation of contractor's EMP, implementation plan, and method statements;
- (iv) assist the PMU and IAs in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities and GRM;
- (v) prepare a monthly environmental supervision report template and review the reports provided by the PMU to identify progress with implementation of EMP, key issues and actions and environmental performance;
- (vi) assist the PMU in selecting an external environment monitoring organization licensed by the Ministry of Environment and Tourism (MoET); provide guidance to the selected organization in conducting environmental impact monitoring according to the environmental monitoring plan in the EMP; and coordinate with this organization on all monitoring activities; review external environment monitoring reports (both construction and operation periods) prepared by the organization;
- (vii) assist the PMU and PMU in preparing EMP implementation provisions for the bidding document and contract;
- (viii) undertake site visits to assess the implementation of the EMP; verify the implementation of the environmental protection measures specified in the EMP; identify EMP-related non-compliance issues, highlight areas of good practice, assist contractors/IAs in preparing corrective action plans (CAPs), and oversee implementation of necessary corrective actions;
- (ix) assist the PMU and PMU to prepare semi-annual environmental monitoring reports during construction and annual reports during operation in accordance with ADB requirements;
- (x) assist the PMU and PMU to prepare EMP implementation plan for the following year including resources and funding to MoET by the end of each year during implementation period;

- (xi) assist the PMU and PMU in presenting the performance of the EMP implementation to the local community, local governor's office, and the parties affected by the project;
- (xii) Revise the IEE to reflect (a) any unanticipated impacts occurring during project implementation and proper mitigation measures to respond that impacts; and also (b) a result of any design changes;
- (xiii) Assist the national institute recruited by MoE in preparing domestic environmental impact assessment (EIA), and prepare IEE/EMP following EARF, and climate risk and vulnerability assessment for non-core subprojects (5 MW wind power in Telmen, 10 MW solar PV in Moron, and 4 locations of shallow-ground heat pump and assist the EA and the IAs for domestic EIA approval; and
- (xiv) Work with the team on the development of medium term distributed renewable energy investment plan to ensure that environment safeguards can be addressed through sensitivity mapping, etc.

73. **Environment Specialist** (national, 7 person-months, intermittent). The expert should have at least a postgraduate degree on environmental management or relevant fields, a minimum of 5 years work experience on environmental management and monitoring, or relevant fields, experience on the supervision and implementation of EMP of renewable energy projects, and fair ability to communicate in English. The expert will perform all tasks specified above under the guidance of the international environment specialist and perform site-specific environmental monitoring indicated in the EMP and EMoP.

74. **Financial Specialist** (international, 2 person-months, intermittent). The expert should have a postgraduate degree in finance or relevant field with qualification of either a Certified Accountant or a Certified Public Accountant, and 7-year working experience. The expert will undertake the following activities:

- (i) review and monitor audited corporate financial statements of WRES, AUES, and NREC. Annually assess financial status of each implementing agency and prepare corporate financial assessment report which includes necessary actions to achieve and maintain financial soundness of WRES, AUES, and NREC, and submit to MOE for necessary actions;
- (ii) in conjunction with annual corporate financial assessment, conduct tariff and subsidy analysis to ensure sound financial performance of WRES and AUES, and provide recommendations for necessary increase in tariff level and/or appropriate subsidy provision; and
- (iii) guide and assist the PMU, WRES, AUES and NREC in accounting and auditing in accordance with requirements in the project administration manual, and provide trainings to enhance financial management capacities.

75. **Financial Specialist** (national, 6 person-months, intermittent). The expert should have a postgraduate degree in finance or relevant field with qualification of either a Certified Accountant or a Certified Public Accountant, and 7-year working experience. The expert will perform all tasks specified above under the guidance of the international financial specialist.

76. **Project Management Specialist** (national, 10 person-months, intermittent). The expert should have a postgraduate degree in engineering, business administration or relevant field, and about 7 years working experience, with strong familiarity in ADB's procurement and disbursement procedures. The expert will undertake the following activities:

- (i) guide and assist the PMU for bid advertisement, bid document preparation, bid evaluation, contract negotiation, and contract awards;
- (ii) for 5 MW of Uliastai solar PV with battery system, guide and assist the PMU in preparation of bid document, bid evaluation, and contract negotiation to meet JFJCM requirements set forth in the PAM;
- (iii) guide and assist the PMU and the IAs to process invoice and prepare WA in accordance with ADB requirements;
- (iv) develop project management capacity enhancement training module in disbursement and procurement. Conduct capacity enhancement training for staff in the PMU and the IAs; and
- (v) develop project performance monitoring system which covers all subprojects' physical implementation progress, contract award, disbursement, and compliance with loan covenants to comprehensively monitor entire project performance, and to identify apparent and potential bottlenecks to project implementation.

**a. PMU Office Support**

77. The project will finance the PMU staff under MOE and the IAs to facilitate project readiness and timely project implementation. The summary of the PMU office support needed, cost estimates, and the terms of reference are provided below. PMU staff will be responsible for his/her own social and health insurance cost as below inclusive tax and social and health insurance.

**Table 20: Summary of PMU Office Staff Supported by the Loan**

	Expertise/National	Person-month
<b>Project Management Unit</b>		
1. Project Coordinator		60
2. Financial Specialist		60
3. Procurement Specialist		50
4. Monitoring and Evaluation Officer		50
5. Environment and Social Safeguard Officer		50
<b>Project Implementation Monitoring</b>		
6. Wind Power Engineer		66
7. Hybrid Renewable Energy System Engineer		36
8. Solar PV Engineer		60
9. Shallow-Ground Heat Pump Engineer		48
<b>Total</b>		<b>480</b>

**Table 21: Cost Estimates**

Item	Amount (\$'000)
1. PMU Staff *	
a. Remuneration and per diem	975
b. Local travel	24
2. Rental, equipment	141
3. Reports, translations, and communications	13
4. Project audit	40
5. Workshop	13
6. National commissioning inspection and test	75
<b>Total</b>	
	<b>1,280</b>

Note: Numbers may not sum precisely because of rounding.

\*Inclusive tax and social and health insurance.

Source: Asian Development Bank estimates.

78. **Project Coordinator** (national, 60 person-months). The project manager should have a master's degree in engineering with more than 15 years energy engineering experience and more than 8 years of project management experience preferably in a development agency and donor organization. English language proficiency will be an advantage. The project manager will report directly to the director general of the project and program implementation department of MOE. The project manager will be responsible for the activities of the PMU, and his/her tasks will include but not be limited to the following activities:

- (i) liaise with all concerned ministries and agencies and ensure effective and timely project communication, coordination, meetings and approvals, and closely cooperate and coordinate with the PMU;
- (ii) in close communication with the consultant team, prepare and update construction schedule including procurement and contract management;
- (iii) being responsible for finalizing documentations for non-core subprojects (FSR, domestic EIA, IEE, and any other documents to be required) and obtaining approvals from the relevant government agencies and ADB.
- (iv) manage and maintain project advance accounts (as co-signatory with the MOF), oversee procurement and prepare reports as required during project implementation, including monthly, quarterly and annual reports;
- (v) supervise and coordinate with the PMU, consultants, contractors and stakeholder activities to facilitate implementation according to plan, schedule and budget; in coordination with the PMU and the consultant, prepare and finalize tender documents for ADB approval.
- (vi) assist in obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations enforced in Mongolia and in agreement with ADB procedures;
- (vii) in coordination with the PMU, review annual implementation and update implementation schedule and projection;
- (viii) in close coordination with the environmental and social safeguard officer, oversee compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan;
- (ix) ensure auditors' recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports; and
- (x) with the assistance from the PMU and project management support consultant, prepare quarterly progress reports, biannual environment monitoring report, and a project completion report following ADB guidelines 6 months after physical project completion.

79. **Financial Specialist** (national, 60 person-months). The financial management and accounting manager should have a university degree in finance, economics, or related field, or be a chartered accountant. He/she should have at least 10 years of proven experience working in finance, accounting and financial reporting. And project experience under ADB or other comparable international environment is advantage. He/she will report to the project manager. Tasks and responsibilities of the specialist will include but is not limited to the following:

- (i) maintain all project accounts, advance accounts;
- (ii) closely work with the finance specialist of the consulting firm in setting up a financial management system for the project and apply for budgeting, financial planning and reporting;
- (iii) monitor project expenditures, and supervise quarterly and annual financial reports during project implementation;
- (iv) manage withdrawal applications process under ADB's CPD.

- (v) compile financial statements and requests for payment by contractors and service providers and assist the PMU in the process of approval for payment release;
- (vi) prepare annual budgets and disbursement projections during project implementation in coordination with the IAs;
- (vii) compile and prepare project quarterly and annual financial progress reports as required by ADB;
- (viii) prepare draft WAs for payment of project costs in coordination with the IAs and PMU and submit these to the MOF for verification and signature by authorized signatories;
- (ix) prepare requests for replenishment to the advance accounts;
- (x) review and monitor audited corporate financial statements of WRES, AUES, and NREC. With assistance from the financial specialist, annually assess financial status of each implementing agency and prepare corporate financial assessment report which includes necessary actions to achieve and maintain financial soundness of WRES, AUES, and NREC, and submit to MOE for necessary actions; and
- (xi) provide ADB with project financial data, commentaries and recommendations as requested.

80. **Procurement Specialist** (national, 50 person-months). The procurement manager should have as a minimum a university degree in management, accounting, or related field with extensive demonstrated knowledge of procurement systems and processes. He/she should have at least 5 years of experience in procurement of civil works, goods and services in Mongolia preferably on ADB projects or other international agencies. Knowledge of ADB or other international donor organization procurement guidelines and procedures will be required. English language proficiency will be an advantage. The procurement specialist will report directly to the project manager and will work in close contact with the loan implementation consultants. His/her tasks and responsibilities include but are not limited to the following:

- (i) assist the project manager in procuring goods, works, and consultants as required by the project and in accordance with ADB Procurement Guidelines (2015, as amended from time to time) and ADB Guidelines on the Use of Consultants (2013, as amended from time to time);
- (ii) organize the procurement process and prepare the documentation including bidding documents in coordination and consultation with the project manager and the IAs;
- (iii) coordinate with the IAs and consultants to ensure that procurement activities are scheduled to support procurement requirements, and that the relevant documents are completed;
- (iv) provide assistance to the project manager and to the tender evaluation committee in the tendering process for the procurement under the project in accordance with ADB procurement guidelines, including: (a) preparation and publication of invitations to bid, (b) coordinate answers to bidders' queries, (c) evaluation of tenders, and (d) preparation of bid evaluation reports;
- (v) assist in addressing and providing answers to bidder queries and in organizing bidder site visits as needed;
- (vi) coordinate the processes of non-objection by ADB during evaluations of tenders and consultant's proposals;
- (vii) support the project coordinator in preparing the necessary documentation for contract signing and consultant and contractor mobilization; and
- (viii) carry out the annual review and update of the project procurement plan.



81. **Monitoring and Evaluation Officer** (national, 50 person-months). Monitoring and Evaluation officer in procurement and contract management should have as a minimum a university degree in management, accounting, or related field with extensive demonstrated knowledge of procurement systems and processes. He or she should have at least 5 years of experience in procurement of civil works, goods and services in Mongolia preferably on ADB projects or other international agencies. Knowledge of ADB or other international donor organization procurement guidelines and procedures will be required. English language proficiency will be an advantage. He/she will assist the procurement manager in all his/her duties for the project.

82. **Environment and Social Safeguard Officer** (national, 50 person-months). The environment and social safeguard manager will have preferably a university degree in environmental management or similar field and have a minimum of 10 years of experience in a relevant environmental and social safeguard and/or public participation and consultation position in a public institution or a non-governmental organization in Mongolia. He/she will be acquainted with Mongolian regulations and procedures and ADB policies on environmental impact assessment, environmental management and public consultation, managing local communities effectively. English language proficiency will be an advantage. The environment and social safeguard manager will report to the project manager and work closely with the loan implementation consultants. He/she will be the focal person to collect complaints and concerns from the community on environmental and social issues related to project implementation. The main tasks and responsibilities will be, but will not be limited to the following activities:

- (i) undertake day-to-day environment and social safeguard management activities including consultation, disclosure of safeguard documents following ADB and national requirements, supervision of the implementation of EMP, EMoP and the GRM;
- (ii) recruit a qualified national institute to prepare domestic EIAs;
- (iii) assist international and national environment consultants in preparing rapid environmental assessment checklists, IEEs, and CRVA for non-core subprojects for 5 MW wind power subproject in Telmen, 10 MW solar PV subproject in Moron, and shallow-ground heat pumps in four locations in cooperation with PMU;
- (iv) obtain domestic EIA approvals from MoET, and IEE and CRVA clearance from ADB;
- (v) make sure that all environmental safeguard obligations, mitigation measures and compensations (if any) as outlined in the EMP will be implemented in accordance with ADB and national requirements;
- (vi) be the focal person in the PMU for the community, residents and stakeholders for implementing the GRM and for receiving and recording grievances and complaints from stakeholders and residents;
- (vii) prepare CAPs if needed, and supervise the implementation of the CAPs;
- (viii) address grievances and complaints and ensure that all stakeholders and residents affected by the project are aware of and understand the proposed Project, its potential impacts and mitigation measures, verify that any complaints filed were resolved satisfactorily following national and ADB requirements, and that the stakeholders paid no fees for filing complaints at any administration level;
- (ix) provide information, cooperate closely and consult with the loan implementation consultants on all activities, grievances and complaints;
- (x) collect gender disaggregated data such as (i) gender-disaggregated data related to environment grievance are collected, (ii) female staff of energy supply operators have equal opportunities for and access to training, and (iii) the project management and implementation team is gender balanced and equitably paid.

- (xi) supervise and evaluate the implementation of environmental mitigation and monitoring measures as specified in the EMP;
- (xii) undertake the environmental monitoring as needed;
- (xiii) update EMP if there are any changes in project scope and design, and submit the revised EMP to ADB for approval; and
- (xiv) prepare environmental and social monitoring reports semi-annually during construction and annually during operation, and submit to ADB for disclosure.

83. **Wind Power Engineer** (national, 66 person-months). The wind power engineers should have a bachelor's degree in engineering with more than 7 years of experience in energy engineering and 3 years in wind power construction administration. The wind power engineer will report directly to the project manager to the PMU under MOE. The wind power engineers will be responsible for the activities under 10 MW wind power in Umnugovi (WRES), and 5 MW wind power in Telmen (AUES) respectively, and his/her tasks will include but not limited to the following:

- (i) liaise with all concerned ministries and agencies and ensure effective and timely project communication, coordination, meetings and approvals, and closely cooperate and coordinate with the PMU;
- (ii) assist the PMU and the consultant for ground wind measurement and feasibility study preparation for 5 MW wind in Telmen, and a preparation of domestic EIA, FSR, and IEE;
- (iii) assist the PMU in overseeing procurement and preparing reports as required during project implementation, including monthly, quarterly and annual reports;
- (iv) assist the PMU, consultants, contractors and stakeholder in facilitating implementation activities according to plan, schedule and budget;
- (v) assist the PMU and the consultant in preparation of technical specification and tender documents;
- (vi) assist the PMU in obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations enforced in Mongolia and in agreement with ADB procedures;
- (vii) assist the PMU in reviewing annual implementation and update implementation schedule and projection;
- (viii) in close coordination with the environment and social safeguard officer, assist the PMU in overseeing compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan;
- (ix) assist the PMU to ensure auditors' recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports; and
- (x) assist the PMU to prepare for quarterly progress reports, biannual environment monitoring report, and a project completion report following ADB guidelines 6 months after physical project completion.

84. **Hybrid Renewable Energy System Engineer** (national, 36 person-months). The engineer should have a bachelor's degree in engineering with more than 7 years energy engineering experience and 3 years of experience in construction administration and operation management of independent renewable system. The hybrid renewable energy system engineer will report directly to the project manager to the PMU under MOE. The hybrid renewable energy system engineer will be responsible for the activities under Altai-Soum Hybrid Renewable Energy System subproject (AUES), and his/her tasks will include but not limited to the following:

- (i) liaise with all concerned ministries and agencies and ensure effective and timely project communication, coordination, meetings and approvals, and closely cooperate and coordinate with the PMU;
- (ii) assist the PMU in overseeing procurement and preparing reports as required during project implementation, including monthly, quarterly and annual reports;
- (iii) assist the PMU, consultants, contractors and stakeholder in facilitating implementation activities according to plan, schedule and budget;
- (iv) assist the PMU and the consultant in preparation of technical specification and tender documents;
- (v) assist the PMU in obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations enforced in Mongolia and in agreement with ADB procedures;
- (vi) assist the PMU in reviewing annual implementation and update implementation schedule and projection;
- (vii) in close coordination with the environment and social safeguard officer, assist the PMU in overseeing compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan;
- (viii) assist the PMU to ensure auditors' recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports;
- (ix) In consultation with Altai-Soum local community, assist the PAU and the consultant team to prepare sustainable operation and maintenance strategy, and monitor its implementation for the initial two years for additional needy actions to be taken by AUES in order to ensure sustainable operation and maintenance of the hybrid system; and,
- (x) assist the PMU to prepare for quarterly progress reports, biannual environment monitoring report, and a project completion report following ADB guidelines 6 months after physical project completion.

85. **Solar PV Engineer** (national, 60 person-months). The wind power engineers should have a bachelor's degree in engineering with more than 7 years of energy engineering and 3 years experience in solar PV system construction administration. The solar PV engineers will report directly to the project manager to the PMU under MOE. The solar PV engineers will be responsible for the activities under 10 MW solar PV in Altai, 5 MW solar PV in Uliastai, and 10 MW solar PV in Moron, and his/her tasks will include but not limited to the following:

- (i) liaise with all concerned ministries and agencies and ensure effective and timely project communication, coordination, meetings and approvals, and closely cooperate and coordinate with the PMU;
- (ii) assist the PMU and the consultant for domestic EIA, FSR, and IEE preparation for 10 MW Solar PV subproject in Moron;
- (iii) assist the PMU in overseeing procurement and preparing reports as required during project implementation, including monthly, quarterly and annual reports;
- (iv) assist the PMU, consultants, contractors and stakeholder in facilitating implementation activities according to plan, schedule and budget;
- (v) assist the PMU and the consultant in preparation of technical specification and tender documents;
- (vi) assist the PMU in obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations enforced in Mongolia and in agreement with ADB procedures;

- (vii) assist the PMU in reviewing annual implementation and update implementation schedule and projection;
- (viii) in close coordination with the environment and social safeguard officer, assist the PMU in overseeing compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan;
- (ix) assist the PMU to ensure auditors' recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports; and
- (x) assist the PMU to prepare for quarterly progress reports, biannual environment monitoring report, and a project completion report following ADB guidelines 6 months after physical project completion.

86. **Shallow-Ground Heat Pump Engineer** (national, 48 person-months). The shallow-ground heat pump engineer should have a bachelor's degree in engineering with more than 7 years energy engineering experience and 3 years of experience in construction administration and operation management of shallow-ground heat pump system. The shallow-ground heat pump engineers will report directly to the project manager to the PMU under MOE. The shallow-ground heat pump engineers will be responsible for the activities under shallow-ground heat pump demonstration subcomponent (five locations in aimag centers in western and Altai Uliastai regions), and his/her tasks will include but not limited to the following:

- (i) liaise with all concerned ministries and agencies and ensure effective and timely project communication, coordination, meetings and approvals, and closely cooperate and coordinate with the PMU;
- (ii) Assist the PMU and the consultant to identify the four sites for shallow-ground heat pump installation, and to prepare domestic EIA, FSR, and IEE;
- (iii) assist the PMU in overseeing procurement and preparing reports as required during project implementation, including monthly, quarterly and annual reports;
- (iv) assist the PMU, consultants, contractors and stakeholder in facilitating implementation activities according to plan, schedule and budget;
- (v) assist the PMU and the consultant in preparation of technical specification and tender documents;
- (vi) assist the PMU in obtaining licenses, permits of construction, rights of access to land and other compulsory administrative steps as needed by the relevant regulations enforced in Mongolia and in agreement with ADB procedures;
- (vii) assist the PMU in reviewing annual implementation and update implementation schedule and projection;
- (viii) in close coordination with the environment and social safeguard officer, assist the PMU in overseeing compliance with the social and environmental loan and project agreement covenants, and the implementation of the environmental management plan;
- (ix) assist the PMU to ensure auditors' recommendations are implemented and approve proposed action in the event of adverse financial audits or monitoring and evaluation reports;
- (x) In consultation with local communities, assist the PAU and the consultant team to prepare sustainable operation and maintenance strategy, and monitor its implementation for the initial first year for additional needy actions to be taken by local communities in order to ensure sustainable operation and maintenance; and
- (xi) assist the PMU to prepare for quarterly progress reports, biannual environment monitoring report, and a project completion report following ADB guidelines 6 months after physical project completion.

## VII. SAFEGUARDS

87. **Environment.** The project is classified category B for environment. For the entire sector loan, an EARF has been prepared in accordance with ADB's SPS 2009 and government regulations. An IEE including an EMP has also been prepared for core subprojects following national and ADB requirements. The EARF and IEE will be disclosed on ADB, EA and IAs' websites. Any update in the IEE from a change in project scope will be similarly disclosed.

88. The project is not expected to cause significant adverse environmental impacts. During construction, such risks would include (i) soil erosion; (ii) construction noise and dust affecting local residents; (iii) inappropriate storage of construction materials and wastes; (iv) waste water; and (v) safety to construction workers and community. During operation, limited adverse impacts are anticipated, except for occupational and community health and safety due to unexpected accident like lightening. The IEE concludes that those impacts can be mitigated through the implementation of the EMP,<sup>17</sup> which specifies mitigation measures, monitoring requirements, and institutional responsibilities for ensuring proper environmental management throughout the project's construction and operation. The EA and IAs are committed to managing the identified environmental risks and have agreed on a comprehensive set of environment-related loan covenants and a training program with strong emphasis on environment safeguards. IAs will prepare environmental monitoring reports semi-annually during construction and annually during operation. These monitoring reports will be disclosed on ADB website as required by SPS 2009 and Public Communications Policy 2011. If any unanticipated environmental and/or social risks and impacts occur during Project construction or operation, PMU should promptly inform ADB in writing of the occurrence of such risks or impacts, with detailed description of the event and proposed action plans, which shall be incorporated in the updated IEEs and EMPs.

89. Meaningful public consultation was conducted in accordance with ADB's SPS 2009. Consultation with project stakeholders will continue through pre-construction, construction and operation stages. A GRM will be established before the project commences. Potential environmental complaints or disputes will be handled in accordance with the GRM. All complaints related documentation such as minutes of the meetings and decisions will be summarized and included in the environmental monitoring reports submitted to ADB.

90. IAs will retain project management consultants and an external environment monitoring organization licensed by the MoET to assist in monitoring the implementation of EMP, preparing environmental monitoring reports, and delivering training to EA, IAs and contractors.

91. A rapid climate risk assessment concludes that climate risk is *medium*, and the most significant risk to the project areas and their vicinities relates to flood and permafrost. The system configuration design considered such climate change risks and will be further reviewed during the detailed design.

92. **Involuntary resettlement and indigenous peoples.** The project is classified category C for involuntary resettlement and indigenous peoples. The project does not entail permanent or temporary land acquisition, land use restriction, demolition of any structure, or relocation of people. All subprojects are either inside the existing substation premises or the government owned land. The project will be implemented in a large urban area with no ethnic minority communities; various ethnic groups are mixed and together and there is no significant difference

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<sup>17</sup> The Government will make available, and cause the IAs to make available, necessary budgetary and human resources to fully implement the EMP.

on lifestyle, socioeconomic status, or vulnerability between individuals of ethnic majority and minorities. Thus, it is not expected to have any impact on ethnic minorities. In the event that the project or any subproject does have any such impact, the Government will take all steps required to ensure that the project complies with the applicable laws and regulations of the Government and with ADB's SPS.

93. An EARF, resettlement framework, and indigenous peoples planning framework have been prepared to guide subproject preparation and implementation of safeguards plans of subprojects.

94. All bidding documents and Works contracts shall contain relevant clauses regarding environmental and social safeguards. EA and IAs shall ensure that contract documents include IEE/EMP.

95. **Prohibited investment activities.** Pursuant to ADB's SPS, ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.

## VIII. GENDER AND SOCIAL DIMENSIONS

96. The project will directly benefit 258,313 population (including 118,960 female population) or 50% of population in the targeted regions through the distributed renewable energy system development. The project will have a positive social impact by avoiding air pollution associated with coal use for power generation. By providing cleaner and more affordable electricity while reducing air pollution associated with coal use in power generation, the project will have a positive social impact. A side benefit will be the generation of employment opportunities for the local population—2,365 person-months per year during construction and 450 jobs per year during operation and maintenance. Priority will be given to low-income and unemployed females in local communities adjacent to the project sites. Bid document includes such employment requirements to cause the contractor to prioritize employing such vulnerable group.

## IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

### DESIGN AND MONITORING FRAMEWORK FOR THE PROJECT

<b>Impact the Project Is Aligned With</b>			
Greenhouse gas emissions reduced and imported electricity reduced (State Policy on Energy, 2015–2030) <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Risks</b>
<p><b>Outcome</b> Clean sources of energy supply in the country increased</p>	<p>a. Renewable energy makes up 20% of total installed capacity by 2023 (2018 baseline: 11.3%)</p> <p>b. Additional 258,313 people connected to clean electricity supply by 2023 (2018 baseline: 271,227 people)</p> <p>c. Additional carbon dioxide emissions reduced by 87,968 tons equivalent annually by 2023 (2018 baseline: Not applicable)</p>	<p>a–c. Annual statistics on energy performance of the Energy Regulatory Commission</p>	<p>Changes in climate lead to insufficiency of solar, wind, and underground heat resources, preventing the generation of electricity as planned</p>
<p><b>Output</b> 1. Distributed renewable energy system developed</p> <p>2. Shallow-ground heat pump system developed</p>	<p>1a. Core subprojects install 10 MW of distributed renewable energy capacity in the western grid system, and 15.5 MW capacity with battery storage in the Altai–Uliastai grid system by 2021<sup>b</sup> (2018 baseline: 0 MW)</p> <p>1b. Noncore subprojects install 15 MW of distributed renewable energy capacity in Altai–Uliastai grid system by 2022<sup>c</sup> (2018 baseline: 0 MW)</p> <p>2a. 500 kilowatts of shallow-ground heat pumps are installed in the five selected <i>aimag</i> (province) centers by 2023 (2018 baseline: 0 MW)</p>	<p>1a–1b. Annual statistics on energy performance of the Energy Regulatory Commission</p> <p>1a–1b. Quarterly progress reports</p> <p>1a–1b. Back-to-office report of the midterm review mission</p> <p>1a–1b. Project completion report</p> <p>2a. Annual statistics on energy performance of the Energy Regulatory Commission</p> <p>2a. Quarterly progress reports</p> <p>2a. Back-to-office report of the midterm review mission</p>	<p>Tight fiscal space because of a continued economic slowdown delays implementation of the project</p>



Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
3. Institutional framework strengthened and organizational capacity enhanced	<p>3a. Capacity development training provided for at least 50 counterpart engineers and operators for Western Region Energy System State-Owned Joint Stock Company and Altai-Uliastai Region Energy System State-Owned Joint Stock Company by 2023 (2018 baseline: Not applicable)</p> <p>3b. A renewable investment plan for 2023–2030 and amendments to the Law on Renewable Energy drafted by 2023 (2018 baseline: Not applicable)</p>	<p>2a. Project completion report</p> <p>3a–3b. Quarterly progress reports</p> <p>3a–3b. Back-to-office report of the midterm review mission</p> <p>3a–3b. Project completion report</p>	
<p><b>Key Activities with Milestones</b></p> <p><b>1. Distributed renewable energy system developed</b></p> <p>1.1 Operationalize the project management unit in the Ministry of Energy (Q4 2018)</p> <p>1.2 Complete the selection of consultants for project management and capacity enhancement (Q4 2018)</p> <p>1.3 Conduct bidding process for batch 1: Umunogovi wind power, Altai City Solar PV, Altai Soum Solar PV and wind hybrid system, and Uliastai Solar PV (Q4 2018)</p> <p>1.4 Undertake construction work and test run for subprojects in batch 1 (Q4 2020)</p> <p>1.5 Start commercial operation for subprojects in batch 1 (Q1 2021)</p> <p>1.6 Complete implementation of batch 1 (Q2 2021)</p> <p>1.7 Conduct bidding process for batch 2: Telmen Wind power and Moron Solar PV (Q3 2019)</p> <p>1.8 Undertake construction work and test run for subprojects in batch 2 (Q4 2021)</p> <p>1.9 Complete implementation of batch 2 (Q2 2022)</p> <p><b>2. Shallow-ground heat pump system developed</b></p> <p>2.1 Operationalize the project management unit in the Ministry of Energy (Q4 2018)</p> <p>2.2 Complete the selection of consultants for project management and capacity enhancement (Q4 2018)</p> <p>2.3 Prepare detailed engineering design for subproject in batch 1: 100 kW in Hovd (Q3 2018)</p> <p>2.4 Conduct bidding process for batch 1 (Q3 2018)</p> <p>2.5 Complete implementation of batch 1 (Q4 2019)</p> <p>2.6 Complete implementation of batch 2: 200 kW in the other soum centers (Q2 2021)</p> <p>2.7 Complete implementation of batch 3: 200 kW in the other soum centers (Q2 2023)</p> <p><b>3. Institutional framework strengthened and organizational capacity enhanced</b></p> <p>3.1 Complete selection of consultants for project management and capacity enhancement (Q4 2018)</p> <p>3.2 Prepare for capacity development training program (Q4 2018)</p> <p>3.3 Implement capacity development training (Q1 2022)</p> <p>3.4 Prepare renewable energy investment plan for 2023–2030 (Q1 2023)</p> <p>3.5 Draft amendments to the Law on Renewable Energy, passed in 2007 and amended in 2015 (Q1 2023)</p>			
<p><b>Inputs</b></p> <p>Asian Development Bank: \$40.00 million (loan)</p>			

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Japan Fund for the Joint Crediting Mechanism: \$6.00 million (grant) Strategic Climate Fund: \$14.60 million (grant) Government of Mongolia: \$5.62 million			
<b>Assumption for Partner Financing</b>			
Not Applicable			

MW = megawatt, Q = quarter.

<sup>a</sup> Government of Mongolia. 2015. *State Policy on Energy, 2015–2030*. Ulaanbaatar.

<sup>b</sup> 10 MW of Umnogovi wind power in the western region, 10 MW of Altai solar photovoltaic power, 0.5 MW of Altai *soum* (county) renewable energy system with battery storage, and 5 MW of Uliastai solar photovoltaic power with battery storage in the Altai–Uliastai region.

<sup>c</sup> 10 MW of Moron solar photovoltaic power and 5 MW of Telmen wind power.

Source: Asian Development Bank.

## A. Monitoring

97. **Project performance monitoring.** A project performance management system has been prepared, including a set of measurable indicators based on the project design, impact, and risks. The indicators include (i) distributed renewable energy capacity and installation, and (ii) carbon emission reduced. Performance in meeting the proposed indicators will be reported in the quarterly progress reports, the two environmental reports every year during construction and the annual environmental report during operation, and/or the annual report on resettlement and social objectives, as suitable. These quarterly reports will provide information necessary to update ADB's project performance reporting system.<sup>18</sup> The monitoring and evaluation system will include specific and measurable targets and identify key risks and institutional arrangements for effective monitoring. One month before the midterm review, the IAs will submit to ADB a comprehensive report on each of these issues.

98. **Compliance monitoring.** MOE through the PMU, and the project management consultants, will conduct compliance monitoring concerning the use of the loan and grant proceeds, project implementation, and compliance of loan and project covenants. The findings of the monitoring should be included in the (i) quarterly progress reports on project implementation, (ii) a report for midterm review, and (iii) a project completion report.

99. **Safeguards monitoring.** PMU will coordinate the environmental and land acquisition management issues (if any) during construction and operation. PMU will submit safeguards monitoring reports semi-annually during construction and annually during operation. If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs and the EMPs, MOE and the IAs will promptly inform ADB of the occurrence of such risk or impact, with detailed description of the event and proposed corrective action plan; and report any actual or potential breach of compliance with the measures and requirements set forth in the EMPs promptly after becoming aware of the breach. EA/IAs shall facilitate access to project sites for ADB to undertake supervision and monitoring activities.

100. **Gender and social dimensions monitoring.** The Government will strictly monitor compliance with the requirements on gender and social monitoring. The principles of gender equity aimed at increasing project benefits and impacts on women in the project area consistent

<sup>18</sup> ADB's project performance reporting system is available at <http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

with ADB's Policy on Gender and Development (1998) will be followed during implementation of the project, including (a) equal pay to men and women for work of equal value; (b) enabling working conditions for women workers; and (c) taking necessary actions to encourage women living in the Project area to participate in the design and implementation of Project activities.

101. **Labor standards, health and safety.** Core labor standards and the applicable laws and regulations of the Government will be complied with during project implementation. Specific provisions in the bidding documents and contracts financed by ADB under the Project include that the contractors, among other things: (a) comply with the applicable labor law and regulations of the Government and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; (e) allow freedom of association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the project and to members of the local communities surrounding the Project area, particularly women.

102. **Financial management and tariffs.** The IAs will carry out the following measures to maintain sound financial management: (a) the establishment of separate project accounts, (b) the maintenance of minimum balances to ensure smooth cash flow, and (c) the timely settlement of project construction liabilities and future debt servicing. In particular, the IAs should achieve and maintain the financial indicators set forth in the Schedule to the Project Agreement.

103. The Government will regularly review the financial position of the IAs to ensure overall financial health. The Government will cause the IAs to: (a) annually prepare its projected financial performance based on the prevailing electricity tariff; (b) estimate the additional resources required for it to fully achieve the financial indicators set forth in the Project Agreement; (c) submit tariff adjustment proposal to the Energy Regulatory Commission for approval; and (d) submit a request to the Government for subsidy in case the approved tariff adjustment should prove to be insufficient to achieve and maintain the financial indicators set forth above.

104. If, in the opinion of ADB, it appears that any of the IAs cannot meet the financial requirements indicated in the Project Agreement or cannot meet any debt service obligations, the Government will take appropriate measures for such IAs to strengthen their financial management systems, including, but not limited to, provision of necessary financing to the concerned IAs, equity injections, subsidy and tariff increases. The Government will regularly review electricity and heat tariff adjustment to achieve full cost recovery in accordance with the first stage target under the Government's State Policy on Energy 2015-2023.

105. **Change in ownership.** In the event of (a) any change in ownership of the project facilities, or (b) any sale, transfer or assignment of shares or interest or other change of control in any of the IAs is anticipated, the Government will consult, and cause such IAs to consult, with ADB at least 6 months prior to the implementation of such change. The Government will ensure, and cause the concerned IAs to ensure, that such change be carried out in a lawful and transparent matter. The Government will further cause such IAs to ensure that their new controlling management complies with (a) all project-related agreements executed between ADB and the Government, or the IAs; and (b) the policies of ADB relevant to the project.

## **B. Evaluation**

106. ADB will undertake annual project reviews between 2019 and 2023. Additionally, ADB,

MOE, WRES, AUES, and NREC will undertake a midterm review of the project covering all institutional, administrative, organizational, technical, environmental, social, poverty reduction, resettlement, economic, financial, procurement, and other relevant aspects that may have an impact on the performance of the project and its continuing viability. The review will (i) examine the progress in sector reform; (ii) evaluate environment and social impact; (iii) ensure compliance with assurances in the loan agreement; and (iv) evaluate effectiveness of the procurement implementation activities of the MOE and the IAs using procurement review for effective implementation evaluation. The review shall also undertake a comprehensive review of potential loan savings, identify areas for reallocation of loan proceeds, and changes on disbursement percentages, as appropriate. Within 6 months of physical completion of the project, MOE will submit a project completion report to ADB.<sup>19</sup>

### C. Reporting

107. The PMU will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) compiled annual reports including (a) the use of the loan and grant proceeds, (b) progress achieved by output as measured through the indicator's performance targets, (c) key implementation issues and solutions, (d) updated procurement plan, (e) updated implementation plan for the next 12 months, and (f) status of compliance with loan/grant covenants (Appendix 1); and (iii) a project completion report within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, the compiled project accounts and audited financial statements together with the associated auditor's report, should be adequately reviewed and submitted to ADB within 6 months at the end of the fiscal year. In addition, the IAs will also submit environmental monitoring reports every 6 months during construction and annually during operation. The table below summarizes the key reporting requirements during project implementation.

**Table 22: Summary of Key Reporting Requirements during Implementation**

<b>Name of Report/Document</b>	<b>Timing of Reporting</b>
Quarterly progress reports on project implementation, with the fourth quarter reports serving as the annual reports for the years concerned	Every 3 months from effectiveness until completion
Safeguards monitoring reports -environmental monitoring report	Until the loan completion -every 6 months during project construction and annually during operation
Audited financial statements and audited project accounts, auditor's report (including auditor's opinion)	Before 30 June following each financial reporting period from effectiveness to closing date
Audited entity financial statements, together with the auditor's report and management letter	One month after approval by relevant authorities
Project completion report	Within 6 months after project completion

### D. Stakeholder Communication Strategy

108. The stakeholder communication strategy is described below. ADB and MOE will disclose all relevant project information. At the minimum, this includes all information regarding the bidding process, bidders, contract awards, use of funds disbursed under the project, environment and social safeguard monitoring, and physical progress.

<sup>19</sup> Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

109. During project implementation, contractors and environment consultants will consult with relevant authorities, residents in affected communities, and other stakeholders, if necessary, to accommodate any environmental concern and to check effectiveness of mitigation measures through regular dialogues, impact surveys, and/or GRM.

**Table 23: Stakeholder Communication Strategy**

<b>Information</b>	<b>Means of Communication</b>	<b>Responsibility</b>	<b>Audience</b>	<b>Frequency</b>
Report and Recommendation of the President with links to relevant documents	ADB website	ADB	ADB, Government of Mongolia	Once
Project information during design and construction phase	Stakeholder consultations and public notice board	MOE	Project beneficiaries	Regular intervals during design and construction phase
Environmental monitoring reports and updated IEE/EMP	ADB website, EA/IAs' website and other means accessible to affected people and project beneficiaries	ADB	Affected people and other interested stakeholders	Semi-annual
Project Performance Reports and Project Information Documents	ADB website	ADB	ADB, Government, civil society and individuals	Quarterly
Tariff reform	Local media	MOE	Civil society and individuals	A public campaign has been implemented by the government and will continue.
Quarterly progress reports	ADB website	ADB	ADB, Government, civil society and individuals	Quarterly
Project Completion Report	ADB website	ADB	ADB, Government of Mongolia	Once

ADB = Asian Development Bank, EMP = environmental management plan, MOE = Ministry of Energy.  
Source: Asian Development Bank and Ministry of Energy.

## X. ANTICORRUPTION POLICY

110. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.<sup>20</sup> MOE and the IAs agrees to fully cooperate with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. Periodic inspections of the project contractors' activities related to fund withdrawals and settlements are carried out. All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.<sup>21</sup>

111. To support these efforts, relevant provisions of ADB's Anticorruption Policy (1998, as amended to date) are included in the loan and grant agreements and the bidding documents for the project. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government, MOE, WRES, AUES, and NREC. Relevant provisions are included in the proposed assurances and conditions.

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<sup>20</sup> Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

<sup>21</sup> ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

## XI. ACCOUNTABILITY MECHANISM

112. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.<sup>22</sup>

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<sup>22</sup> Accountability Mechanism. <http://www.adb.org/Accountability-Mechanism/default.asp>.

## **XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL**

113. The project administration manual is a living document and is subject to change after ADB Board approval of the project's report and recommendation of the President. It is concise yet informative, providing checklists of all activities related to project implementation along with the necessary procedures for the PMU to effectively implement and monitor the project.

<b>No.</b>	<b>Changes/Updates</b>	<b>Date</b>	<b>Remarks</b>
1	PAM initial draft agreed	May 2018	Agreed during the loan fact-finding mission
2.	Amended PAM draft agreed	July 2018	Agreed amendment during loan and grant negotiation



### APPENDIX 1: LOAN AND GRANT COVENANTS

Covenant	Reference in Legal Agreement	Type
In the carrying out of the Project and operation of the Project facilities, the Borrower, through the Project Executing Agency, shall perform, or cause to be performed, all obligations set forth in Schedule 5 to this Loan Agreement and the Project Agreement.	LA, Art IV, Section 4.01	Others
<p>(a) The Project Implementing Agencies shall carry out the Project with due diligence and efficiency, and in conformity with sound applicable technical, financial, business, and development practices.</p> <p>(b) In the carrying out of the Project and operation of the Project facilities, the Project Implementing Agencies shall perform all obligations set forth in the Loan Agreement and the Grant Agreements to the extent that they are applicable to the Project Implementing Agencies, and all obligations set forth in the Schedule to this Project Agreement.</p>	PA, Art II, Section 2.01	Others
In the carrying out of the Project and operation of the Project facilities, the Recipient, through the Project Executing Agency, shall perform, or cause to be performed, all obligations set forth in Schedule 5 to the Loan Agreement.	SCF GA, Art IV, Section 4.01	Others
In the carrying out of the Project and operation of the Project facilities, the Recipient, through the Project Executing Agency, shall perform, or cause to be performed, all obligations set forth in Schedule 2 to this Grant Agreement and Schedule 5 to the Loan Agreement.	JFJCM GA, Art IV, Section 4.01	Others
The Borrower shall enable ADB's representatives to inspect the Project, the Goods, and any relevant records and documents.	LA, Art IV, Section 4.02	Others
The Recipient shall enable ADB's representatives to inspect the Project, the Goods, and any relevant records and documents in relation to the Project.	SCF GA, Art IV, Section 4.02  JFJCM GA, Art IV, Section 4.02	Others
(a) The Borrower shall (i) maintain separate accounts and records for the Project; (ii) prepare annual financial statements for the Project in accordance with financial reporting standards acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report, which includes the auditors' opinion(s) on the financial statements and the use of the Loan proceeds, and a management letter (which sets out the deficiencies in the internal control of the Project that were identified in the course of the audit, if any); and (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited financial	LA, Art IV, Section 4.03	Others

Covenant	Reference in Legal Agreement	Type
<p>statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(b) ADB shall disclose the annual audited financial statements for the Project and the opinion of the auditors on the financial statements within 14 days of the date of ADB's confirmation of their acceptability by posting them on ADB's website.</p> <p>(c) The Borrower shall enable ADB, upon ADB's request, to discuss the financial statements for the Project and the Borrower's financial affairs where they relate to the Project with the auditors appointed pursuant to subsection (a)(iii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of the Borrower, unless the Borrower shall otherwise agree.</p>		
<p>The Borrower shall take all actions which shall be necessary on its part to enable the Project Implementing Agencies to perform their obligations under the Project Agreement, and shall not take or permit any action which would interfere with the performance of such obligations.</p>	LA, Art IV, Section 4.04	Others
<p>(a) The Borrower shall exercise its rights under the Subsidiary Loan Agreements and Subgrant Agreements in such a manner as to protect the interests of the Borrower and ADB and to accomplish the purposes of the Loan.</p> <p>(b) No rights or obligations under the Subsidiary Loan Agreement and Subgrant Agreements shall be assigned, amended, abrogated or waived without the prior concurrence of ADB.</p>	LA, Art IV, Section 4.05	
<p><u>Implementation Arrangement</u></p> <p>The Borrower shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM will become effective only after approval of such change by the Borrower and ADB. In the event of any discrepancy between the PAM and the Loan Agreement, the provisions of this Loan Agreement will prevail.</p>	LA, Sch 5, para. 1	Others
<p>The Project Implementing Agencies shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Borrower and ADB. In the event of any discrepancy between the PAM and the Project Agreement, the provisions of the Project Agreement shall prevail.</p>	PA, Sch, para 1	Others
<p>The Recipient, through the Project Executing Agency, shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the</p>	JFJCM GA, Sch 2, para. 1	Others

Covenant	Reference in Legal Agreement	Type
Recipient and ADB. In the event of any discrepancy between the PAM and the Grant Agreement, the provisions of the Grant Agreement shall prevail.		
<p><u>Environmental</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure, through project executing agency, cause the Project Implementing Agencies to ensure, that the preparation, design, construction, implementation, operation and decommissioning of each Subproject, and that all Project facilities comply with (a) all applicable laws and regulations of the Government relating to environment, health and safety; (b) the Environmental Safeguards; (c) the ESARF; and (d) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report, or (ii) as subsequently agreed between ADB and the Borrower.</p>	LA, Sch 5, para. 2	Safeguards
<p><u>Land Acquisition and Indigenous Peoples</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure that the Project or any Subproject thereto does not have any involuntary resettlement or indigenous peoples impacts, within the meaning of the Safeguard Policy Statement. In the event that the Project or any Subproject does have any such impact, the Borrower will take all steps required to ensure that the Project complies with the applicable laws and regulations of the Government and with the Safeguard Policy Statement.</p>	LA, Sch 5, para. 3	Social
<p><u>Human and Financial Resources to Implement Safeguards Requirements</u></p> <p>The Borrower, through the Project Executing Agency, shall make available, and cause the Project Implementing Agencies to make available, necessary budgetary and human resources to fully implement the EMPs.</p>	LA, Sch 5, para. 4	Social
<p><u>Safeguards-Related Provisions in Bidding Documents and Works Contracts</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure, and cause the Project Implementing Agencies to ensure, that all bidding documents and Works contracts contain provisions that require contractors to:</p> <ul style="list-style-type: none"> <li>(a) comply with the measures relevant to the contractor set forth in the IEEs and the EMPs, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report, or (ii) as subsequently agreed between ADB and the Borrower;</li> <li>(b) make available a budget for all such environmental and social measures; and</li> <li>(c) provide the Borrower or the Project Implementing</li> </ul>	LA, Sch 5, para. 5	Safeguards

Covenant	Reference in Legal Agreement	Type
<p>Agencies, as the case may be, with a written notice of any unanticipated environmental risk or impact that arise during construction, implementation or operation of the project that were not considered in the IEEs and the EMPs.</p>		
<p><u>Safeguards Monitoring and Reporting</u></p> <p>The Borrower, through the Project Executing Agency shall do, or cause the Project Implementing Agencies to do, the following:</p> <ul style="list-style-type: none"> <li>(a) submit Safeguards Monitoring Reports to ADB semi-annually during construction and the implementation of the Project and the EMPs, and thereafter annually during operation, until the issuance of ADB's Project completion report unless a longer period is agreed in the EMPs, and disclose relevant information from such reports to respective affected people under Environmental Safeguards promptly upon submission;</li> <li>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs and the EMPs, promptly inform ADB of the occurrence of such risk or impact, with detailed description of the event and proposed corrective action plan; and</li> <li>(c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMPs promptly after becoming aware of the breach.</li> </ul>	LA, Sch 5, para. 6	Safeguards
<p><u>Safeguards - Prohibited List of Investments</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure, and cause the Project Implementing Agencies to ensure, that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the Safeguards Policy Statement.</p>	LA, Sch 5, para. 7	Safeguards
<p><u>Labor Standards, Health and Safety</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure that the core labor standards and the applicable laws and regulations of the Government are complied with during Project implementation. The Borrower, through the Project Executing Agency, shall cause the Project Implementing Agencies to include specific provisions in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with the applicable labor law and regulations of the Government and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; (e) allow freedom of association and effectively</p>	LA, Sch 5, para. 8	Social

Covenant	Reference in Legal Agreement	Type
recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.		
The Borrower, through the Project Executing Agency, shall strictly monitor compliance with the requirements set forth in paragraph 8 above and provide ADB with regular reports in accordance with the PAM.	LA, Sch 5, para. 9	Social
<p><u>Gender</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure that the principles of gender equity aimed at increasing Project benefits and impacts on women in the Project area consistent with ADB's Policy on Gender and Development (1998) are followed during implementation of the Project, including (a) equal pay to men and women for work of equal value; (b) enabling working conditions for women workers; and (c) taking necessary actions to encourage women living in the Project area to participate in the design and implementation of Project activities.</p>	LA, Sch 5, para. 10	Social
<p><u>Counterpart Funding</u></p> <p>The Borrower, through the Project Executing Agency, shall provide, and cause the Project Implementing Agencies to provide, counterpart funding in a timely manner, including any additional counterpart funding required for any shortfall of funds or cost overruns. The Borrower shall ensure, and cause the Project Implementing Agencies to ensure, that O&amp;M of all Project facilities is fully funded without any delay.</p>	LA, Sch 5, para. 11	Financials
In addition to the foregoing, the Borrower, through the Project Executing Agency, shall ensure that the Project Implementing Agencies have sufficient funds to satisfy its liabilities arising from any Works, Goods and/or Consulting Services contract.	LA, Sch 5, para. 12	Financials
<p><u>Use of Project Administration Costs</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure that staff/consultants using the Project administration costs shall be engaged in accordance with the Consulting Guidelines, including, but not limited to, prior review of ADB.</p>	LA, Sch 5, para. 13	
<p><u>Financial Management and Tariffs</u></p> <p>The Borrower, through the Project Executing Agency, shall cause the Project Implementing Agencies to carry out the following measures to maintain sound financial management: (a) the establishment of separate Project accounts, (b) the maintenance of minimum balances to ensure smooth cash flow, and (c) the timely settlement of Project construction liabilities and future debt servicing. In particular, the Borrower shall cause the Project Implementing Agencies to achieve and maintain the financial indicators set forth in the Schedule to the Project Agreement.</p>	LA, Sch 5, para. 14	Financials

Covenant	Reference in Legal Agreement	Type
<p>The Borrower, through the Project Executing Agency, shall regularly review the financial position of the Project Implementing Agencies to ensure overall financial health. The Borrower, through the Project Executing Agency, shall cause the Project Implementing Agencies to: (a) annually prepare its projected financial performance based on the prevailing electricity tariff; (b) estimate the additional resources required for them to fully achieve the financial indicators set forth in the Project Agreement; (c) submit tariff adjustment proposal to the Energy Regulatory Commission for approval; and (d) submit a request to the Borrower for subsidy in case the approved tariff adjustment should prove to be insufficient to achieve and maintain the financial indicators set forth in the Project Agreement.</p>	LA, Sch 5, para. 15	Financials
<p>If, in the opinion of ADB, it appears that any of the Project Implementing Agencies cannot meet the requirements as set forth in the Project Agreement or cannot meet any debt service obligations, the Borrower, through the Project Executing Agency, shall take appropriate measures for such Project Implementing Agencies to strengthen their financial management systems, including provision of necessary financing to the concerned Project Implementing Agencies, equity injections, subsidy and tariff increases. Notwithstanding the foregoing, the Borrower, through the Project Executing Agency, shall regularly review electricity tariff adjustment to achieve full cost recovery in accordance with the first stage target under the Borrower's State Policy on Energy 2015-2023.</p>	LA, Sch 5, para. 16	Financials
<p><u>Governance and Anticorruption</u></p> <p>The Government (a) acknowledges ADB's right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and (b) agrees to cooperate, and will cause the Project Implementing Agencies and all other government offices, organizations and entities involving in implementing the Project to cooperate, fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. In particular, the Borrower, through the Project Executing Agency, shall ensure, or cause to be ensured, that (a) periodic inspections of the Project contractors' activities related to fund withdrawals and settlements are carried out; (b) relevant provisions of ADB's Anticorruption Policy (1998, as amended to date) are included in all bidding documents for the Project; and (c) contracts, financed under the Project, include provisions specifying the right of ADB to audit and examine the records and accounts of the Government, the Project Implementing Agencies, contractors, suppliers, consultants, and other service providers as they relate to the Project.</p>	LA, Sch 5, para. 17	Others
<p><u>Change in Ownership</u></p> <p>In the event of (a) any change in ownership of the Project facilities, or (b) any sale, transfer or assignment of shares or interest or other change of control in any of the Project Implementing Agencies is anticipated, the Borrower, through the Project Executing Agency, shall consult, and</p>	LA, Sch 5, para. 18	Others

Covenant	Reference in Legal Agreement	Type
<p>cause such Project Implementing Agencies to consult, with ADB at least 6 months prior to the implementation of such change. The Borrower, through the Project Executing Agency, shall ensure, and cause the concerned Project Implementing Agencies to ensure, that such change be carried out in a lawful and transparent matter. The Borrower shall further cause such Project Implementing Agencies to ensure that their new controlling management complies with (a) all Project related agreements executed between ADB and the Government, or the Project Implementing Agencies; and (b) the policies of ADB relevant to the Project.</p>		
<p><u>Subproject Selection Criteria and Procedures</u></p> <p>The Borrower, through the Project Executing Agency, shall ensure that a Subproject meets the following criteria and is selected in accordance with the detailed arrangements set forth in the PAM.</p> <ul style="list-style-type: none"> <li>(a) the Subproject demonstrates technical viability with resource assessment, electricity yield forecasting, electricity load demand forecasting, geological and topological assessment, capital and operation and maintenance costs estimates, layout design, and grid integration simulation. For shallow-ground heat pump subprojects, technical viability is demonstrated with the geo-technical surveys. In addition, the installation shall be made in the well-insulated public buildings in accordance with the applicable building code under the Ministry of Construction and Urban Development;</li> <li>(b) a Subproject must be economically viable and shall have demonstrated an economic internal rate of return (EIRR) equal to or greater than 9%, or with EIRR of not less than 6% for subprojects with significant unquantifiable benefits. An economic analysis is conducted in accordance with ADB's Guidelines for the Economic Analysis of Projects (2017, as amended from time to time). Each subproject will be assessed for its contribution to: (i) savings in electricity imports, (ii) savings in transmission losses, and (iii) savings in reduced carbon dioxide emissions;</li> <li>(c) for a Subproject, the financial rate of return is greater than weighted average cost of capital, and must be robust under various adverse conditions, and the subproject investment cost, operation and maintenance cost, and cash inflows are clearly presented and reasonable. The electricity tariff to be applied shall be set at the latest end-users' tariff; and</li> <li>(d) a Subproject is categorized B or C for environment impact under Environmental Safeguards and C for both involuntary resettlement and indigenous peoples impacts under the Safeguard Policy Statement.</li> </ul>	<p>LA, Sch 5, para. 19</p>	<p>Others</p>
<p>The Project Implementing Agencies shall make available, promptly as needed, the funds, facilities, services, land and other</p>	<p>PA, Art II, Section 2.02</p>	<p>Others</p>

Covenant	Reference in Legal Agreement	Type
resources as required, in addition to the proceeds of the Loan and the Grants, for the carrying out of the Project.		
<p>(a) In the carrying out of the Project, the Project Implementing Agencies shall employ competent and qualified consultants and contractors, acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB.</p> <p>(b) Except as ADB may otherwise agree, the Project Implementing Agencies shall procure all items of expenditures to be financed out of the proceeds of the Loan and the Grants in accordance with the provisions of Schedule 4 to the Loan Agreement. ADB may refuse to finance a contract where any such item has not been procured under procedures substantially in accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not satisfactory to ADB.</p>	PA, Art II, Section 2.03	Others
The Project Implementing Agencies shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. The Project Implementing Agencies shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	PA, Art II, Section 2.04	Others
<p>(a) The Project Implementing Agencies shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance against such risks and in such amounts as shall be consistent with sound practice.</p> <p>(b) Without limiting the generality of the foregoing, the Project Implementing Agencies undertakes to insure, or cause to be insured, the Goods to be imported for the Project against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such Goods.</p>	PA, Art II, Section 2.05	Others
The Project Implementing Agencies shall maintain, or cause to be maintained, records and accounts adequate to identify the items of expenditure financed out of the proceeds of the Loan and the Grants, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, their operations and financial condition.	PA, Art II, Section 2.06	Financials
<p>(a) ADB and the Project Implementing Agencies shall cooperate fully to ensure that the purposes of the Loan and the Grants will be accomplished.</p> <p>(b) The Project Implementing Agencies shall promptly inform ADB of any condition which interferes with, or threatens to interfere with, the</p>	PA, Art II, Section 2.07	Others



Covenant	Reference in Legal Agreement	Type
<p>progress of the Project, the performance of their obligations under this Project Agreement or the Subsidiary Loan Agreements, or the accomplishment of the purposes of the Loan and the Grants.</p> <p>(c) ADB and the Project Implementing Agencies shall from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the Project, the Project Implementing Agencies, the Loan and the Grants.</p>		
<p>(a) The Project Implementing Agencies shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Loan and the Grants, and the expenditure of the proceeds thereof; (ii) the items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of the Project Implementing Agencies; and (v) any other matters relating to the purposes of the Loan and the Grants.</p> <p>(b) Without limiting the generality of the foregoing, the Project Implementing Agencies shall furnish to ADB periodic reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following period.</p> <p>(c) Promptly after physical completion of the Project, but in any event not later than 3 months thereafter or such later date as ADB may agree for this purpose, the Project Implementing Agencies shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by the Project Implementing Agencies of their obligations under this Project Agreement and the accomplishment of the purposes of the Loan and the Grants.</p>	PA, Art II, Section 2.08	Others
<p>(a) The Project Implementing Agencies, through PMU, shall (i) maintain separate accounts and records for the Project; (ii) prepare annual financial statements for the Project in accordance with financial reporting standards acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report, which includes the auditors' opinion(s) on the financial statements and the use of the Loan proceeds, and a management letter (which sets out the deficiencies in the internal control of the Project that were identified in the course of the audit, if any); and (v) furnish to ADB, through the Project Executing Agency and no later than 6 months after the close of the fiscal year to which they relate, copies of such audited financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.</p>	PA, Art II, Section 2.09	Financials

Covenant	Reference in Legal Agreement	Type
<p>(b) ADB shall disclose the annual audited financial statements for the Project and the opinion of the auditors on the financial statements within 14 days of the date of ADB's confirmation of their acceptability by posting them on ADB's website.</p> <p>(c) In addition to annual audited financial statements referred to in subsection (a) hereinabove, the Project Implementing Agencies shall (i) provide their annual financial statements prepared in accordance with financing reporting standards acceptable to ADB; (ii) have their financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iii) as part of each such audit, have the auditors prepare the auditors' opinion(s) on the financial statements and compliance with the financial covenants of the Loan Agreement; and (iv) furnish to ADB, no later than 1 month after approval by the relevant authority, copies of such audited financial statements and auditors' opinion(s), all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(d) The Project Implementing Agencies shall enable ADB, upon ADB's request, to discuss the financial statements for the Project and the Project Implementing Agencies, and their financial affairs where they relate to the Project with the auditors appointed by the Project Implementing Agencies pursuant to subsections (a)(iii) and (c)(ii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of the Project Implementing Agencies, unless the Project Implementing Agencies shall otherwise agree.</p>		
<p>The Project Implementing Agencies shall enable ADB's representatives to inspect the Project, the Goods and any relevant records and documents.</p>	PA, Art II, Section 2.10	Others
<p>(a) The Project Implementing Agencies shall, promptly as required, take all action within their powers to maintain their corporate existence, to carry on their operations, and to acquire, maintain and renew all rights, properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of their operations.</p> <p>(b) The Project Implementing Agencies shall at all times conduct their operations in accordance with sound applicable technical, financial, business, development and operational practices, and under the supervision of competent and experienced management and personnel.</p> <p>(c) The Project Implementing Agencies shall at all times operate and maintain their plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and</p>	PA, Art II, Section 2.11	Others

Covenant	Reference in Legal Agreement	Type
renewals thereof, all in accordance with sound applicable technical, financial, business, development, operational and maintenance practices.		
Except as ADB may otherwise agree, the Project Implementing Agencies shall not sell, lease or otherwise dispose of any of their assets which shall be required for the efficient carrying on of their operations or the disposal of which may prejudice their ability to perform satisfactorily any of their obligations under this Project Agreement.	PA, Art II, Section 2.12	Others
Except as ADB may otherwise agree, the Project Implementing Agencies, through PMU, shall apply the proceeds of the Loan and the Grants to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement, the Grant Agreements and this Project Agreement, and shall ensure that all items of expenditures financed out of such proceeds are used exclusively in the carrying out of the Project.	PA, Art II, Section 2.13	Others
Except as ADB may otherwise agree, the Project Implementing Agencies shall duly perform all their obligations under the Subsidiary Loan Agreements and Subgrant Agreements, and shall not take, or concur in, any action which would have the effect of assigning, amending, abrogating or waiving any rights or obligations of the parties under the Subsidiary Loan Agreements and Subgrant Agreements.	PA, Art II, Section 2.14	Others
The Project Implementing Agencies shall promptly notify ADB of any proposal to amend, suspend or repeal any provision of their charter, which, if implemented, could adversely affect the carrying out of the Project or the operation of the Project facilities. The Project Implementing Agencies shall afford ADB an adequate opportunity to comment on such proposal prior to taking any affirmative action thereon.	PA, Art II, Section 2.15	Others
<p><u>Financial Matters</u></p> <p>The Project Implementing Agencies shall achieve and maintain the following financial indicators within the meaning of ADB's Financial Management and Analysis of Projects (2005, as amended from time to time);</p> <ul style="list-style-type: none"> <li>(a) current ratio of 1 from year 2019 to 2021 and 1.5 in year 2023 and thereafter;</li> <li>(b) cash operating ratio of 100% in year 2019 and thereafter;</li> <li>(c) account receivable collection period of 60 days and collection efficiency of 95% in year 2019 and thereafter;</li> <li>(d) debt-service coverage ratio of at least 1 from year 2019 to 2021 and at least 1.2 in 2022 and thereafter; and</li> <li>(e) long-term debt-to-equity ratio to be not more than 75:25 in year 2019 and thereafter.</li> </ul>	PA, Sch. para. 2	Financials
The Recipient acknowledges and agrees that this Grant Agreement is entered into by ADB, not in its individual capacity, but as an implementing entity of the SCF. Accordingly, the Recipient agrees that	SCF GA, Art IV, Section 4.03	Others

Covenant	Reference in Legal Agreement	Type
(a) it may only withdraw Grant proceeds to the extent that ADB has received proceeds for the Grant from the SCF, and (b) that ADB does not assume any obligations or responsibilities of the SCF in respect of the Project or the Grant other than those set out in this Grant Agreement.		
The Recipient acknowledges and agrees that this Grant Agreement is entered into by ADB, not in its individual capacity, but as trustee of JFJCM. Accordingly, the Recipient agrees that (a) it may only withdraw Grant proceeds to the extent that ADB has received proceeds for the Grant from JFJCM, and (b) that ADB does not assume any obligations or responsibilities of JFJCM in respect of the Project or the Grant other than those set out in this Grant Agreement.	JFJCM GA, Art IV, Section 4.03	Others
<p><u>Combating Money Laundering and Financing of Terrorism</u></p> <p>The Recipient, through the Project Executing Agency, shall ensure that (a) the Project Implementing Agencies complies with applicable laws and regulations of the Recipient on combating money laundering and financing of terrorism; and (b) Grant proceeds are not used, directly or indirectly, in money laundering or financing of terrorism, including payment to persons and entities that are subject to financial sanctions of United Nations Security Council resolutions on combating the financing of terrorism.</p>	JFJCM GA, Sch 2, para. 2	Financials
<p><u>JCM Application</u></p> <p>The Recipient, through the Project Executing Agency, shall submit an application to register the Project with the relevant JCM Joint Committee, comprising the representatives of the government of the Recipient and the government of Japan. Upon successful registration, the Recipient shall monitor and verify reduction in greenhouse gas emissions with the support from the consultants engaged using the proceeds of the Grant.</p>	JFJCM GA, Sch 2, para. 3	Others
<p><u>Segregation from SCF Grant</u></p> <p>The Recipient, through the Project Executing Agency, shall ensure that the proceeds of the Grant shall not be used to finance any portion of a Subproject which is partly financed by the SCF Grant.</p>	JFJCM GA, Sch 2, para. 4	Others

## **APPENDIX 2: REQUIREMENTS FOR EXECUTING AND IMPLEMENTING AGENCIES OF THE JAPAN FUND FOR THE JOINT CREDITING MECHANISM (JFJCM) GRANTS**

1. The Ministry of Energy (MOE) and Altai-Uliastai Region Energy System State-Owned Joint Stock Company (AUES) will be responsible for developing a 5 megawatt (MW) of Uliastai solar photovoltaic and battery storage plant project as a joint crediting mechanism (JCM) project, and for fulfilling requirements as the project participant of the JCM project.
2. MOE causes AUES to develop the JCM methodology and submit it to the JCM Joint Committee (JC) for approval. In case the methodology is not approved, AUES will revise the methodology and make best efforts to have it approved by the JC. Methodology approval is to be achieved before project registration.
3. Upon methodology approval, MOE causes AUES to prepare a project design document (PDD), hire an accredited third party entity (TPE) to validate the project, and submit the project for registration to the JC. In case the project is not registered, the MOE causes to make necessary revisions to the PDD considering comments received and make best efforts to have the project registered. Project registration is to be achieved before commissioning of the subproject supported under the JFJCM.
4. MOE causes AUES to monitor the project in line with the PDD and prepare a monitoring report at least once a year, based on the recorded monitoring data. The monitoring report will be reported to ADB. MOE causes AUES to monitor the JCM project from commissioning until the end of the project operation or the expiry of the JCM bilateral document between Mongolia and Japan, whichever is earlier.
5. MOE causes AUES to hire a TPE to have the monitoring reports and emission reductions verified. Verifications are to be conducted at least twice: (i) after one year of operation, and (ii) after December 2030 or end of project operation, whichever is earlier. Verifications are to be completed within 9 months of the end of each monitoring period.
6. Upon successful verification, MOE causes AUES to request the issuance of JCM credits to the JC. Issuance requests are to be made at least twice: (i) after one year of operation, and (ii) after December 2030 or end of project operation, whichever is earlier.
7. In meeting the JCM requirements, MOE and AUES may use JFJCM grant during the implementation period, to hire consultants for methodology development, PDD preparation, validation support, monitoring report preparation, verification support, issuance support, training, and other JCM related activities. The MOE and AUES may use JFJCM grant during the implementation period, to hire TPEs for validation and verification. The JFJCM secretariat may also provide necessary support.
8. The 5 MW of Uliastai solar PV and battery storage plant project supported under the JFJCM cannot apply for any other international carbon market mechanisms.
9. For the procurement of goods and works supported under the JFJCM, technical specification and evaluation criteria meeting the JFJCM requirement will be set to ensure the adoption of advanced low carbon technologies. Cost evaluation shall be made on a life-cycle cost basis, where appropriate, such as for battery storage systems.
10. MOE and AUES ensures technical specifications, evaluation and qualification criteria, for

procurement of Uliastai solar PV subproject under turnkey contract including operation and maintenance for the first year as below:

## A. Technical specifications

### (1)-1: Solar PV

- (a) Cell type: polycrystalline silicon, or monocrystalline silicon
- (b) Module Conversion efficiency: 16% or higher
- (c) Certificates to be complied with
  - (i) IEC61215: PV module – design qualification and type approval
  - (ii) IEC61730-1: PV module safety qualification - Part 1: Requirement for construction
  - (iii) IEC61730-2: PV module safety qualification - Part2: Requirements for testing
- (d) Working Conditions
  - (i) Maximum system voltage: 1000V
  - (ii) Operating temperature: -40°C - +85°C
  - (iii) Application class: Class A
  - (iv) Fire prevention class: Class C

### (1)-2: Battery

- (a) Capacity: 3,600kWh (capacity)
- (b) Cycle life: 4,400 times or more on condition that the average value of discharged energy per cycle is 3,300kWh
- (c) Chargeable temperature: > -40°C / Dischargeable temperature: > -40°C
- (d) Self-discharge rate shall be less than 1% per month
- (e) A 24-hour constant remote monitoring and help service shall be provided if internet access is available
- (f) Following performance guarantee shall be provided:
  - Capacity: 3,000kWh
  - Guarantee period: 12 years
  - Guaranteed dischargeable energy: 14,520MWh (= 3,300kWh x 4,400 cycles)

### (1)-3: Energy Management System (EMS)

- (a) Main features
  - (i) Control of battery system
  - (ii) Forecast of load demand, PV output
  - (iii) Recording of power input from PV and other renewable sources, and power supplied to grid
  - (iv) Supervision of battery and connection point (monitoring point) with grid
  - (v) Prevent backflow of power to the battery from the grid
- (b) Operating temperature: -40°C to +85°C

## B. Evaluation criteria

11. Cost evaluation shall be made on a life-cycle cost basis, which means that both the initial cost and the operation cost and maintenance cost will be considered for evaluation. A potential formula to evaluate the lifecycle cost is as follows.

$$LUC = \frac{P_{bid} + N_{br} \times P_{battery}}{C_{battery} \times N_c \times \frac{SOC}{100}}$$

Where:

LUC	[US\$/kWh]	Lifecycle unit cost in US\$/kWh
C <sub>battery</sub>	[kWh]	Capacity of battery
N <sub>c</sub>	[ - ]	Number of battery cycles tested and guaranteed with capacity above the SOC percentage
N <sub>br</sub>	[ - ]	Number of times of required battery replacement in 12 years.
P <sub>battery</sub>	[US\$]	Total price of battery
P <sub>bid</sub>	[US\$]	Bid Price in US\$
SOC	%	State of charge, corresponding to remaining usable capacity of battery in % in kWh against initial capacity of battery in kWh, guaranteed after battery is charged and discharged N <sub>c</sub> number of times

## C. Qualification criteria

- (a) The bidder shall present a performance test certificate
- (b) The bidder shall have at least one existing reference operating plant with reasonable amount of installed capacity, details of which would be determined at the time of bidding document preparation.
- (c) Battery manufacturer shall meet both of the following track records:
  - (i) manufacturing and supplying battery energy storage systems with cumulative output of at least 200 MW and capacity of at least 1,200 MWh; and
  - (ii) at least 5-years stable operations of battery energy storage system(s) with cumulative output of at least 10 MW and capacity of at least 60 MWh.