

**Aide-Memoire for
Scaling Renewable Energy Program in Low Income Countries (SREP)
Joint MDBs Scoping Mission to Mongolia
28 April – 2 May 2014**

1. Introduction

1. A Joint Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC) and the World-Bank team¹ (the Mission) visited Mongolia from 28th April to 2nd May 2014 to conduct the Scoping Mission for the project on Scaling up Renewable Energy Program in Low Income Countries (SREP), on the invitation of the Government of Mongolia (GoM) by a letter dated 31st December 2013.² Mongolia is under the reserve list under SREP, which is a targeted program of the Strategic Climate Fund (SCF), one of the two funds under the Climate Investment Funds (CIF). In March 2012, the SREP sub-committee agreed to support investment plan preparation for each of these countries in the waiting list and also agreed to provide up to \$300,000 for that purpose. The sub-committee also provided an indication of the upper amount of US\$30 million for Mongolia should additional funding become available and investment plan is endorsed. SREP supports developing countries in their efforts to expand energy access and stimulate economic growth through the scaled-up deployment of renewable energy solutions; and it provides a trigger for transformation of the renewables market in each target country through a programmatic approach that involves government support for market creation, private sector implementation, and productive energy use. SREP is implemented by Multilateral Development Banks (MDBs), in close collaboration with other development partners including the United Nations (UN) and bilateral agencies.

2. The key objectives of the Mission were: (i) to identify key development partners and other stakeholders who should be consulted in the course of preparation of the investment plan and potential co-financiers of SREP; (ii) undertake a stocktaking of existing activities and documentation available on a range of analytical, strategic and programming activities related to renewable energy; (iii) agree on a timetable and financial and human resources required to prepare the investment plan; and (iv) Agree on the terms of reference (TOR) for the Joint Programming Mission to initiate preparation of the investment plan.

¹ The team comprised of Jiwan Acharya (Senior Climate Change Specialist, Clean Energy, ADB), Teruhisa Oi (Senior Energy Specialist, ADB), Wooyul Lee (Energy Specialist, ADB), Hisaka Kimura (Principal Investment Specialist, ADB); Charles Feinstein (Sector Manager, World Bank); Peter Johansen (Senior Energy Specialist, World Bank), Gailius Draugelis (Lead Energy Specialist, World Bank), Yun Wu (Energy Consultant, World Bank); Remon Zakaria (Principal Manager, EBRD); Tuyen Nguyen (Resident Representative, IFC), Hemant Mandal (Senior Energy Specialist, IFC), Laura Gaensly (SREP Focal, IFC), and Bayarsaikhan Davaadorj (Investment Officer), and Inka Schomer (CIF Administrative Unit).

² Invitation letter from GoM is provided in Annex-1.

2. Mission Activities and Outputs

3. The Mission held meetings with the government institutions such as the ministries of Energy, Economic Development, Finance, Environment and Green Development, Education and Science, Construction and Urban Development, Energy Regulatory Commission, National Dispatching Center, National Transmission Company, Ulaanbaatar Distribution Company, Ulaanbaatar City Council. Also the Mission met with the industry associations, commercial banks and development partners (DPs). A detailed list of stakeholders met by the joint mission team is provided in Annex-2.

4. During the meetings, the Mission explained the objectives of the scoping mission and the processes involved in the country led SREP process. The Mission also explained the key features of SREP, including: (i) barrier reduction, (ii) leveraging investments, (iii) increasing renewable energy capacity and access to energy, (iv) transformational impact, and (v) scaling-up through private sector participation. SREP support can be made available for all renewable energy technologies including solar, wind, bio-energy, and hydropower with capacities not exceeding 10 megawatt (MW) per facility.

5. The mission identified key counterpart agencies, agreed on the time schedule for further processing and prepared the TOR for the Joint Programming Mission. The details of these outputs are provided further in the document.

3. Summary of Scoping Mission Findings

3.1 Sector Background

6. The majority of heat and power demand is met by the coal-based combined heat and power plants, heat-only boilers in rural areas and half of Ulaanbaatar, and coal-based stoves at household level. The energy sector has been unbundled into generation, load dispatch center, and transmission and distribution state owned companies since 2001. Due to lack of available public and commercial funding, private investment in the sector is a key policy priority for the government. Existing facilities for providing heating and electricity (power plants and transmission and distribution lines) are energy-inefficient and vulnerable because they are old and outdated. Two of three coal-based combined heat and power (CHP) plants in Ulaanbaatar, CHPs 2 and 3, have operated for more than 40 years without proper emission control devices, and the largest plant, CHP 4, has operated for more than 25 years. Due to inadequate heat supply and coverage of central heating systems, residents in *ger* areas surrounding Ulaanbaatar (60% of residents in Ulaanbaatar) have to use coal-based household stoves and small, inefficient, heat-only boilers without proper emission control devices. Lack of investment in expanding the coverage of the electricity and heating network is the primary cause for continued use of inefficient and polluting heat systems. The result is serious urban air pollution during the winter season in Ulaanbaatar, which is widely regarded as among

the most polluted cities in the Asia and Pacific region.³ During winter months, particulate matter of less than 10 micrometers in diameter (PM10) in Ulaanbaatar's atmosphere routinely measures 279 micrograms per cubic meter of air, which is about five times higher than the World Health Organization's air quality guidelines of 50 micrograms/cubic meter.

7. Mongolia has experienced rapid economic growth (11.5% in 2013) led by mining development.⁴ Electricity and heating demand has also been growing in Ulaanbaatar due to rapid urbanization and more economic and commercial activities.⁵ But due to the unavailability of new power and heat plants, this demand is largely unmet and suppressed. As a result, electricity consumption in the central energy system, which covers Ulaanbaatar, other major cities, and mining development areas, grew modestly to 3,542 gigawatt-hours (GWh) in 2012, about 34% more than in 2003.⁶ It is projected that electricity consumption in the central energy system will increase to 4,422 GWh in 2015 and by 2025 reach 8,189 GWh, more than double the 2012 rate.⁷ The reserve margin of heat and power supply has become close to zero.

8. Mongolia is rich in renewable energy sources. It has wind resources equivalent to 1,100 GW of wind electric potential. On solar resources, the country has 270-300 sunny days per year with an average sunlight duration of 2,250-3,300 hours. The annual average amount of global solar radiation is 1,400 kWh/m² per year with solar intensity of 4.3-4.7 kWh/m² per day.

9. The GoM has taken the following actions to support energy sector development in the country. Legal frameworks include: Energy Law (updated in 2011), Renewable Energy (RE) Law of Mongolia in 2007, which stipulates the attractive feed-in-tariff by different renewable sources and Concession Law in 2010 to promote the private sector participation. It has also approved a number of development programs such as: Program on Integrated Energy System of Mongolia, National Renewable Energy Program (renewable energy capacity target: 20% of total generation capacity by 2020), and Comprehensive Policy on National Development which contains concrete short-term and long-term strategies for the development of the energy sector. From 2000 to 2012 GoM implemented the successful "100,000 Solar Ger" Program, which provided access to modern energy to over half a million nomadic herders through Solar Home Systems. The first grid connected mega-watt scale wind farm (50 MW Salkhit wind farm developed by independent power producer and financed by the EBRD) was put into operation in 2013, and generates about 170 giga-watt hours (GWh) per annum.

³ The proposed project will complement and coordinate its activities, as necessary, with two ongoing urban development and urban transport projects administered by East Asia Urban and Social Sectors Division and East Asia Transport and Communications Division (ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Mongolia for the Ulaanbaatar Urban Services and Ger Areas Development Investment Program*. Manila; ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Mongolia for the Urban Transport Development Investment Program*. Manila).

⁴ The World Bank. 2013. *Mongolia Economic Update*. Washington, DC.

⁵ The population of Ulaanbaatar grew by 32.5% during 2003-2011 (1.2 million in 2011) and is expected to grow by about 26.9% during 2012-2020.

⁶ Major mining activities are supported through captive power plants, which are not part of the central grid.

⁷ ADB. 2010. *Technical Assistance to Mongolia for Updating the Energy Sector Development Plan*. Manila.

10. Although the GoM has issued the policies for supporting renewable energy development, actual progress has been slow, mainly due to the difficulty of access to long term commercial financing by renewable energy developers, as well as weak institutional and technical capacity of the grid company and regulators. Given the rich renewable sources endowment in Mongolia, there is huge potential to scale up the renewable based heat and/or power supply sources, which could contribute significantly to meeting the growing energy demand with minimum carbon and pollutants footprint.

11. The GoM is committed to promoting the development of renewable energy in the country and to that end expressed its interest and commitment for the SREP program and has appointed Ministry of Energy as the lead agency.

3.4 Main findings from consultations held with key Stakeholders

12. Ministry of Environment and Green development (MEDG) - Combating air pollution is the top priority in MEGD's Green Development Strategy. Household heating contributes significantly to the air pollution and makes up a big portion of households expenditure. Clean and efficient heating solutions are strongly needed and RE should be used for this purpose. Another priority on MEGD's agenda is green public buildings. Due to the surge in birth rates over the last 7 years the Ministry of Education and Science estimates that over 1,100 buildings, such as schools, maternity wards, dormitories and kindergartens will be needed in the near future. For Year 2014 alone, it is planned to construct 190 such buildings. MEGD requested support on green building technologies, building designs and standards and rating system development. MEGD shared with the mission its draft Green Development Concept and Mid-Term Program on Green Development. The draft is now undergoing approval process at the Parliament.

13. Ministry of Energy (MoE) - MoE presented the status of the Mongolian energy sector and GoM's strategy for scaling up RE. In 2013, RE electricity generation was 117 GWh or around 2% of the total generation. For 2020 the National Renewable Energy Program has set a target of 20-25% RE share, mainly from wind, solar and hydropower. The plan is to achieve this mainly through private sector investments in RE IPPs incentivized by feed-in tariffs (FITs). So far, the FITs set by the Energy Regulatory Commission (ERC)⁹ have been sufficient to generate private sector interest in solar and wind projects with approximately 450 MW already licensed by the ERC (mainly wind). However, the financing of the FITs faces challenges and the existing RE Fund remains un-capitalized.

14. Regulator, Dispatch Center, Transmission/distribution – the base load production from coal fired CHPs constitutes a technical barrier for the implementation of RE capacity. Technical solutions for the grid management and need to balance the night load production with RE technologies (e.g. hydro) will require additional assessments. The FIT and consumer tariffs may require to be carefully reviewed in order to prevent imbalances between actual costs and revenues. Additional RE capacity could contribute to a reduction in electricity imports from Russia, especially if established in the western grid. There is also a need for further assessment on the electrical network in the country to identify the areas where additional RE capacity can be installed without compromising the grid stability and functionality.

⁹ On-grid solar FIT is 15-18 USc/kWh, On-grid wind FIT is 8-9.5 USc/kWh

15. **Private sector (sponsors and commercial banks)** – private sector expressed a great interest in investing in RE in Mongolia. The mission met with a number of private sector investors, many of them already involved in the sector, mainly in wind and in few solar PV projects. Private sector representatives shared with the mission some key barriers hindering the development of RE investments that include regulatory and other legal aspects. Financial institutions have also expressed interest in expanding their current business to financing RE in Mongolia and shared some potential small scale biomass and biogas projects under consideration by some of their clients.

16. Mission also had discussions with the Ministry of Finance, Ministry of Industry and Agriculture, Ministry of Education and Science, Ministry of Construction and Urban Development, Ulaanbaatar City to present about SREP program and also discussed opportunities for promoting renewable energy, energy efficiency and also heating in commercial, industrial and public buildings such as schools and hospitals.

Development Partners

17. Development partners (DPs) welcomed and offered their support and cooperation for SREP program in Mongolia. They emphasized the need to move forward on the programmatic approach for the whole energy sector development in Mongolia. Generation of renewable energy should be accompanied by transmission and distribution components, energy efficiency and also integrating renewable energy in providing heating services in commercial, residential and also in public building such as schools, hospitals. DPs and the mission agreed on the need to find models under SREP to leverage funds for the development of the sector and the important role private sector plays in this regard.

4. Further Processing Activities to be undertaken

18. Following completion of the Scoping Mission, there are several key steps needed to prepare for the Joint Programming Mission.¹⁰ These are grouped into three stages: (i) before the Joint Programming Mission, (ii) during the Joint Programming Mission, and (iii) after the Joint Programming Mission, through the presentation of the Investment Plan to the SREP Sub-Committee.

19. ***Before the SREP Joint Programming Mission:*** Before the SREP Joint Programming Mission, the TOR for the Joint Mission and administrative arrangements for the investment plan preparation grant must be completed and the technical assistance initiated, with adequate work carried out to enable the Joint Mission to proceed effectively. An Investment Plan Preparation Grant of up to \$300,000 is available for Mongolia to undertake assessment, conduct stakeholder consultations and develop the investment plan. In this regard, GoM and the Mission agreed that Asian Development Bank (ADB) will assume the lead administrative role in accessing and executing SREP grant funding advance for the preparation of the Investment Plan as per the request of the GoM.

¹⁰ A copy of Mission presentation on SREP, including the process steps hereafter is provided in Annex-3

20. A TOR for the Joint Programming Mission needs to be finalized by all parties, both in Mongolia and among the SREP partners. This will include designation of the multilateral bank (MDB) teams to participate in the Mission, and the TOR and the budget for the Joint Mission (s) must be sent to the CIF Admin Unit 5 weeks prior to the commencement of the Joint Mission for MDB Committee approval. This allows all interested stakeholders to be informed of SREP programming plans and to participate in consultations and other aspects of the Joint Mission, as appropriate. The GOM will need to designate a process for the conduct of the Mission, including institutional contacts, most likely through a formal decision. A formal request to the multilateral development banks (MDBs) to conduct the Joint Mission will also need to be prepared and transmitted by the Government. Advance planning for stakeholder consultations will need to be carried out, including the preparation of materials, lists of participants, designation of the timing and venues.

21. The main outputs of the pre-mission period will be (i) preparation and approval of the TOR for the Joint Mission, including provisions for MDB costs, (ii) a GOM request to MDBs for conducting the Joint Mission, (iii) inception of work financed through the investment plan preparation grant, (iv) detailed planning and scheduling of formal consultations, and (v) the completion of sufficient preparation of background materials through the grant and other means to enable effective conduct of the Joint Mission.

22. ***During the Joint Programming Mission:*** Once the necessary activities preceding the Joint Mission have been completed, the Joint Programming Mission will be scheduled and carried out. All relevant bilateral and other donors would be invited to join the joint mission. During the mission, GoM and MDB priorities, links between SREP and other initiatives (including parallel/complimentary investments by the MDBs and other co-financiers), and the strategic role of the proposed SREP investments will be identified and agreed among the Government and all other partners. This exercise will be carried out in a participatory and consultative manner, so that all key stakeholders will have an opportunity to share their views on how best the SREP resources can be used to support Government plans for scaling up renewable energy programs in the country.

23. The main outputs of the Joint Programming Mission will be a (i) completion of a consultation process engaging key stakeholders in the design of SREP support to Mongolia; (ii) an early draft of the SREP Investment Plan document for further consultations; and (iii) a report documenting next steps for SREP in Mongolia.

24. ***After the Joint Programming Mission:*** Following the Joint Mission, the draft investment plan will be reviewed by the GoM and the MDBs, and then refined and finalized. This could potentially require further stakeholder consultations and additional missions by MDBs should new issues arise or any issues remaining from the Joint Mission still need to be resolved. When a draft final version of the SREP document is ready, this will be published by the Government on the web for public consultations. In parallel, the involved MDBs would prepare their own necessary documentation based on the draft investment plan and undertake internal quality reviews. The MDBs would provide comments to GoM on the draft Implementation Plan. An independent expert may also be engaged in the review process. Taking account of any inputs, a final SREP Investment Plan will be prepared and transmitted to the CIF Administrative Unit for submission to SREP sub-committee.

25. The MDBs will consult with the CIF and SREP focal points in GoM to organize and schedule follow-up actions to the Joint Missions. Substantive and comprehensive discussions in this regard are expected to be conducted during the Joint Mission itself. The tentative schedule is given in Annex-4.

5. Conclusions and Next Steps

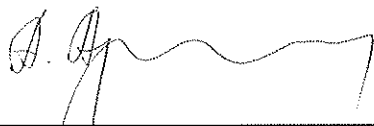
26. The GoM reiterated its interest to develop the investment plan for the SREP and has requested a technical assistance (TA) on grant basis of \$300,000 from SREP for investment plan preparatory activities, which will be processed and executed by ADB in close consultation with partnering MDBs, developing partners, and the GoM. The TOR of the consulting services will be developed by the Mission in close consultation with the GoM.

27. The following time line for further processing has been agreed:

Tentative Schedule for SREP Investment Plan Preparation

Tentative Schedule	Activity	Principal Outputs
28 April – 2 May 2014	Scoping Mission	<ul style="list-style-type: none"> • Aide Memoire on Scoping Mission • Advance preparation grant application • Draft TOR for the Joint Programming Mission • The schedule for the Investment Plan preparation
Mid May – Mid Aug	Processing of Investment Plan preparation grant and engagement of experts	<ul style="list-style-type: none"> • Application for IP preparation grant • Processing of TA and engagement of consultants
End Aug – Mid Sep	Mobilization of IP preparation team	Preparation grant consultants fielded
October	Joint Programming Mission	Stakeholder consultation Agreement on scope of SREP
February 2015	Second Joint Programming Mission	Finalize draft IP
Mar – April	<ul style="list-style-type: none"> • Disclosure for public consultations in Govt website (2 weeks) • MDB Quality Review • External Review 	Comments and feedback from stakeholders and revised IP
May 2015	Government internal approval and submission to SREP Sub-committee	Government endorsed IP
June 2015	Approval by SREP Sub-Committee (expected)	

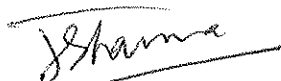
Signed on *May 30, 2014* in Ulaanbaatar, Mongolia



Ms. Ariunaa A.
Acting Director General
Department of Economic Cooperation, Loan and Aid Policy
Ministry of Economic Development



Mr. Tovuuodorj Purevjav
Director General, Strategic Policy and Planning Department
Ministry of Energy



Mr. Jiwan Acharya
Senior Climate Change Specialist (Clean Energy) and SREP Focal in ADB
Mission Leader
(On behalf of ADB, EBRD, IFC and World Bank)

ANNEXES

Annex 1 – Invitation Letter from Government for Scoping Mission [ADB]

Annex 2 – TOR for Scoping Mission

Annex 3 – List of Stakeholders Met

Annex 4 – Presentation on SREP

Annex 5 – Mission Agenda/Schedule

Annex 6 – Initial Outline Terms of Reference for Joint Mission

Annex 7 – IP Preparation Grant Application



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Date Dec 31, 2013
Ref. 3/ 2532

Ms. Patricia Bliss-Guest
Program Manager
Administrative Unit, Climate
Investment Funds
The World Bank
Washington D.C, USA

Invitation to Develop an SREP Investment Plan

Dear Patricia

I would like to extend my gratitude for selecting Mongolia as a potential country under the Climate Investment Fund' Program for Scaling up Renewable Energy (SREP) in Low Income Countries and granting an opportunity of developing the investment plan.

Giving the significance for developing Renewable Energy Sector in Mongolia, we are glad to confirm our interest participating in the SREP and our invitation for scoping mission to start SREP investment plan preparation for scaling up the use of renewable energy in Mongolia.

We look forward to receiving your instructions on the next steps.

Sincerely,

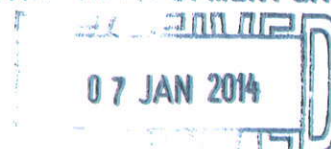
B. Shinebaatar

B.SHINEBAATAR
STATE SECRETARY,
MINISTRY OF ECONOMIC DEVELOPMENT

CC:

Mrs. Coralie Gevers, Country manager, World Bank Office, Ulaanbaatar, Mongolia
Mr. Mr.Robert Schoellhammer, Country Director, Asian Development Bank

ASIAN DEVELOPMENT BANK



RESIDENT MISSION

000386



TERMS OF REFERENCE

Scaling-up Renewable Energy Program (SREP)

Scoping Mission

28 April – 02 May 2014

Mongolia



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1. BACKGROUND

1.1 The **Climate Investment Funds (CIF)** support developing countries as they move toward low emissions and climate resilient development. The CIF provides developing countries with grants, concessional loans, and risk mitigation instruments that leverage significant private sector, MDB, and other co-financing. Five Multilateral Development Banks (MDBs) - the African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IDB), and World Bank Group (WB), including the International Finance Corporation (IFC) - are the implementing agencies of CIF funded projects and programs.

1.2 The CIF's financial architecture rests on two trust funds: (i) the Clean Technology Fund (CTF); and (ii) the Strategic Climate Fund (SCF):

- The CTF finances the scaled-up demonstration, deployment, and transfer of clean technologies. The focus is on piloting investments in countries or regions that have the potential for significant greenhouse gas abatement.
- The SCF finances targeted programs that pilot new approaches with the potential for scaling up. The SCF includes the Forest Investment Program, the Pilot Program for Climate Resilience, and the **Scaling Up Renewable Energy Program in Low-income Countries (SREP)**.

1.3 The objective of the SREP is to pilot and demonstrate the economic, social and environmental viability of low carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy. An initial group of six pilot countries was selected to receive funding under the SREP program (i.e., Kenya, Ethiopia, Mali, Nepal, Honduras, Maldives). In addition, a group of 'waitlisted' countries, including Mongolia, was selected to receive SREP funding provided additional resources become available. In March 2012, the SREP sub-committee agreed upon the upper amount of funding and order of priority in which funding would be allocated to these countries: (1) Tanzania, US\$50 million; (2) Liberia, US\$50 million; (3) Yemen, US\$40 million; (4) Armenia, US\$40 million; (5) Pacific Regional (Vanuatu, Solomon Islands) with regional capacity building program, US\$30 million; and (6) **Mongolia, US\$30 million**.

1.4 During Phase I of the implementation of the SREP, ADB, WB/IFC and EBRD will be supporting the Government of Mongolia and other relevant stakeholders - United Nations Organizations, bilateral partners, private sector companies, non-governmental organizations and civil society organizations - in developing the SREP investment plan for Mongolia. The finalization and endorsement of the investment plan by the SREP Sub-Committee marks the beginning of implementation (Phase II).

2. COUNTRY CONTEXT

2.1 Mongolia is a landlocked country spreading across 1.5 million square kilometers of the Central Asian plateau. It has a total population of 2.8 million (2012 estimates) and

considered as one of the least densely populated in the world with 2 people per square kilometer of land¹. More than 60% of the population concentrates in the urban areas mainly in the capital city of Ulaanbaatar, while less than 40% lives in the extensive pasturelands as mobile pastoralists or herders.

2.2 Mongolia is a resource-rich economy (i.e. coal, minerals and other natural resources – livestock, wind and solar) and is considered as one of the world's fastest growing economies. Investments in mining has accelerated the country's Gross Domestic Product (GDP) growth and expected to grow more with large investments coming. Although share of agriculture has declined it still comprises around 15% of the country's GDP.

2.3 Approximately 35% of the country's population live below the poverty line. Based on human development index (HDI) report, urban HDI is higher by 14% than rural HDI, implying significant development gap between urban and rural areas². The remoteness and low population density of the rural areas make them difficult to reach with basic infrastructure and social services support, hence creating a weak rural economy.

2.4 Mongolia experiences harsh climate – from drought and extreme cold. The country's climate is changing rapidly with annual mean temperature having risen by 2.1°C during 1940–2007. Climate change may worsen existing natural resource concerns, such as diminution of water resources and desertification. The pastoral population being dependent on grasslands and water resources for livelihood are among the most vulnerable groups to climate change impacts because of the loss of livestock, malnutrition, and exposure.

2.5 The population of Ulaanbaatar has nearly doubled since 1995, and the city is now home to more than one million inhabitants (about 40% of the country population). This and the recent economic growth have contributed to a sharp increase of energy demand with a tendency of further growth. As a result, air pollution in Ulaanbaatar, one of the coldest capitals in the world, has become extremely severe, reaching about seven times World Health Organisation (WHO) target values. In fact, according to a recent World Bank study³, ambient annual average particulate matter (PM) concentrations in Ulaanbaatar are 10-25 times greater than Mongolian air quality standards (AQS) and are among the highest recorded measurements in any world capital. The main sources of ground-level air pollution are coal and wood burning from power plants, heat-only boilers (HOBs), and car and vehicle exhaust.

2.6 The Mongolian economic sectors are very energy intensive and due to the exclusive use of low quality coal, CO₂ emissions per unit of GDP are three times higher than the world average⁴. Mongolia has a very high carbon emission factor of 1.06 tCO₂/MWh; the carbon intensity is 2.4 times greater than European Union (EU-27: 0.460 tCO₂/MWh).

2.7 Mongolia's energy sector is faced with various challenges. As of 2013, Mongolia's electrification rate is 88% (98% in urban areas and 67% in rural areas)⁵. The electricity demand in Mongolia mainly stems from the industrial sector (59%) and, to a minor extent, to the residential sector (27%). Transmission and distribution (T&D) networks suffer from

¹ Source: 2012 population estimates and 2011 estimates Mongolia population density
<http://data.worldbank.org/indicator/EN.POP.DNST>

²Source: HDI Report 2003

³Mongolia - Air quality analysis of Ulaanbaatar : improving air quality to reduce health impacts , 01/12/2011

⁴Source: World Bank database, CO₂ emissions (kg per PPP \$ of GDP), 2010 data

⁵ Source: IEA, World Energy Outlook 2013, Electricity access in 2011 - Developing Asia

capacity constraints and reliability issues. Much of the existing T&D infrastructure is aging (in many cases over 40 years old) and is long overdue for replacement.

2.8 In 2012, the current installed capacity is 1,062 MW but only 836 MW is made available because of the aging powerplants and around 13.8% of the total energy consumption goes to T&D losses. Of the total installed capacity (1,062 MW), combined heat and power plant contributes largely with 828 MW (88%) and minimal contribution from diesel (74.34 MW, 8%), hydro (27.5, 3%) and solar/wind (6.65 MW, 1%). Though the proportion of wind capacity will grow as the 50 MW Salkhit wind farm became fully operational within the third quarter of 2013 and will generate about 170 GWh per annum.

2.9 By 2030, the forecasted capacity requirement will be 3,080 MW, of which 1,041 MW will be from the mining sector. This means that in order to meet the energy demand, additional installed capacity of at least 2,000 MW is needed.

2.10 Mongolia has great potential to grow as a major coking coal exporter. Based on preliminary estimates, geological reserves of coal in the country is more than 160 billion tons. The estimates include the country as one of the 15 countries of the world with large coal reserves. However, at present, the country is still heavily dependent on coal imports (mainly from Russia and China) with only small coal production.⁴

2.11 The country has good-to-excellent wind power resources equivalent to 1,100 GW of wind electric potential. The Salkhit wind farm (financed in 2012, completed in 2013) was the first sizeable wind farm and independent power producer in the country. On solar energy, the country has 270-300 sunny days per year with an average sunlight duration of 2,250-3,300 hours. The annual average amount of solar energy is 1,400 kWh/m² per year with solar intensity of 4.3-4.7 kWh/m² per day.⁴ However, the poor infrastructures (transport, logistics, transmission) in this landlocked country increases cost and constrains project development.

2.12 The Government of Mongolia (GoM) has taken actions to support energy sector development in the country. Legal frameworks include: Energy Law (updated in 2011), Renewable Energy Law of Mongolia in 2007 and Concession Law in 2010. It has also approved a number of development programs such as: Program on Integrated Energy System of Mongolia, National Renewable Energy Program (renewable energy capacity target: 452.1 MW by 2020), and Comprehensive Policy on National Development which contains concrete short-term and long-term strategies for the development of the energy sector. From 2000 to 2012 GoM implemented the successful 100,000 Solar Ger Electrification Program, which provided access to modern energy to over half a million nomadic herds through Solar Home Systems.

2.13 Although the central government of Mongolia has issued the policies, the renewable energy (RE) development is still in slow progress, mainly due to the difficulty of access to RE technologies and access to finance, as well as weak capacity – technical and financial – of the central grid and regulators. The huge energy demand and abundant RE resource in Mongolia needs the country to scale up its RE development in order to achieve a sustainable energy and economical development.

2.14 The Government is committed to promoting the development of renewable energy in the country and to that end expressed its interest to be one of the pilot countries under SREP and was included in the reserve list.

3. PREPARATORY ACTIVITIES

3.1 The Government of Mongolia, with support of MDBs, undertook a number of preparatory activities: (a) confirmation of the interest to start with the development of the SREP investment program; (b) collaboration with SREP/MDB technical mission to agree on key actions to initiate preparation of SREP investment plan, including preparation of the TOR for selection of the consultant to support the Government with development of investment plan; and (c) identification of key stakeholders.

3.2 On 31 December 2013, the Government confirmed its interest to start with the preparation of the SREP investment plan and submitted the Confirmation of Interest Form.

4. SCOPING MISSION - OBJECTIVES

4.1 The MDBs are organizing this Scoping Mission to assist the Government of Mongolia in planning and preparing the development of the SREP investment plan and the first MDB Joint Mission.

4.2 The objectives of the Scoping Mission are:

- a. Identify and agree with Government of Mongolia, in particular with the Ministry of Energy, regarding the task force responsible for preparing the SREP Investment Plan;
- b. Identify relevant government counterparts, development partners and stakeholders (especially private sector), to establish a committee for the proposed SREP activities;
- c. Hold discussions about the objectives of the SREP programme, its benefits and the modalities of its implementation in Mongolia to ensure a common understanding by all stakeholders;
- d. Get to know the current RE development, the gap of technologies and finance for the design of SREP development;
- e. Draft the plan to pilot what kinds of RE technologies in Mongolia;
- f. Initiate discussions and consultations with the identified stakeholders and development partners;
- g. Undertake a stocktake of existing investments (including experience from the Salkhit wind farm) activities and documentation available on a range of analytical, strategic and programming activities related to renewable energy, which are considered important aspects of preparing the investment plan;
- h. Agree on the scope and outline of the investment plan;
- i. Agree on the timeline as well as financial and human resources required to prepare the investment plan;
- j. Prepare the terms of reference for the selection of the consultant to support the Government with the preparation of the SREP investment plan; and
- k. Agree on the terms of reference for the next MDB Joint Mission.

4.3 At the completion of the scoping mission, the MDB team will jointly prepare an aide memoire that describes the key issues discussed, agreements reached and the next steps.

5. DATES

5.1 The proposed dates for the Scoping Programming Mission are 28 April to 2 May 2014.

6. PARTICIPANTS AND PROPOSED AGENDA

6.1 The Scoping Mission will be coordinated by the Government through the Ministry of Energy which is the focal point for SREP in Mongolia.

6.2 The SREP mission team will include: Jiwan Acharya (Senior Climate Change Specialist, Clean Energy, ADB), Teruhisa Oi (Senior Energy Specialist, ADB), Wooyul Lee (Energy Specialist, ADB), Hisaka Kimura (Principal Investment Specialist, ADB); Peter Johansen (Senior Energy Specialist, World Bank), Gailius Draugelis (Senior Energy Specialist, World Bank), Yun Wu (Energy Consultant, World Bank); Remon Zakaria (Principal Manager, EBRD), Tuul Natsag (Principal Banker, EBRD); Tuyen Nguyen (Resident Representative, IFC), Hemant Mandal (Senior Energy Specialist, IFC), and Laura Gaensly (SREP Focal, IFC) and Inka Schomer, CIF Administrative Unit. Representatives from other bilateral agencies (e.g. Japan and Germany) may also join the mission.

6.3 The MDBs focal points for SREP are: WB: Gevorg Sargsyan (gsargsyan@worldbank.org); IFC: Joyita M. Mukherjee (jmukherjee1@ifc.org); ADB: Jiwan Acharya (jacharya@adb.org); EBRD: Andreas Biermann (BiermanA@ebrd.com).

6.4 The government focal point is: Mr. Makhbal Tumenjargal (Specialist for Renewable Energy Policy, Strategic Policy and Planning, m.tumenjargal@energy.gov.mn, m.tumee@ymail.com).

6.5 Table I presents a tentative agenda and timetable for the activities for the Scoping Mission.

Table I: Tentative Agenda and Timetable

Date	Morning	Afternoon
27 April 2014	Arrival of Scoping Mission Team in Ulaanbaatar, Mongolia	
28 April 2014	MDB team meeting	Kick-Off Meeting with Ministry of Energy
29 April 2014	Meeting with Government Agencies	Meeting with Government Agencies
30 April 2014	Meeting with Government Agencies	Meeting with development partners
31 April 2014	Meeting with development partners	Meeting with private sector (including solar and wind power project developers)
1 May 2014	Meeting with local financial institutions, commercial banks	Stakeholder workshop with NGOs and Private Sector

2 May 2014	MDB drafting of Aide Memoire	Wrap-up meeting with Government
3 May 2014	Departure of Scoping Mission Team	

Note: Delegation may split up for different meetings (e.g. IFC will focus more on private sector).

ANNEX 1. PRELIMINARY LIST OF STAKEHOLDERS

GOVERNMENT
<ul style="list-style-type: none"> • Ministry of Economic Development • Ministry of Finance • Ministry of Energy • Ministry of Environment and Green Development • Ministry of industry and agriculture • Ministry of Construction and Urban Development • National Renewable Energy Center • Energy Corporation • Energy Regulatory Commission • National Dispatching Center • National Transmission Company • Central Region Transmission Company • Ulaanbaatar Distribution Network Company
DEVELOPMENT PARTNERS
<ul style="list-style-type: none"> • German Development Bank (KfW) • Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH • Japan International Cooperation Agency • United States Agency for International Development

<ul style="list-style-type: none"> • Korea International Cooperation Agency • United Nations Development Programme
CIVIL SOCIETY
<ul style="list-style-type: none"> • Energy association • Mongolian wind energy association • World Vision • The Asia Foundation • Mongolian Foundation For Open Society (Soros Foundation)
PRIVATE SECTOR
<ul style="list-style-type: none"> • Mongolian Bankers Association • Mongolian Chamber of Commerce and Industry • Business Council of Mongolia • Trade and Development Bank of Mongolia LLC • Khan Bank LLC • XacBank LLC • Golomt Bank • Development Bank of Mongolia • State Bank • General Electric • Nova Terra • Ferrostaal • Newcom Company • Irradiance Co. Ltd • Malchin Co. Ltd • Sopoco LLC • Aydiner • AB Solar • Cleantech LLC • Sanco Solar LLC • Water Energy Co .Ltd • Institute of Physics & Technology, Mongolian Academy of Sciences • Sainshand Wind Park Co. Ltd • Mon-Energy Consult Co.Ltd • Nomin Energy and IT Co.Ltd • Mongolian University of Science and Technology • Local entities with RE project plans/proposals (typically with an international partner) • Operating mining companies with potential need for RE supply: Oyu Tolgoi, Energy Resources, Erdenes Talvan Tolgoi, MAK, Erdenes Mining Corp.

Annex 2: Criteria for the Sub-Committee to Assess the Investment Plan

- a) **Increased installed capacity from renewable energy sources:** A high priority for most low income countries is expanding their generation capacity in order to ramp up modern energy use and energy access. Therefore, SREP-funded investments should result in increased MW from renewable energy, as well as increased energy (GWh) per capita in the country.
- b) **Increased access to energy through renewable energy sources:** SREP may support grid extensions and decentralized energy systems with a view to expanding the percentage of the population with access to non-fossil-fueled electricity. Investment proposals should demonstrate how the investments are part of the Government's long term commitment to increasing energy access.
- c) **Low Emission Development:** SREP may support the use of renewable energy technologies for electricity generation and services to replace fossil fuel technologies that would be deployed in a business-as-usual scenario aimed at substantially increasing commercial energy use in low income countries. In particular, benefits from SREP investments will often arise from "leap-frogging" technologies, in which low income countries will be assisted to mainstream renewable energy technologies into the overall energy system.
- d) **Affordability and competitiveness of renewable sources:** Affordability is essential for increasing access and for ensuring the long term renewable energy market development. SREP funding should address clearly-defined cost barriers to adoption of renewable energy technologies, such as connection costs for rural consumers, higher capital costs of new technologies, transmission costs related to grid-connected renewables, and risk adjusted rates of return sought by investors.
- e) **Productive use of energy:** SREP programs should promote the generation and productive use of energy.
- f) **Economic, social and environmental development impact:** Investment proposals for SREP financing should demonstrate the generation of economic, social and environmental benefits.
- g) **Economic and financial viability:** Investment proposals should demonstrate the economic viability of investments and the financial viability with the inclusion of time bound SREP resources.
- h) **Leveraging of additional resources:** Activities should maximize the leverage of funds from other partners.
- i) **Gender:** SREP investments should seek to strengthen the capacity of women to be active participants in the economic sector and avoid negative impacts on women.
- j) **Co-benefits of renewable energy scale-up:** SREP investments should include decreased air pollutants from energy production and consumption as well as the potential to reduce stress on forest resources. Investments and activities should elaborate on the potential positive effects on air quality and natural resource management through the adoption of renewable energy technologies.

LIST OF STAKEHOLDERS MET**Government****Ministry of Economic Development**

Ms. ARIUNAA A.

Acting Director General

Department of Economic Cooperation, Loan and Aid Policy

MUNKHJARGAL D.

Senior officer, MoED

RAVDANDASH Tsegmed

Officer, MoED

Ministry of Finance

NYAMAA Buyantogtokh

Specialist, Debt Management Division

Director General

AYASGALAN Molor

Specialist, Debt Management Division

Financial Policy and Debt Management Department

Ministry of Energy

DELGERTSOGT Davaadorj

State Secretary

TOVUUDORJ Purevjav

Director General

Strategic Policy and Planning Department

TUMENJARGAL Makhbal

Officer

Strategic Policy and Planning Department

Ministry of Environment and Green Development

OYUN Sanjaasuren

Minister of Environment and Green Development

DAVGADORJ Damdin, Ph.D

Special Envoy on Climate Change, Chairman of Climate Change Coordination Office

ENKHBAT Altangerel

Director of Clean technology and science division

GERELT-OD Tsogtbaatar

Head of CDM National Bureau- Climate Change Coordination Office

Ministry of Education and Science

J. DAVAASAMBUU

Director General of Science Policy Regulation Department

LKHAVGADORJ B.

Senior Officer, MoES

Ministry of Industry and Agriculture

MENDJARGAL Batbilegt

Senior Officer

Livestock Policy Implementation and Coordination Department

MUNKHGEREL Dagvadorj

Officer- Livestock Policy Implementation and Coordination Department

Ministry of Construction and Urban Development:

B.TSEDENSAMBA

Director General

Department of Construction and Building Material Policy Implementation and Coordination

BAYANTUUL Baasanjav

Senior Officer- International Cooperation Division

National Renewable Energy Center

ALTANGEREL Baldorj

Director

BAVUUDORJ Ovgor

Deputy Director

Energy Regulation Commission

SAMDAN Enebish

Managing Director

ERDENETUYA Erdenebat

Specialist on Foreign Relation and Cooperation

JIGJIDSUREN Nanjid

Head of Licensing Policy and Regulation Division

National Dispatching Center of Power System

TSOGTBAATAR Khandsuren

Executive Director

ONORMAA Tsevegjav

Consult engineer of Mongolia

Head of Power Systems Analysis and Planning Department

MUNKHBAYAR Tumur

Head of Information Technology and Communication Department

National Power Transmission Grid (State Owned-Stock Company)

RAVDANDORJ Jamsran
CEO

JARGALSAIKHAN Tsedendamba
Senior deputy director and Chief engineer

The Ulaanbaatar, Mongolia Mayor's Office

BADRAL B.
General Manager of Ulaanbaatar City and Head of Mayor's Office

Office of the Capital City Governor

BAYARBAATAR Sandagdorj
Head of Strategic Policy and Planning Department

OTGONBAATAR Dorjgotov
Head of Project and Cooperation Department

Ulaanbaatar Electricity Distribution Network Company

OSGONBAATAR Jambaljamts
Deputy Director

BAYASGALAN Batbold
Head of Finance Department & Chief Accountant

Development Partners

German Development Bank (KfW)

Sascha Stadler
Director KfW Mongolia
Head of Country Office Mongolia, German Development Agency

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Ruth Erlbeck
Regional Project Director

Stefan Weyler
Portfolio Manager

Ralph Trosse
Technical Project Director

Swizz Cooperation Office of the Embassy of Switzerland

Daniel Valenghi
Head of Programme

United Nations Development Programme

Bunchingiv Bazartseren
Environmental Team Leader

Japan International Cooperation Agency

Toshinobu Kato
Chief Representative

Masanori Abe
Representative

Embassy of Canada

Jan Sheltinga
Counsellor (Development)

Embassy of France

Yves Delaunay
Ambassador for France

Embassy of the Federal Republic of Germany

Burkhard Ducoffre
Deputy Head of Mission and Counsellor

British Embassy

Christopher Stuart
Her Majesty's Ambassador

Embassy of Japan in Mongolia

Hayashi Shinichiro
Counsellor

Embassy of the United States of America

David Wyche
Economic/Commercial Section Chief

Civil Society

World Vision

Jon Hiebert
Public Engagement Consultant

ENERGY ASSOCIATION

PUREVDORJ Galsantseren
Secretary

Private Sector

The Business Council of Mongolia

BYAMBASAIKHAN Bayanjargal
Managing Partner

Trade and Development Bank of Mongolia LLC

ORKHON Onon
First Deputy CEO

Khan Bank LLC

Tumenzaya.S.
Head- Credit Policy and Regulation Division

Bolortuya B.
Senior officer- Investment Banking Division

Bulganchimeg E.
Relationship Manager-Credit Policy Regulation Division

Enkhbayar B.
Environmental Officer- Credit Risk Division

XacBank LLC

GANBAATAR Jambal
President

TUUL Galzagd
Director-Eco Banking department

Nova Terra

BYAMBASAIKHAN Bayanjargal
CEO

HARRISON Smith
Investment Analyst

FERROSTAAL

Dr. Oliver Schnorr
President

SOPOCO

CHINGIS Tangad
Vice Director

MON-ENERGY CONSULT LLC

ERDENEDALAI Lodon
General Director

KHISHIGT Tamir
Renewable energy consultant

WATER ENERGY

DAGVADORJ B.
General Director

SAINSHAND WIND FARM

DAVAANYAM R.
General Director

MUNKHJARGAL M.
Foreign Relations Manager

MALCHIN
BADAMKHAND L.
General Manager

AngloAmerican
Graeme Hancock Ph.D.
President and Chief Representative

General Electric
TUMENTSOGT Tsevegmid
CEO



CLIMATE
INVESTMENT
FUNDS

Scaling-Up Renewable Energy in Low Income Countries Program

Scoping Mission-Mongolia
April/May 2014



CIF - BACKGROUND

- The Climate Investment Funds (CIF) were established in 2008 to provide scaled-up climate financing to developing countries to initiate transformational change towards climate resilient, low carbon development.
- The CIF has benefitted from 14 donor countries, including: Australia, Canada, Denmark, France, Germany, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom and the United States of America.
- Donor countries have pledged US\$ 8 billion to fund investments in 48 countries and three regions.
- CIF support is channeled through five multilateral development banks (MDBs): African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank and The World Bank Group.





CLIMATE INVESTMENT FUNDS (CIF) \$8 BILLION		STRATEGIC CLIMATE FUND (SCF) \$2.5 BILLION	
CLEAN TECHNOLOGY FUND (CTF) \$5.5 billion	Scaled-up demonstration, deployment, and transfer of innovative technologies in renewable energy, energy efficiency, and clean transport	PILDT PROGRAM FOR CLIMATE RESILIENCE (PFCR) \$1.3 billion	Mainstream resilience in development planning and investments
FOREST INVESTMENT PROGRAM (FIP) \$639 million	Reduce emissions from deforestation and forest degradation, and enhance forest carbon stocks	SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP) \$551 million	Demonstrate economic, social, and environmental viability of renewable energy in low income countries
Chile Colombia Egypt India Indonesia Kazakhstan Morocco New Zealand Philippines South Africa	Bangladesh Bolivia Cambodia Mozambique Nepal Niger Tajikistan Yemen Zambia	Brazil Ecuador Dominican Republic Mexico Peru Thailand Vietnam Indonesia	Ethiopia Guyana Kenya Liberia Maldives Nepal Tanzania Reserve SREP pilots Armenia Yemen Mongolia Pacific Region (Solomon Islands, Vanuatu)

SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)

PURPOSE
To expand energy access and stimulate economic growth in low income countries by working with governments to build renewable energy markets, engage the private sector, and remove barriers that might otherwise inhibit investments in renewable energy technologies

GOVERNANCE
SREP Sub-Committee of representatives from six contributor and six eligible recipient countries

FUNDING
\$351 million

COUNTRY ELIGIBILITY
Countries eligible for official low income countries eligible for MDB concessional financing and engaged in an active MDB country program and expressing an interest to participate

FINANCIAL LEVERAGE
1:5.3

PILOTS
Ethiopia, Honduras, Kenya, Liberia, Maldives, Mali, Nepal, and Tanzania

DONORS
Australia, Denmark, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, United States

RESERVE SREP slots
Armenia, Micronesia, Yemen, and Pacific Region (Solomon Islands and Vanuatu)

IMPLEMENTATION
ADB, ADB, IDB, and WBG, including IFC

OBSERVERS
MDBs, Trustee, GEF, UNDP, UNEP, and self-selected representatives of CSOs, Indigenous Peoples, and the private sector

SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)


PROJECTS

- 8 investment plans are endorsed
- A pipeline of 28 projects and programs has emerged for a total allocation of \$340 million in SREP funding expected to contribute to 83 MW in new renewable energy capacity
- Funding for 8 projects is approved for a total of \$52.9 million in SREP funding, expected to leverage \$475.3 million in co-financing and contribute toward 250 MW in new renewable energy capacity

SREP-SUPPORTED INSTALLED RE GENERATION CAPACITY (MW) BY TECHNOLOGY

Technology	Percentage
Geothermal	1%
Small and Mini/Micro Hydro	10%
Wind	4%
Waste To Energy	7%
Mixed	17%
Solar PV	61%

* Numbers as of February 1, 2014



SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)


Types of Activities
SREP investment plans should be designed to support a country-level programmatic approach to scaling up renewable energy. An emphasis needs to be placed on the long term transformative outcomes and successful market transformation rather than individual investments or activities.

Investments:

- Solar, wind, bio-energy, geothermal, small hydro (<10 MW)
- Electricity and thermal
- On-grid, off-grid, mini-grid

Capacity Building and Advisory Services


- Development of energy policies and legislation
- Assessment of technology resources potential
- Strengthening governance and institutional capacity
- Creation of incentive scheme to improve financial viability of RETs



SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)

Key Elements Investment Plan


- Country Context
- Renewable Energy Sector Context
- Contribution to National Energy Roadmap
- Proposed Programs (justification of investments, technical assistance requirements)
- Financial Plan and Instruments
- Implementation Potential
- Risk Assessment
- Monitoring and Evaluation



SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)

Investment Criteria
Projects and investments should address the following criteria:

- Increase installed capacity from renewable energy sources
- Increased access to energy through renewable energy sources
- Low emission development
- Affordability and competitiveness of renewable sources
- Productive use of energy
- Economic, social and environmental development impact
- Economic and financial viability
- Leveraging of additional resources
- Gender
- Co-benefits of renewable energy scale-up



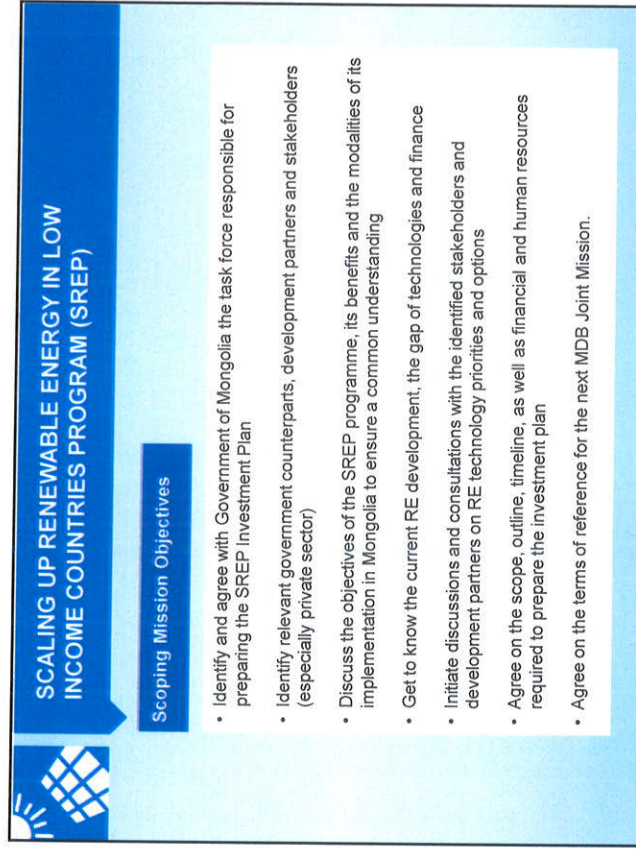
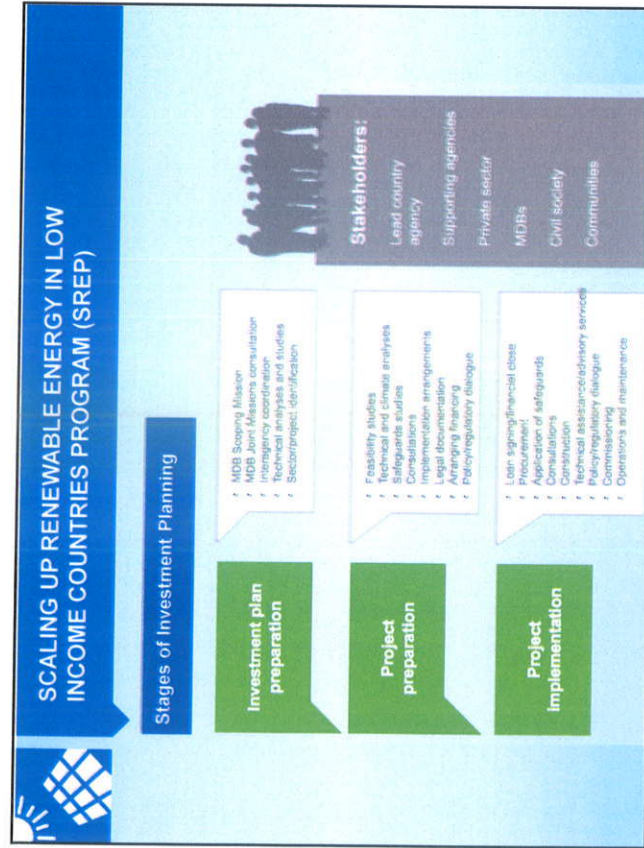
SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)


Monitoring and Evaluation: SREP Indicators

Under SREP monitoring and evaluation is required to track impact, outcomes and outputs of SREP-funded activities. Aim is to ensure that SREP-relevant results and indicators are integrated into M&E systems at the country and/or project/program level.

Indicators:

- Annual electricity output from renewable energy (GWh), as a result of SREP interventions
- Number of women and men, community services and business benefiting from improved access to electricity as a result of SREP interventions
- Increased public and private investments in targeted subsectors as a result of SREP interventions (co-finance)





SCALING UP RENEWABLE ENERGY IN LOW INCOME COUNTRIES PROGRAM (SREP)

Scoping Mission Objectives - Next Steps

Initial Preparation for Country-led Joint Mission

- Joint mission TOR to include composition, budget, contacts, agenda and division of labor
- MDB Committee approves TOR
- CIF Administrative Unit notifies SREP-Sub Committee and posts information on website 4 weeks prior to mission

Initial Preparation for Country-led Joint Mission

- After the scoping mission, Government may request an advances preparation grant (up to \$300,000) for preparation of IP
- Request submitted to CIF Administrative Unit for MDB Committee approval

Draft Investment Plan

- Draft investment plan disclosed for public consultation
- External independent expert review
- The Government SREP focal point sends IP to the CIF Administrative Unit
- Approval by SREP Sub-Committee

1:04 PM 2-May-14

**Scaling-up Renewable Energy Program (SREP)
Scoping Mission
28 April – 02 May 2014**

Sunday, 27 April 14 - Arrival of Scoping Mission Team in Ulaanbaatar, Mongolia		
Monday, 28 April 14		
09:00-11:00	Meeting with M.Tumenjargal and Mr. Bavuudorj, Deputy Director of National Renewable Energy Center (NREC) <i>Venue: at MNRM*</i> Confirmed	Attendee: Jiwan Teruhisa Woo Lee
13:00-17:00	MDB Internal meeting <i>Venue: at MNRM</i> Confirmed	Attendee: SREP Team
Tuesday, 29 April 14		
08:20-09:10	Briefing with CD MNRM <i>Venue: at MNRM</i>	Attendee: All SREP Members Heads of IFC, EBRD and OIC WB
09:30-10:30	Meeting with Mr. Badral. B, General Manager of Ulaanbaatar City (MUB) <i>Venue: A Hall at the Mayor's Office Entrance at the Sukhbaatar Square Contact person: Otgonbaatar Tel: 91003310</i> Confirmed Translator: Ms. Delegsuren Tel: 99194994	Attendee:
11:00 -12:00	Kick-Off meeting with the Ministry of Energy (MOE) <i>(attendance with the representatives of other government organizations)</i> <i>Venue: Meeting hall on third floor (304) at MOE</i> Confirmed	Attendee: All SREP Members
14:00-15:00	Meeting with Mr. B. Nyamaa, Director General, Financial Policy and Debt Management Department, Ministry of Finance (MOF)	Attendee:

	<p><i>Venue: Meeting hall on 9th floor at MOF</i> Confirmed</p> <p>Translator: Mr.Ts.Bayarsaikhan Tel: 88115842</p>	
15:30 -16:30	<p>Meeting with Government Agencies</p> <p>Mr. S. Otgonbayar, Director of Energy Regulatory Commission</p> <p><i>Venue: Meeting hall fourth floor (ERC) nearby Government building (in same location)</i> Confirmed</p> <p>Translator: Mr.Ts.Bayarsaikhan, Tel: 88115842</p>	Attendee:
17:00-18:00	<p>Meeting with Mr. B. Munkhjargal, Senior Specialist, Light Industry Policy Implementation and Coordination Department, Ministry of Industry and Agriculture (MOIA)</p> <p><i>Venue: at MOIA</i> Confirmed</p> <p>Translator: Ms. Delegsuren Tel: 99194994</p>	Attendee:
Wednesday, 30 April 14		
9:00 -10:00	<p>Meeting with Mr. G. Mergenbayar, Director General of Strategic Policy and Planning Department, Ministry of Construction and Urban Development (MCUD)</p> <p><i>Venue: Meeting hall third floor at MCUD</i> Confirmed</p> <p>Translator: Ms. Delegsuren, Tel: 99194994</p>	Attendee:
10:30- 11:30	<p>Meeting with Ms. S. Oyun, Minister and Mr. Dagvadorj, Special Envoy for Climate Change, Climate Change Coordination Division, Ministry of Environment and Green Development (MEGD)</p> <p><i>Venue: Meeting hall second floor at MEGD Tel: 311173</i> Confirmed</p> <p>Translator: Ms. Delegsuren Tel: 99194994</p>	Attendee:

TEAM 1		
14:00-15:00	<p>Meeting with Mr. J. Davaasambuu, Director General of Science Policy Regulation Department, Ministry of Education and Science (MES)</p> <p>Venue: <i>Meeting hall first floor (111) at MES</i> Confirmed</p> <p>Translator: Ms. Delegsuren Tel: 99194994</p>	Attendee:
TEAM 2		
15:00 -15:40	<p>Meeting with Government Agencies</p> <ul style="list-style-type: none"> • Mr. G. Baljinnyam, Deputy Director of National Dispatching Center <p>Venue: <i>Meeting hall fourth floor at NDC nearby MOE (in same location)</i> Confirmed</p> <p>Translator: Ts.Bayarsaikhan Tel: 88115842</p>	Attendee:
15:50-16:30	<p>Meeting with Government Agencies</p> <ul style="list-style-type: none"> • Mr. J. Ravdandorj, Executive Director of Central Region Transmission Company <p>Venue: <i>Meeting hall fourth floor at CRTTC nearby MOE (in same location)</i> Confirmed</p> <p>Translator: Ts.Bayarsaikhan Tel: 88115842</p>	Attendee:
16:40-17:20	<p>Meeting with Government Agencies</p> <ul style="list-style-type: none"> • Mr. D. Dorjsuren First Deputy Director of Ulaanbaatar Distribution Network Company • Mr. Otgonbaatar, Deputy Director of General Operations <p>Venue: <i>Meeting hall fifth floor (503) nearby MOE (in same location)</i> Confirmed</p> <p>Translator: Mr. Ts.Bayarsaikhan Tel: 88115842</p>	Attendee:

Thursday, 1 May 14**TEAM 1**

8:15 -9:00	Meeting with local financial institutions, commercial banks <ul style="list-style-type: none">Trade and Development Bank of Mongolia LLC (TDB) <i>Venue: at TDB</i> Confirmed	Attendee:
9:30-10:30	Meeting with local financial institutions, commercial banks <ul style="list-style-type: none">Khan Bank LLC <i>Venue: at Khan Bank</i> Confirmed	Attendee:

TEAM 2

8:00-9:00	Meeting with local financial institutions, commercial banks <ul style="list-style-type: none">Khas Bank LLC <i>Venue: at Khas Bank</i> Confirmed	Attendee:
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TEAM 1 + TEAM 2

11:00-12:00	Meeting with private sector and NGO (including solar and wind power project developers) <i>Venue: at MNRM</i> Confirmed Translator: Ms. Delegsuren Tel: 99194994	Attendee:
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Individual Meeting

12:00-13:00	Meeting with private sector <ul style="list-style-type: none">Mr. Byambasaikhan, Head of Novaterra <i>Venue: at MNRM</i> Confirmed	Attendee:
12:00-13:00	Meeting with private sector	Attendee:

	<ul style="list-style-type: none"> • Mr. Oliver Schnorr, President of Ferrostaal <p>Venue: at World Bank Office Confirmed</p>	
12:00-13:00	<p>Meeting with private sector</p> <ul style="list-style-type: none"> • Aydiner <p>Venue: at World Bank Office Confirmed</p>	Attendee:
TEAM 1 + TEAM 2		
Friday, 2 May 14		
09:00-11:00	<p>Meeting with development partners</p> <ul style="list-style-type: none"> • Mr. Sacha Stadler, Director, German Development Bank (KfW) • Ms. Ruth Erlbeck, Project Director, Integrated Resource Management in Asian Cities, GIZ • Mr. Stephan Weyler, Portfolio Specialist, GIZ • Mr. Toshinobu Kato, Chief Representative, Japan International Cooperation Agency • Mr. Francis A. Donovan, United States Agency for International Development • Mr. Choi Heung Yul, Resident Representative, Korea International Cooperation Agency • Ms. Bunchingiv B, Environment Team Leader, United Nations Development Programme • Mr. Daniel Valenghi, Swiss Cooperation Agency <p>Venue: at MNRM Confirmed</p>	Attendee:
11:30-12:30	<p>Meeting with Ms. Ariunaa. A Acting Director General, Department of Economic Cooperation, Loan and Aid Policy, Ministry of Economic Development (MOED)</p> <p>Mr. Ravdandash, ADB Desk Officer</p> <p>Venue: at MOED Confirmed</p>	Attendee:
14:00-15:00	<p>Wrap-up meeting with MOE: Vice Minister D. Dorjpurev and State Secretary D. Delgertsogt (attendance with the representatives of other government organizations)</p>	Attendee: All SREP Members

	<i>Venue: at MOE**</i> Confirmed	
16:30-17:30	Wrap-up meeting with CD MNRM <i>Venue: at MNRM</i>	Attendee: All SREP Members

*MNRM - ADB Mongolia Resident Mission

** MOE – Ministry of Energy

INITIAL OUTLINE TERMS OF REFERENCE FOR JOINT MISSION

I. Executive Summary

Mongolia is under the reserve list under Scaling up Renewable Energy in Low Income Countries (SREP), which is a targeted program of the Strategic Climate Fund (SCF), one of the two funds under the Climate Investment Funds (CIF). In March 2012, the SREP sub-committee agreed to support investment plan preparation for each of these countries in the waiting list and also agreed to provide up to \$300,000 for that purpose. It also agreed upon the upper amount of US\$30 million for Mongolia should additional funding become available. SREP supports developing countries in their efforts to expand energy access and stimulate economic growth through the scaled-up deployment of renewable energy solutions; and it provides a trigger for transformation of the renewables market in each target country through a programmatic approach that involves government support for market creation, private sector implementation, and productive energy use. SREP is implemented by Multilateral Development Banks (MDBs), in close collaboration with other development partners including the UN and bilateral agencies.

After the joint MDB scoping mission on 28 April – 2 May 2014, a Joint Programming Mission will be undertaken to assist Government of Mongolia (GoM) in developing its Investment Plan. GoM has appointed the Ministry of Energy as the focal points for SREP engagement. The first Joint Programming Mission is scheduled for October 2014. The exact date and TOR for the Joint Mission will be finalized considering the status of preparatory activities and discussions with the GoM, MDBs and other development partners.

II. Mission Objectives, Outputs and Process

The main objective of the Joint Programming Mission(s) is to collaborate with Government of Mongolia in developing its investment plan. The main outputs of the Joint Programming Mission will be (i) completion of a consultation process engaging key stakeholders in the design of SREP support to Mongolia; (ii) a draft SREP Investment Plan document; and (iii) a report documenting next steps for SREP in Mongolia.

The Joint Mission is a process of multiple consultations with government representatives and stakeholders to identify a pipeline of public and private sector investments and their associated cost. During this process, the Mission will explore synergies and mobilize complementary resources. The Joint Mission is expected to include two Joint Missions which will be conducted at the beginning and final phase of the preparation of the investment plan.

III. Introduction/Background

Mongolia has experienced rapid economic growth (11.5% in 2013) led by mining development.¹¹ Electricity and heating demand has also been growing in Ulaanbaatar

¹¹ The World Bank. 2013. *Mongolia Economic Update*. Washington, DC.

due to rapid urbanization and more economic and commercial activities.¹² But due to the unavailability of new power and heat plants, this demand is largely unmet and suppressed. As a result, electricity consumption in the central energy system, which covers Ulaanbaatar, other major cities, and mining development areas, grew modestly to 3,542 gigawatt-hours (GWh) in 2012, about 34% more than in 2003.¹³ It is projected that electricity consumption in the central energy system will increase to 4,422 GWh in 2015 and by 2025 reach 8,189 GWh, more than double the 2012 rate.¹⁴ The reserve margin of heat and power supply has become close to zero.

8. Mongolia is rich in renewable energy sources. It has wind resources equivalent to 1,100 GW of wind electric potential. On solar resources, the country has very good solar resources with 270-300 sunny days per year with an average sunlight duration of 2,250-3,300 hours. The annual average amount of global solar radiation is 1,400 kWh/m² per year with solar intensity of 4.3-4.7 kWh/m² per day.

¹⁵

9. The GoM has taken the following actions to support energy sector development in the country. Legal frameworks include: Energy Law (updated in 2011), Renewable Energy (RE) Law of Mongolia in 2007, which stipulates the attractive feed-in-tariff by different renewable sources and Concession Law in 2010 to promote the private sector participation. It has also approved a number of development programs such as: Program on Integrated Energy System of Mongolia, National Renewable Energy Program (renewable energy capacity target: 20% of total generation capacity by 2020), and Comprehensive Policy on National Development which contains concrete short-term and long-term strategies for the development of the energy sector. From 2000 to 2012 GoM implemented the successful "100,000 Solar Ger" Program, which provided access to modern energy to over half a million nomadic herders through Solar Home Systems. The first grid connected mega-watt scale wind farm (50 MW Salkhit wind farm developed by independent power producer and financed by the EBRD) was put into operation in 2013, and generates about 170 giga-watt hours (GWh) per annum.

Although the GoM has issued the policies for supporting renewable energy development, actual progress has been slow, mainly due to the difficulty of access to long term commercial financing by renewable energy developers, as well as weak institutional and technical capacity of the grid company and regulators. Given the rich renewable sources endowment in Mongolia, there is huge potential to scale up the renewable based heat and/or power supply sources, which could contribute significantly to meeting the growing energy demand with minimum carbon and pollutants footprint.

¹² The population of Ulaanbaatar grew by 32.5% during 2003–2011 (1.2 million in 2011) and is expected to grow by about 26.9% during 2012–2020.

¹³ Major mining activities are supported through captive power plants, which are not part of the central grid.

¹⁴ ADB. 2010. *Technical Assistance to Mongolia for Updating the Energy Sector Development Plan*. Manila.

IV. Scope of Work

a) *Pre-mission activities*

Following completion of the Scoping Mission and before the Joint Programming Mission, several steps are needed. The main outputs of the pre-mission period will be (i) preparation and approval of the TOR for the Joint Mission, including provisions for MDB costs, (ii) a GOM request for the Joint Mission's conduct to the MDBs as partners, (iii) inception of work financed through the preparation grant, (iv) detailed planning and scheduling of formal consultations, and (v) the completion of sufficient preparation of background materials through the grant and other means to enable effective conduct of the Joint Mission.

b) *Preparatory work for Joint Programming Mission*

The experts engaged through the preparatory TA should carry out adequate work to enable the Joint Mission to proceed effectively. Advance planning for stakeholder consultations will need to be carried out, including the preparation of materials, lists of participants, designation of the timing and venues.

c) *Coordination among other development partners*

The Mission will coordinate with other development partners including bilateral and UN agencies to explore synergies and mobilize complementary resources. This will also serve as a follow up to the earlier interactions during the scoping mission.

d) *Consultations with other stakeholders*

Besides further in depth discussions with SREP focal points, the Mission will have detailed interactions with various government agencies, development partners, local financial institutions, private sector and other civil society organizations,

e) *Mission composition (team members, assignments and experts outputs)*

The Mission will comprise of experts from ADB, EBRD, IFC and the World Bank. It is also expected that UN agencies and bilateral agencies will also participate in the mission. The final list of team members, their assignments and outputs will be prepared after further consultations with the Government and MDBs as well as other development partners.

f) *Mission agenda/schedule*

The Mission is tentatively scheduled for about 1 week in October 2014. The Mission activities will include interactions with government agencies, private sector, NGOs, banks as well as a field visit. A workshop with the key stakeholders will be organized to have structured discussions on key issues and areas for SREP interventions. Final Mission agenda/schedule will be developed in consultation with GoM before the actual Mission.

g) *Contacts (MDBs and Government)*

Government:

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MDBs

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World Bank: Gevorg Sargsyan (gsargsyan@worldbank.org); Peter Johansen (pjohansen@worldbank.org)

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EBRD: Andreas Biermann (BiermanA@ebrd.com); Remon Zakaria (ZakariaR@ebrd.com),

**Format for Requesting Advance of the Investment Preparation Grant or Investment
Preparation Grant for Phase 1 Activities**

Scaling Up Renewable Energy in Low Income Countries			
Summary – Preparation Grant Proposal for the Development of the Investment Plan			
1. Country/Region:	Mongolia	2. CIF Project ID#:	(Trustee will assign ID)
3. Date of the Scoping Mission (if applicable)	28 April – 2 May 2012		
4. Date of the First Joint Mission (if applicable):			
5. Funding Request (USD):	300,000	MDB: Asian Development Bank	
6. Type of request	<i>Advance preparation grant: No</i>		
	<i>Full preparation grant: Yes</i> <i>If yes, please indicate the amount and date of the previous requests for the preparation grant: NA</i>		
7. MDB SREP Focal Point and Project/Program Task Team Leader (TTL):	<i>Headquarters-SREP Focal Point:</i> Jiwan Acharya (ADB) Joyita Mukherjee (IFC) Gevorg Sargsyan (WB) Andreas Biermann (EBRD)	<i>TTL:</i> Jiwan Acharya and Teruhisa Oi (ADB)	
8. National Implementing Agency:	Ministry of Energy		

9. Description of activities covered by the preparation grant:

At its meeting in March 2012, the SREP Sub-Committee invited Mongolia to prepare country investment plans.

The Preparation Grant for Mongolia would be utilized to hire a group of consultants who would report to the Ministry of Energy to conduct stakeholder consultations and other preparatory work to assist the Government to develop the SREP investment plan for Mongolia. The key activities of the consultants are:

- Identify the key barriers for renewable energy technologies in Mongolia (policy and regulatory, financing, institutional, procurement, investor protection etc.) that could be addressed under the SREP Program
- Identify the market potential for such technologies (for both public and private investments) in light of the Government's priorities over the next 5 years
- Review past experience (both local and international) on grid-connected hydropower, solar and other renewable energy interventions that could be applied in Mongolia and draw lessons for future interventions in the country
- Recommend appropriate interventions, technologies and implementing mechanisms to renewable energy capacity building and financing with adequate justification that could be supported using the SREP funds
- Identify necessary institutional structure and implementing agencies for such interventions and indicate their specific roles for SREP supported project implementation
- Assess the potential for the private sector to implement any aspects of SREP-supported projects, either through a PPP, advisory services, and private sector investments
- Review and assess availability of funds from different sources and possibility of leveraging funding for SREP program from private sector and other development partners
- Provide initial recommendations on safeguard measures to be followed for projects under SREP
- Provide initial recommendations on the implementation modality of SREP as well as the specific subcomponents mentioned in the investment plan for Mongolia (the detailed preparation of which, for SREP financing, could be funded using additional grant funds)
- Assist the Government and MDBs in carrying out consultation workshops with all stakeholders including private sector, financial institutions, civil society organizations as needed to inform and seek feedback to finalize the investment plan
- Prepare draft SREP Investment Plan, suitable for consideration of SREP financing, and suitable for use by the Government as a national planning document.

10. Expected outcomes:	
The expected outcome of the activities identified above would include	
<ul style="list-style-type: none"> • Assessment of key barriers for renewable energy technologies in Mongolia, and the market potential for such technology (for public and private interventions). • Assessment of potential private sector interventions under SREP Mongolia. • Recommendation on appropriate interventions (regulatory, technical and financial), and implementation mechanisms for encouraging renewable energy projects to address current barriers (both for public and private sectors). • Draft Investment Plan for SREP in Mongolia in consultation with involved stakeholders following the processes and criteria required by SREP. 	
11. Deliverables and timeframe:	
<ul style="list-style-type: none"> • Consultants engagement by September 2014 • Inception report by November 2014 • Preliminary Draft IP by consultants by December 2014 • Draft IP delivered for public consultations and external reviewers by March 2015 • SREP IP for Mongolia finalized by April 2015 	
12. Budget (indicative):	
Expenditures¹⁶	Amount (USD) – estimates
Consultants	250,000
Equipment	5,000
Workshops/seminars	20,000
Others (admin costs/operational costs)	10,000
Contingencies (max. 10%)	15,000
Total Cost	300,000
Other contributions:	
• Government	
• MDB	
• Private Sector	
Total – Other contributions:	
13. Timeframe (tentative) –milestones	
Joint Scoping Mission: 28 April – 2 May 2014	
Joint Programming Mission: October 2014	
Second Joint Programming Mission: March 2015	
Investment Plan submission for SREP Sub-Committee Endorsement: April/May 2015	
14. Other Partners involved in the Investment Plan design and implementation¹⁷:	
Besides inputs from Ministry of Energy, and other relevant government agencies, inputs from other development partners/donors and UN Agencies would be sought during the preparation and implementation of the Investment Plan. Inputs from the private sector, financial institutions and civil society groups are also expected.	

¹⁶ These expenditure categories may be adjusted during project preparation according to emerging needs.

15. If applicable, explanation for why the grant is MDB executed:

Past experience shows that recruitment of suitable international and national consultants within the short time frame can be carried out only if it is executed through an MDB.

16. Implementation Arrangements (incl. procurement of goods and services):

Ministry of Energy is the focal point identified by the Government of Mongolia for SREP. ADB's procurement guidelines will be followed to engage consultants and procuring other goods/services.

¹⁷ Other local, national and international partners expected to be involved in design and implementation of the Investment Plan.