# ADB's carbon market support and Japan Fund for the Joint Crediting Mechanism

7 December 2025

# Leveraging Carbon Markets for Accelerating Climate Action

## The Challenge

There is an urgent need for significantly more finance to support climate action—Developing Member Countries need an estimated $1.7 trillion annually through 2030 to take needed climate actions.

## The Role of Carbon Markets

Carbon markets create incentives for investments in climate mitigation actions by providing additional source of financial stream to overcome financial, regulatory, and technical barriers.

## Growing Momentum

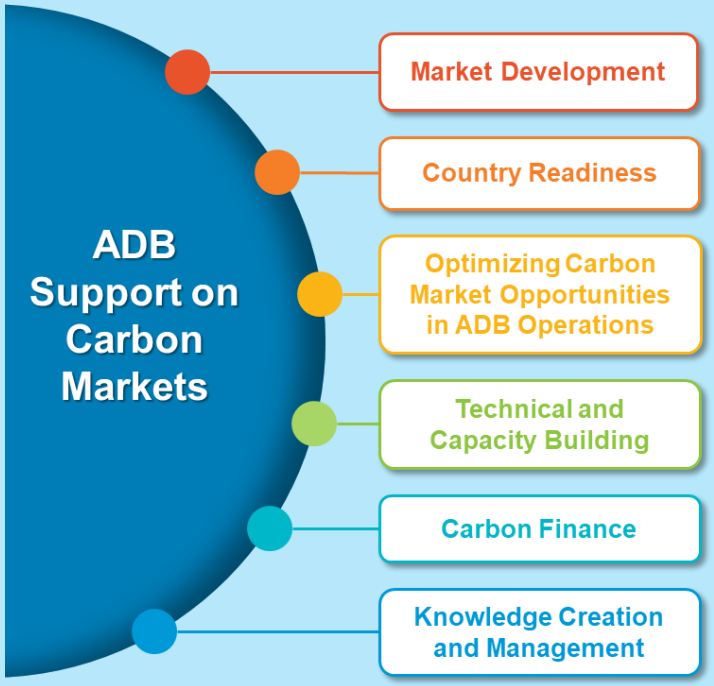
The finalization of Article 6 rules at COP29 in Baku in November 2024 marks a major milestone in international carbon market development. There is growing global momentum to use carbon markets as a cost-effective tool for reducing greenhouse gas emissions. **Asia and the Pacific region is expected to be the center of gravity for the emerging international carbon markets.**

## ADB's Carbon Market Program Driving Climate Mitigation through Innovative Carbon Finance

**ADB has a long-standing engagement with carbon markets through its Carbon Market Program**, which facilitates innovative carbon finance to stimulate climate mitigation activities across its Developing Member Countries.

ADB adopts a holistic two-pronged approach - **Carbon Market Development** by providing technical assistance and capacity-building support and **Mobilizing Carbon Finance** for incentivizing investments in low-carbon technologies and solutions.

The Carbon Market Program has been mainstreamed as a **bank-wide initiative**, reinforcing ADB's commitment to climate action and sustainable development.




### Examples - Carbon Finance Supported Projects

- Transmission lines with high-temperature low-sag conductors in **Bangladesh**
- Advanced battery and energy-management systems with renewables in **Mongolia**
- Clean energy for local businesses in **Palau**

| Carbon Market Program | | |
|---|---|---|
| **Japan Fund for the Joint Crediting Mechanism** | **Article 6 Support Facility** | **Climate Action Catalyst Fund** |
| **Carbon finance to incentivize deployment of advance low-carbon technologies** | **Technical and Capacity Building Support to enhance carbon market readiness and projects** | **Carbon finance to support transformative mitigation actions** |
| • Provides financial incentive for the deployment of advanced low-carbon technologies in ADB-financed projects, under the Joint Crediting Mechanism, aligned with Article 6.2 of the Paris Agreement.<br>• Upfront finance<br>• Demand signal | • **Upstream**: National Strategies, Frameworks, Institutional Infrastructure for carbon markets<br>• **Midstream**: Pipeline of projects for carbon credits<br>• **Downstream**: Support development of carbon market projects to generate carbon credits | • Pre-purchase of carbon credits from ADB financed projects generating carbon credits under Article 6 of the Paris Agreement<br>• Long term fixed price contracts and upfront payments<br>• Price signal |
| **US$ 137 Million** | **US$ 8.8 Million** | **US$ 77 Million** |

ADB

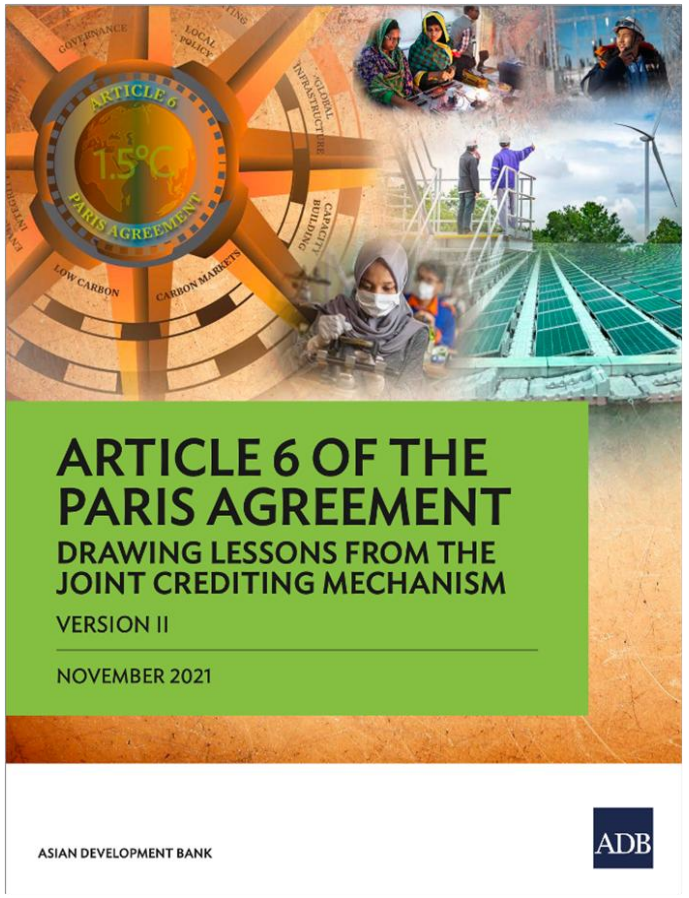
**in partnership with**

- Ministry of the Environment, Japan
- Swedish Energy Agency
- Ministry of Foreign Affairs and Trade, New Zealand
- Federal Ministry for Economic Cooperation and Development, Germany
- Norwegian Ministry of Climate and Environment

# Knowledge Products

ADB publications on promoting the JCM as a forerunner of Article 6.2 mechanisms.

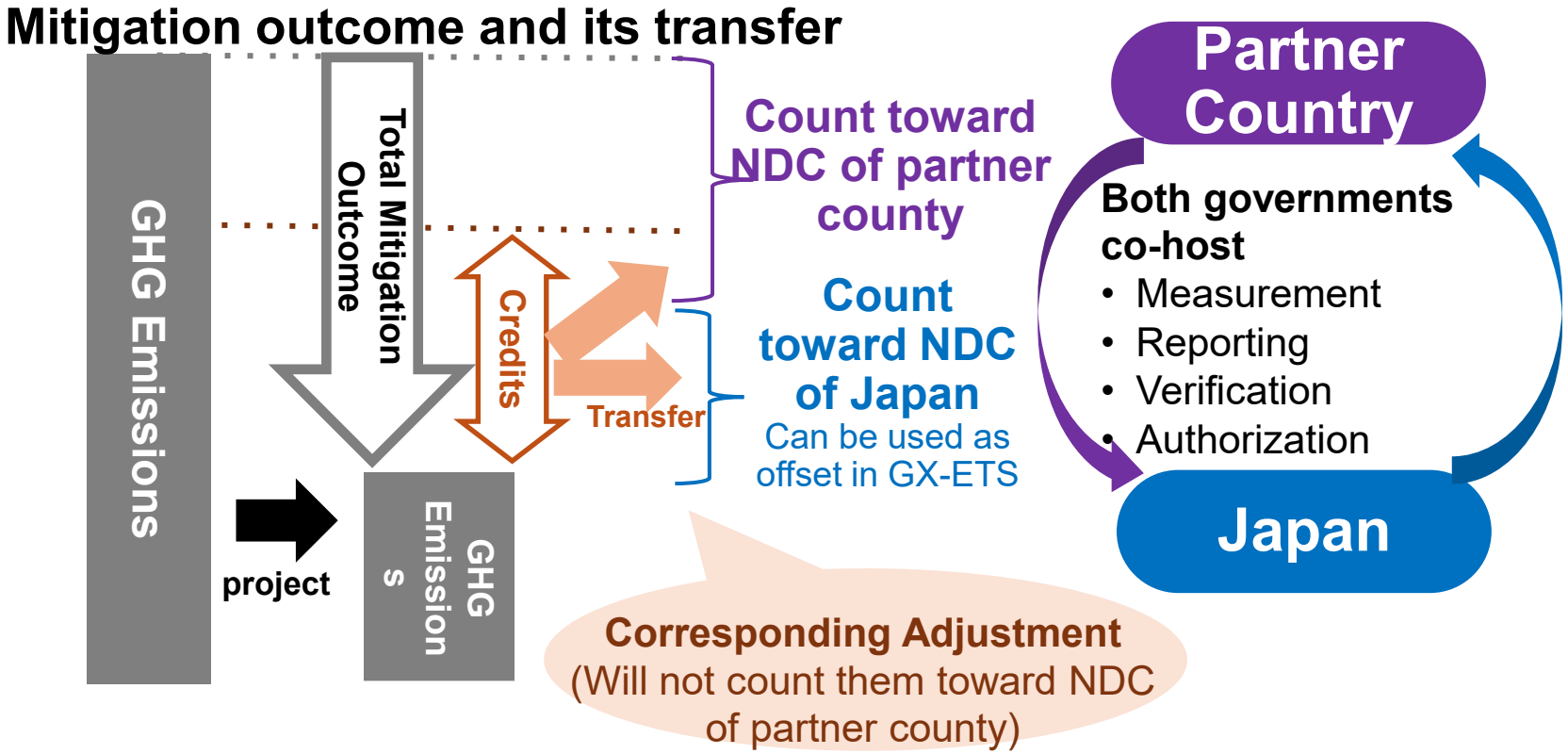

https://www.adb.org/publications/article-6-paris-agreement-lessons-jcm




https://www.adb.org/publications/article-6-paris-agreement-lessons-jcm-v2

# Japan Fund for the Joint Crediting Mechanism

- Established in June 2014 as one of ADB's trust funds
- Contribution by Government of Japan: $137.30M (2014-2024)
- Provides financial incentives for the adoption of advanced low-carbon technologies in ADB-financed projects that use the JCM
- Both sovereign and non-sovereign projects are eligible



# JFJCM Eligibility Criteria

## Eligible Countries

- All ADB developing member countries that have signed bilateral agreements on the JCM with the Government of Japan (19 out of 31 JCM partner countries).
- Azerbaijan, **Bangladesh**, Cambodia, Georgia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Laos, Maldives, Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Sri Lanka, Thailand, Uzbekistan, and Viet Nam (as of November 2025).

## Eligible Projects

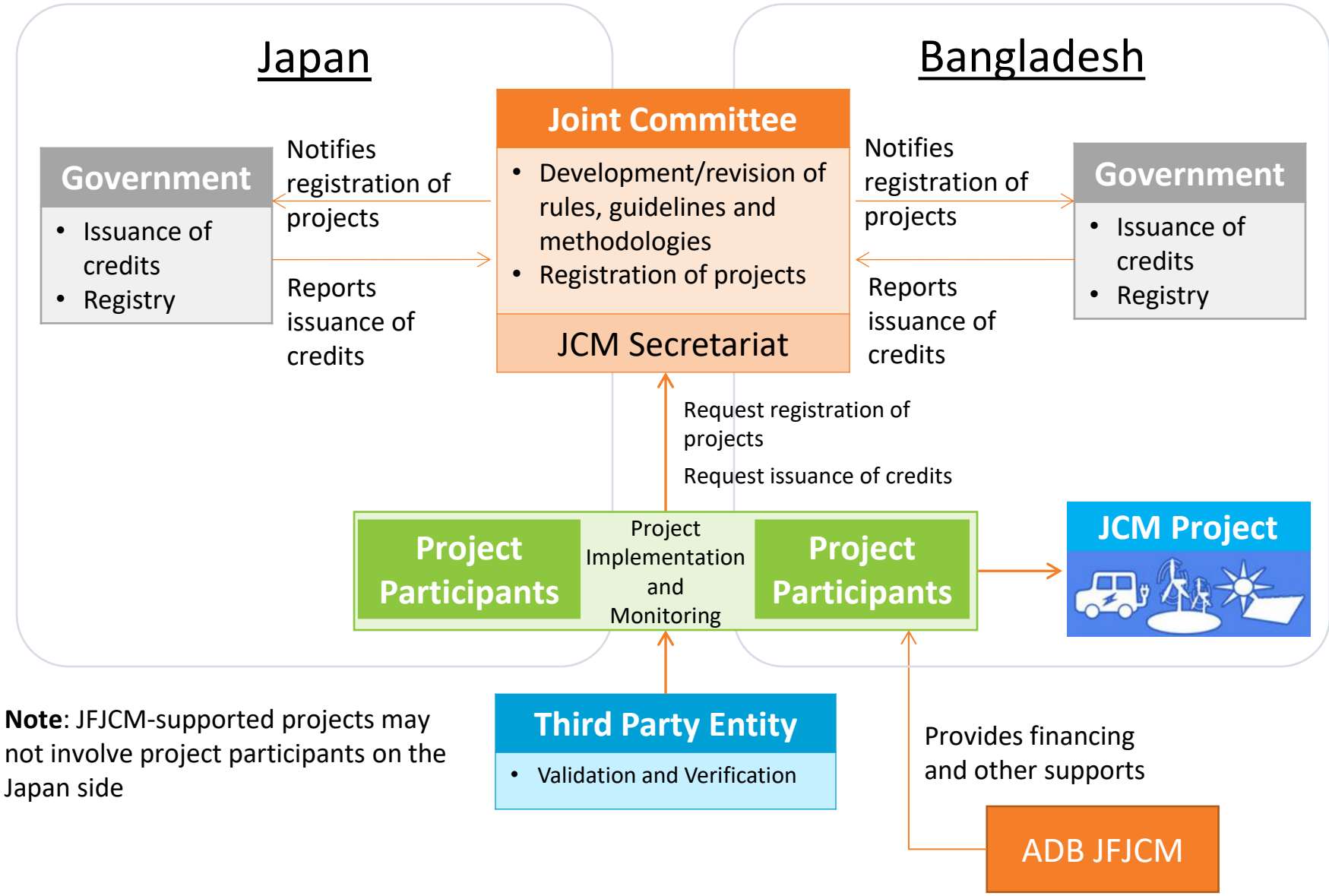
- Investment project financed by ADB or ADB administered funds.
- ADB technical assistance for developing JFJCM pipeline projects.

* Can be used for additional financing to ongoing ADB project.

## Eligible Technologies

- Advanced low carbon technologies that reduce greenhouse gas (GHG) emissions.
- The technologies must have a proven track record globally but must be "advanced" in the host country context.

# Roles of key entities in JCM projects




**Note**: JFJCM-supported projects may not involve project participants on the Japan side

# JCM project cycle and requirements (1)

| JCM steps | Borrower requirements | Consultant's support* |
|---|---|---|
| Methodology Development | Prepare a methodology for GHG emission reduction calculation, and submit to Joint Committee (JC) | Draft a methodology, and facilitate communication with JCM secretariat |
| Approval of Methodology | | |
| PDD Development | Develop a project design document (PDD) and hold a local stakeholder consultation | Draft a PDD and help holding a local stakeholder consultation |
| Validation | Hire TPE, and submit PDD to JC | Assist responding to queries from TPE, and facilitate communication with TPE, JC and JCM secretariat |
| Registration | Submit registration request to JC | |

One-time

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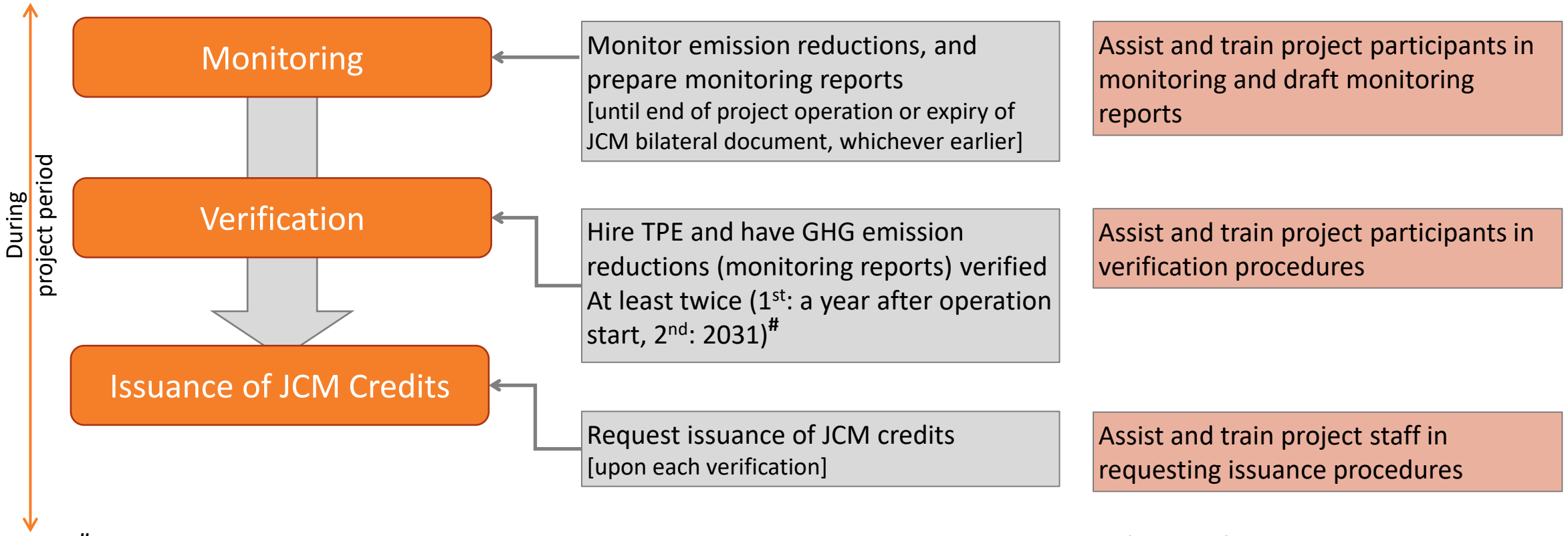
* JFJCM financial support can be used to engage a consultant to support the process

# JCM project cycle and requirements (2)




# Cost for hiring TPE will be borne by Borrower for the verification to be done if the timing is after the ADB project implementation period.

* JFJCM financial support can be used to engage a consultant to support the process

# Case Study: Energy efficient transmission lines in Bangladesh

| Project | Southwest Transmission Grid Expansion Project |
|---|---|
| **JFJCM Support** | $7 million (total project cost: $532 million) |
| **Technology Deployed** | Energy efficient transmission lines |
| **Description** | Energy efficient transmission lines will increase high-voltage network capacity while reducing transmission losses and emissions including carbon dioxide. The key technology is high-temperature low-sag (HTLS) conductors. HTLS conductors have less sag at high temperatures and higher capacity compared to conventional aluminum conductor steel reinforced (ACSR) conductors, which are currently widely used in Bangladesh. HTLS utilize cores made of steel alloys, composite-reinforced metal, or carbon fiber composite material. |
| **Location** | Between Barisal and Gopalganj, Bangladesh |
| **GHG Reductions** | Appx. 23,100 $tCO_2$/year |

Transmission lines with HTLS conductors introduced in Barisal - Gopalganj section

# JFJCM Project Portfolio

| # | Project | Country | JFJCM support ($ million)* | Total project cost ($ million)* | ADB Approval | Technologies supported |
|---|---|---|---|---|---|---|
| 1 | Preparing Outer Islands for Sustainable Energy Development Project (POISED) | Maldives | 5.00 | 129.00 | 2015 | Advanced battery and energy management system (EMS) |
| 2 | Southwest Transmission Grid Expansion Project | Bangladesh | 7.00 | 532.00 | 2018 | Energy efficient transmission lines |
| 3 | Upscaling Renewable Energy Sector Project | Mongolia | 6.00 | 66.22 | 2018 | Solar PV with advanced battery system and EMS |
| 4 | Improving Access to Health Services for Disadvantaged Groups Investment Program | Mongolia | 3.48 | 80.44 | 2019 | Energy efficient HVAC, high insulation window, rooftop solar PV and ground source heat pump |
| 5 | Greater Male Waste to Energy Project | Maldives | 10.00 | 151.13 | 2020 | Waste-to-energy plant (incineration) |
| 6 | Geothermal Power Generation Project | Indonesia | 10.00 | 479.20 | 2023 | Geothermal power plant with advanced designs |
| 7 | Accelerating Sustainable System Development Using Renewable Energy Project (ASSURE) | Maldives | 6.20 | 100.47 | 2023 | Advanced flow battery system and ocean renewable energy pilot |
| 8 | Disaster Resilient Clean Energy Financing Project (DRCEF) | Palau | 5.00 | 9.00 | 2023 | Financial intermediation to support investment in low-carbon technologies |
| 9 | Bishkek Low-carbon Municipal Building Upgrading Pilot | Kyrgyz Republic | 5.00 | 8.00 | - | Energy efficient heat pumps, ventilation system with heat recovery, and building energy management systems (BEMS) |
| 10 | Sustainable Energy Sector Development Program – Subprogram 1 | Papua New Guinea | 10.00 | 110.00 | - | Energy efficient transmission lines |
| 11 | Accelerating Expansion and Sustainability of Health Services for Universal Health Care (ACCESS-UHC) Project | Philippines | 3.5 | 514.00 | - | Energy-efficient HVAC, rooftop solar PV and building-integrated PV (BIPV) |
| | | **Total** | **71.18** | **-** | | |

*Source: Project Administration Manual of each project or other published documents at ADB website under https://www.adb.org/projects

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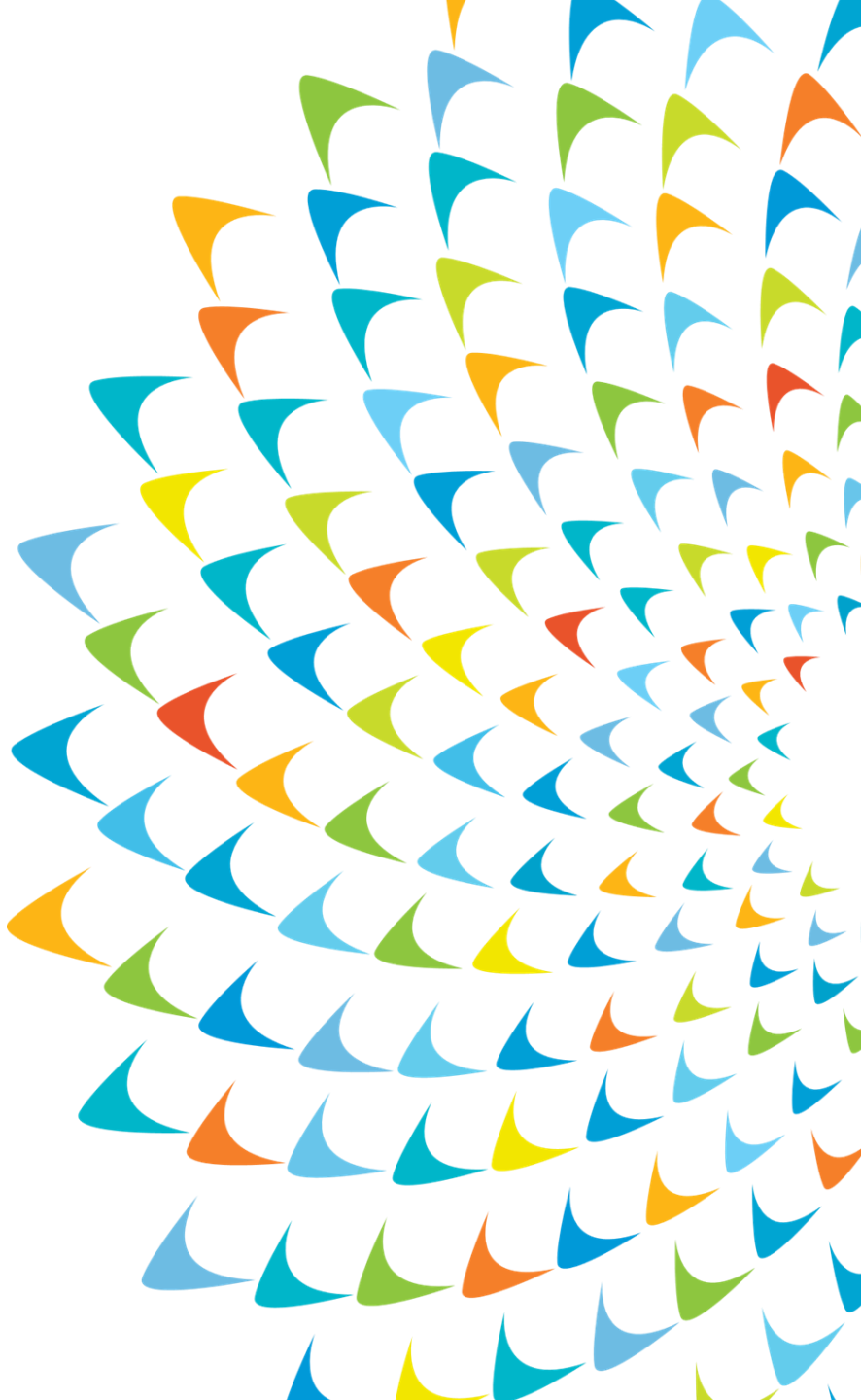
# Thank you

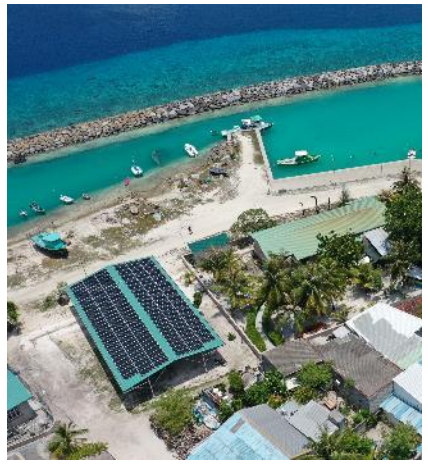


# Case study 1: Advanced micro-grid technology in Maldives

| | |
|---|---|
| Project name | Preparing Outer Islands for Sustainable Energy Development Project (POISED) |
| JFJCM / Total project cost | $5 million / $129 million |
| Technology supported | Advanced battery energy storage system (BESS) and energy management system (EMS) |
| Description | On top of 1.6 MW of solar PV installed under the POISED project, the advanced BESS and EMS are supported by JFJCM. The systems enable:<br>➢ Smoothing out the fluctuation of variable solar PV generation<br>➢ Optimizing diesel generator operation<br>➢ Integrating large amounts of renewable energy to the grid<br>The BESS and EMS have started operation since August 2021. |
| Location | Addu, Maldives |
| Emission reductions | 1.3 thousand $tCO_2e$/year (estimate) |

BESS at the project site


Training local staff for EMS operation


Solar PV at the project site

# Case study 2: Energy efficient transmission lines in Bangladesh

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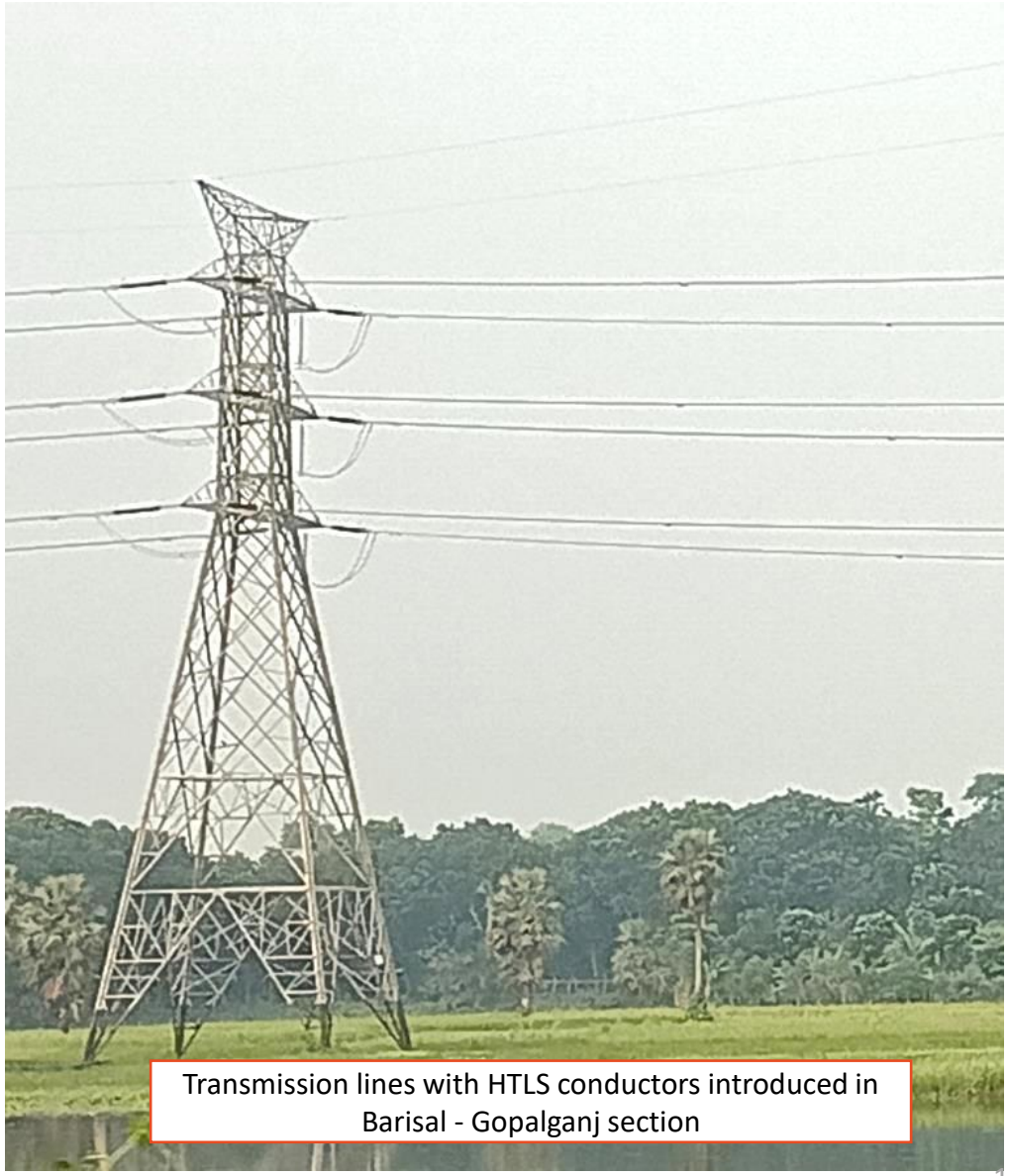
|---|---|
| Project name | Southwest Transmission Grid Expansion Project |
| JFJCM / Total project cost | $7 million / $532 million |
| Technology supported | Energy efficient transmission lines |
| Description | Energy efficient transmission lines will increase high-voltage network capacity while reducing transmission losses and emissions including carbon dioxide. The key technology is high-temperature low-sag (HTLS) conductors. HTLS conductors have less sag at high temperatures and higher capacity compared to conventional aluminum conductor steel reinforced (ACSR) conductors, which are currently widely used in Bangladesh. HTLS utilize cores made of steel alloys, composite-reinforced metal, or carbon fiber composite material. |
| Location | Between Barisal and Gopalganj, Bangladesh |
| Emission reductions | 23.1 thousand $tCO_2e$/year (estimate) |



Transmission lines with HTLS conductors introduced in Barisal - Gopalganj section

# Case study 3: Upscaling renewable energy in Mongolia

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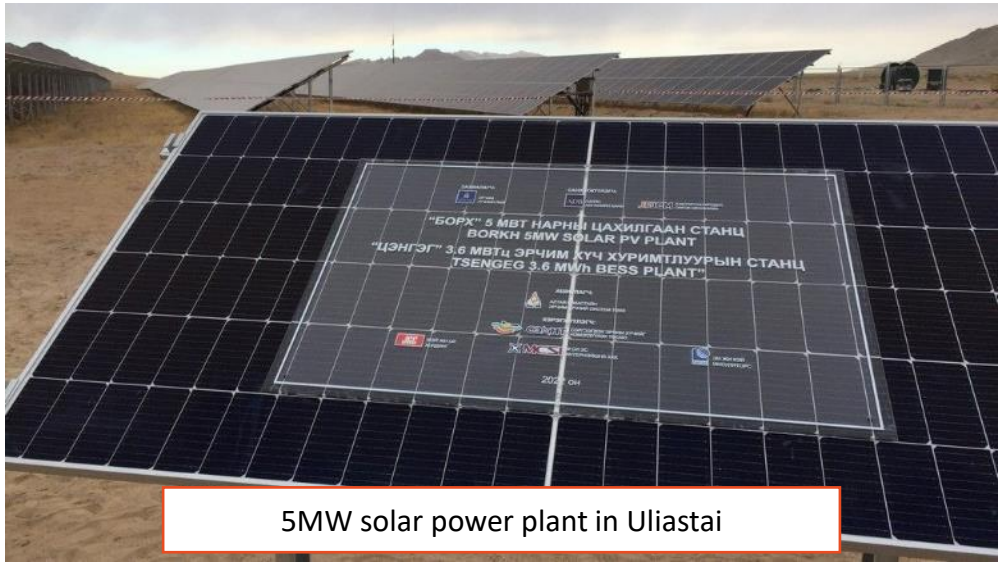
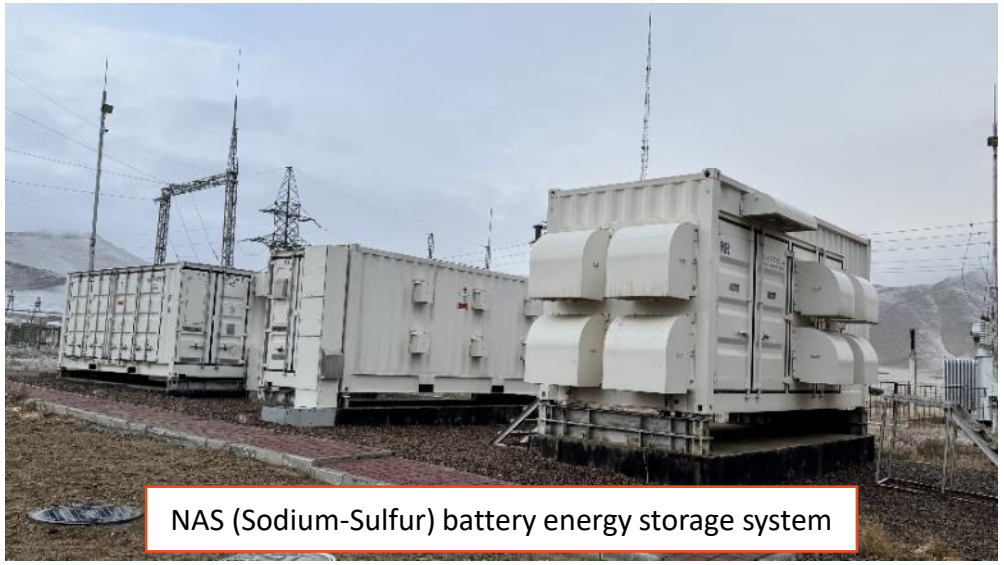
|---|---|
| Project name | Upscaling Renewable Energy Sector Project |
| JFJCM / Total project cost | $6 million / $66.22 million |
| Technology supported | 5MW solar PV system, advanced battery energy storage system (BESS) of 3.6 MWh and energy management system (EMS) |
| Description | This solar power plant with advanced BESS and EMS can supply as much locally produced renewable energy as possible to local consumers, reducing carbon intensive domestic and imported grid electricity, while strengthening the country's power self-sufficiency. This is the very first utility scale battery system in Mongolia combined with a grid connected renewable energy. The plant started operation in Nov 2022. |
| Location | Uliastai, Mongolia |
| Emission reductions | 6.4 thousand $tCO_2e$/year (estimate) |



5MW solar power plant in Uliastai


NAS (Sodium-Sulfur) battery energy storage system

# Case study 4: Green Hospital in Mongolia

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|---|---|
| Project name | Improving Access to Health Services for Disadvantaged Groups Investment Program |
| JFJCM / Total project cost | $3.48 million / $80.44 million |
| Technology supported | Energy efficient heating, ventilation and air-conditioning (HVAC) system, high insulation window, rooftop solar PV, and ground source heat pump (GSHP) |
| Description | A new annex building as expansion of the existing Khan Uul district hospital in Ulaanbaatar will be constructed with adoption of advanced low carbon technologies including HVAC system, high insulation window and rooftop solar PV. New construction of three family health centers is also planned with GSHP installation, which replace the heat supply from electric heaters powered by coal fired power plants. |
| Location | Ulaanbaatar, Mongolia |
| Emission reductions | 2.9 thousand $tCO_2e$/year (estimate) |

Project site for a family health center with GSHP

Test drilling for GSHP

# Case study 5: Waste to Energy in Maldives

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|---|---|
| Project name | Greater Male Waste to Energy Project |
| JFJCM / Total project cost | $10 million / $151.13 million |
| Technology supported | Waste to energy plant (incineration) |
| Description | The project will establish an integrated regional solid waste management system in Greater Male consisting of collection, transfer, treatment using advanced waste-to-energy (WtE) technology, disposal, recycling, and dumpsite closure and remediation. The WtE facility can process 500 tons/day of municipal solid waste, with up to 12 MW power generation. Installation of MSW incinerators avoids emissions of methane associated with disposed organic waste in a solid waste disposal site. |
| Location | Thilafushi, Maldives |
| Emission reductions | 40.4 thousand $tCO_2e$/year (estimate)<br>*Average of emission reductions for 20 years |


# Case study 6: Geothermal Energy in Indonesia

| | |
|---|---|
| Project name | Geothermal Power Generation Project |
| JFJCM / Total project cost | $10 million / $479.2 million |
| Technology supported | (i) Anomaly predictive diagnosis using Internet of Things (IoT) and Artificial Intelligence (AI), (ii) steam turbine with advanced design, (iii) direct drive motors for cooling tower fans, (iv) hybrid type cooling tower fill, and (v) optical fiber monitoring for temperature distribution inside cooling tower |
| Description | PT Geo Dipa Energi (GDE), a state-owned geothermal company, will develop a single-flash geothermal power plant with 55 MW at the Patuha geothermal field (Patuha Unit-2). The project will introduce the first-of-its-kind technologies for large scale geothermal power plant in Indonesia, which lead to improving plant efficiency, minimizing degradation of plant performance, and reducing unplanned shutdown periods of the geothermal power plant, and thereby increasing renewable energy penetration into the existing grid system. |
| Location | West Java, Indonesia |
| Emission reductions | 273.8 thousand $tCO_2e$/year (estimate)<br>*Average of emission reductions for 20 years |

Patuha project site


Geothermal steam pipes

# Case study 7: Advanced Flow BESS and Ocean Renewable Pilot

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|---|---|
| Project name | Accelerating Sustainable System Development Using Renewable Energy Project |
| JFJCM / Total project cost | $6.2 million / $ 100.47 million |
| Technology supported | (i) Advanced flow battery energy storage (BESS)<br>(ii) Ocean renewable energy pilot |
| Description | (i) Flow BESS of 3 MWh each for two target outer islands together with advanced EMS will be introduced to enable further integration of solar power generation by the private sector. The flow BESS will be used for time-shifting to bring the renewable energy penetration to 40-60% in energy term.<br><br>(ii) Current and/or wave power generation with 100 kW capacity will be deployed on a pilot basis in selected outer islands. |
| Location | Several outer islands, Maldives |
| Emission reductions | (i) 4.5 thousand $tCO_2e$/year (estimate)<br>(ii) 211 $tCO_2e$/year (estimate)<br>*Average of emission reductions for 20 years |

Renewable Energy Installation in Maldives

# Case study 8: Low Carbon Financing Intermediation in Palau

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|---|---|
| Project name | Disaster Resilient Clean Energy Financing (DRCEF) - Additional Financing |
| JFJCM / Total project cost | $5 million / $9 million |
| Technology supported | Cycle 1: Roof-top solar photovoltaic (PV) with battery energy storage systems (BESS)<br>Cycle 2: clean energy technologies to be identified at the time of commencement of this cycle (e.g. wind, ocean energy and other renewable power generation, hydrogen, electric vehicle) that can meet JCM requirements |
| Description | National Development Bank of Palau (NDBP) will establish a new loan product with subsidized interest rate to promote low-carbon technologies, which is also expected to improve disaster resilience. The product is designed to support clean energy investment by the private sector in Palau, with particular focus on micro, small and medium enterprises (MSMEs) borrowers, including women-led businesses. The funding will be managed as a revolving fund, where the repaid principal will be used for multiple cycles by NDBP. |
| Location | MSMEs' premises within Palau |
| Emission reductions | 3.1 thousand $tCO_2e$/year (estimate)<br>*Average of emission reductions by Cycle-1 for 20 years |

Rooftop solar panels installed under Phase 1 of DRCEF Project.

# Case study 9: Low-carbon Heating in the Kyrgyz Republic

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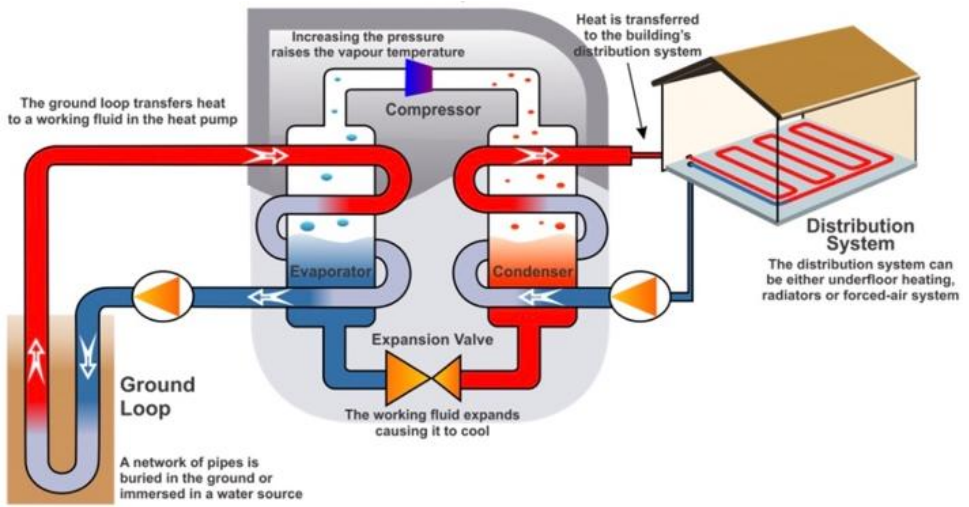
|---|---|
| Project name | Bishkek Low-carbon Municipal Building Upgrading Pilot under the Multisector Activities Support Facility 2025–2030 |
| JFJCM / Total project cost | $5 million / $8 million |
| Technology supported | (i) Heat pumps (closed-loop ground-source, air-to-water, and wastewater types)<br>(ii) Heat recovery ventilation<br>(iii) Building energy management systems |
| Description | The project will introduce low-carbon and energy-efficient technologies in five schools and one preschool in Bishkek. It will combine conventional measures (mainly building envelope insulation) with advanced technologies such as energy-efficient space conditioning using heat pumps, heat recovery ventilation, and building energy management systems. These upgrades will replace coal-fired heating, reducing GHG emissions and energy costs, and improving indoor and outdoor air quality. The project will also build local expertise and demonstrate scalable, replicable energy-efficient building solutions in the country and the region. |
| Location | five schools and one preschool in Bishkek, Kyrgyz Republic |
| Emission reductions | 6.4 thousand $tCO_2e$/year (estimate) |



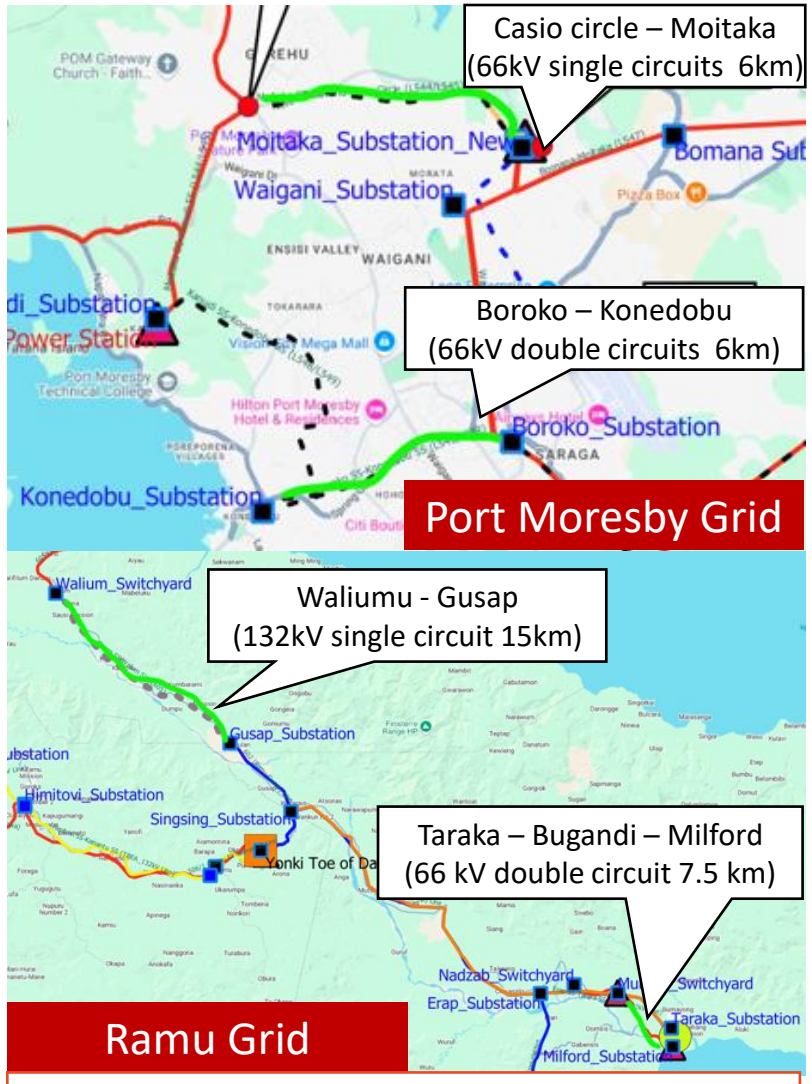

Source: Niessink, R.J.M. 2019. Ground-source Heat Pump (GSHP) – Households. Energy.nl

How closed-loop ground-source heat pumps work

Existing coal-fired boilers in a targeted school

# Case study 10: Energy Efficient Transmission Lines in PNG

| | |
|---|---|
| Project name | Sustainable Energy Sector Development Program – Subprogram 1 |
| JFJCM / Total project cost | $10 million / $110 million |
| Technology supported | Energy efficient transmission lines |
| Description | High-efficiency transmission lines, known as high-temperature low-sag (HTLS) conductors, will be installed. This is the first-of-its-kind technology in PNG, offering key advantages such as reduced sag at high temperatures, lower resistance (i.e., reduced transmission losses), and a higher current-carrying capacity compared with conventional aluminum conductor steel reinforced (ACSR) conductors commonly used in the country. Using strong cores made of steel alloys, composite-reinforced metals, or carbon fiber, HTLS conductors can hold more aluminum conductor, delivering the performance benefits noted above. |
| Location | Port Moresby Grid: Boroko - Konedobu and Casio Circle - Moitaka<br>Ramu Grid: Waliumu - Gusap and Taraka - Bugandi - Milford |
| Emission reductions | 6.0 thousand $tCO_2e$/year (estimate) |




Transmission lines with HTLS conductors to be upgraded in Port Moresby Grid and Ramu Grid (Green lines)