



Processes and Key points for forming JCM projects

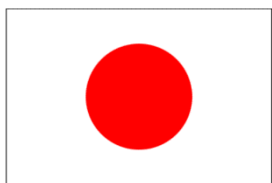


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1. What OECC does on the JCM
2. Good practices of JCM projects
3. Key points to form JCM projects

1. What OECC does on the JCM



Based on local needs in Moldova



- Identify local needs, potentials and environmental issues through local dialogue

- Technology study
- GHG reduction methodology development



- Support for creating business flows
- Clarifying issues and resolving issues for JCM application



Application to JCM model project finance

- Support preparation application forms



1. What OECC does on the JCM



Information dissemination on the JCM



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Sharing of various JCM basic information



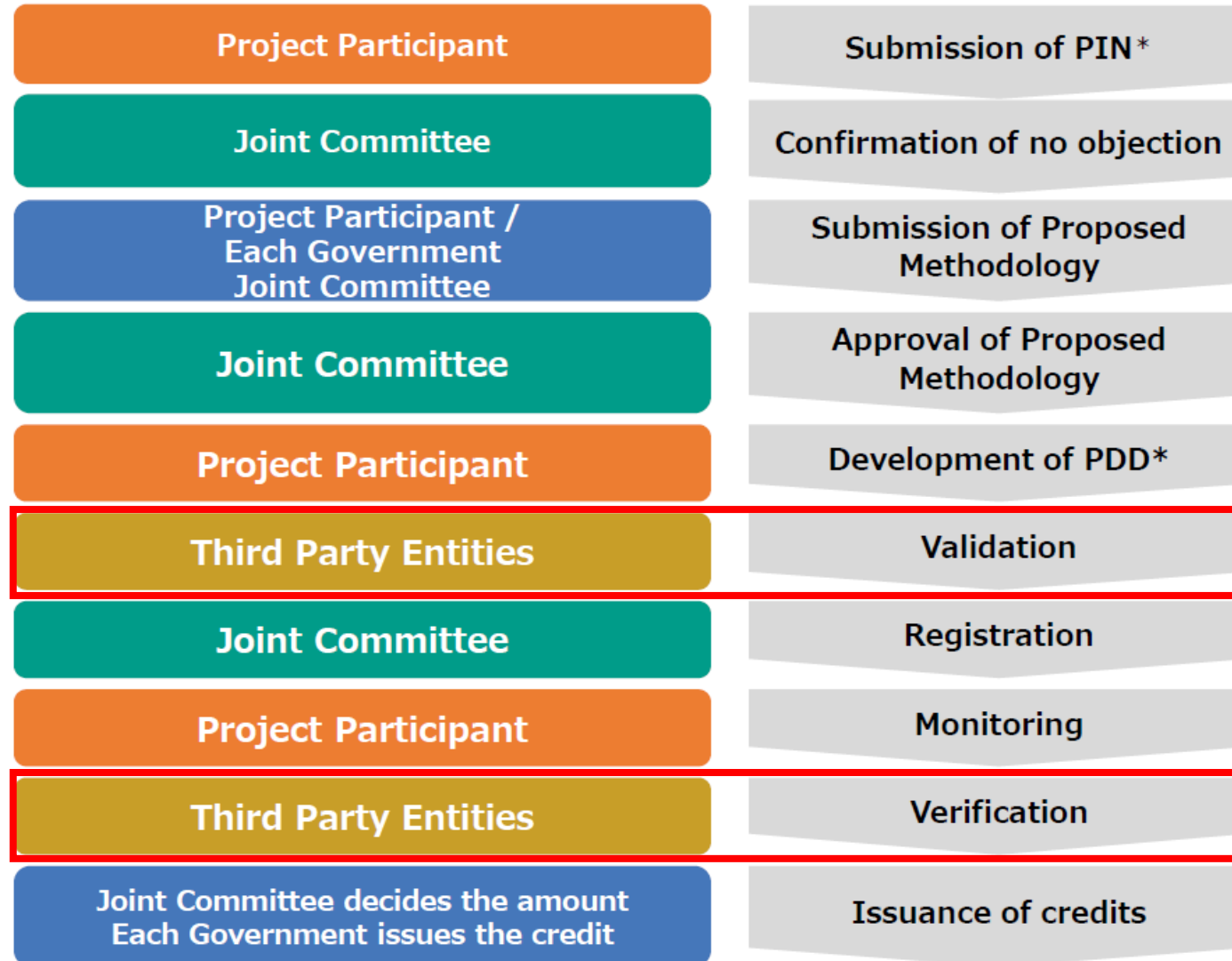
<http://carbon-markets.env.go.jp/eng/index.html>



Producing movies to facilitate the JCM

1. What OECC does on the JCM

Support for Validation and Verification of JCM projects



2. Good practices of JCM projects



OECC has supported the project development for 28 projects as of September 2024.

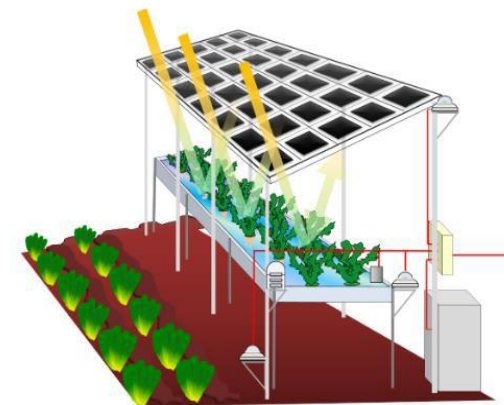
Selected Year	Partner country	Project Title	Expected GHG Emission Reductions (tCO2/year)
2023	Indonesia	Improvement of Combustion Method and Furnace Shapes in Flat Glass Production Melting Furnace	5,747
2023	Mongolia	Demonstration project for green hydrogen production by wind power generation and heat supply using hydrogen boiler	2,400
2023	Sri Lanka	13.5MW Solar Power Project in Kebithigollewa, North Central Province	6,511
2022	New partner candidate	Confidential	About 60,000
2021	Indonesia	Introduction of 3.3MW Rooftop Solar Power System in Woodworking Factories	2,396
2020	Vietnam	Introduction of 2MW Solar Power System for Pellet Factory	945
2019	Philippines	Biogas Power Generation and Fuel Conversion Project in Pineapple Canneries	52,156
2019	Mongolia	Fuel Conversion by Introduction of LPG Boilers to Beverage Factory	5,781
2019	Philippines	7.3MW Solar Power Project at Mandalay Airport and Yangon City	3,276
2018	Myanmar	Introduction of 8.8MW Power Generation System by Waste Heat Recovery for Cement Plant	19,241
2018	Mongolia	Upscaling Renewable Energy Sector Project	6,423
2017	Mongolia	Introduction of a 20MW Solar Power System in Darkhan City	22,927
2017	Indonesia	Introduction of Absorption Chiller to Chemical Factory	1,084
2017	Philippines	Installation of 1.2MW Rooftop Solar Power System in Refrigerating Warehouse	838
2017	Mongolia	Introduction of 15MW Solar Power System near New Airport	18,438
2017	Philippines	Introduction of 1.53MW Rooftop Solar Power System in Auto Parts Factories	1,124
2017	Laos	Introduction of Amorphous High Efficiency Transformers in Power Grid	2,099
2017	Vietnam	Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids II	1,469
2016	Myanmar	Introduction of Energy Efficient Refrigeration System in Logistics Center	125
2016	Vietnam	Introduction of Amorphous High Efficiency Transformers in Northern, Central and Southern Power Grids	2,098
2016	Thailand	Introduction of 1.5MW Rooftop Solar Power System and Advanced EMS for Power Supply in Paint Factory	1,344
2016	Cambodia	Introduction of 0.8MW Solar Power Generation in International School	772
2016	Mongolia	Installation of 8.3MW Solar Power Plant in Ulaanbaatar suburb Farm	10,580
2015	Vietnam	Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids	4,360
2015	Bangladesh	Installation of High Efficiency Loom at Weaving Factory	1,518
2015	Mongolia	10MW Solar Power Project in Darkhan City	14,746
2015	Mongolia	Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar suburb	2,707
2015	Bangladesh	Introduction of PV-diesel Hybrid System at Fastening Manufacturing Plant	265

Case I: Farming x Solar Power Generation

12.7MW a farming-type solar power generation project at Monnaran Farm in Mongolia over 28ha land

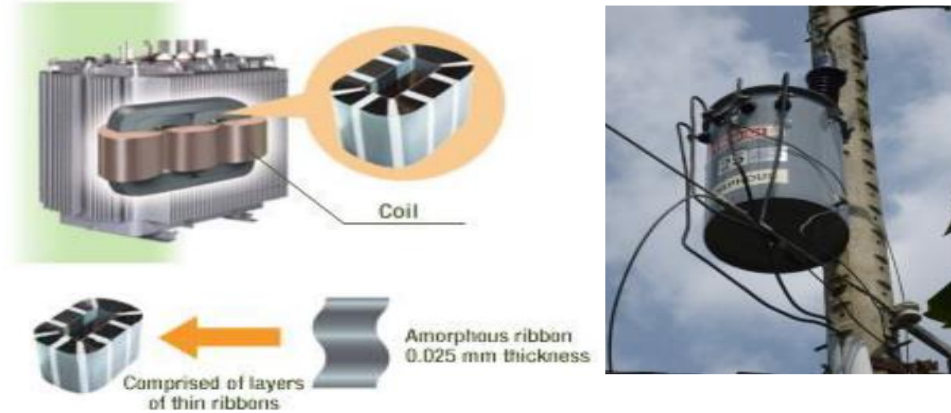
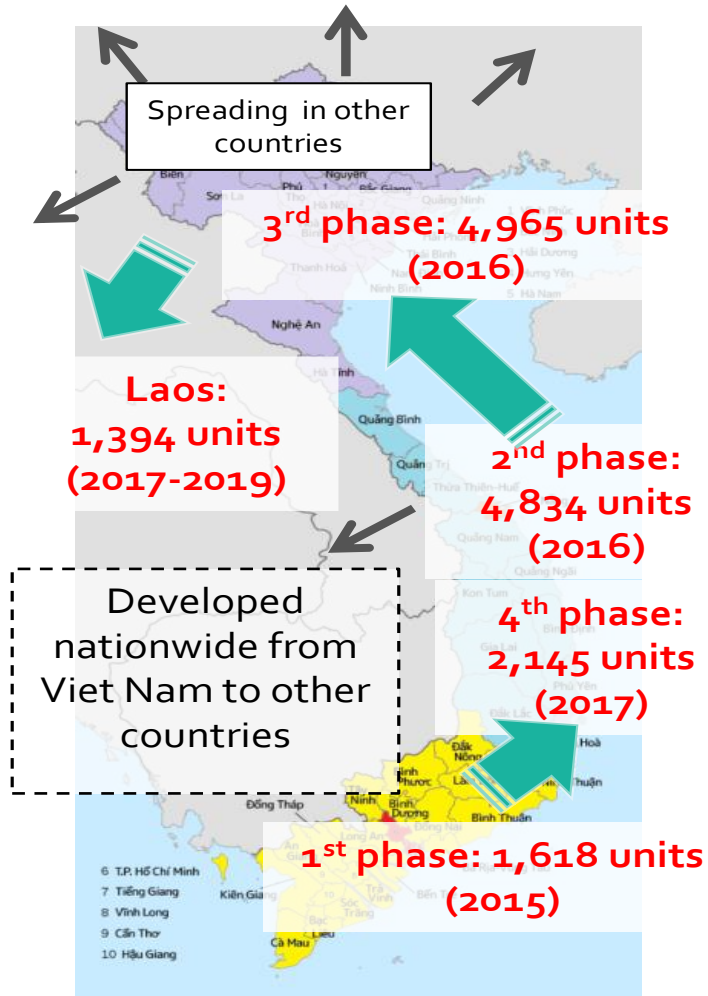
- As the beginning of formation of the JCM project, FarmDo was exploring the possibility of solar sharing in Mongolia through a survey by JICA, and OECC approached the company about the possibility of using the JCM.
- OECC supported financial arrangement by obtaining project finance from the Japan Bank for International Cooperation (JBIC) and supported to develop the methodology for the project.

- This project have been achieving double income from farming and electric power selling, making a significant contribution to improving the living standards of local people by creating employment in this area.
- Total 76 MW of solar PV was installed by JCM related Contribution in Mongolia.



Case2: Transferring & replicating low-carbon technologies

Introduction of amorphous high-efficiency transformers in power distribution networks in the northern, central, and southern regions of Vietnam



- This project was developed through explanations to local power companies (Vietnam Electricity: EVN) about the effect of introducing of amorphous transformer and developed the methodology of it toward the JCM project development.
- Developing this project scheme realized standardization of amorphous procurement in Vietnam by producing transformers in Vietnam through importing components (amorphous ribbons) from a Japanese company and achieved lower price selling of the product through local competitiveness.
- This JCM project succeeded of scale out (replicating) of the project due to standardization of amorphous procurement in Vietnam.
- By being selected as the JCM projects, more than 10,000 amorphous transformers have been installed, and amorphous transformers have been designated as a top-runner technology by the EVN due to its high performance, and as the result of local production, the amorphous transformers are now being widely used even without the subsidy.

3. Key Points to form JCM projects

Priority technologies of the JCM

Potential areas/technologies to be introduced in Moldova

- | | |
|-------------------------------|--|
| ➤ Solar power generation | ➤ Storage battery & Electric grid system |
| ➤ Wind power generation | ➤ Energy-saving infrastructure |
| ➤ Geothermal power generation | ➤ Hydrogen technology |
| ➤ Hydro power generation | ➤ Carbon Capture and Storage |
| ➤ Waste to energy | ➤ Ammonia fuel |



3. Key Points for forming JCM projects

<Potential technologies in Moldova>

These Information were taken from NDC, NECP, and IEA reports regarding Moldova*.

*NDC: National Determined Contribution issued in Mar 2020.

*NECP: The Integrated National Energy Climate Plan toward 2030 issued in Dec 2023.

*IEA: <https://www.iea.org/search?q=moldova>

- About 20% of energy demand is met through domestic production (other 80% of energy demand should be improved instead of import), almost entirely consisting of solid biomass.
- Promote renewable energy sources that operated based on environment-friendly technologies such as solar power generation, wind facilities, and biomass heated facilities.
- The promotion of gradual transition from the use of traditional fuel sources to the use of biofuel evolves actively in the country.

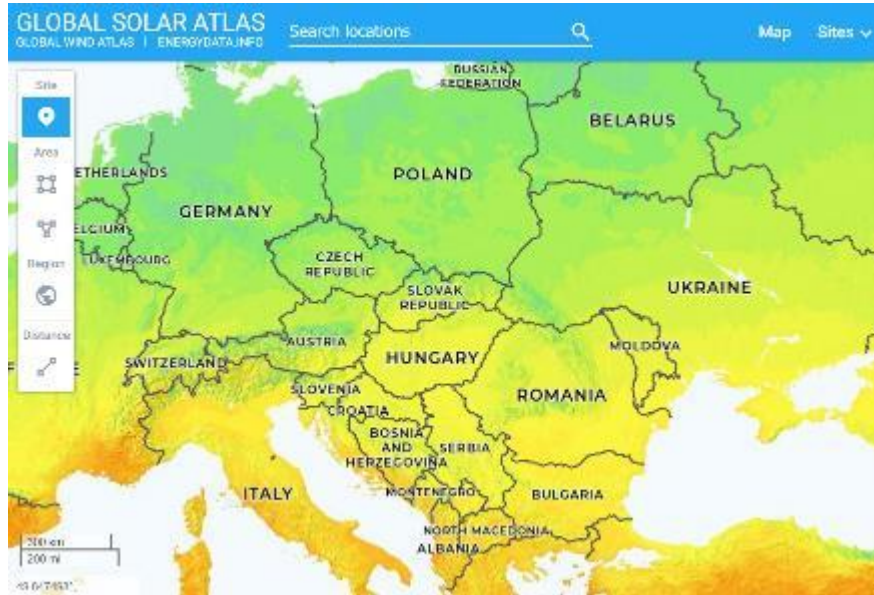
[Solar power generation]

- 87.0 MW has been installed (as of July 2023) and total capacity is aimed to be 215MW toward 2030.
- The solar radiation to develop solar power generation project is enough good. *Refer to the map on the next slide.

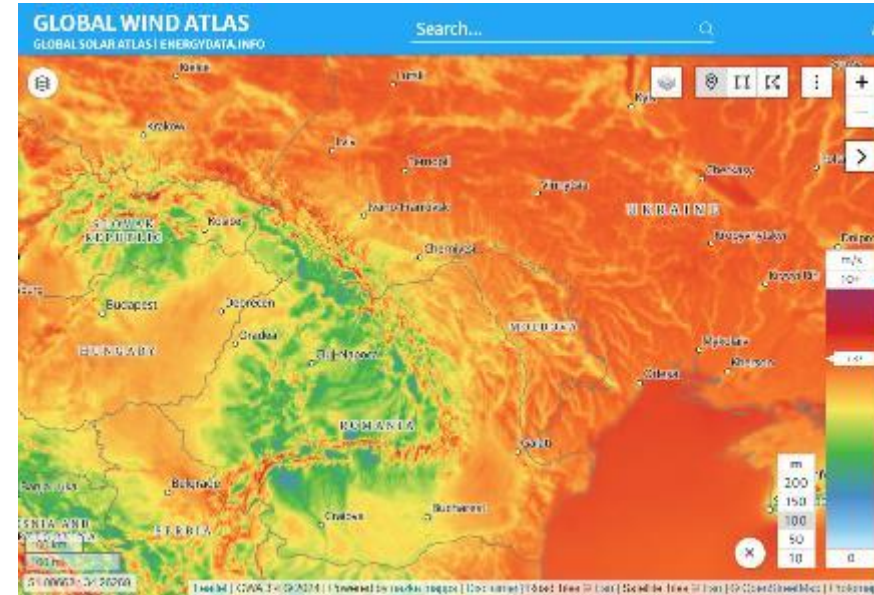
[Wind power generation]

- 141.3 MW has been installed (as of July 2023) and total capacity is aimed to be 600MW toward 2030.
- The wind speed to develop wind power generation project has high-potential. *Refer to the map on the next slide.

3. Key Points for forming JCM projects



Global Solar Atlas (World Bank): <https://globalsolaratlas.info/map>



Global Wind Atlas (World Bank): <https://globalwindatlas.info/en>

[Waste to energy]

- 15.33 MW of Biogas and biomass CHP (Combined Heat and Power) has been installed (as of July 2023) and total capacity is aimed to be 78MW toward 2030.
- Unlike other technologies for the production of the renewable energy, the biofuel has a great potential for job creation*. The approximately 100 biofuel companies have generated over 300 new jobs in the Republic of Moldova.

* Demonstration study in 2012: https://gec.jp/gec/en/Activities/fs_newmex/2012/2012_mrvds05_eMCC-CUES_moldova_rep.pdf; UNDP report in 2018: <https://www.undp.org/sites/g/files/zskgke326/files/migration/md/Biomass-final-publication-web-EN.pdf>

3. Key Points for forming JCM projects



[Energy-saving infrastructure]

- ✓ District Heating Losses as 18.1 % of total heat transferred in 2030 compared to 19.2% in 2020
- ✓ Increase share of Renewable Energy Sources in Heating & Cooling by 1.1% annually between 2025 and 2030
- ✓ Improving the energy performance of buildings is a public policy priority in Moldova based on draft government decision (No. 1103 of 14.11.2018) includes rules for regular inspections of air conditioning systems in buildings.

Summary

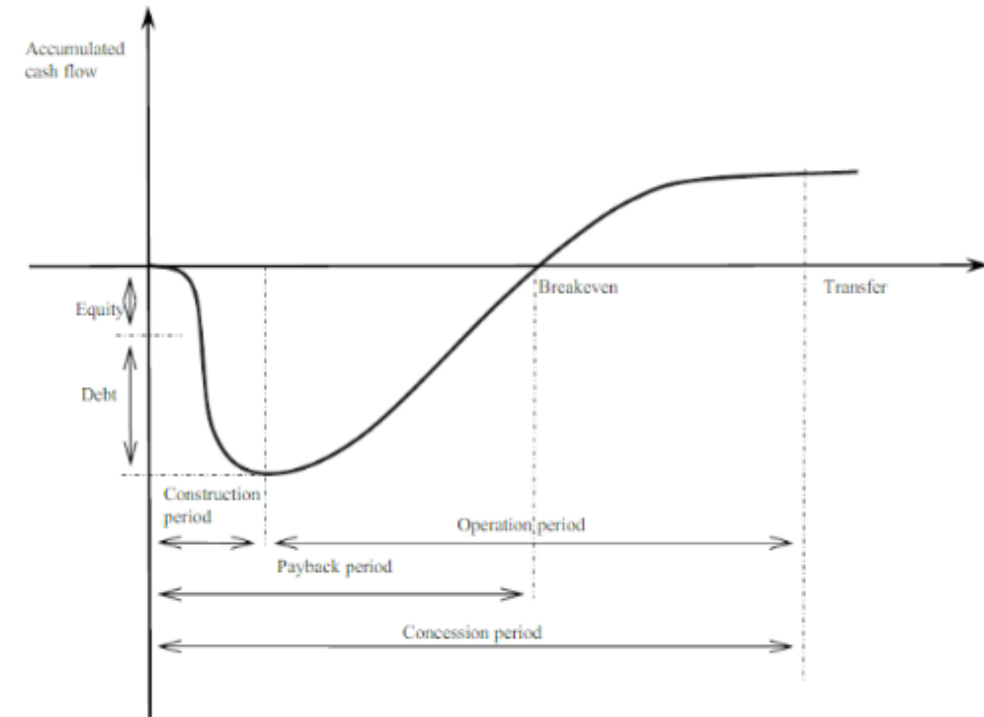
□ **Promotion of energy efficiency and renewable sources** are seen as an urgent priority of energy sector to increase rate of self-sufficiency (to reduce dependence on import of fossil fuel and electricity from other countries), and that is included the Energy Strategy of the Republic of Moldova until 2030.

->The JCM supports achieving these national target and plan.

3. Key Points for forming JCM projects

Success factors for JCM project development based on OECC's experience

- ✓ Facilitating coexistence of local development needs (improving wellbeing) in Moldova, business feasibility, GHG reduction, and consistency with NDC on project development
- ✓ Ensuring business robustness which can expect return for investment while securing revenue source such as project income based on Power Purchase Agreement (PPA) *Refer to the graph on the right
- ✓ Securing financial arrangement including loan with appropriate interest rates such as project finance from local bank or international financial institution

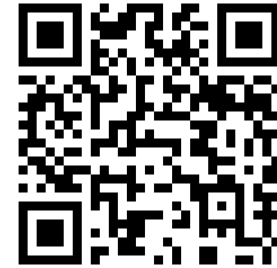


Zhang, Xueqing. (2009). Win-Win Concession Period Determination Methodology. *Journal of Construction Engineering and Management-asce - J CONSTR ENG MANAGE-ASCE*. 135. 10.1061/(ASCE)CO.1943-7862.0000012.

Thank you for your attention!



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<http://carbon-markets.env.go.jp/eng/index.html>

<https://www.oecc.or.jp/en/about/>