URGENT

No. 0804/ 13019

Department of Climate Change
and Environment
49 Soi 30, Rama 6 Road,
Phaya Thai, Bangkok
10400 THAILAND
Tel./Fax. (+66) 2298 5645

28 October B.E. 2568 (2025)

Dear Sir/Madam,

Subject: Authorization Statement for the JCM project entitled "Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir in Thailand"

We refer to the JCM project entitled "Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir in Thailand" implemented under the Memorandum of Cooperation on the Joint Crediting Mechanism between the Government of the Kingdom of Thailand and the Government of Japan, signed on 8 July 2024 (hereinafter referred to as the "Memorandum of Cooperation").

The undersigned is the duly authorized representative of the Competent Authority of the Kingdom of Thailand, Mr. Phirun Saiyasitpanich, Director General of Department of Climate Change and Environment, Ministry of Natural Resources and Environment.

With reference to the International Carbon Credit Guideline, endorsed by the Cabinet of the Kingdom of Thailand by its resolution dated 26 August 2025, and in accordance with paragraph 7 of the Memorandum of Cooperation, we hereby communicate the authorization pursuant to Article 6, paragraph 3, of the Paris Agreement for the JCM project entitled "Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir in Thailand" (hereinafter referred to as the "Mitigation Activity") implemented by TSB GreeNex Co., Ltd., and TSB Bangkok Co., Ltd., with the following information:

Encl: (1) Project Design Document (PDD)
(2) Voluntary Standardized Template for Authorization of Use of the Internationally Transferred Mitigation Outcomes from a Cooperative Approach

The Joint Crediting Mechanism
Implementation Agency (JCMA)
7th Floor, Sumitomo Fudosan Hongo Building,
3-22-5 Hongo, Bunkyo-ku,
Tokyo 113-0033, Japan

/I. Description ...

I. Description of the authorized mitigation activity: The project involves the installation of 5MW Floating solar farm equipment utilizing industrial reservoir pond located inside the Kabinburi Industrial Zone. The project is implemented by TSB Bangkok Co., Ltd., a Thai company utilizing the crystalline silicon photovoltaic (PV) modules of Econess Energy Co., Ltd. as well as Power Optimizer of GNE New Energy Technology Co., Ltd.

The optimizer is equipped with a power shutdown function for each PV module. It can prevent an electric shock for firefighters in case of fire. Additionally, the monitoring function of the optimizer can detect leakage accident of PV module. The use of optimizer also minimizes the power generation loss of PV module string by PV module's specification variation.

The electricity generated by the project is supplied to a factory in the Kabinburi Industrial Zone to replace grid electricity mostly derived from fossil-fuel based thermal power plants, which contributes to the reduction of greenhouse gas emissions in Thailand.

II. Authorized entities: TSB GreeNex Co., Ltd., and TSB Bangkok Co., Ltd.,

III. Authorized crediting period: 1 January 2021 – 31 December 2030

IV. The NDC period during which ITMOs are authorized for transfer and use: The first NDC implementation period ending 2030

V. Authorized use of ITMOs: Use towards Japan's NDC

VI. Amount and details of ITMOs authorized: A total cumulative maximum amount of 12,760 tCO_2eq of mitigation outcomes generated from the Mitigation Activity. The mitigation outcomes shall be issued and tracked by the designated registry of Thailand administered by Thailand Greenhouse Gas Management Organization (Public Organization).

VII. Applicable terms and provisions: The following terms and provisions applies to this authorization:

(a) Condition precedent: The effectiveness of this authorization is conditional upon successful issuance of mitigation outcome units from the Mitigation Activity in the designated registry of Thailand;

(b) The implementation of the Mitigation Activity shall comply with the International Carbon Credit Guideline, the provisions under the Memorandum of Cooperation, and the applicable mitigation activity standards, procedures, and guidelines;

(c) The Mitigation Activity participant understands that the Government of Thailand is not liable for meeting the specified amount of delivery of the mitigation outcomes referred to above.

VIII. Applicable method of corresponding adjustments: The Kingdom of Thailand will apply corresponding adjustments by using the averaging method specified in Decision 2/CMA.3, annex, paragraph 7 (a)(ii). The Kingdom of Thailand reserves the right to change the applicable method of corresponding adjustments, which will be applied

/consistently ...

consistently throughout the NDC period, in consideration of further guidance in relation to corresponding adjustments.

IX. Specification of first transfer: The first international transfer of mitigation outcomes from the designated registry of Thailand to the designated registry of Japan by applying a "cancellation-to-recreation" method.

X. Public repository of the authorization of ITMOs: This authorization statement will be made publicly available on www.dcce.go.th/article6, http://registry.tgo.or.th, and the centralized accounting and reporting platform (CARP) as referred to in paragraph 10 of Decision 4/CMA.6.

Reference to additional information shall be made to the enclosed Project Design Document (PDD) and the "Voluntary Standardized Template for Authorization of Use of the Internationally Transferred Mitigation Outcomes from a Cooperative Approach", which form an integral part of this authorization statement.

With this authorization statement, we confirm that our national process for ascertaining authorization to this Mitigation Activity has been duly followed.

Yours sincerely,

P. Saiyasitpanich

(Mr.Phirun Saiyasitpanich)
Director General

JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir in Thailand

A.2. General description of project and applied technologies and/or measures

The project involves installation of 5MW Floating solar farm equipment utilizing industrial Reservoir pond inside of Kabinburi Industrial Zone. The project is implemented by TSB Bangkok Co., Ltd., a company utilizing the crystalline silicon photovoltaic (PV) modules of Econess Energy Co., Ltd. as well as Power Optimizer of GNE New Energy Technology Co., Ltd.. PV system on the water will give higher power generation efficiency compared to the solar system on the ground under high atmosphere temperature due to the lower surface temperature of PV module. The optimizer has a power shutdown function for each PV module. It can prevent an electric shock for Firefighters in case of fire. And monitoring function of the optimizer can detect leakage accident of PV module. The use of optimizer also minimizes the power generation loss of PV module string by PV module's specification variation. The electricity produced by the project is supplied to a Factory in Kabinburi Industrial Zone to displace grid electricity mostly derived from fossil-fuel based thermal power plants, which contributes to the reduction of greenhouse gas emissions in Thailand.

A.3. Location of project, including coordinates

Country	The Kingdom of Thailand
Region/State/Province etc.:	Kabinburi Province
City/Town/Community etc:	Kabinburi Industrial Zone
Latitude, longitude	N14°03'35.1" E101°50'54.6"

A.4. Name of project participants

The Kingdom of Thailand	TSB Bangkok Co., Ltd.
Japan	TSB Co., Ltd.

A.5. Duration

Starting date of project operation	20/01/2020

Expected operational lifetime of project	17 year

A.6. Contribution from Japan

The proposed project was partially supported by the Ministry of the Environment, Japan (MOEJ) through the Financing Program for JCM Model projects, which provided financial support of less than half of the initial investment for the projects in order to acquire JCM credits. The technology of advanced and efficient solar power system is introduced in the proposed project by the Japanese project participant. Further, implementation of the proposed project promotes technology transfer of low carbon technologies in Thailand.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	TH_AM001
Version number	ver01.0

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

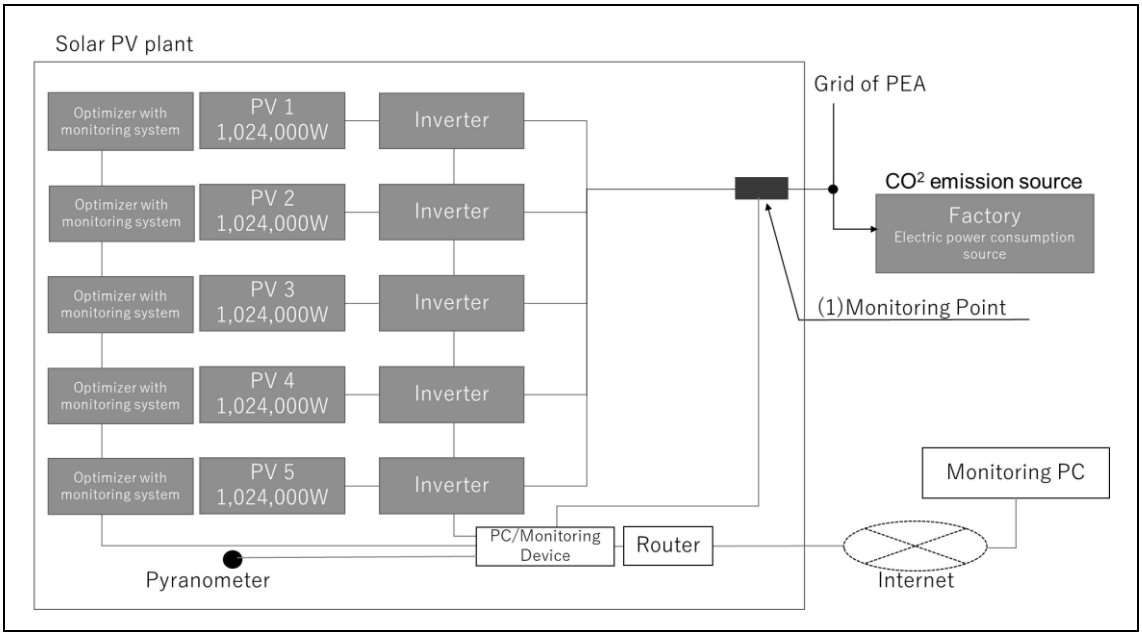
Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	The project installs solar PV system(s).	The solar PV system is installed at industrial Reservoir pond in Kabinburi industrial zone.
Criterion 2	The solar PV system is connected to the internal power grid of the project site and/or to the grid for displacing grid electricity and/or captive electricity at the project site.	The solar PV systems are connected to the internal power grids of the project sites (factory) for displacing grid electricity at the project sites.
Criterion 3	The PV modules obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	The PV module installed in the project have been certified for IEC 61215, IEC 61730-1, IEC 61730-2.
Criterion 4	The equipment used to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	Electricity meter and pyranometer have been installed at the project site to monitor output power and irradiance respectively

C. Calculation of emission reductions

C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions	
Emission sources	GHG type
Consumption of national grid electricity	CO_2
Project emissions	
Emission sources	GHG type
Generation of electricity from the Solar PV system	N/A

C.2. Figure of all emission sources and monitoring points relevant to the JCM project



C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_2e)	Estimated Project Emissions (tCO_2e)	Estimated Emission Reductions (tCO_2e)
2020	2,419.3	0.0	2,419
2021	2,552.2	0.0	2,552
2022	2,552.2	0.0	2,552
2023	2,552.2	0.0	2,552
2024	2,552.2	0.0	2,552
2025	2,552.2	0.0	2,552
2026	2,552.2	0.0	2,552
2027	2,552.2	0.0	2,552

2028	2,552.2	0.0	2,552
2029	2,552.2	0.0	2,552
2030	2,552.2	0.0	2,552
Total (tCO_2e)			27,939

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	NO

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

To solicit comments from local stakeholders, a consultation meeting was planned by the project participants, and the project participants invited various stakeholders. Details of the local stakeholders consultation meeting is summarized as follows:

Date and Time: 17th December 2019, 10:00-11:00
Venue: TSB Bangkok Co., Ltd.
Address: 50 1057 Bueng Yitho, Thanyaburi District, Pathum Thani 12130

Following organizations from Thailand side were invited to the consultation meeting:

- Thailand Greenhouse Gas Management Organization (TGO)
- TSB Co., Ltd
- TSB Bangkok Co., Ltd.

At the meeting, the details of the proposed JCM project and the technology to be introduced were explained by the representative of TSB Co., Ltd.
There were no negative comments toward the proposed project expressed during the stakeholders meeting by the attendees. The comments received during the local stakeholders meeting are summarized in the following section.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
TGO	How will be PV panels recycled?	PV modules might be recycled by

		two ways. One is recycled as some separated materials. Other one is recycled as second-hand PV modules. Now in Japan, there are companies which own dedicated recycling lines for PV panels and perform separation processing. In other words, they are operating as a business as well as at the development stage. However, it is still in a state where it is limited and expensive in terms of cost. We are considering installing this machine and line in future also. (No further action is needed)
	Who is the supplier of PV panels?	It is a brand of TSB Co., Ltd but is sourced as OEM product. TSB Co., Ltd is a fabless company and offers design and quality control. PV modules manufacture is Econess Energy Co., ltd. (No further action is needed)
	How much is the total efficiency of electricity generation of this project?	It is about 89.7%. Detail of calculation: A: Temperature compensation coefficient 0.98 B: Power Conditioner efficiency 0.984 C: Cable loss coefficient 0.93 A*B*C=0.897 (89.7%) (No further action is needed)
	When do you think that all of permits will be received?	All of permits were received. Monitoring will be started at latest by the beginning of January next year.

		(No further action is needed)

F. References
N/A

Reference lists to support descriptions in the PDD, if any.

Annex
N/A

Revision history of PDD		
Version	Date	Contents revised
01.0	15/01/2019	First edition
02.0	11/03/2020	Second edition
03.0	13/03/2020 28/09/2020	Third edition Initial registration by the Joint Committee through electronic decision

VOLUNTARY STANDARDIZED TEMPLATE[1] [2] [3] AUTHORIZATION OF USE OF THE INTERNATIONALLY TRANSFERRED MITIGATION OUTCOMES FROM A COOPERATIVE APPROACH (Version 01.0)

PURPOSE

1. This document provides the information outlined in paragraph 5 of decision x/CMA.6 in relation to the authorization of the use of internationally transferred mitigation outcomes from a cooperative approach as referred to in decision 2/CMA.3, annex, paragraph 18. [4] [5]

2. This document is:

☐ The authorization referred to in decision 2/CMA.3, annex, paragraph 18; or

☑ An attachment to the authorization referred to in decision 2/CMA.3, annex, paragraph 18.

I. ELEMENTS OF THE AUTHORIZATION OF USE OF THE INTERNATIONALLY TRANSFERRED MITIGATION OUTCOME FROM A COOPERATIVE APPROACH

A: ELEMENTS RELATED TO THE AUTHORIZATION PROCESS

Party:	Thailand
Authorization ID:	0804/13019
Authorization date:[6]	**28/10/2025**
Version:	01.0
Date of last change to the authorization, if applicable:	N/A Click or tap to enter a date.
Effective date of the change to the authorization:[7]	N/A Click or tap to enter a date.
Duration of the authorization: [8]	**Start date:** **01/01/2021**

[1] When filling in this template the values for specific information attributes shall be provided as per the list of common nomenclatures under Article 6, as applicable and available. The list of common nomenclatures under Article 6.2 of the Paris Agreement is available at https://unfccc.int/documents/641433.

[2] Guidance on the completion of the template provided in grey is to be overwritten or deleted, as appropriate.

[3] If the template is used to prepare a document attached to an authorization, information already included in the authorization should be referenced accordingly.

[4] The list of acronyms and abbreviations used is available in decision 6/CMA.4: https://unfccc.int/documents/624474.

[5] References to paragraphs are to paragraphs in the annex to decision -/CMA.6, unless stated otherwise. "Article" refers to an Article of the Paris Agreement.

[6] Date and time refer to UTC, universal coordinated time.

[7] The effective date of the change to the authorization shall not be before the date of submission of the revised voluntary standardized template of authorization.

[8] The date and duration of the authorization, including the final date for mitigation outcomes to be issued or cancelled, in connection with the first transfer specified by the Party as per decision 2/CMA.3, annex, paragraph 2(b), as applicable.

	End date: 31/12/2030
NDC period of the authorizing Party:	**Start date:** 01/01/2021
	End date: 31/12/2030
Components covered by the authorization:	☐ Authorization of the cooperative approach ☑ Authorization of ITMOs ☑ Authorization of entities
Where changes to the authorization <u>may occur</u>, information on the applicable terms and conditions of the authorization that specify the circumstances for such changes and a description of the process for managing them in a way that avoids double counting:	
Any changes to authorization of the use of ITMOs shall not apply to, or affect, mitigation outcomes that have already been first transferred unless: • It is found that the project participants deliberately provided false information that significantly differs from the fact, undermining sustainable development, environmental integrity and transparency as required under Article 6.2 of the Paris Agreement, and the authorization were issued based on such false information; or • It is found that the project participants implemented the mitigation activities in violation of applicable domestic laws and regulations. In such cases, the authorization shall be revisited, and if necessary, revised to ensure that any possibility of double counting is avoided and all relevant records and information will be updated accordingly.	
Where changes to the authorization <u>have occurred</u> consistent with the provided terms and conditions of the authorization, a description of the circumstances in which the changes occurred and how changes follow the process for managing them in a way that avoids double counting:	
N/A	
Where changes to the authorization <u>have occurred</u>, a description of the specific changes in respect to the earlier version of the authorization:	
N/A	
B. ELEMENTS RELATED TO THE AUTHORIZATION OF THE COOPERATIVE APPROACH	
Name of the cooperative approach included in this authorization:	Joint Crediting Mechanism between the government of the Kingdom of Thailand and the government of Japan
Unique identifier for the cooperative approach, if available:[9]	CA0007

[9] The cooperative approach identifier will be available if the initial report has been submitted.

The name(s) of other participating Party(ies) covered by the authorization, if known: *Other participating Party(ies) indicated are those authorized to acquire ITMOs under this authorization.*	JP	Japan
Duration of the cooperative approach:	**Start date:** 01/01/2021	
	End date: 31/12/2030	
	Remark:	The cooperation covers the period for the issuance of credits that covers GHG emission reductions or removals from JCM projects until 31 December 2030. Both governments may consider a possible extension of the above-mentioned period and reach a decision by 2030.
Where authorizing for OIMP, the specification of the first transfer of the mitigation outcome by the participating Party in accordance with decision 2/CMA.3, annex, paragraph 2(b):	☐ The authorization of the mitigation outcomes ☐ The issuance of the mitigation outcomes ☐ The use or cancellation of the mitigation outcomes	
Metrics covered:	☑ GHG (t CO_2 eq.) ☐ Non-GHG (consistent with the NDC metrics)	
Units of measurement (applicable to non-GHG metric) and units of conversion to CO2 eq:		
NA *Units of measurement*	N/A *Units of conversion*	
NA *Units of measurement*	N/A *Units of conversion*	
(add rows as necessary)		
Sector(s):	Energy generation	
Mitigation types:	☑ Emission reductions ☐ Removals ☐ Emission reductions and removals	
Activity types	Solar	
Activity(ies), if applicable:		
TH014	Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir in Thailand	

The identification of or cross-reference to underlying regulations, frameworks, standards or procedures, including any specific methodologies underpinning the cooperative approach:		
All underlying regulations, frameworks, standards and procedures are set out in the relevant rules, guidelines, and decisions made by the Joint Committee. Those rules, guidelines and decisions are made publicly available on the JCM website (https://www.jcm.go.jp/th-jp).		
C. ELEMENTS RELATED TO THE AUTHORIZATION OF ITMOS		
Scope of authorization of use of ITMOs:	☑ NDC ☐ IMP ☐ OP ☐ OIMP ☐ NDC and OIMP ☐ NDC and IMP ☐ NDC and OP	
OIMP authorized, if applicable:	N/A	
The quantity of ITMOs being authorized, if applicable:	12,760	
Vintage(s):	2021 – 1,276 2022 – 1,276 2023 – 1,276 2024 – 1,276 2025 – 1,276 2026 – 1,276 2027 – 1,276 2028 – 1,276 2029 – 1,276 2030 – 1,276	
The registry the participating Party has, or has access to, for the purpose of tracking and recording internationally transferred mitigation outcomes:	*Registry identifier: The applicable common nomenclature is not available at the time of this authorization.* *Registry identifier as per common nomenclatures, where available.*	Thailand Carbon Credit Registry (https://registry.tgo.or.th/en/) *Registry name as per common nomenclature, where available.*
Relevant registry(ies) in any underlying regulations, frameworks, standards or procedures that contain mitigation outcomes and track the status of mitigation activities and outcomes and participation and transactions by entities, as applicable:	*Registry identifier: The applicable common nomenclature is not available at the time of this authorization.* *Name of the relevant registry(ies) in an underlying regulation, framework, standard or procedure as per common nomenclatures.*	The registry explained above contains mitigation outcomes and transparently tracks the status of underlying mitigation activities. *Name of the underlying regulation, framework, standard or procedure under which the relevant registry operates.*
	(add rows as necessary)	
D. ELEMENTS RELATED TO THE AUTHORIZATION OF ENTITIES		
Entities covered by the authorization, if known;[10]	TSB GreeNex Co., Ltd.	*Entity ID: The applicable common nomenclature is not available at the time of this authorization.*

[10] Entities covered by the authorization are those authorized by the participating Party providing the authorization.

		Entity ID: as per common nomenclatures.
	TSB Bangkok Co., Ltd.	*Entity ID: The applicable common nomenclature is not available at the time of this authorization.* *Entity ID: as per common nomenclatures.*
	(add rows as necessary)	
II. FURTHER ELEMENTS FOR THE AUTHORIZATION		
N/A		
III. INFORMATION ON THE INSTITUTIONAL ARRANGEMENTS FOR AUTHORIZATION		
Name	Department of Climate Change and Environment	
Address	49, Soi 30, Rama VI Road, Phaya Thai Subdistrict, Phaya Thai District, Bangkok 10400	
E-mail	saraban@dcce.mail.go.th cc : unfccc.thailand.focalpoint@gmail.com climate.measure@dcce.mail.go.th	
Representative of the authority	Mr. Phirun Saiyasitpanich, Director General of Department of Climate Change and Environment, Ministry of Natural Resources and Environment	
Signature, stamp or equivalent means of authentication	*As relevant.*	

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