JCM Project Design Document Form

A. Project description

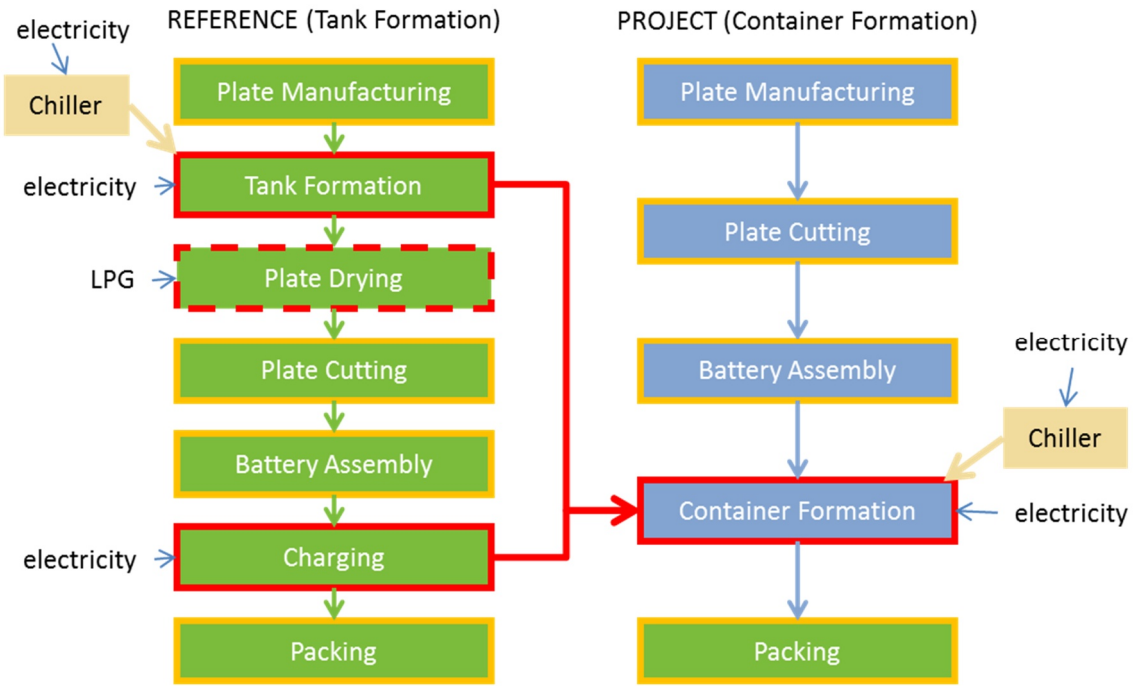
A.1. Title of the JCM project

Installation of Container Formation Facility at Lead Acid Battery Factory of Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.

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

This project aims to reduce energy consumption of the existing factory of Hitachi Chemical Energy Technology (Vietnam) Co., Ltd in Dong Nai Province, by installation of container formation facility at lead acid battery production line in place of tank formation facility. Installation of container formation facility leads to reduction of electricity and fossil fuel consumption by the production line.

Reference technology (tank formation) and applied project technology (container formation) are described in the following diagram.



- The following processes remain the same in reference and project; Plate Manufacturing, Plate Cutting, Battery Assembly, and Packing.
- Tank Formation process and Charging process are integrated in Container Formation process.

- Plate Drying process is not needed in container formation method.

After the JCM project starts, Hitachi Chemical Co., Ltd. will conduct the internal audits (internal auditor: Mr. Akira Ishiguro, Hitachi Chemical Co., Ltd.) and reports the audit results twice a year in order to confirm whether energy data is correctly monitored and equipment is correctly operated.

A.3. Location of project, including coordinates

Country	Socialist Republic of Vietnam
Region/State/Province etc.:	Dong Nai Province
City/Town/Community etc:	Nhon Trach 3 IP, Second Phase, Nhon Trach District
Latitude, longitude	10°42’25.4”N, 106°56’55.3”E

A.4. Name of project participants

The Socialist Republic of Viet Nam	Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.
Japan	Hitachi Chemical Co., Ltd.

A.5. Duration

Starting date of project operation	1/4/2018
Expected operational lifetime of project	9 years

A.6. Contribution from Japan

The proposed project was partially supported by the Ministry of the Environment, Japan (MOEJ) through the Financing Programme 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.
Further, implementation of the proposed project promotes technical cooperation on quality control and maintenance, and diffusion of low carbon technologies within Viet Nam.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	VN_AM009
Version number	1.1

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

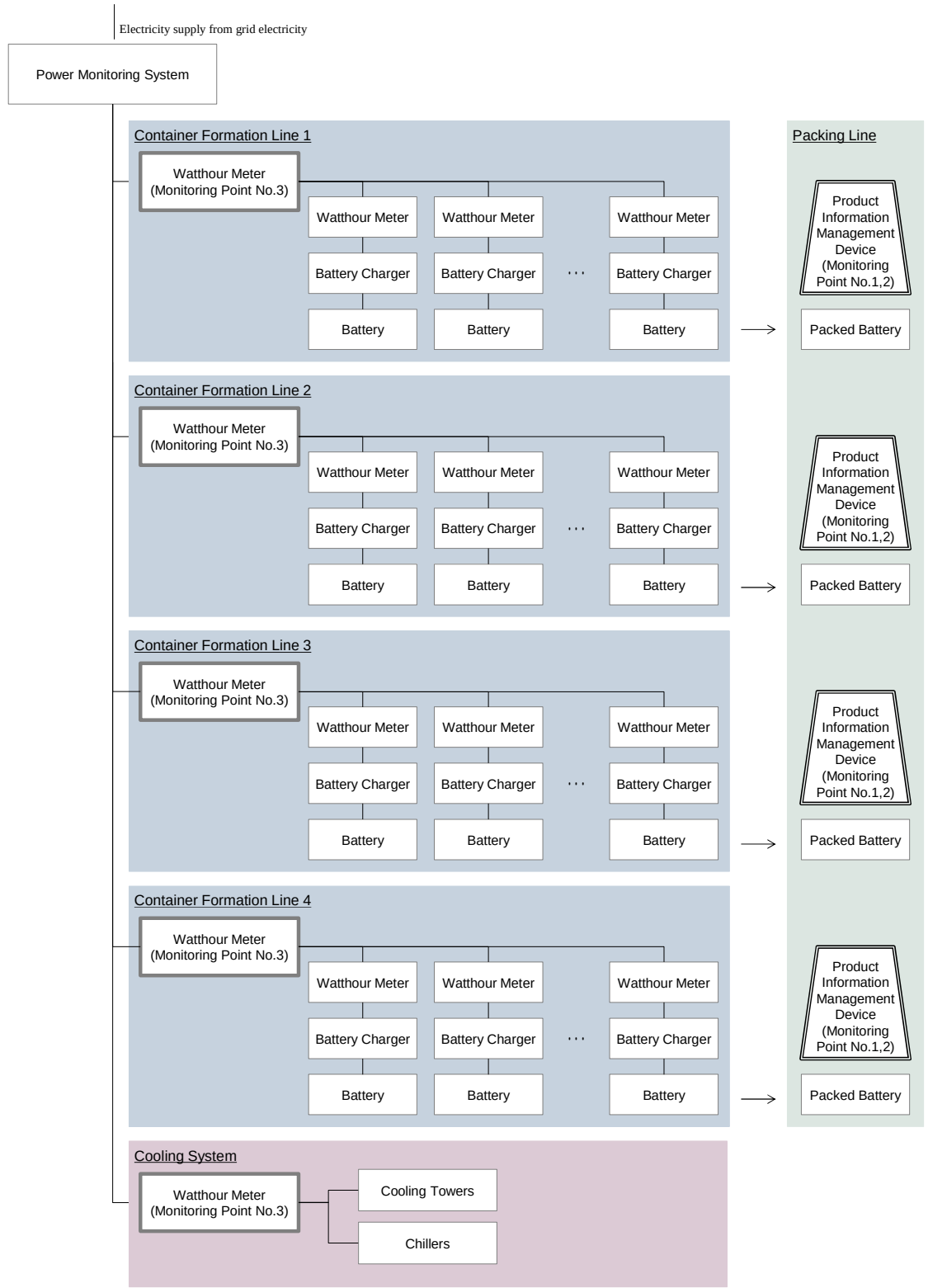
Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	Container formation facility is newly installed or installed to replace tank formation facilities at lead acid battery production line.	Container formation facility is installed to replace tank formation facilities at conventional lead acid battery production line at the factory of Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.

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
Electricity consumption by tank formation facilities	CO_2
Fossil fuel (LPG) consumption by tank formation facilities	CO_2
Project emissions	
Emission sources	GHG type
Electricity consumption by container formation facility	CO_2
Electricity consumption by cooling chiller and cooling tower	CO_2

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



When chiller is additionally installed to supply heat to the project container formation facility

after the starting date of project operation, electricity consumption of the chiller is measured by measuring equipment as the same manner as determined in the "Measurement methods and procedures" of Monitoring Plan Sheet (Input Sheet) attached to this Project Design Document.

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	-	-	-
2017	-	-	-
2018	5,469.8	2,600.5	2,869
2019	7,293.1	3,467.4	3,825
2020	7,293.1	3,467.4	3,825
Total (tCO_{2e})	20,056.0	9,535.4	10,519

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	YES

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

In order to cover a diverse group of stakeholders, a local stakeholder consultation was conducted on 7th December. The participants are listed in the table below.
The list of participants to the meeting was consulted to the JC secretariat of Vietnamese side, and the local stakeholders to be invited were fixed. The project participants sent invitation letters .
The schedule and participants of the meetings is provided below.

Date: 7th December 2017
Venue: Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.

Nhon Trach 3 IP, Second Phase, Nhon Trach District, Dong Nai Province, Viet Nam

Time: 13:30-15:00

Agenda

1. Opening remarks
2. Introduction about Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.
3. Introduction about the JCM project
4. Introduction technology and facility
5. Q&A and collection of comments
6. Closing

[Local stakeholders]

No.	Organization	Position
1	Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.	Deputy Section Chief of Improvement Section
2	Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.	Deputy Section Chief of Manufacturing
3	Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.	Chief of Container Formation Process

[Project participants]

Project participants: [Vietnam]Hitachi Chemical Energy Technology (Vietnam) Co., Ltd
[Japan] Hitachi Chemical Co., Ltd.

At each agenda item, a brief presentation was made by the project participants, and opinions of the stakeholders were solicited. A summary of the comments received and consideration of those comments are provided in Section E.2. below.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Deputy Section Chief of Improvement Section Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.	The operability and productivity are also improved by the container formation. There have never been operational problems so far. We are studying the container formation itself and how to read the monitoring data.	Positive opinion was received. No further action is needed.

F. References
EIA approval letter, No.1988/QD-BTNMT, dated 17/08/2017, issued by MONRE

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

Annex

Revision history of PDD		
Version	Date	Contents revised
1.0	22/12/2017	First edition
2.0	31/10/2018	Revision based on the findings at the validation process. ✓ B.1. Version number of the applied methodology ✓ C.3. Estimated emissions reductions in year 2018 ✓ F. Reference document of the EIA