

(FY 2022) Basic Plan of Japan – Brazil Cooperation on Energy Conservation

R2 September 28th, 2022

Revised as per the results of “Online Meeting (Sept. 2)” and “Online Follow-up Workshop (Sept 9)”

Original April 22nd, R1 June 21th, 2022

Ministry of Economy, Trade and Industry

The Energy Conservation Center, Japan

(Background)

Based both on the tangible outcomes (*1) achieved by the Japan – Brazil cooperation on energy conservation (EC) (Phase-1) completed in March 2018 and on the success of the 9th Workshop for the “Energy Management Action Network (EMAK) held in November 2018 at São Paulo under the International Partnership for Energy Efficiency Cooperation (IPEEC), the Ministry of Economy, Trade and Industry of Japan (METI) and the Ministry of Mines and Energy of Brazil (MME) established the EC Cooperation Project (Phase-2) (hereinafter referred to as “Project”) in late FY 2019. The specifics of the “Project” is shown below.

Since the beginning of 2020, the “Project” has been implemented to date as per the basic plan which was timely revised and optimized to meet the realistic implementing conditions strongly influenced by the continued pandemic of COVID-19. The important issue of the “Project” is the delay in implementation of the Program-2 which aims to assist the Brazilian side in promoting EE&C in the energy intensive industry as per the plan. In order to breakthrough this situation, MME and ECCJ discussed actions in the web meeting held on March 16th and May 24th and mutually agreed to revise the plan of the Program-2 [to jointly implement with Energy Research Company \(EPE\)](#). [However, finally, in August 2022, MME required to postpone the Program-2 in FY 2023 due to certain reasons hence Program-2 will not be implemented in FY 2022.](#)

This is the document to specify both the actual progress of the “Project” made since FY 2020 and the plan of the “Project” for FY 2022 which reflects the revised plan of Program-2.

(*1) For Reference : Tangible Outcomes of Phase-1 Project

- Established and disseminated showcase energy management system (EnMS) based on ISO 50001
- Prepared the “Action Guide” for peak-cut and saving electricity (General Industry)
- Proposed the regulation on energy management system to add under the EC Law
- Worldwide dissemination of the above outcomes through the 9th Workshop of EMAK

1. Project Specifics

1-1. Name of Project

Promotion of Energy Efficiency and Conservation (EE&C) in Energy Intensive Industry and Appliances

Sub-Program

(Program-1)

Improvement in Standard and Labelling (S&L) System of Electrical Appliances (Such as Air Conditioners and Refrigerators)

(Program-2) → Postponed (Required by the email from MME on August 19th.)

EE&C Promotion in Energy Intensive Industry by the “Benchmark Approach” under Energy Management System (EnMS)

1-2. Purposes

The “Project” aims at promoting energy efficiency and conservation (EE&C) in Brazil through the two programs to promote the following.

- (1) Energy efficiency of electrical appliances such as air conditioners etc.
- (2) Energy efficiency in energy intensive industry

(Targeted Areas and Category)

- (1) Electrical Appliances

Specially air conditioners and the other appliances such as refrigerators etc. which are the main energy consumers in residential, industry and building sectors

- (2) Industry Sector

Specifically focused on the energy intensive sub-industries including iron and steel industry

1-3. Counterpart

(Japan Side) Ministry of Economy, Trade and Industry (METI)

(Implementation) The Energy Conservation Center, Japan (ECCJ)

(Brazil Side) Ministry of Mines and Energy (MME)

(Implementation)

(Program-1) INMETRO under Ministry of Economy / CEPEL

(Program-2) EPE with cooperation by the iron & steel association(s) → Postponed

1-4. Duration and Time Schedule

FY 2019 – FY 2022 (The “Project” is targeted to complete in FY 2022.)

(The activities remained due to the COVID-19 pandemic will be implemented in FY 2022, though the original plan was planned to complete the “Project” in FY 2021)

FY : Japanese Fiscal Year (April – March Next Year)

Time Schedule of “Project”

The time schedule is shown in Attachment – 1.

2. Specifics of Programs with The Actual Progress

2-1. Program-1

Improvement in Standard and Labelling (S&L) of Electrical Appliances (Such as Air Conditioners and Refrigerators)

The program aims at improving energy efficiency of electrical appliances, taking the leading case of air conditioners by improving the energy efficiency standards with criteria hence the test method etc. referring to the international standards such as ISO 16358-1 CSPF. Namely, for this purpose, the evaluation of energy efficiency of these appliances should be made by appropriate test with measurement, analysis and evaluation to enhance dissemination of higher efficiency of appliances and equipment.

In this program, air conditioners are taken as the leading sample among electrical appliances because CGIEE (Management Committee of Energy Efficiency Indicators) under MME decided to apply ISO 16358-1 CSPF (Cooling Seasonal Performance Factor) in December 2019 for evaluating energy efficiency performance of air conditioners. In final, the “Ordinance No. 234 of 29 June 2020 (*)” was issued by Ministry of Economy – INMETRO. Namely, the issuance of the “Ordinance No. 234” justified to select air conditioner as the leading case for the Program-1.

[The Ordinance No. 269 issued on June 22, 2021 \(hereinafter referred to as “2021 Ordinance No. 269\) revised and integrated the 2020 Ordinance No. 234.](#)

(*) Partial improvement of the Conformity Assessment Requirements for Air Conditioners, establishing the Seasonal Cooling Performance Factor (CSPF), the reclassification of the energy efficiency categories and determining other measures to make these products available in the national market

One of the important outcomes of the Program-1 focuses on capacity building through Training of Trainers (TOT) for the Brazilian stakeholders to introduce ISO 16358-1 CSPF for air conditioners, toward the smooth enforcement of the [2021 Ordinance No. 269](#) after the end of December 2022. [The 2021 Ordinance No. 269 has been partially revised by the additional Ordinances such as the 2022 Ordinance No. 179 and the 2022 Ordinance No. 230.](#)

The key specifics of the Program-1 consist of the following including the actual progress :

(1) Survey and analysis to identify the actual status including issues as follows

- The actual status and progress of the S&L system in Brazil including details of the existing efficiency standard with criteria including testing procedures of the targeted appliances
- Actual facilities and staffs of the laboratory to test air conditioners (at CEPEL)

→ **Completed in FY 2019**

(2) Development of program for capacity building to introduce ISO 16358-1 CSPF in Brazil through advisory discussion to solve the identified issues and to introduce the new efficiency standards with criteria including provision of information of Japanese case.

→ **Completed in FY 2020**

(3) Trainings of leading policy makers and testing staffs worked for the key testing organizations

(CEPEL and LABELO PUCRS) (future trainers) (TOT) to improve capability of the future trainers and testing facilities toward introduction of ISO 16358-1 CSPF.

(3)-1 The 1st TOT – “BEC BR6” → **Completed in FY 2021**

The 1st TOT was implemented as follows .

(STEP-1) Remote Training (Oct. 9th – Nov. 18th, 2020) : Completed with 21 participants
Lectures by textbooks and videos to understand the Project, ISO 16358-1 CSPF, Testing Work and ISO-IEC 17025 → **Completed in FY 2020**

(STEP-2) Training – Performance Test Practice → **Completed on January 26th, 2022**

- The actual practice with use of the master air conditioner (M-AC) to test EE performance of the M-AC based on the knowledge and information provided by the “(STEP-1) Remote Training” at CEPEL and LABELO PUCRS
- Online Follow-up Workshop
- Establishment of the plan to improve the testing laboratories and the S&L system for air conditioners

(3)-2 Online Specific Meeting → **Completed in FY 2021 (on February 17th, 2022)**

This meeting is to discuss and advise for CEPEL and LABELO PUCRS to properly and rapidly realize the improvements in their testing laboratories as per the action plans established in the (STEP-2) Training – Performance Test Practice.

The following should be implemented in FY 2022.

(Preconditions)

All the improvements identified in the 1st TOT shall be completed within 2022.

(4) The 2nd TOT in Brazil

The 2nd TOT is to test and measure the EE performance of the M-AC using the improved testing facilities to prove 1) the improved precision of the tests, 2) the improved performance of the testing facilities with tuning up. The 2nd TOT will be implemented at CEPEL and LABELO PUCRS by the trainers who completed the 1st TOT.

(5) The 3rd TOT

The 3rd TOT is to educate and train new trainees from the testing organizations including manufacturers of air conditioners by the 1st trainers who completed the 1st and 2nd TOTs.

(6) Realize the improvements in the existing S&L System related to air conditioners, in order to smoothly enforce the 2021 Ordinance No. 269 by December 2022.

(7) Study and identify the other appliances such as refrigerators possible to apply the key principle concept and conditions of the air conditioner’s case (CSPF)

(8) Development of the proposal on the roadmap to improve the existing S&L system including MEPS and labelling

2-2. Program-2 → **Postponed (to FY 2023)**

Energy Efficiency and Conservation (EE&C) Promotion in Energy Intensive Industry by the “Benchmark Approach” under Energy Management System

The plan of the Program-2 was revised as per the results of discussion made between MME-EPE and ECCJ on May 24th, 2022 because implementation of the original plan has been stuck due to the large influence of the COVID-19 pandemic.

However, the Program-2 was postponed upon the requirement of the Brazilian side announced on August 19th, 2022 through MME because of certain reasons.

The revised plan consisted of 1) the preparation of the special chapter on iron and steel industry in the “Atlas of Energy Efficiency of Brazil” (hereinafter referred to as “Atlas of EE”) issued by EPE and 2) the activities for the capacity building for dissemination, the program aims to promote EE&C in the energy intensive industry including iron & steel industry 1) by referring to the special chapter and 2) by applying the methodology of the “Benchmark Approach” under EnMS including useful energy management tools. It is noted that the “Benchmark Approach” is also an important element and methodology of EnMS.

For reference, the revised new plan is shown below.

The following are the progress in the past activities.

(1) Study and propose the candidate sub-industries to be the showcases

With cooperation from EPE, ECCJ studied and proposed the candidate sub-industries to be the showcases, based on the data and information of the EPE’s report on “Atlas da Eficiência Energética do Brasil”. Namely, iron & steel, sugar, pulp & paper and cement industries were proposed. And it was proposed to start with the iron & steel industry.

→ **Completed in FY 2020**

(2) Conduct the “Remote Open Seminar” (January - February 2021)

The “Remote Open Seminar” aims at the following.

- Deepening understanding of the Project and the Program-2 by as many representatives from the public and private organizations related to the energy intensive industry as possible
- Attracting interests of the participating organizations in Program-2 to move on discussion for finalizing the targeted sub-industry to start the activities specified in the Items (3) through (10) shown below.

→ **Completed in FY 2020**

(3) Determination of the targeted energy intensive sub-industries also to be showcases

2 -3 sub-industries will be selected among steel, sugar, pulp & paper and cement industries. The selected sub-industries will be the showcases of the “Benchmark Approach” which should be disseminated in the other sub-industries to realize enhanced EE&C promotion. CNI cooperates to coordinate with the concerned industrial associations including the iron & steel industry.

→ **(Suspended) CNI coordinated with the concerned industrial associations (FY 2021)**



This original plan was cancelled on May 24th, 2022 and the new plan has been developed, while the following developed outputs are utilized in the new program.

(8) Development of the tools to be used for practicing the “Benchmark Approach” (Database and Guidelines (the basic EE&C guideline and the guideline for effective technologies and equipment))

→ Prepared by ECCJ in FY 2020 – FY 2021

(11) Develop, establish and disseminate the “Guide for Practical Methodology of Benchmark Approach” which guides the standardized procedure of the “Benchmark Approach” also utilizing the tools (Database and the Guidelines) for companies

→ Drafted by ECCJ in FY 2020 – FY 2021

New Plan of Program-2 (For Reference) → Postponed

2-2-1 Improvements in the Special Chapter on Iron and Steel Industry of “Atlas of EE”

In the “Atlas of EE” for 2022, EPE planned to issue the special chapter on the iron and steel industry in addition to that on the pulp and paper industry.

This activity aims at improving the data and information to be included in the special chapter on the iron and steel industry of the “Atlas of EE” through adding the concerned data and information in public in Japan and owned by ECCJ.

Specifically, the data and information of Japan will be of the benchmarks and the other targets of energy efficiency (EE), the actual situations of the effective technologies and equipment actually realized and the future direction to improve EE considering mitigation of the global warming including the neutralization of carbon emission etc. These data and information will be provided by ECCJ through the documents and/or explanation by the online seminar (if required) for study by EPE.

This kind of improvement will provide the industrial stakeholders especially from the iron and steel industry with a good reference to promote EE&C.

The improved special chapter will be more useful for the Brazilian organizations of the iron and steel industry not only to compare their energy efficiency (EE) levels with the Japanese EE levels but also to get some aspects or hints toward improving EE and the environmental issues.

It is noted that the data and information of Japanese iron and steel industry are integrated with the Brazilian and the other countries’ in the special chapter prepared by EPE and IEA.

2-2-2 Capacity Building

The purpose of the “Capacity Building” is to let the stakeholders of the industry sector including the iron and steel industry better understand the special chapter of the “Atlas of EE” for 2022 and to assist them in their activities for EE&C promotion. The following are the joint activities to realize the purpose.

2-2-2-1 Seminar to Explain the Special Chapter on Iron and Steel Industry

EPE-MME will jointly hold a seminar with ECCJ to explain 1) the industry sector of the “Atlas of EE” and 2) the special chapter to the participants from especially the iron and steel industry in Brazil. Following the explanation, discussion and opinion exchange will be made.

Based on the results of discussion, some feedback may be reflected to finalize the special issue for 2022.

2-2-2-2 Seminar-Workshop or Training on “Benchmark Approach” under EnMS to promote EE&C

By inviting participants from the industry sector including the iron and steel industry, MME-EPE and ECCJ will hold the seminar-workshop and/or training for participants to understand and discuss about the EnMS with the “Benchmark Approach” and the energy management tools in public in Japan and developed by ECCJ as follows.

- “Guide of Practical Methodology of “Benchmark Approach” under EnMS
- Guidelines – Basic EC guideline and typical guideline for EE&C and the guideline of technologies and equipment effective for energy conservation
- Template database in Excel file possible to be used by users

ECCJ will explain these tools and the ways to use them for EE&C activities and will discuss or exchange opinion with participants.

At the same time, in the seminar-workshop and/or training, for the purpose of discussion and opinion exchange, some participated Brazilian companies will be required to present the actual status and issues of EE&C promotion and plans for future improvement. This kind of activities will be a good opportunity for private organizations to understand benefits of information sharing and to smoothly provide the data and information for sharing in order for EPE to include in the special chapter of the “Atlas of EE” for 2023.

3. Yearly Key Milestones Achieved Until FY 2021

3-1. FY 2019

- (1) Finalized the basic plan of the “Project”
- (2) Started implementation of a part of possible activities as per the basic plan

3-2. FY 2020

(Program-1)

- (1) Developed the specific program for capacity building toward introduction of ISO 16358-1 CSPF for air conditioners
- (2) Decided the key laboratory (CEPEL and LABELO PUCRS) to improve calibration of laboratories to test EC performance of air conditioners
- (3) Established the plan of the capacity building through the training of trainers (TOT) to support Brazil in smooth enforcing the “Ordinance No. 234”
- (4) Established the plan of the 1st Training of Trainers (TOT) (BEC BR6)) and completed the

(STEP-1) Remote Training with 21 leading policy makers and testing staffs.

- (5) The (STEP-2) Training – Performance Test Practice (at CEPEL and LABELO PUCRS) was planned and the mater air conditioner (M-AC) to use in the “(STEP-2) Training – Performance Test Practice” was procured.

(Program-2)

- (1) Studied and proposed the candidate 4 targeted sub-industries as showcases (Namely iron & steel, pulp & paper, sugar and cement industries)
- (2) Conducted the “Remote Open Seminar” in which the plan of the Program-2 was shared and the iron and steel industry was proposed to prioritize implementation of the specific activities (MME is in process of coordination with ME to confirm the private associations including SENAI-CNI to be involved in implementing Program-2,)
- (3) Developed and drafted the “Questionnaire for Survey” for iron and steel
- (4) Studied and started developing the database and drafting the guideline of technologies and equipment effective EE&C

3-3. FY 2021

(Program-1)

- (6) Completed (STEP-2) Training – Performance Test Practice hence the 1st TOT (BEC BR6) as follows.
- 1) Pre-test to measure the EE performance of the M-AC and preparation of the base data and textbooks in Japan
 - 2) Performance Test Practice at CEPEL and LABELO PUCRS in Brazil
 - 3) Online Follow-up Workshop

The following outputs were developed through the 1st TOT

- ▶ Test Report
- ▶ Draft Standardized Test Manual with Criteria
- ▶ Study Report – 1 to Improve the Testing Laboratories of CEPEL and LABELO PUCRS
- ▶ Study Report – 2 to Improve the S&L System for Air Conditioner

- (7) Completed “Online Specific Meeting” to improve laboratories of CEPEL and LABELO PUCRS

(Program-2)

- (5) Coordinated by CNI to ask the concerned industrial associations for participating in implementation of the activities. (Finally CNI declined to participate in the Program-2)
- (7) Completed preparation of the questionnaires to survey iron & steel, sugar and pulp & paper industries
- (8) Drafted the “Guide for Practical Methodology of Benchmark Approach” and developed the template databases for the concerned industries

4. Implementation Plan for FY 2022

This is the plan for FY 2022. We target to once complete the “Project” in FY 2022.

(Important Revision)

The activities for Program – 2 will not be implemented in FY 2022 due to the postponement to FY 2023 required through MME on August 19th, 2022.

(Remaining Activities)

Compared with the latest basic plan of the “Project”, the remaining activities will be implemented as follows.

(Program-1)

- (8) Plan and implement the 2nd TOT and 3rd TOT in Brazil
- (9) Complete the required improvements 1) in the laboratories of CEPEL and LABELO PUCRS and 2) in the existing “S&L System” for air conditioner, in order to smoothly start enforcing the [2021 Ordinance No. 269](#) for introduction of CSPF for air conditioners
- (10) Develop and propose the measures and plan to improve energy efficiency of the products used in the Brazilian market, including 1) realistic methodology to revise criteria of MEPS etc. for improvement and 2) measures to incentivize manufacturing, selling and purchasing higher efficiency of products to disseminate, [related to the improvements in the S&L system for air conditioners](#)
- (11) Based on the experiences in the air conditioners, study basic principle and concept of CSPF for air conditioners possible to apply to similar appliance (refrigerators etc.) and prepare the proposal for future improvement in S&L
- (12) Develop roadmap and action plan to realize the proposal

(Program-2) [Activities as per the new plan. → Postponed / Not Implemented](#)

(Joint Activities for FY 2022)

4-1. Dialogue with MME-EPE to Discuss Possible Cooperation for Program-2

→ **Completed**

- (1) Date : [May 24th, 2022](#)
- (2) Purpose : 1) To discuss the possible cooperation with EPE for Program – 2
2) To discuss and confirm the plan of Program-2 based on Item 1)
- (3) Procedure : By online web meeting
- (4) Specific Points of Activity :
 - Explanation by ECCJ
Proposal on possible cooperation for EPE and draft basic plan for Program-2
 - Discussion
Basic plan of Program-2
The other matters to implement the face to face joint activities of “Project”

4-2. Confirmation and Establishment of Basic Implementation Plan for FY 2022

(1) Timing : After June 2022 and Whenever Required

The plan of Program-2 will not be implemented in FY 2022 due to postponement (August 19th. 2022)

(2) Purpose :

- 1) To confirm and mutually agree the implementation plan such as the specifics of the key activities and time schedule of Program-1 and Program-2 to start the specific activities
- 2) To check the progress in the milestones, identify issues and discuss solutions including discussion to revise the implementation plan if required

(3) Procedure : By the online measures as follows

- Mainly by emails with use of the “Communication Sheet for Discussion” and documents
- By web meetings for max. for 2.0 hours, when real time discussion is required for important confirmation, discussion and decision making

(4) Specific Points of Activities

- 1) Establish the initial basic implementation plan of the “Project” for FY 2022 by combining the revised implementation plan of the Program-2 confirmed on May 24th, 2022
- 2) Check, discuss and confirm the progress, issues and solutions including revision of the implementation plan to steer the “Project” at the required timing

4-3. Online Seminar – Workshop for Program-2 (Cancelled)

4-4. Online Meeting to Discuss and Confirm the Face-to-Face Joint Activities in Brazil and Japan (Only for Program-1) → Completed

(1) Timing : September 2nd, 2022 at 8:00 AM – 10:15 AM (Brazilian time)

(2) Purpose :

- 1) To discuss / confirm the conditions for quarantine and immigration and the behavioral guideline in Brazil and Japan to travel the two countries
- 2) To discuss and decide the actual implementation of the face-to-face joint activities on a basis of in Brazil and Japan

(3) Procedure : By the online web meeting through internet

(4) Specific Points of Activities

- 1) To confirm the results of study by ECCJ and MME based on the documents on the conditions and restrictions for Japanese experts and the Brazilian visitors to travel, enter and stay in each county. (The documents are prepared by ECCJ and MME and mutually exchanged for preliminary study.)
- 2) To discuss and make the draft plan of the face-to-face joint activities including conditions of implementation for making decision if each joint face- to-face joint activity shall be implemented or not

4-5. Online Follow-up Workshop for Program-1 → Completed

- (1) Timing : September 9th, 2022 at 8:00 AM – 10:40 AM (Brazilian time)
- (2) Purpose :
 - 1) To confirm the progress a) in the improvements of the laboratories of CEPEL and LABELO PUCRS and b) in the improvements of the S&L System for air conditioners
 - 2) To discuss and advise solutions for issues and problems
 - 3) To discuss the draft basic implementation plan including the draft plan of the 2nd TOT in Brazil
- (3) Procedure : By the online web meeting through internet
- (4) Specific Points of Online Activities toward Smooth Enactment of 2020 Ordinance No. 234
 - (4)-1 Progress in Improvements
 - Explanation by CEPEL and LABELO PUCRS on the actual progress both in improving the testing laboratories including issues and in preparing the “Standardized Testing Manual with Criteria”
 - Explanation by MME-INMETRO on the actual progress in improving the S&L System for air conditioners including issues
 - Discussion and advice
 - (4)-2 Draft implementation plan including the plan of the 2nd TOT
 - Draft implementation plan for FY 2022
 - Discussion and opinion exchange

4-6. Online Meeting for Program-2 : Editorial Meeting (Cancelled)

4-7. Online Meeting to Follow-up the Progress and to Plan / Prepare for the 1st Joint Activity in Brazil (Program-1)

- (1) Timing : Any timing if required (This activity may be included in the Item 4-8.)
- (2) Purpose :

Follow-up

 - 1) (Program-1) To confirm the progress in the improvements in the testing laboratories and S&L system for air conditioners
(Program-2) (Not Implemented)

Plan and Preparation for the 1st Joint Activity in Brazil

 - 2) (Program-1) To discuss and confirm the specific plan and the require preparation to implement the 2nd TOT in Brazil
(Program-2) (Not Implemented)
- (3) Procedure : By the online web meeting through internet
- (4) Specific Points of Activities
 - 1) To present the draft plan of the 1st joint activity in Brazil prepared by ECCJ
 - 2) To discuss and confirm the plan and the required preparation

4-8. Online Meeting to Plan / Prepare the “Training Workshop in Japan (BEC BR7)” – Program-1

This activity may include the Item 4-7.

- (1) Timing : In October 2022
- (2) Purpose :
To discuss and confirm the plan of the “Training Workshop in Japan (BEC BR7)” including the required preparation
- (3) Procedure : By the online web meeting through internet
- (4) Specific Points of Activities
 - Explanation by ECCJ
Draft plan of “Training Workshop in Japan (BEC BR7)” using the draft “Program Outline for BEC BR7 (Draft)”
 - Discussion and confirmation
Plan and the required preparation including time schedule

4-9. The 2nd TOT (1) at LABELO PUCRS

- (1) Timing : In November 2022 (Specific date is under confirmation by LABELO PUCRS)
- (2) Purpose :
 - 1) To prove the improved precision of measurement of energy efficiency performance of the M-AC using the improved testing facilities
 - 2) To tune up the improved testing facilities
- (3) Procedure : Face-to-face activities
The 2nd TOT at LABELO PUCRS will precede prior to the 2nd TOT at CEPTEL.
(Test at LABELO PUCRS → Transportation of M-AC → Test at CEPTEL)
- (4) Participants : 11 trainers who completed the 1st TOT at LABELO PUCRS
- (5) Venue : LABELO PUCRS
- (6) Duration : For 4 days (at a maximum)
- (7) Specific Points of Activities
 - Test and measurement of the energy efficiency performance of the M-AC with use of the improved testing facilities
 - Analysis of the test results to assess improvements in measurement precision
 - Tuning of the improved testing facilities
- (8) Conditions to Implement
The following shall be confirmed.
 - ▶ The actual conditions of the COVID-19 pandemic in Brazil which leads little or no risk to spread or be infected by COVID-19 through the activities.
 - ▶ Completion of the measures by LABELO PUCRS required to prevent the participants including staffs of LABELO PUCRS from being infected or spreading COVID-19

The basic plan including the program is shown in ANNEX-1.

4-10. 1st Joint Activity in Brazil (Program-1) for The 2nd TOT (2) at CEPEL

(1) Timing : For 5 days on November 7th through December 16th, 2022 (Confirmed by CEPEL)
(Dates to be confirmed after LABELO PUCRS confirm the date for the 2nd TOT.)

(2) Purpose :

Program-1

- 1) To implement the 2nd TOT – Advice by Japanese experts on for the Brazilian trainers
- 2) To confirm progress in improvements of the laboratories and S&L System for air conditioner
- 3) To discuss and confirm the plan and progress in preparation for the “Training Workshop in Japan (BEC BR7)”

Program-2 → Not Implemented

(3) Procedure :

Face-to-face activities also using the online tools such as a web meeting

(Alternative plan in case that Japanese experts cannot visit Brazil – TBC)

The results of tests and analysis at CEPEL and LABELO PUCRS will be share and discussed by online measures after completing the 2nd TOT.

(4) Participants : 10 trainers who completed the 1st TOT at CEPEL

(5) Venue :

Program-1 : At CEPEL

Program-2 → Not Implemented

(6) Duration : For 5 days

(7) Specific Points of Activities

Program-1 :

- 1) Same activities specified in the Item 4-9.
- 2) Confirm the readiness to enforce the 2021 Ordinance No. 269 etc. including realization of the required improvements in the testing laboratories and in the S&L system for air conditioners
- 3) The Japanese experts will advise the trainees in the actual testing practice in order to properly measure the EE performance. In addition, they will join the discussion to evaluate the results which also include the results of the test at LABELO PUCRS
- 4) Confirm the plan and the progress in preparation for the “Training Workshop in Japan (BEC BR7)” with MME and the related organizations

Program-2 → Not Implemented

(8) Conditions to Implement

The following shall be confirmed.

- ▶ The actual conditions of the COVID-19 pandemic in Brazil and Japan which leads little or no risk to spread or be infected by COVID-19 through the activities.
- ▶ There is no critical barrier / restriction for Japanese experts to visit Brazil and for CEPEL to accept the Japanese experts if they prepare in order to meet the conditions required to prevent infection and spreading of COVID-19.

- ▶ Completion of the measures by CEPTEL and the participants required to prevent the participants including the staffs of CEPTEL from being infected or spreading COVID-19

The basic plan including the program is shown in ANNEX-1.

(Alternative plan in case that Japanese experts cannot visit Brazil – TBC)

The activities in PM on the 4th day and the 5th day will be implemented by the online meeting.

1. Transportation of M-AC (CEPEL → LABELO PUCRS)

(Date : In November (under Confirmation by LABELO PUCRS))

2. 2nd TOT (1) at LABELO PUCRS : Program (Tentative)

(Date : Under Confirmation by LABELO PUCRS – In November)

Required Preparation for Performance Test Practice (by Each Laboratory)		
<ul style="list-style-type: none"> • Confirmation of the operating manual for test of the M-AC • Weighing and installation of the M-AC / air tightness check / evacuating / injecting coolant and test running • Preparation of the testing apparatus such as sampling piping 		
Implementation of “2nd TOT”		
	AM	PM
Day-1	Installation of M-AC and Preparation for Test	Measurement of Energy Efficiency Performance of M-AC with Tuning of the Improved Facilities
Day-2	Measurement of Energy Efficiency Performance of M-AC	Measurement of Energy Efficiency Performance of M-AC
Day-3	Confirmation of Measurement Results Pre-Evaluation of EE Performance	Dismantling of M-AC and Post Treatment of M-AC
Day-4	<u>Preparation of “Test Report”</u> ▶ Analyses : Comparison with Results of Measurement <ul style="list-style-type: none"> • Base Data by JATL • Actual Results Gotten in the 1st TOT ▶ Identification of Issues / Improvements / Required Further Tuning	
End of “2nd TOT”		
Post Treatment of the M-AC		
<ul style="list-style-type: none"> • Dismantling and drying the M-AC / extraction and recovery of coolant • Filling N2 gas after weighing the M-AC / packing the M-AC 		

After completion of the 2nd TOT at LABELO PUCRS, LABELO PUCRS will share the “Test Report” with ECCJ and JATL.

3. Transportation of M-AC (LABELO PUCRS → CEPEL)

(Within November)

4. 2nd TOT at CEPEL : Program and Plan of the 1st Joint Activity in Brazil
 (Date : Depends on the date for LABELO – The Latest : Dec. 12th – 16th)

(Tentative)

Required Preparation for Performance Test Practice (by Each Laboratory)		
<ul style="list-style-type: none"> • Confirmation of the operating manual for test of the M-AC • Weighing and installation of the M-AC / air tightness check / evacuating / injecting coolant and test running • Preparation of the testing apparatus such as sampling piping 		
Day-0 (Sun.)	Japanese Experts Arrive at Rio de Janeiro	
Implementation of “2nd TOT”		
	AM	PM
Day-1 (Mon.)	<ul style="list-style-type: none"> ▶ Meeting with Japanese Experts : Confirm the Plan and Preparation ▶ Installation of M-AC and Preparation for Test 	Measurement of Energy Efficiency Performance of M-AC with Tuning of the Improved Facilities
Day-2 (Tue.)	Measurement of Energy Efficiency Performance of M-AC	Measurement of Energy Efficiency Performance of M-AC
Day-3 (Wed.)	Confirmation of Measurement Results Pre-Evaluation of EE Performance	Dismantling of M-AC and Post Treatment of M-AC
Day-4 (Thur.)	Preparation of “Test Report”	Discussion with Japanese Experts
	<ul style="list-style-type: none"> ▶ Analyses : Comparison with Results of Measurement <ul style="list-style-type: none"> • Base Data by JATL • Actual Results Gotten in the 1st TOT ▶ Identification of Issues / Improvements / Required Further Tuning 	<ul style="list-style-type: none"> ▶ Test Results Based on Test Reports of CEPEL and LABELOPUCRS (*) LABELO PUCRS will also join. (Possible to use an online meeting.)
	End of “2nd TOT”	
	Post Treatment of the M-AC	
	<ul style="list-style-type: none"> • Dismantling and drying the M-AC / extraction and recovery of coolant • Filling N2 gas after weighing the M-AC / packing the M-AC 	
Day-5 (Fri.)	Online Meeting with MME etc. (at CEPEL) <ul style="list-style-type: none"> ▶ Discussion and Preparation - 1 : Plan of “Training Workshop in Japan (BEC BR7)” 	Online Meeting with MME etc. (at CEPEL) <ul style="list-style-type: none"> ▶ Discussion and Preparation - 2 : Plan of the “3rd TOT” in Brazil ▶ Wrap-up
Day-6 (Sat.)	Japanese Experts Leave Rio de Janeiro for Japan	

4-11. Online Meeting to Follow-up the Progress and to Plan / Prepare for the 2nd Joint Activity in Brazil (Program-1)

(1) Timing : In Late January 2023

(2) Purpose :

Follow-up

1) (Program-1) To check the progress in preparation for the “Training Workshop in Japan (BEC BR7)”

To confirm the actual status of enforcement of the [2021 Ordinance No. 269](#)

(Program-2) → Not Implemented

Plan and Preparation for the “Training Workshop in Japan (BEC BR7) and the 2nd Joint Activity in Brazil

2) (Program-1) To confirm the required preparation for the “Training Workshop in Japan (BEC BR7)”

To discuss and confirm the plan and the required preparation of the 3rd TOT

(Program-2) → Not Implemented

(3) Procedure : By the online web meeting through internet

(4) Specific Points of Activities

1) To confirm the actual status to enforce the 2021 Ordinance No. 269 including issues if any

2) To present the draft plan of the 2nd joint activity in Brazil prepared by ECCJ

3) To discuss and confirm the plan and the required preparation

4-12. Implementation of “Training Workshop in Japan (BEC BR7)” – Program-1

(1) Timing : [February 6th – 10th, 2023](#) (Duration for net 5 days) (TBC)

(2) Purpose :

To develop the following outputs

1) [To brush up the capability and skill of the trainers from CEPEL and LABELO PUCRS who completed the 2nd TOT](#)

2) Plan to establish the system to enforce the [2021 Ordinance No. 269 etc.](#)

- Identification of the remaining issues and solutions / Plan of TOT in Brazil
- Measures and plan to promote the new standard (CSPF) to regulate and evaluate energy efficiency air conditioners in order for consumers to well understand and purchase improved performance of air conditioners using inverter
- Proposed measures and plan to enhance dissemination of higher efficiency of the products in the Brazilian market to improve energy efficiency of products actually used in the market

3) Roadmap to improve the standards of EE for the other appliances such as refrigerators which could apply the basic principle and conditions of CSPF based on the experiences in air conditioners

(3) Procedure :

Face-to-face training in Japan by inviting the Brazilian participants

Partial utilization of the online web meeting for the exchange with a maker and JATL

(4) Participants

10 participants from MME, INMETRO, Eletrobras, CEPEL and LABELO PUCRS

(The participants shall include the trainers of CEPEL and LABELO PUCRS who completed the 2nd TOT.)

(5) Points of Specifics

The tentative program is shown in ANNEX-2.

(5)-1 “Country Report” to share with the participants and the Japanese experts

- Presentation – The actual status and issues to enforce the 2021 Ordinance No. 269
- Discussion – Solution of issues

(5)-2 Lecture and exchange

- Latest policy measures to improve energy efficiency of air conditioners and to promote manufacturing and sales of higher efficiency of products by the “Top Runner Program” under EC Act in Japan (METI)
- Measures to have improved energy efficiency of refrigerators including the standards for energy efficiency performance evaluation of refrigerators through Top Runner Program in Japan Operation of S&L system for air conditioners under the Top Runner Program (TBC)
- Collaboration and system to calibrate testing facility (with JATL and Makers)

(5)-3 Practical training at JATL

- Key points to test and measure energy efficiency performance of air conditioner as per ISO 16358-1 CSPF

(5)-4 Workshop to develop the outputs

(5)-5 Presentation of the outputs and discussion

(5)-6 Confirmation of the plan and the required preparation for the “2nd Joint Activity in Brazil”

(6) Venue : In Tokyo

(7) Conditions to Implement

The following shall be confirmed.

- ▶ The actual conditions of the COVID-19 pandemic in Brazil and Japan which leads little or no risk to spread or be infected by COVID-19 through the activities.
- ▶ The important condition is that there is no critical barrier / restriction for the Brazilian participants to visit Japan and for ECCJ to accept the participants from Brazil in Japan
- ▶ Completion of the measures by ECCJ required to prevent the participants including staffs of ECCJ from being infected or spreading COVID-19

The detailed plan and program (“Program Outline”) will be prepared at an appropriate timing.

ANNEX-2

Program of “Training Workshop in Japan (BEC BR7)” (Tentative)

Duration: 6th February – 10th February, 2023

	Date	Morning Session (09:00 – 12:00)	Evening Session (14:00 – 17:00)
	Sun 5 th Feb.	Arrival in Japan	
Day 1	Mon 6 th , Feb.	09:00 Orientation Program guidance 09:45 Opening ceremony 10:30 Information sharing and Discussion: • Presentation of “Country Report” (Representative of the participants) • Opinion Exchange / Discussion based on the presentation	Lecture • Latest policy measures to improve energy efficiency of air conditioners and to promote manufacturing and sales of higher efficiency of products in the “Top Runner Program under EC Act in Japan (METI)
Day 2	Tue 7 th , Feb.	Visit Japan Air Conditioning And Refrigeration Testing Laboratory (JATL) • Field Tour – Testing Facility • Operation of Testing Laboratory	Exchange Procedure and points of Round Robin Test between JATL and Manufacturers of Air Conditioner (By online connection with some makers)
Day 3	Wed 8 th Feb.	(Move) Visit Manufacturer of Air Conditioners (Daikin – TBC) Manufacturing factory Explanation : R&D and manufacturing	Visit Tour : Factory and Laboratory Q&A and Exchange (Move to Tokyo)
Day 4	Thur 9 th , Feb.	Visit (Practical Training) Japan Air Conditioning And Refrigeration Testing Laboratory (JATL) • Practical Training Key points of the performance test of air conditioner as per ISO 16358-1 CSPF	Visit (Practical Training) Japan Air Conditioning And Refrigeration Testing Laboratory (JATL) • Practical Training Key points of the performance test of air conditioner as per ISO 16358-1 CSPF
Day 5	Fri 10 th Feb.	Presentation and Discussion of “Final Report”	Overall Discussion • Future Direction • Program Evaluation Closing Ceremony
	Sat 11 th , Feb.	Departure from Japan	

4-12. 2nd Joint Activity in Brazil (Program-1)

(1) Timing : March 7th – 10th, 2023 (Duration for net 5 days) (TBC)

(2) Purpose :

Program-1

- 1) To implement the 3rd TOT – Advice and assistance by Japanese experts for the Brazilian trainers to implement the training
- 2) To confirm the smooth enforcement of the 2020 Ordinance No. 234
- 3) To follow-up the results of BEC BR7 (Plan of the TOT and the roadmap to improve the existing S&L System)

Program-2

- 4) To discuss the future direction of possible cooperation for EE&C promotion in the energy intensive industry between Brazil and Japan including the potential work programs such as the joint program with EPE (possible to include the discussion to wrap-up discussion)

“Project” Overall

- 5) To wrap-up and evaluate the results of activities FY 2022 and the outcomes of “Project”

(3) Procedure

Face to face activities also using the online tools such as a web meeting

(4) Venue :

Program-1 : At CEPEL in Rio de Janeiro with online discussion with LABELO PUCRS etc.

Program-2 : → Not Implemented

Wrap-up : At MME in Brasilia with online discussion with INMETRO, CEPEL and LABELO PUCRS

(or)

Online discussion at CEPEL with MME and the other organizations

(5) Specific Points of Activities

Program-1

(5)-1 Implementation of the 3rd TOT

- Implementation of the training at CEPEL by the 1st trainers who completed the 2nd TOT
- The program is same as the program of the “Performance Test Practice of (STEP-2) Training for the 1st TOT
 - 1) Lectures by online using video and textbooks used for the 1st TOT before joining the 3rd TOT (ECCJ will share the videos and textbooks with the participants. It will take net 3 days to study the textbook using videos.)
 - 2) Practice training using the M-AC for net 5 days (Same program as the program of the “(STEP-2) Training – Performance Test Practice” of the 1st TOT)
- Participants : 10 (Testing staffs and government officials)

Especially testing staffs from the testing organizations including manufacturers of air conditioners and officials from the Brazilian government including INMETRO
- Japanese experts will advise and assist the Brazilian 1st trainers in implementing the

training.

(5)-2 Evaluation of the results of Program-1

- Follow-up the results of BEC BR7 (Plan of the TOT and the roadmap to improve the existing S&L System) and confirm the action plan
- Evaluation of Program-1

Program-2

(5)-3 Discussion with MME etc.

- The future direction of possible cooperation for EE&C in the industry sector between Brazil and Japan including potential work programs (possible to include the wrap-up meeting)

“Project”

(5)-4 Wrap-up Meeting with MME to evaluate the achievements and outcomes of the “Project”

(6) Conditions to Implement

The following shall be confirmed.

- ▶ The actual conditions of the COVID-19 pandemic in Brazil and Japan which leads little or no risk to spread or be infected by COVID-19 through the activities.
- ▶ There is no critical barrier / restriction for Japanese experts to visit Brazil and for Brazil to accept the Japanese experts in Brazil.
- ▶ Completion of the measures by CEPEL and the participants required to prevent the participants including staffs of CEPEL from being infected or spreading COVID-19

4-13. Online Meeting to Wrap-up and Evaluate Results of “Project” (Option)

In case that the Wrap-up Meeting cannot be held in the 2nd Joint Activity in Brazil, this online meeting will be separately held basically between ECCJ and MME in March 2023.

Actual Results : ■
Plan : ■

The Energy Conservation Center, Japan (ECCJ)
September 28, 2022

