JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Installation of 1.2MW Rooftop Solar Power System in Freezing Warehouse
Reference number	PH003
Third-party entity (TPE)	Japan Quality Assurance Organization (TPE-PH-001)
Project participant contracting the TPE	Tokyo Century Corporation
Date of completion of this report	30/06/2021

A.2 Conclusion of validation

Overall validation opinion	☒ Positive ☐ Negative

A.3. Overview of final validation conclusion

Only when all of the checkboxes are checked, overall validation opinion is positive.

Item	Validation requirements	No CAR or CL remaining
Project design document form	The TPE determines whether the PDD was completed using the latest version of the PDD forms appropriate to the type of project and drafted in line with the Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan and Monitoring Report.	☒
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	☒
Application of approved JCM methodology (ies)	The project is eligible for applying applied methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.	☒
Emission sources and calculation of emission reductions	All relevant GHG emission sources covered in the methodology are addressed for the purpose of calculating project emissions and reference emissions for the proposed JCM project.	☒
	The values for project specific parameters to be fixed *ex ante* listed in the Monitoring Plan Sheet are appropriate, if applicable.	☒
Environmental impact assessment	The project participants conducted an environmental impact assessment, if required by the Republic of the Philippines, in line with Philippine procedures.	☒
Local stakeholder	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage	☒

Item	Validation requirements	No CAR or CL remaining
consultation	stakeholders and solicit comments for the proposed project.	
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	☒
Public inputs	All inputs on the PDD of the proposed JCM project submitted in line with the Project Cycle Procedure are taken into due account by the project participants.	☒
Modalities of communications	The corporate identity of all project participants and a focal point, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories are included in the MoC.	☒
	The MoC has been correctly completed and duly authorized.	☒
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	☒
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Sumio	First name: Asada
Title: Senior Executive	
Specimen signature:	Date: 30/06/2021

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Hiroshi Motokawa	JQA	Team Leader	☒	Authorized	☐
Mr. ☐ Ms. ☒	Eri Maruyama	JQA	Team member	☐		☐
Mr. ☐ Ms. ☒	Sachiko Hashizume	JQA	Internal Reviewer	☒	Authorized	☐
Mr. ☐ Ms. ☐				☐		☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of validation, findings, and conclusion based on reporting requirements

C.1. Project design document form

<Means of validation>

In this report, the validation team (hereinafter, the team) validates two versions of PDD, the version 01.0 submitted for validation and dated 06/01/2021 (hereinafter, the PDD), and the version 02.0 revised during the validation and dated 25/06/2021 (hereinafter, the revised PDD). Regarding the document names referred to in this report, the same applies to the Monitoring Plan Sheet (i.e. the MPS and the revised MPS), Monitoring Structure Sheet (the MSS and the revised MSS) and the Modalities of Communication (the MoC and the revised MoC).

By reviewing the PDD, it is checked and confirmed that the PDD is completed using the latest version of the PDD form (JCM_PH_F_PDD_ver01.0) appropriate to the type of project and drafted in line with JCM Guidelines for Developing PDD and MR, JCM_PH_GL_PDD_MR_ver01.0 (hereinafter, the guidelines).

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the PDD is completed using the valid form and drafted in line with

the guidelines.

C.2. Project description

<Means of validation> The proposed JCM project is “Installation of 1.2MW Rooftop Solar Power System in Freezing Warehouse” (hereinafter the project). The project aims to contribute to Philippines' sustainable development through the use of renewable energy and reduction in greenhouse gases (GHG) by introduction of rooftop solar photovoltaic facility in the freezing warehouse. The project participants (PPs) are Tokyo Century Corporation of and TMU Solar Philippines Inc., who have introduced the project equipment at the project site. The starting date of project operation is 24/01/2019 and the expected operational lifetime of the project is 17 years, which is based on the legal lifetime issued by National Tax Agency, Japan. The team conducted desk review and interviews to confirm the accuracy and completeness of the project description. The team doesn't conduct an on-site inspection for the project. The reasons for this are that the following are expected: - Information of the project and technology, necessary for the validation; - Photos taken before and after the project start, and interviews with the PPs; - Purchase records and/or installation records of the project equipment. An issue was raised. **<Findings>** *Please state if CARs, CLs, or FARs are raised, and how they are resolved.* < CAR01 > The PPs are requested to correct the following points: - In the table of A.3, the coordinates are shown as Latitude: N 14°30' 51.0" and Longitude: E 121° 02' 06.4". They don't seem to be correct. By checking them through Google Earth, they indicate the location of residential area beside the highway, not freezing warehouse; - In the figure of C.2, the monitoring point number is not indicated corresponding to the number of parameter listed in the MPS, i.e. (1); - In the table of C.3, the values of "Estimated Reference emissions" are not completely consistent with those in the MPS(calc_process). Also, the operation days in 2019, i.e. 342 days, are not properly reflected in the calculation of figures in 2019. < PP response to this issue > The PPs revised the coordinates to Latitude: N 14°30' 49.0" and Longitude: E 121° 02' 10.0", at which "AFP-RSBS Industrial Park" is located. The PPs made the revisions in the C.2. and C.3. according to CAR01. < Assessment of PP response >

All the revisions in A.3, C.2. and C.3. are appropriately made.
Therefore, this issue was closed.
<Conclusion based on reporting requirements>
Please state conclusion based on reporting requirements.
The team concludes that the project description in the PDD is accurate and complete.

C.3. Application of approved methodology(ies)

<Means of validation>
The project applies the approved methodology, PH_AM002 Ver1.0, "Installation of Solar PV System" (hereinafter the methodology).
By checking the JCM website at the time of submission of the project for validation, the team confirms that the applied version of the methodology is valid at that time.
By comparing the PDD with the actual text of the methodology, the team confirms that the methodology is correctly quoted and applied.
By checking the relevant documents including documentation referred to in the PDD and reviewing comparable information as deemed necessary, the team confirms that the project meets each eligibility criterion of the methodology as follows:

Criterion 1: The project installs solar PV system(s).
The PDD states “The proposed project installs a new solar PV system”.
The team received the following documents;
- Specifications of the project equipment, PV module, inverter, electricity meter, pyranometer and monitoring system,
- Photos of installed equipment,
- Implementation report of JCM equipment subsidy project,
- System drawing and single line diagram,
- Relevant contracts and system acceptance reports.

By reviewing the documents listed above, the team confirms that the new project equipment shown in the figure of C.2, are newly installed at project site. Hence, the team determines that the project meets Criterion 1.

Criterion 2: The PV modules are certified for design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).
The PDD states “The PV modules installed in the proposed project are certified for design qualifications (IEC 61646) and safety qualification (IEC 61730 (JET/TUV)).”.
By reviewing the certificates issued by Tuev Rhineland (Registration No. 50303539 and 50303551, issued on 9/02/2015 and 7/10/2016, valid until 8/02/2020 and 6/10/2021,

respectively), the team confirms that the PV modules installed by the project are certified for design qualifications (IEC 61646) and safety qualification (IEC 61730).
Hence, the team determines that the project meets Criterion 2.

Criterion 3: The equipment used for monitoring output power of the solar PV system(s) and irradiance is installed at the project site.
The PDD states "The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the proposed project site".
The team received the following documents;
- Catalogues of the pyranometer and electricity meter, which are issued by the manufacturer.
By reviewing the documents provided and interviewing with the PPs, the team confirms that the monitoring equipment, electricity meter and pyranometer are installed at the proposed project site.
Hence, the team determines that the project meets Criterion 3.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team confirms that the project meets all the eligibility criteria of the methodology whose applied version is valid at the time of submission of the project for validation. Therefore the team concludes that the project is eligible for applying the methodology.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The MPS was prepared by using JCM_PH_AM002_ver01.0. By reviewing the relevant documents, the team confirms the following:
- MPS is not altered,
- Its required fields are appropriately filled in according to the guidelines,
- All the emission sources covered by the methodology are included.

Regarding the parameter to be fixed ex ante, EFRE,i, by reviewing the relevant documents, the team confirms that all data sources and assumptions of " EFRE,i" are appropriate, and that the parameters are appropriately fixed in line with the methodology and JCM Guidelines for Validation and Verification, JCM_PH_GL_VV_ver01.0.

As for EFRE,i, the methodology states as below:

- In case the solar PV system(s) in a proposed project activity is directly connected to a regional grid or connected to a regional grid via an internal grid not connecting to a captive power generator (Case 1), EFRE,grid is set as following:
Luzon-Visayas grid: 0.507 tCO2/MWh, Mindanao grid: 0.468 tCO2/MWh,
- In the case the solar PV system(s) in a proposed project activity is connected to an internal grid connecting to both a regional grid and a captive power generator (Case 2), EFRE,grid is set as following:
Luzon-Visayas grid: 0.507 tCO2/MWh, Midanao grid: 0.468 tCO2/MWh.
By reviewing the relevant documents, the team confirms the following:
- Project solar PV system is connected to an internal grid,
- Project site is located at the region of Luzon-Visayas,
- PPs applies the value of "0.507" in line with the methodology.

By reviewing the relevant documents and interviewing with the PPs, the team confirms that "EGi,p" were determined by calculation based on the values in the specification and other related documents, not on the actual operation.
Thus, an issue was raised.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

< CL01 >

The value of EGi,p in the MPS(input) is 1,575.9 MWh/p, which is much higher than the annual average based on the actual monitored values during 2019-2020, i.e. 1,228.5 MWh/y.
The PPs are required to give the team more information and justification regarding the difference between the values listed above.

< PP response to this issue >

The PPs explained that the main reasons of the difference were shorter operation hours due to small demand during operation beginning period in 2019, and volcanic eruption and COVID-19 in 2020.

< Assessment of PP response >

By interviewing with the PPs, the team confirms that the main reasons given by the PPs are very reasonable, and that it seems to be probable assumption that the circumstance during 2019-2020 might change during the expected operational lifetime of the project and the actual generation will be close to the PPs' estimate gradually.
Therefore, this issue is closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team reaches the conclusion that the selected emission sources and GHG types are justified

for the project. The team assesses the estimated values for project specific parameters in the MPS including intermediate processes to derive the values. The issues on the values raised by the team were fully clarified, which didn't result in any revisions of the PDD and the MPS. As a result, the values are considered reasonable in the context of the project.

C.5. Environmental impact assessment

<Means of validation>

The team confirms that the project is not subject to environmental impacts assessment (EIA) according to national regulations by reviewing the relevant documents and/or using local official sources, "REVISED GUIDELINE FOR COVERAGE SCREENING AND STANDARDIZED REQUIREMENTS UNDER THE PHILIPPINE EIS SYSTEM" (Republic of the Philippines, Department of Environment and Natural Resource, EMB Memorandum Circular 005, July 2014), http://eia.emb.gov.ph/wp-content/uploads/2019/01/Revised-Guidelines_Threshold_MC-2014-005.pdf.

This official guideline states that the renewable energy project with the total power generating capacity of 1.2 MW falls under "Category D" which are not covered by the Philippine EIS (Environment Impact Statement) system and are not required to secure an Environmental Compliance Certificate.

In details, the guideline has "Annex A Project Thresholds for Coverage Screening and Categorization" indicating that "- 3.2.7. Renewable energy projects such as ocean, solar, wind, tidal power except waste-to-energy and biogas projects" apply to "Category D", if the total power generating capacity of project is less than 5 MW.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the fact, that the PPs have implemented no EIA, is in accordance with the regulations of the Republic of the Philippines.

C.6. Local stakeholder consultation

<Means of validation>

Since no EIA was required for the project under the regulations in the Republic of the Philippines, local stakeholder consultation (hereinafter, LSC) was carried out in line with the JCM requirements as described in the PDD.

By reviewing the relevant documents and interviewing with the PPs, the team confirms the following:

- On 21/09/2018, the invitation letters were delivered to the stakeholders with an interest or concern in the project, before the LSC was held on 16/10/2018,
- The list of organizations/agencies of stakeholders participated in the LSC are provided in the PDD,
- The summary of the received comments provided in the PDD is not provided,
- This process are described in the PDD.

As a result, the following cannot be confirmed:

(a) Comments have been invited from local stakeholders relevant to the project;

(b) The summary of the comments received as provided in the PDD is complete;

(c) The PPs have taken due account of all comments received and have described this process in the PDD.

An issue was raised.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

< CAR02 >

Any comments shall be provided in the PDD.

< PP response to this issue >

The PPs added the LSC comment to the PDD.

< Assessment of PP response >

The comment was provided in the revised PDD based on the minutes. The team confirms that the local stakeholders provide no negative comments and no issues that require actions to be taken by the PPs.

Therefore, this issue is closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the LSC of the project has completed adequately and the process and information considered above are stated in the revised PDD.

C.7. Monitoring

<Means of validation>

By reviewing the MPS and relevant documents based on the methodology, the team confirms the following:

- Monitoring point and the type of monitoring equipment, i.e. electricity meter, are appropriately illustrated in the figure of C.2.,
- Monitored parameter is one, “EGRE,i” listed in line with the methodology,
- Monitoring information described in the MPS(input) complies with the requirements of the methodology,

- Catalgoue of the installed electricity meter provided as a manufacturer's specification has been prepared in 2014 by the time of installation,
- It shows that the accuracy class of the actual electricity meters installed at the project site is 0.2% lower than ±5% indicated by the MPS.

The team cannot confirm whether the monitoring structure described in the MSS of the monitoring plan seems to be feasible within the project design, and whether the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient for ex post reporting and verification, because the means of the data management and QA/QC procedures are not included in the MSS.

Thus, an issue was raised.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

< CL02 >

The means of the data management and quality assurance and quality control procedures are not included in the MSS.

< PP response to this issue >

The PPs made the revisions in the MSS, by changing from "Responsible for project planning, implementation, monitoring results and reporting" to "Responsible for project planning, implementation, checking and reporting of monitoring results".

< Assessment of PP response >

The revisions in the MSS was appropriately made. The team confirms that the means of implementation of the monitoring plan, including the data management and QA/QC procedures, are sufficient for ex post reporting and verification.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the monitoring plan described in the MPS complies with the requirements of the methodology and the guidelines, and that the PPs have ability to implement the described monitoring plan including feasibility of monitoring structure.

C.8. Modalities of Communication

<Means of validation>

By directly reviewing the relevant documents including the business cards and signatures of all the personnel shown in the MoC, the team confirms the following:

- The MoC provided by the PP, Tokyo Century Corporation, with whom JQA has a contractual relationship, has applied the latest version of the form, JCM_PH_F_MoC_ver01.0,
- The information including specimen signatures is correctly completed and the MoC is duly authorized.

An issue was raised.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

< CAR03 >

The titles of Mr. Yoshihiro Tanaka and Mr. Koichi Haraguchi are missing in Section 2.

< PP response to this isuue >

The PPs made the revisions in the MoC according to CAR03.

< Assessment of PP response >

By reviewing the revised MoC, the team confirms that the titles of Mr. Yoshihiro Tanaka and Mr. Koichi Haraguchi are filled in Section 2.

Thus, CAR03 was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the MoC complied with all relevant forms and requirements.

C.9. Avoidance of double registration

<Means of validation>

By reviewing the relevant websites (e.g. CDM website, Markit Environmental Registry, etc.) and the Section 7 of the MoC, the team confirms that the project is not registered under other international climate mitigation mechanisms.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The team concludes that the project is not registered under the other international climate mitigation mechanisms.

C.10. Start of operation

<Means of validation>

By reviewing the relevant documents, e.g. monitored daily data and final acceptance report, the team confirms that it is reasonable for the PPs to set the starting date of project operation at 24/01/2019 as described in the PDD, and that it does not predate January 1, 2013.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements. The team confirms that the start of the operation is determined appropriately.

C.11. Other issues

<Means of validation> No other issue was identified. **<Findings>** *Please state if CARs, CLs, or FARs are raised, and how they are resolved.* Not applicable. **<Conclusion based on reporting requirements>** *Please state conclusion based on reporting requirements.* Not applicable.

D. Information on public inputs

D.1. Summary of public inputs

In line with the JCM Project Cycle Procedure, the PDD was made publicly available for 30 days between 09/01/2021 and 07/02/2021 to invite public comments on the JCM website, https://www.jcm.go.jp/ph-jp/projects/86 No public comments were received.

D.2. Summary of how inputs received have been taken into account by the project participants

No action was required to be taken into due account by the PPs.

E. List of interviewees and documents received

E.1. List of interviewees

Mr. Takashi AOKI	Deputy General Manager, International Solutions Support Division, Tokyo Century Corporation
Mr. Yoshihiro TANAKA,	Assistant Manager, International Products Development Division, Tokyo Century Corporation
Mr. Koichi HARAGUCHI,	Division Member, International Products Development Division,

Mr. Mitsuru SHIKANAI,	Tokyo Century Corporation Global Public Team, Climate Change and Sustainability Services, Ernst & Young ShinNihon LLC

E.2. List of documents received

1. Project Design Document (PDD) submitted for validation (JCM_PH003_PDD_draft.pdf) ver 01.0 dated 06/01/2021 and (JCM_PH_F_PDD_PH003_ver02.0.pdf) ver 02.0 dated 25/06/2021
2. Monitoring Plan Sheet and Monitoring Structure Sheet submitted for validation (JCM_PH003_MPS_draft.xlsx) ver 01.0 and (JCM_PH_AM002_PH003_ver02.0) ver 02.0
3. Modalities of communications statement submitted for validation (JCM_PH_MoC_PH003_ver01.0.pdf) and (JCM_PH_F_MoC_PH003_ver02.0.pdf)
4. Project Design Document Form (JCM_PH_F_PDD_ver01.0.docx)
5. JCM Modalities of Communication Statement Form (JCM_PH_F_MoC_ver01.0.docx)
6. JCM Approved Methodology, JCM_PH_AM002, “Installation of Solar PV System, Ver. 01.0”
7. Monitoring Plan Sheet and Monitoring Structure Sheet attached to the methodology (JCM_PH_AM002_ver01.0.xlsx)
8. JCM Glossary of Terms (JCM_PH_Glossary_ver01.0)
9. JCM Project Cycle Procedure (JCM_PH_PCP_ver01.0)
10. JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_PH_GL_PDD_MR_ver01.0)
11. JCM Guidelines for Validation and Verification (JCM_PH_GL_VV_ver01.0.pdf)
12. JCM Validation Report Form (JCM_PH_F_Val_Rep_ver01.0.docx)
13. JCM website of project information, https://www.jcm.go.jp/ph-jp/projects/86
14. JCM website of JCM_PH_AM002, https://www.jcm.go.jp/ph-jp/methodologies/111
15-1. User manuals and instructions of the project equipment
15-2. Catalogue of the electricity meter
16-1. System layout drawings
16-2. Photos of the Freezing Warehouse before and after the project equipment installation
16-3. Photos of the project equipment
17. Purchase agreements concluded between the PP and the project equipment supplier
18. Final acceptance reports of equipment installation signed by the PP
19. Legal lifetime of the installed equipment under Japanese tax regulation, https://www.keisan.nta.go.jp/h30yokuaru/aoiroshinkoku/hitsuyokeihi/genkashokyakuhi/taiyo

nensukikai.html

20. Certificates of the solar panels issued by Tuev Rhineland (Registration No. 50303539 and 50303551)

21. Single line diagram of the Freezing Warehouse

22. REVISED GUIDELINE FOR COVERAGE SCREENING AND STANDARDIZED REQUIREMENTS UNDER THE PHILIPPINE EIS SYSTEM (Republic of the Philippines, Department of Environment and Natural Resource, Environmental Management Bureau Memorandum Circular 005, July 2014), http://eia.emb.gov.ph/wp-content/uploads/2019/01/Revised-Guidelines_Threshold_MC-2014-005.pdf.

23. LSC invitation letter to the LSC issued by the PP, LSC agenda and presentation materials prepared by the PP

24. LSC meeting report and LSC attendees' list

25. Google earth picture indicating the address and coordinates of the project site

26. Data monitored by the electricity meters after the project operation start in 2019 and 2020

27. Basis data in MPS (input_separate)

28. Copies of Business cards and signatures of the personnel in the MoC

29. Officer list of the PP and service contract between the PPs

Annex Certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Statement of competence

Name: Mr. Hiroshi Motokawa

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.1. Cement and lime production	2014/12/22
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-

Statement of competence

Name: Ms. Sachiko Hashizume

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2015/11/20
Verifier	2015/11/20
Team leader	2018/6/22

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2015/11/20
TA 1.2. Renewables	2015/11/20
TA 3.1. Energy demand	2015/11/20
TA 4.1. Cement and lime production	-
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2015/11/20
TA 14.1. Afforestation and reforestation	-