参考　JCM方法論の適格性要件

令和5年4月6日

*1) #1, #2,...は各方法論の適格性要件の番号を示す
*2) 適格性要件の中に数式や補助表があるものは方法論を直接参照すること
*3) 令和4年度公募からの追加を青字で示す

類似技術に関する方法論の適格性要件 (Eligibility Criteria of JCM Methodologies Categorizated by Applied Technology Type)

分野 (Sector)	技術 (Technology)	JCM方法論 (JCM Methodology)	a. 技術の仕様要件 (Requirement for the project to be registered as a JCM project) b. 技術の性能要件 (Requirements for the project to be able to apply the JCM methodology)	c. メンテナンス方法の要件 (Requirements for Maintenance Method)	d. GHG削減以外の要件 (Other Requirements)
1. 省エネルギー (Energy efficiency)	空調機（エアコン） (Air Conditioning System)	VN_AM006	#1: Air-conditioning system with inverter is newly installed or installed to replace existing non-inverter air conditioning system. #2: Cooling capacity of project air conditioning system is more than or equal to 14kW. #3: COP of project air-conditioning system has a COP value higher than that of the value indicated in the table below. ※「COP for Reference Air Conditioning System($COP_{RE,j}$)（冷凍容量別リファレンスCOP値）」は承認済み方法論VN_AM006を参照		#4: Ozone Depletion Potential (ODP) of the refrigerant used for project air conditioning system is zero. #5: Plans to prevent release of refrigerants into the atmosphere at the time of air conditioning system removal are prepared for both project air conditioning system and the existing air conditioning system replaced by the project. In the case of replacing existing air conditioning system by project air conditioning system, execution of the prevention plan is checked at the time of verification, e.g. re-use of the refrigerant, in order to confirm that refrigerant used for the existing air conditioning system removed by the project is not released to the air.
		ID_AM004	#1: Single split inverter-type air conditioning system[1] is newly installed or installed to replace existing air conditioning system for grocery store whose selling area is less than 400 (four hundred) m2. #2: The installed air conditioning system is wall mounted type and/or ceiling cassette type, and has a COP value higher than that of the value indicated in the table below. ※「COP for Reference Air Conditioning System(COPRE,j)（冷凍容量別リファレンスCOP値）」は承認済み方法論ID_AM004を参照 1 Under the single split system, one indoor unit is connected to one outdoor unit.		#3: Ozone Depletion Potential (ODP) of the refrigerant used for the installed air conditioning system is 0 (zero). #4: A plan for not releasing refrigerant used for project air conditioning system is prepared. In the case of replacing the existing air conditioning system with the project air conditioning system, a plan is prepared in which refrigerant used for the existing air conditioning system is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.
	冷凍機（空調用） (Chiller)	BD_AM001	#1: Project chiller is a centrifugal chiller with a capacity of less than 1,150 USRt. * 1 USRt = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions* (COPPJ,tc,i) is more than 6.0. COPPJ,tc,i is a recalculation of COP of project chiller i (COPPJ,i) adjusting temperature conditions from the project specific condition to the standardizing conditions. COPPJ,i is derived in specifications prepared for the quotation or factory acceptance test data at the time of shipment by manufacturer. ※「equation to calculate $COP_{PJ,tc,i}$」及び「The standardizing temperature conditions to calculate $COP_{PJ,tc,i}$」は承認済み方法論BD_AM001参照	#3: Periodical check is conducted at least twice a year.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for not releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan is prepared in which refrigerant used in the existing chiller is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.
		VN_AM011	#1:Project chiller is an inverter type centrifugal chiller with a capacity which is less than or equals to 1,500 USRt. *1 USRt = 12,000 BTU/hr = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions* (COPPJ,tc,i) is more than the threshold COP values set in the tables below. (“x” in the table represents cooling capacity per unit.) ※Cooling capacity per Unit 別のThreshold IPLV valueは承認済み方法論VN_AM011参照	#3:Periodical check is planned more than one (1) time annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for prevention of releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.

		ID_AM002	#1: Project chiller is a centrifugal chiller with a capacity of less than 1,250 USRt. * 1 USRt = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions* (COPPJ,tc,i) is more than 6.0. COPPJ,tc,i is a recalculation of COP of project chiller i (COPPJ,i) adjusting temperature conditions from the project specific condition to the standardizing conditions. COPPJ,i is derived in specifications prepared for the quotation or factory acceptance test data at the time of shipment by manufacturer. ※「equation to calculate COPPJ,tc,i」及び「The standardizing temperature conditions to calculate COPPJ,tc,i」は承認済み方法論ID_AM002参照	#3: Periodical check is planned more than four (4) times annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: Plan for not releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, refrigerant used for the existing chiller is not released to the air.
		CR_AM002	#1: Project chiller is an inverter type centrifugal chiller with a capacity greater than or equal to 165USRt but less than 3500USRt. Note: 1 USRt = 3.52 kW #2: IPLV for project chiller i certified by AHRI is more than the threshold IPLV values set in the table below. (“x” in the table represents cooling capacity per unit.) ※Cooling capacity per Unit 別のThreshold IPLV valueは承認済み方法論AM_CR002参照	#3: Periodical check is planned more than one (1) time annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for prevention of releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
		KH_AM003	#1: Project chiller is a centrifugal chiller with a capacity of less than or equal to 1,300 USRt. * 1 USRt = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions* (COPPJ,tc,i) is more than the threshold COP values set in the tables below. (“x” in the table represents cooling capacity per unit.) ※「Threshold COP values for project chiller」及び「equation to calculate COP」は承認済み方法論KH_AM003を参照	#3: Periodical check is planned more than one (1) time annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for prevention of releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
		TH_AM003	#1: Project chiller is a non-inverter type centrifugal chiller with a capacity which is less than or equals to 1,500 USRt. Note : 1 USRt = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions ($COP_{PJ,tc,i}$) is more than the threshold COP values set in the table below. (“x” in the table represents cooling capacity per unit.) $COP_{PJ,tc,i}$ is calculated by altering the temperature conditions of COP of project chiller i ($COP_{PJ,i}$) from the project specific conditions to the standardizing conditions. $COP_{PJ,i}$ is derived from specifications prepared for the quotation or factory acceptance test data by manufacturer. ※「Cooling capacity per Unit 別のThreshold COP value」及び「equation to calculate $COP_{PJ,tc,i}$」は承認済み方法論TH_AM003参照	#3: Periodical check is planned at least one (1) time annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for prevention of releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
		TH_AM005	#1: Project chiller is a non-inverter type centrifugal chiller with a capacity which is less than or equals to 1,500 USRt. Note : 1 USRt = 3.52 kW #2: COP for project chiller i calculated under the standardizing temperature conditions ($COP_{PJ,tc,i}$) is more than the threshold COP values set in the table below. (“x” in the table represents cooling capacity per unit.) $COP_{PJ,tc,i}$ is calculated by altering the temperature conditions of COP of project chiller i ($COP_{PJ,i}$) from the project specific conditions to the standardizing conditions. $COP_{PJ,i}$ is derived from specifications prepared for the quotation or factory acceptance test data by manufacturer.※「Cooling capacity per Unit 別のThreshold COP value」及び「equation to calculate $COP_{PJ,tc,i}$」は承認済み方法論TH_AM005参照	#3: Periodical check is planned at least one (1) time annually.	#4: Ozone Depletion Potential (ODP) of the refrigerant used for project chiller is zero. #5: A plan for prevention of releasing refrigerant used for project chiller is prepared. In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.

	冷凍機（冷蔵・冷凍用）(Refrigerator)	ID_AM003	#1: The project installs cooling system at food industry cold storage and frozen food processing plants for the purpose of chilling the food products to below -20 deg. C. #2: The project system is a secondary loop cooling system using natural refrigerant. CO2 is used as the secondary refrigerant in the system. #3: The refrigerator applied in the project cooling system is a two stage compressor refrigerator with a cooling capacity as shown below: For cold storage: less than 340kW For individual quick freezer: less than 260kW #4: The compressor of the project refrigerator is controlled by inverter. #5: COP of the project refrigerator i (COPPJ,i) is shown below: For cold storage: more than 2.0 For individual quick freezer: more than 1.5	#6: Periodical check at least once a year is planned.	#7: Plan for not releasing the primary refrigerant used for project refrigerator is prepared. In the case of replacing the existing refrigerator with the project refrigerator, refrigerant used for the existing refrigerator is not released to the air.
		TH_AM008	#1: A project newly introduces (a) high efficiency HP(s) using natural refrigerants to a food manufacturing plant and it does not replace (an) existing HP(s). In case of HPs supplying chilled water, the water is fed into a refrigeration system of the plant which uses either screw or reciprocating compressors. #2: The cooling capacity of a HP unit is more than or equal to 50kW and less than 1600kW.		
		TH_AM011	#1: Refrigerator(s) with a secondary loop cooling system using CO2 as a refrigerant and equipped with inverter is installed at cold storage. #2: COP of project refrigerator(s) installed in the project cooling system is more than the threshold COP values set in the tables below. (“x” in the table represents cooling capacity per unit.) ※「Threshold COP value」及び他の条件は、承認済み方法論TH_AM011を参照	#3: Periodical check is planned at least one (1) time anr	#4: In the case of replacing the existing refrigerator with the project refrigerator, a plan for prevention of releasing refrigerant used in the existing refrigerator to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
		TH_AM013	#1: The project installs brine screw chiller(s) for freezing and refrigeration. Cooling capacity of a screw chiller per one module is less than or equals to 1,000 kW. #2: COP for project screw chiller(s) calculated under the standardizing temperature conditions (COPPJ,tc,i) is more than COP of the reference screw chiller, with the cooling capacity range same as the project screw chiller. ※ standardizing tempererature におけるCOP計算式は、承認済み方法論TH_AM013を参照	#5: Periodical check at least once a year is planned.	#3: Ozone Depletion Potential (ODP) of the refrigerant used for screw chiller(s) is zero. #4: A plan for prevention of releasing refrigerant used for project screw chiller is prepared. In the case of replacing the existing chiller with the project screw chiller(s), a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air
		MM_AM002	#1:Refrigerator(s) with a secondary loop cooling system using CO2 as a refrigerant and equipped with inverter is installed at food industry cold storage. #2:COP for the project refrigerator(s) installed in the project cooling system is more than the threshold COP values set in the tables below. (“x” in the table represents cooling capacity per unit.) ※「COP threshold」及び他の条件は、承認済み方法論MM_AM002を参照	#3: Periodical check is planned at least one (1) time annually.	#4: In the case of replacing the existing refrigerator with the project refrigerator, a plan for prevention of releasing refrigerant used in the existing refrigerator to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
	吸収式冷凍機（廃熱利用）(Absorption Chiller Using Waste Heat)	ID_AM022	#1:Project chiller is an absorption chiller with a cooling capacity which is less than or equals to 1,300 USRt. * 1 USRt = 3.52 kW	#2: Periodical check is planned more than four (4) times annually.	#3: In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. reuse of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air. In the case that the existing chiller is NOT replaced with the project chiller, this criterion is not applied. #4: In the case that project absorption chiller uses fossil fuel for its heat source, such fossil fuel is gas fuel.

	旋回流誘引型成層空調システム (Swirling Induction Type Air-conditioning System)	TH_AM006	#1: Displacement ventilation air conditioning unit, whose specification of velocity of the discharged air is designed to be more than 0.5 m/s and equals to or less than 1.0 m/s, is installed in the cleanroom of semiconductor plant. #2: The project displacement ventilation air conditioning unit is constituted of at least cooling coil, HEPA (high efficiency particular air) or ULPA (ultra low penetration air) filter and air supply fan in one unit. #3: The project displacement ventilation air conditioning unit is designed to meet the threshold values of Class 6 or class 7 of airborne particulate cleanliness class set by ISO 14644-1:2015[1]. #4: The project displacement ventilation air conditioning unit only supplies cooled air. 1 Cleanrooms and associated controlled environments -- Part 1: Classification of air cleanliness by particle concentration		
	冷蔵・冷凍ショーケース (Fridge and Freezer Showcase)	ID_AM008	#1: The project is to install a separate type fridge-freezer showcase by using natural refrigerant or replacing the existing at a grocery store which is equipped with wall mounted type and/or ceiling cassette type air conditioning system and whose selling area is less than 400 (four hundred) m^2. #2: In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, the existing one is a built-in type showcase.		#3: A plan for not releasing refrigerant used for project fridge-freezer showcase is prepared. In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, a plan is prepared in which refrigerant used in the existing fridge-freezer showcase is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.
		TH_AM014	#1: Separate-type inverter-controlled fridge showcase is newly installed or installed to replace existing fridge showcase at convenience store(s). #2: COP of project inverter-controlled separate type fridge showcase i under the standard temperature conditions* is more than the threshold COP values set in the table below. (“x” in the table represents cooling capacity per unit.) ※ Cooling capacity別のReference COPは、承認済み方法論TH_AM014を参照		#4: Ozone Depletion Potential (ODP) of the refrigerant used for project fridge show case is zero. #5: A plan for prevention of releasing refrigerant used for project separate-type fridge showcase is prepared. In the case of replacing the existing showcase with the project showcase, a plan for prevention of releasing refrigerant used in the existing showcase to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
	ボイラ(Boiler)	MN_AM002	#1: Technology to be employed in this methodology is coal-fired heat only boiler (HOB) for hot water supply system. #2: Capacity of the project HOB ranges from 0.10 MW to 1.00MW. #3: The project activity involves the installation of new HOB and/or the replacement of the existing coal-fired HOB #5: The catalog value of the boiler efficiency for the project HOB is 80% or higher.	#4: The project HOB is equipped with an operation and maintenance manual.	#6: The project HOB has the function to feed coal on the stoker uniformly and is equipped with a dust collector.
		ID_AM015	#1: The project boiler is a once-through boiler with a rated capacity of 7 ton/hour per unit or less (equivalent evaporation)	#2: Periodical check and maintenance by the manufacturer of boiler or authorized agent is implemented in accordance with the manufacturer’s requirement.	#3: Appropriate water purification/demineralization system such as Reverse Osmosis (RO) membrane treatment is installed.
		MM_AM003	#1: The project boiler is a once-through boiler with a rated capacity of 7 ton/hour per unit or less (equivalent evaporation)	#2: Periodical check and maintenance by the manufacturer of boiler or authorized agent is implemented at least once a year.	
		TH_AM010	#1: Projects involve implementation of one or both of the following two energy efficiency improvement measures: the introduction of once-through boiler and the installation of economizer into existing boiler. #2: For projects that involve the introduction of once-through boiler, the project boiler (OT) is a once-through boiler with a rated capacity of 7 ton/hour per unit or less (equivalent evaporation). #3: For projects that involve the installation of economizer into existing boiler, the fuel for the project boiler (EC) shall not be heavy oil nor coal.	#4: Periodical check and maintenance by the manufacturer of boiler or authorized agent is implemented in accordance with the manufacturer’s requirement.	

	ヒートポンプ (Double Bundle-type Heat Pump)	VN_AM012	#1: A project introduces (an) heat recovery electric heat pump(s) (HREHP). In case (an) project HREHP(s) replaces existing equipment, the existing one is not (an) HREHP(s).	#2: Periodical check is planned more than one (1) time annually.	#3: Ozone Depletion Potential (ODP) of the refrigerant used for project HREHP(s) is zero. #4: A plan for prevention of releasing refrigerant used for project HREHP(s) is prepared. In the case of replacing the existing chiller with the project HREHP(s), a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air.
		ID_AM010	#1: A project introduces (a) modular HP(s) to a new building. The total cooling capacity of the modular HP(s) is altogether less than 176 kW or 600,000 BTU/hr. #2: The modular HP(s) introduced under the project has its technical capability to produce outgoing hot water higher than or equal to 70 degrees Celsius. The value can be checked against specifications from an equipment supplier. #3: In addition to the modular HP(s) installed for project, oil-fired hot water generating equipment(s) and/or electric-run chilled water generating equipment(s) may be installed and operated to supply hot and/or chilled water to the project building. In such cases, the capacity of these additional equipment to generate hot and/or chilled water is less than or equal to half of the heating capacity and/or the cooling capacity of the modular HP(s), respectively.		#4: A plan for not releasing refrigerant used for the modular HP(s) is prepared, if the refrigerant contains CFCs, HFCs, or HCFCs.
	廃熱回収温水器 (Water Heater Using Waste Heat)	CR_AM003	#1: A project introduces (an) electric heat pump type water heater(s) to supply hot water utilized in a building. In case (an) project electric heat pump type water heater(s) replaces existing equipment, the existing one is not (an) heat pump type water heater(s).		#2: Ozone Depletion Potential (ODP) of the refrigerant used in project electric heat pump is zero. #3: A plan for not releasing refrigerant used for the project electric heat pump type water heater(s) is prepared.
	廃熱予熱利用システム (Waste Heat Recovery System)	TH_AM012	#1: The project installs evaporator(s) which applies mechanical vapor recompression.		
	変圧器 (Transformer)	VN_AM005	#1: Single-phase and/or three-phase oil-immersed transformer with amorphous metal core is installed in the distribution grid. #2: Load losses of the project transformer determined in line with IEC 60076-1 or national/industrial standards complying with IEC 60076-1 is equal or smaller than the standard values or specification values of load loss, required by the power company of the grid where the project transformer is installed, corresponding to its capacity and number of phases.		
		LA_AM003	#1:Single-phase and/or three-phase oil-immersed transformer with amorphous metal core is installed in the distribution grid. #2:Load losses of the project transformer determined in line with IEC 60076-1 or national/industrial standards complying with IEC 60076-1 is equal or smaller than the standard values or specification values of load loss, required by the power company of the grid where the project transformer is installed, corresponding to its capacity and number of phases.		
	LED照明 (LED Lighting)	ID_AM005	#1: LED lighting is newly installed or installed to replace existing fluorescent lighting for grocery store whose selling area is less than 400 (four hundred) m^2. #2: The installed LED lighting is a straight type LED with color temperature between 5,000 and 6,500 K, length between 602.5 and 1,513.0 mm, and luminous efficiency of more than 120 lm/W. #3: A measurement result of the illuminance (lux (lm/m2)) of the installed LED lighting which is equal or above the minimum value (300 lux) for illuminance of grocery store is obtained. See explanatory note for the measurement method.		#4: In the case of replacing existing fluorescent lighting with the project LED lighting, mercury contained in existing fluorescent lighting is not released to the environment.
		ID_AM020	#1: LED lighting is installed in indoor facilities. #2: The installed LED lighting is a downlight or spotlight type LED whose color rendering index stated in catalogs or other information prepared by its manufacturer is equal to or higher than 85, and luminous efficiency is equal to or higher than the corresponding threshold value set in the table below. ※「Threshold luminous efficiency value」は承認済み方法論ID_AM020を参照		

		TH_AM016 （追加）	#1: LED lighting is installed in indoor facilities. #2: The installed LED lighting is a downlight or spotlight type LED whose color rendering index is equal to or higher than 85, and luminous efficiency is equal to fo higher than the corresponding threshold value set in the table below. ※「Threshold luminous efficiency value」は承認済み方法論TH_AM016を参照		
	LED照明(調光システム含む) (LED Lighting with Dimming System)	ID_AM018	#1: LED street lighting accompanied by lighting control system are newly installed or installed to replace existing street lighting.		
		KH_AM001	#1: The project installs LED street lighting system utilizing wireless network control, which is connected to an electricity grid system. #2: All lighting equipment in one lighting system has the same specifications. #3: Wireless network technology enables controlling of the volume of lighting.		
	ポンプ (Pump)	VN_AM013	#1: Double suction volute pump(s) with efficiency of more than 80% at a condition for operational use is installed for water supply system at a water treatment plant.		#2: Project pump uses environmental friendly paints such as paints with 0.1% or less lead, cadmium and tar during the production process.
	コンプレッサー (Air Compressor)	TH_AM002	#1: Project air compressor is a non-inverter type multi-stage oil-free air compressor with an electric motor power of 55kW, 75kW, 110kW, 132kW, 145kW, 160kW, or 200kW installed in manufacturing process of semiconductors.	#2: Periodical check is planned more than one (1) time annually.	
	曝気システム (Aeration System)	ID_AM024	#1: Aerator(s) is(are) installed to replace existing diffuser(s) in existing aeration pond(s) for wastewater treatment.		#2: Effluent wastewater quality meets the wastewater quality standards on items such as biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total suspended solids (TSS) which are applicable to the project site.
	リジェネバーナー (Regenerative Burners)	ID_AM009	#1: The project replaces conventional burners with regenerative burners for aluminum holding furnaces. #2: Holding temperature of aluminum melt, which is determined in the furnace user's specification, is within the range from 600 to 800 degrees Celsius. #3: The regenerative burners have a structure which leads all exhaust gas to flow through the heat reservoir before discharging it into the atmosphere.	#4: Periodical check is planned at least once a year.	
	天然ガス焼成炉 (Gas Fired	VN_AM010	#1:The project introduces tunnel and/or shuttle kiln with waste heat recovery system.	#2:Periodical check is planned more than one (1) time annually.	
	空気制御システム (Air Conditioning Control System)	VN_AM015	#1: The project installs compressor control system(s) for new and/or existing noninverter split type air conditioners utilizing electric heat pump. #2: The compressor control system(s) has a function to measure electric current of compressor(s) at the sampling rate of 0.01 seconds or below and to estimate the amount of electricity consumption of compressor(s) in non-inverter split type air conditioner system(s).		
	ポンプ 制御用インバーター (Freaquency Inverter for Pump)	KH_AM005	#1: Inverter(s) is installed to the existing constant-speed pump(s) for water distribution in water treatment plant. #2: The value of ECR of project pump is always smaller than that of reference pump at the same operational load except when the operational load is equal to one (1), which is demonstrated by equations fixed *ex ante* or may be demonstrated by equations *ex post* at the time of the first verification.		
	織機 (Loom)	BD_AM003	#1: The air jet loom(s) are introduced at a textile factory. The air jet looms introduced as part of the project are equipped with energy saving technologies such as an optimized shape reed's tunnel of nozzles and a pressure sensor to measure air pressure of nozzles for optimization of compressed air consumption of weft insertion. #3: Shedding mechanism of the project air jet loom(s) is either Cam or Dobby shedding. #4: The effective reed width of the project air jet loom(s) is less than or equal to 190 cm.	#2: Periodical checks of the project air jet loom(s) are conducted at least once every calendar year.	

		ID_AM011	#1: The project replaces existing air jet looms at a weaving factory with air jet looms equipped with energy saving technologies such as an optimized shape reed's tunnel of nozzles and a pressure sensor to measure air pressure of nozzles for optimization of compressed air consumption of welt insertion #2: The air jet looms which are installed by the project reduce the specific air consumption by at least 15% compared with the reference air jet looms in line with the description in Section I of this methodology.		
		TH_AM004	#1: The project replaces existing air jet looms at a weaving factory with air jet looms equipped with energy saving technologies such as an optimized shape reed's tunnel of nozzles and a pressure sensor to measure air pressure of nozzles for optimization of compressed air consumption of welt insertion. #2: The air jet looms which are installed by the project reduce the specific air consumption by at least 15% compared with the reference air jet looms in line with the description in Section I of this methodology.		
	段ボール古紙処理設備 (Old Corrugated Cartons Process)	ID_AM012	#1: The specific energy consumption of the project OCC line guaranteed by the manufacture is, at the minimum, less than the reference specific energy consumption set for the project factory. #2: The paper yield of the project OCC line(s) guaranteed by the manufacture is equal to or more than 90% at the range of designed production capacity. #3: Production capacity of the project OCC line is no more than the twice as large as the capacity of the existing OCC line.	#4: Plan for regular adjustment, replacement, and improvements of project OCC line(s) is prepared (at least once every six months).	
	電槽化成設備 (Battery Case Forming Device)	VN_AM009	#1: Container formation facility is newly installed or installed to replace tank formation facilities at lead acid battery production line.		
	食塩電解槽 (Electrolyzer in Chlorine Production)	SA_AM001	#1: Project electrolyzer employs an ion-exchange membrane technology in electrolyzers in the manufacturing process of chlor-alkali and the electrolyzer is the bipolar type. #2: Specific electricity consumption (SEC) for project electrolyzer i under the standard conditions, 32% NaOH and 90 degrees Celsius is less than threshold SEC values set in the table below under the standard conditions, 32% NaOH and 90 degrees Celsius; Project specific electricity consumption is derived from specifications based on initial performance test by manufacturer. ※Curent density別の「Threshold SEC value of the electrolyzer」は承認済み方法論SA_AM001を参照		
		TH_AM015	#1: Bipolar electrolyzer(s), which employs an ion-exchange membrane technology, is installed in the manufacturing process of caustic soda. #2: SEC value of project electrolyzer under the standard conditions, 32% NaOH and 90 degrees Celsius is less than threshold SEC value set in the table below under the standard conditions, 32% NaOH and 90 degrees Celsius; ※Curent density別の「Threshold SEC value of the electrolyzer」は承認済み方法論TH_AM015を参照		
	ワイヤー撚り線機 (Wire Stranding Machines)	VN_AM014	#1: Wire stranding machine(s) with energy-saving measures such as reinforced frames, friction reduction mechanism, energy efficient bow, and lightweight parts is newly installed or installed to replace existing wire stranding machine(s). #2: Flange diameter of bobbin of a wire stranding machine installed in the project is 560mm. #3: Total motor capacity of a project wire stranding machine installed in the project is equal to or less than 11.0 [kW].		
	高効率滅菌釜 (Autoclave)	ID_AM028	#1: Waste hot water recovery system is newly installed to an autoclave(s) in an infusion manufacturing process line (IMP line).		
	射出成型機 (Injection Modling Machine)	ID_AM025	#1: All-electric injection molding machine with a function of power regeneration is newly installed.		
2. 再生可能エネルギー	太陽光発電 (Solar Power Plant)	MN_AM003	#1: The project newly installs solar PV system(s). #2: 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).	#3: The equipment used to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	

(Renewable Energy)		BD_AM002	#1: The project newly installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	
		KE_AM002	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	
		MV_AM001	#1: The project installs solar PV system(s). #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. #3: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2), and have fulfilled the requirements of IEC 61701.	#4: The equipment to monitor output power of the solar PV system and irradiance is installed at the project site.	
		VN_AM007	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	
		LA_AM002	#1:The project installs solar PV system(s). #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).	#3:The equipment used for monitoring output power of the solar PV system(s) and irradiance is installed at the project site.	
		ID_AM013	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	
		CR_AM001	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	
		PW_AM001	#1: The project installs solar PV system(s). #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. #3: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#4: The equipment to monitor output power of the solar PV system and irradiance is installed at the project site.	
		KH_AM002	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	
		MX_AM001	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	
		CL_AM001	#1: The project installs solar PV system(s). #2: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor the output power of the solar PV system(s) and irradiance is installed at the project site.	

		TH_AM001	#1: The project installs solar PV system(s). #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. #3: The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#4: The equipment to monitor output power of the solar PV system and irradiance is installed at the project site.	
		PH_AM002	#1: The project installs solar PV system(s). #2: The PV modules are certified for design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 617302)	#3: The equipment used for monitoring output power of the solar PV system(s) and irradiance is installed at the project site	
	太陽光発電+蓄電池 (Solar Power Plant with Battery)	MV_AM002	#1: EMS, BESS and solar PV system(s) are newly installed to replace a grid and/or captive electricity which is sourced at least from, but not limited to multiple fossil fuel thermal power units such as DGs. #2: Installed EMS is equipped with economic load dispatching control function and load frequency control which controls diesel generators and BESS based on projections of electric-load/demand and output of solar PV system(s). #4: Data of fuel consumption and fuel consumed before activation of EMS and BESS is available for each fossil fuel thermal power units such as DG(s) in the power station. The data is to be collected monthly for at least one year. #5: The PV modules need to be certified for design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	#3: The equipment to monitor output power of the solar PV system(s) is installed at the project site.	#6: In the case of replacing the existing storage battery system (s), a plan is prepared in which mercury used in the existing storage battery system (s) is not released to the environment. Execution of the prevention plan is checked at the time of verification, in order to confirm that mercury used for the existing one replaced by the project is not released to the environment.
		ID_AM017	#1: The solar PV system(s) and storage battery system(s) are newly installed. #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).	#3: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	#4: In the case of replacing the existing storage battery system (s), a plan is prepared in which mercury used in the existing storage battery system (s) is not released to the environment. Execution of the prevention plan is checked at the time of verification, in order to confirm that mercury used for the existing one replaced by the project is not released to the environment.
		CL_AM002	#1: The solar PV system(s) and storage battery system(s) are newly installed or installed to replace existing storage battery system(s). #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).	#3: The equipment to monitor output power of the solar PV system(s) and irradiance is installed at the project site.	#4: In the case of replacing existing storage battery system(s), a plan is prepared in which mercury used in the existing storage battery system(s) is not released to the environment. Execution of the prevention plan is checked at the time of verification, in order to confirm that mercury used for the existing one replaced by the project one is not released to the environment.
	小水力発電 (Small Hydropower Plant)	KE_AM003	#1: The project installs a run-of-river small hydropower plant.		
		ID_AM019	#1: The project newly installs a run-of-river hydro power generation system(s).		
		ID_AM021	#1: The project increases the power generation capacity of an existing run-of-river hydro power generation system(s) by rehabilitation.		
		PH_AM001	#1: The project installs a run-of-river hydro power generation system(s).		
	バイオマス発電 (Biomass Power Plant)	ID_AM027	#1: A biomass power plant is newly installed on the project site. #2: The project uses only solid biomass fuels made of biomass residues. #3: Biomass residues utilized for the project are not used for energy and nonenergy applications in absence of the project activity. This can be demonstrated by the letter from suppliers of biomass residues.		

		MM_AM004	#1: A rice husk power plant is installed in Ayeyarwady region and supplies electricity to the national grid and/or a recipient facility. #2: The power generation capacity and power generation efficiency of a rice husk power plant meet the following thresholds. To demonstrate or calculate these values, values stated in catalogs or other information prepared by its manufacturer may be used. -Power generation capacity is 15 MW or less. -Power generation efficiency is 16.0 % or more.		
	バイオマスコジェネレーション (Biomass Co-generation)	ET_AM003	#1: The project installs a biomass CHP plant consisted of a biomass boiler and an ORC genset at a biomass processing factory, and uses the residue of production activities as feedstock. #2: The electricity generated from the biomass CHP plant is not fed into the national grid.		
3.エネルギーの有効利用 (Effective Use of Energy)	廃熱利用発電 (Power Generation by Waste Heat Recovery)	ID_AM001	#1: The project utilizes waste heat from the cement production facility by waste heat recovery (WHR) system to generate electricity. #2: WHR system consists of a Suspension Preheater boiler (SP boiler) and/or Air Quenching Cooler boiler (AQC boiler), turbine generator and cooling tower. #3: WHR system utilizes only waste heat and does not utilize fossil fuels as a heat source to generate steam for power generation. #4: WHR system has not been introduced to a corresponding cement kiln of the project prior to its implementation. #6: The WHR system is designed to be connected only to an internal power grid of the cement factory.	#5: The cement factory where the project is implemented is connected to a grid system and the theoretical maximum electricity output of the WHR system, which is calculated by multiplying maximum electricity output of the WHR system by the maximum hours per year (24 * 365 = 8,760 hours), is not greater than the annual amount of the electricity imported to the cement factory from the grid system: ・ During the previous year before the validation, if the validation of the project is conducted before the operation of the project, or ・ During the previous year before the operation of the project, if the validation of the project is conducted after the operation of the project.	
		MM_AM005	#1: The project installs WHR system in the cement production facility. #2: WHR system utilizes only waste heat and does not utilize fossil fuels as a heat source to generate steam for power generation. #3: WHR system has not been introduced to a corresponding cement kiln of the project prior to its		
		TH_AM007	#1: The project installs waste heat recovery (WHR) system in the cement production facility. #2: WHR system utilizes only waste heat and does not utilize fossil fuels as a heat source to generate steam for power generation. #3: WHR system has not been introduced to a corresponding cement kiln of the project prior to its implementation.		
	ガスコージェネレーション (Gas Co-generation)	ID_AM016	#1: Gas engine CGS(s) is installed and supplies electricity and heat to facility(ies). #2: The power generation efficiency of the CGS(s) stated in catalogs or other information prepared by its manufacturer is equal to or greater than the threshold value in the following table corresponding to the electrical output of CGS(s) installed. ※「the threshold value in the following table」は承認済み方法論ID_AM016を参照		
		ID_AM023	#1: A CGS, whose electricity is generated by a gas engine(s), with absorption chiller(s) utilizing waste heat from CGS is installed and supplies electricity, heating energy and cooling energy (e.g. steam, hot water and chilled water) to recipient facility(ies). #2: Electricity and heating energy, each of which is generated in separate systems, is supplied to and consumed by recipient facility(ies) before the installation of a project CGS.		#3: In the case of replacing the existing chiller with the project chiller, a plan for prevention of releasing refrigerant used in the existing chiller to the air (e.g. re-use of the equipment) is prepared. Execution of this plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is prevented from being released to the air. In the case that the existing chiller is NOT replaced with the project chiller, this criterion is not applied.
		TH_AM009	#1: A CGS, whose electricity is generated by a gas engine(s), is newly installed and supplies electricity and heat to recipient facility(ies). #2: Electricity and heat, each of which is generated in separate systems, is supplied to and consumed by recipient facility(ies) before the installation of a project CGS.		

4. 廃棄物 (Waste Handling and Disposal)	廃棄物発電 (Waste-to-Energy Plant)	MM_AM001	#1: The project newly installs an incinerator, waste heat recovery boiler, exhaust gas treatment equipment and turbine generator. #2: The project incinerates municipal solid waste (MSW) which has been disposed at a SWDS (Solid Waste Disposal Site) where the generated landfill gas is not recovered, and generates electricity from steam produced in waste heat recovery boiler. #3: There is a plan to operate the project facility for more than 5 years.		
5. 交通 (Transportation)	デジタルタコグラフ (Digital Tachograph System)	VN_AM001	#1: This methodology applies to freight vehicle fleets to which a digital tachograph system has been installed. #4: The project does not involve a fuel switch in existing freight vehicles, except for an optional switch to biofuel blends where the blending ratio is not greater than 20% by volume, in which case emission reductions are discounted by the percentage of biofuel in the blend.	#2: Data of fuel consumption and distance travelled before activation of digital tachograph system is available for each freight vehicle, except for the cases of application of Option (c) to the reference fuel efficiency ($\eta_{RE,i}$) in Section F.2. The data is to be collected for at least 60 days within 4 months of lower monthly mean temperature of the year (November, December, January and February). #5: The project participants identify each freight vehicle included in the project, and ensure that the type of service of the freight vehicle is the same before and during the project (e.g. refrigeration vehicle remains as a refrigeration vehicle, etc.). #6: A plan to present new reference data for freight vehicles of new routes in case route changes have occurred due to construction of new expressways or to modal shift after the introduction of the project is prepared.	#3: The project includes feedback of a driver's performance with the graphical representation to the driver regularly, at least once in three months.
	CNGディーゼル混焼バス (CNG-Diesel Hybrid Bus)	ID_AM026	#1: CNG-diesel hybrid equipment is newly installed to the public transport buses which have already been in operation or are newly procured.		