

Highlights on the JCM methodology development: analysis of 19 approved methodologies

COP 21 Japan Pavilion Side Event

“Strengthening the JCM methodologies for the contribution to global mitigation efforts”

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JCM Progress to date

- **JCM Partner Countries (16 Countries as of Dec. 3, 2015)**

- Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar and Thailand

- **7 Registered Projects**

- Energy efficiency (4), Renewable energy (1), Transport (1)
- Indonesia (3), Mongolia (2), Palau (1), and Viet Nam (1)

- **19 Approved Methodologies**

- Energy efficiency (16), Renewable energy (1), Transport (1), Waste to energy (1)
- Indonesia (11), Mongolia (2), Palau (1), Maldives (1), Vietnam (4)

- **Establishment of JCM website**

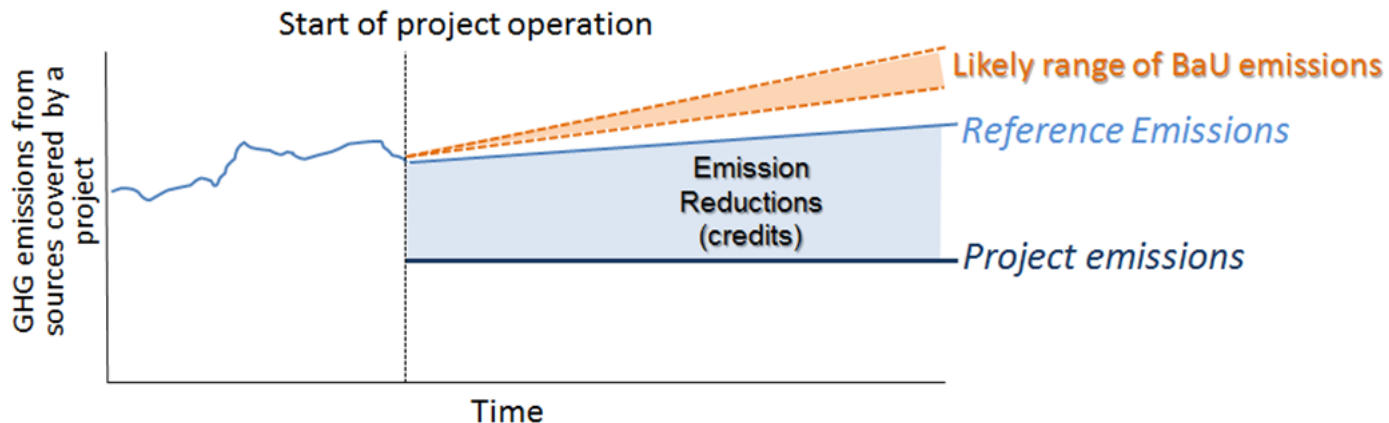
- <https://www.jcm.go.jp/>

- **Establishment of JCM registry**

- Issuance of JCM credits

Concept of JCM methodology

- Emission reductions to be credited are defined as the difference between “reference emissions” and “project emissions.”
- The reference emissions are calculated below business-as-usual (BaU) emissions which represent plausible emissions in providing the same outputs or service level of the proposed JCM project in the host country.
- This approach will ensure a net decrease and/or avoidance of GHG emissions.



Source: Government of Japan (2015) Recent Development of the Joint Crediting Mechanism (JCM), Sep. 2015

Key Features of the JCM Methodology

1. Practicality:

- Eligibility criteria: determination of the project, type of technology, capacity, specifications, and etc
- Premade spreadsheets for the calculation of ERs and monitoring sheet

2. Simplicity:

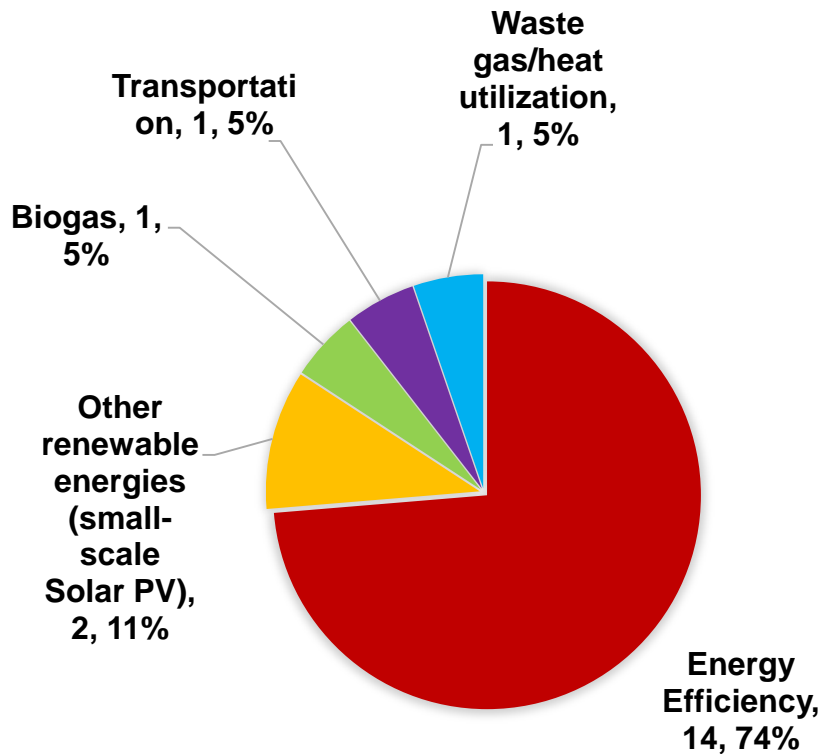
- Default values for specific country and sector
- Limiting monitoring parameters to a few

3. Conservativeness:

- Determination of Reference emissions to achieve net emission reductions and contribution to global mitigation efforts

Summary of 19 approved JCM Methodologies

Type of project covered by 19 approved methodologies



Project Category:

- Energy efficiency: 14
 - Commercial and household: 6
 - Factory: 6
 - Supply side: 2
- Renewable energies: 2
 - PV: 2

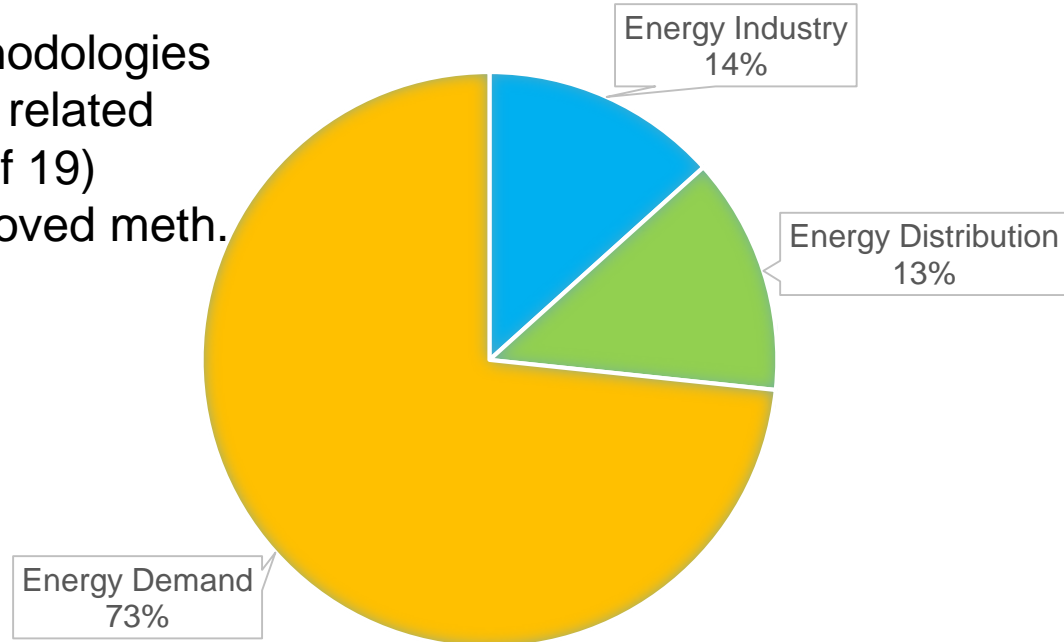
Source: IGES JCM Database

Approved JCM Methodologies in EE

ENERGY EFFICIENCY

Approved JCM Methodologies

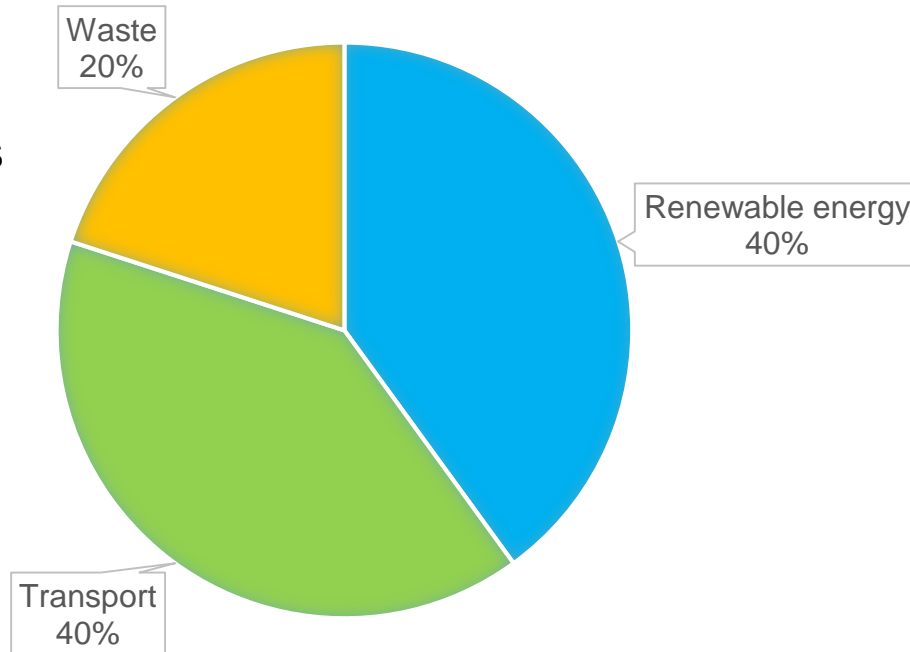
- Energy efficiency related
- 15 projects (out of 19)
- 79% of total approved meth.



Scope	Example of projects
Energy Industry	Power generation by waste heat recovery in cement industry
Energy Distribution	Installation of energy efficient transformers in power distribution grid
Energy Demand	Room air conditioners equipped with inverters, efficient chillers, refrigerators, LED lighting, optimization of refinery plant operation

Approved JCM Methodologies in RE, Waste, and Transport

RENEWABLE, TRANSPORT, & WASTE



Approved JCM Methodologies

- Renewable energy (2)
- Transport (1)
- Waste (Biogas) (1)

Scope	Example of projects
Renewable energy	Displacement of Grid and Captive Genset Electricity by Solar PV System
Transport	Transportation energy efficiency activities by installing digital tachograph systems
Waste	Anaerobic digestion of organic waste for biogas utilization within wholesale markets

Variety of Categories for Eligibility criteria

Category	Example of eligibility criteria
Types of technology/device installed	Technology to be employed in this methodology is coal-fired heat only boiler (HOB) for hot water supply system.
Positive list (detail technical requirement)	WHR system consists of a Suspension Preheater boiler and/or Air Quenching Cooler boiler, turbine generator and cooling tower.
Types of activity covered (new installation/replacement)	The project activity involves the installation of new HOB and/or the replacement of the existing coal-fired HOB
Scale/capacity	Capacity of the project HOB ranges from 0.10 MW to 1.00MW.
Scope (sector, type/scale of facility)	The transmission line constitutes of a single or double circuit(s) directly connecting a substation and another substation within the country with no branching in between, and does not constitute a part of a loop.
Benchmark (Performance level)	The catalog value of the boiler efficiency for the project HOB is 80% or higher
Treatment to avoid leakage emissions	Plan for not releasing refrigerant used for project chiller is prepared.
Past data availability/ MRV	Data of fuel consumption and distance travelled before activation of digital tachograph system is available for each freight vehicle.
Operation	The project includes feedback of a driver's performance with the graphical representation to the driver regularly, at least once in three months.

Source: IGES JCM Database

Example of Reference Emission Determination

Reference emission determination method

- The current situation and performance (11)
- Best available technology of country (1)
- Average historical performance (3)
- Performance of similar products and technologies which compete with the project technology (1)
- Standards and targets (3)

Sources used for calculating reference parameters

- Survey (11)
- National standard (4)
- International standard (2)
- Own records (2)

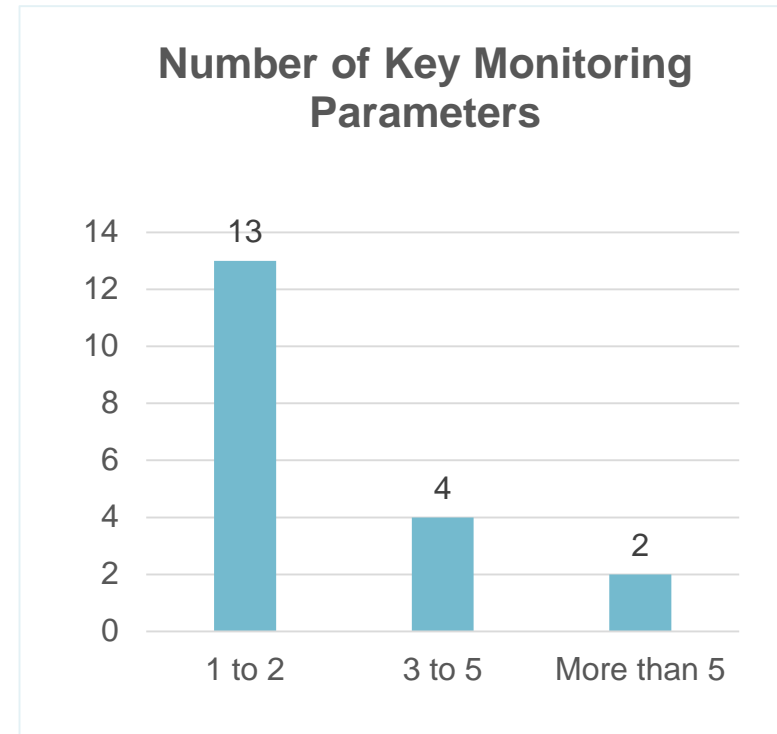
Source: IGES JCM Database

Example of Reference Emissions

Title	Reference emission determination method	Sources used for cal ref. parameters	Reference emissions
MN_AM001 Installation of energy-saving transmission lines in the Mongolian Grid	The current situation and performance	National standard (Mongolia), International standard	GHG emission due to transmission loss, based on the parameters derived from Mongolian Standard MNS5870: 2008.
ID_AM005 Installation of LED Lighting for Grocery Store	Best available technology of country	Survey	Emissions from using reference lighting, calculated with total power consumption of project lighting, ratio of luminous efficiency of project/reference lighting, and CO ₂ emission factor for consumed electricity.
VN_AM005 Installation of energy efficient transformers in a power distribution grid, Version 1.0	Standards and targets	Survey	Calculated by no-load losses of the reference transformer, blackout rate and CO ₂ emission factor of the grid.

Most of the Monitoring Parameters are 1 to 2

Type of Project	Key monitoring parameters	Methodology
Energy Efficiency - Supply side	<ol style="list-style-type: none"> 1. Power sent from the point of origin/supply to the transmission line, 2. Power received at the point of receipt of the transmission line, 3. Emission factor of the grid, 4. Direct current resistance of the transmission line 	MN_AM001
Energy Efficiency - Commercial & household	Total power consumption of project lighting	ID_AM005
Other renewable energies – PV	The quantity of the electricity generated by the project solar PV system	PW_AM001
Waste gas/heat utilization - Cement production line	The quantity of the electricity supplied from the WHR system to the cement production facility	ID_AM001
Biogas - Others	<ol style="list-style-type: none"> 1. Amount of organic waste prevented from disposal in the SWDS excluding sludge, 2. Amount of processed biogas supplied to heat generation equipments 	VN_AM004



Source: IGES JCM Database

JCM Methodology Development So far

- In the process of accumulating experience in accordance with its concept and key features (practicality, simplicity and conservativeness).
- Eligibility criteria provides specificity with variety of categories.
- Determination of reference emissions (its methods and sources used) could provide the basis to which methodology could be further developed.
- Monitoring parameters been limited to small numbers

IGES JCM Database

- **All the approved JCM methodology**
 - Project types, technology, eligibility criteria, reference emission determination method, key monitoring parameters (number and type), default values and monitoring parameters fixed ex-ante.
- **All the registered JCM projects**
 - Project title, status, participants, types, methodology, technology, support scheme used, starting date, operation lifetime, estimated emission reductions, credit issued
- **JCM financed projects**
 - Supported scheme, project title, country, project participants, status
- **Feasibility Study (F/S) Project information**
 - project title, country, project participants, supported agency

<http://www.iges.or.jp/en/climate-energy/mm/publication.html>