

Introducing Low Carbon Technology Assessment to Enable Implementation of Vietnam's INDC

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**Inception Workshop on
Low Carbon Technology Assessment
27th September, 2016**

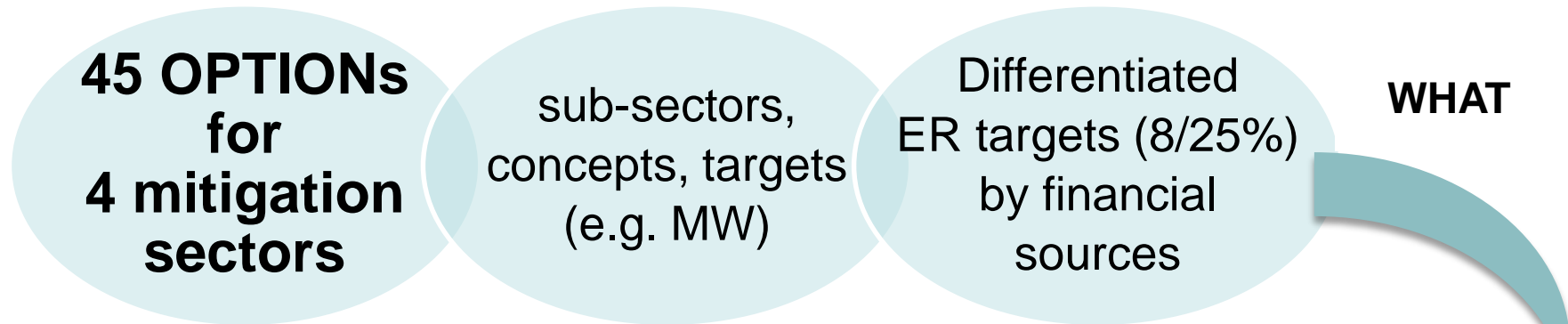


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1. Context

Vietnam's INDC at Glance



Next Step: Bridging Implementation

- In-depth ***assessment of each option*** and transforming into ***concrete actions***
- Linking identified options with “***Means of implementation***”

HOW

Low Carbon Technology Assessment for INDC

2. Objectives

1. Identifying and Assessing **Low Carbon Technologies** applicable to each mitigation option of INDC & F-gas (HFC)

2. Explores concrete **Opportunities for Technology Transfer / Deployment**



Value added

1. Provide **practical information/knowledge on Means of Implementation**
2. Bring in **actual implementation** of LC technology introduction
3. Provide **sufficient space for in-country brainstorming**
4. Informs **(I)NDC Update & Sectoral A/P**

3. Principles

1) No Reinventing the Wheel

- Assessment to be conducted building on the current INDC, as well as on sectoral & DP's on-going efforts

2) Be Practical

- Focus on harvesting ER through bringing LC technology options into reality

3) Drawing on international & regional expertise

- Contribution to technology list development, and ideas for tech introduction/deployment should come from variety of actors

4) Connecting to Finance

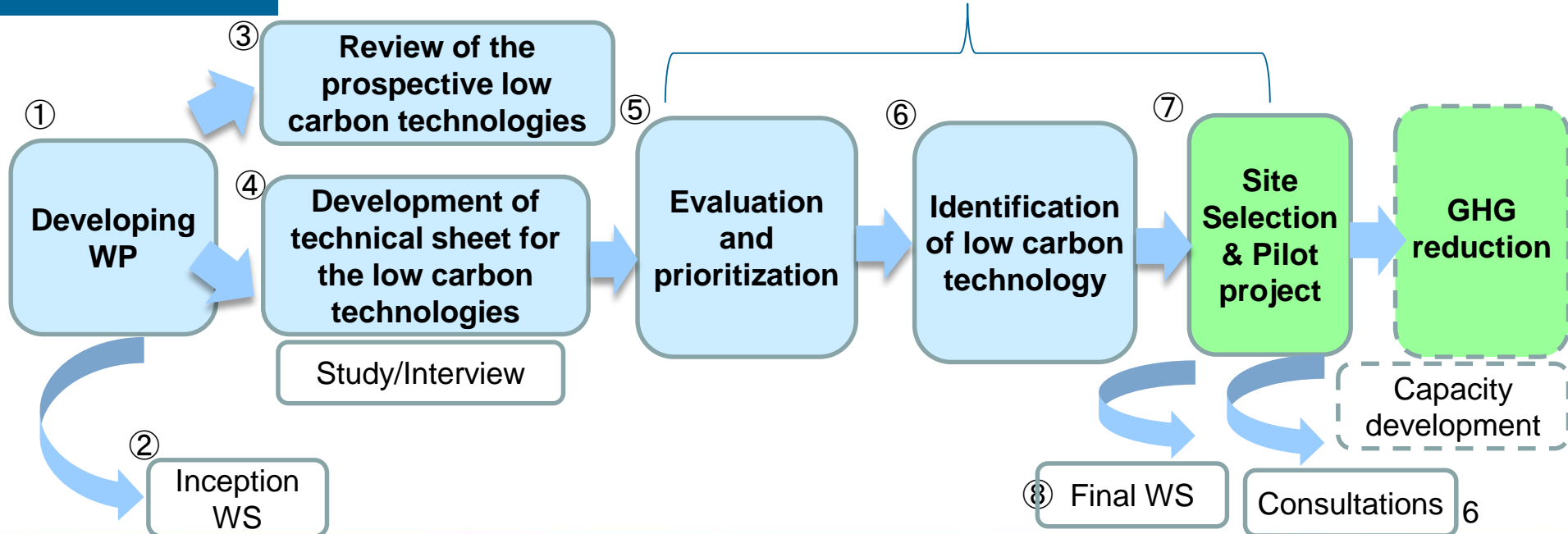
- Private sector engagement/partnership

4. Outline of the Assessment and work flow

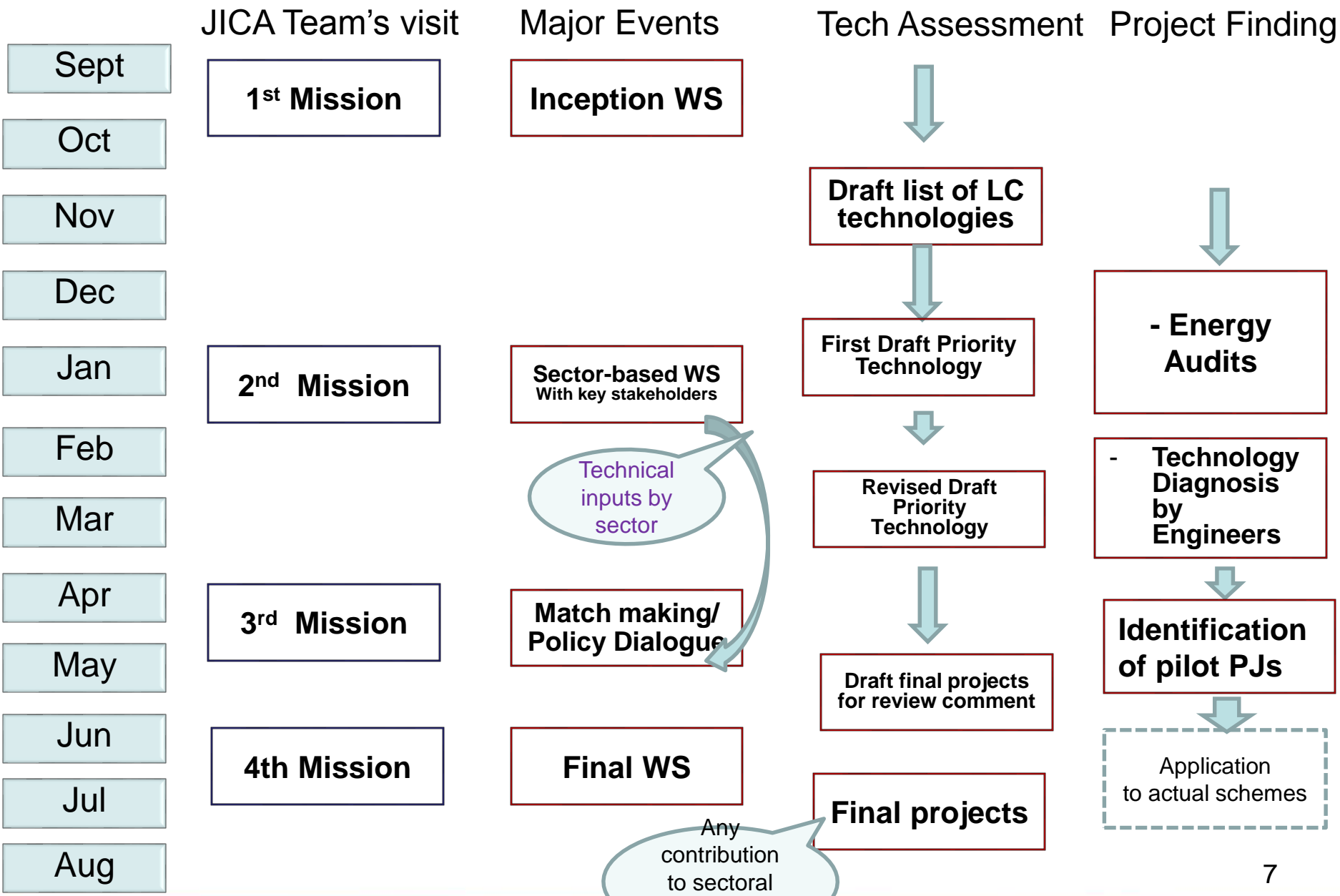
- (1) Development and discussion of **the work plan (WP)**
- (2) **Inception Workshop(9/27)** to introduce the Assessment & initiate dialogue with stakeholders in VietNam
- (3) **Review** of the prospective low carbon technologies
- (4) **Technical sheet** for the LC technologies in the target sectors of the INDC and F-gas sector(refrigerant)
- (5) **Evaluation and prioritization** of LC technologies for the INDC mitigation options and F-gas sector
- (6) Exploring financial schemes for new low carbon technology pilot project and site selection
- (7) **Technical workshop (Policy Dialogue)** on low carbon technologies
- (8) Project outcomes and outreach activity
- (9) **Final workshop**

Work flow

- ✓ **Development & implementation of INDC mitigation options**
- ✓ **Early implementation as NAMAs** with technical transfer



5. Overview of Schedule



6-1 Work Arrangement of the SPI-NAMA LC TECH

Technical Advisory Committee (TAC)

- [Members from Viet Nam]
Experts from;
- NCCC
 - VPCC
 - VSRAE
- [International member]
- JICA
 - Expert experienced with multilateral support
 - IEA
 - CTCN
 - Chiangmai University
 - Institut Teknologi Bandung, Indonesia

Review Work/
Advice

**MONRE
/DMHCC**

JICA

JICA Advisor
in MONRE

Report

Guidance

Viet Nam: Line ministries

Viet Nam: Private sector

Viet Nam: Academic organizations

Discussion

Comment/advice

Comment/advice

JICA study team

JICA Technology Experts

Local Consultants/
National Specialists

Local Consultants/
Coordinator & Project Finding

Discussion

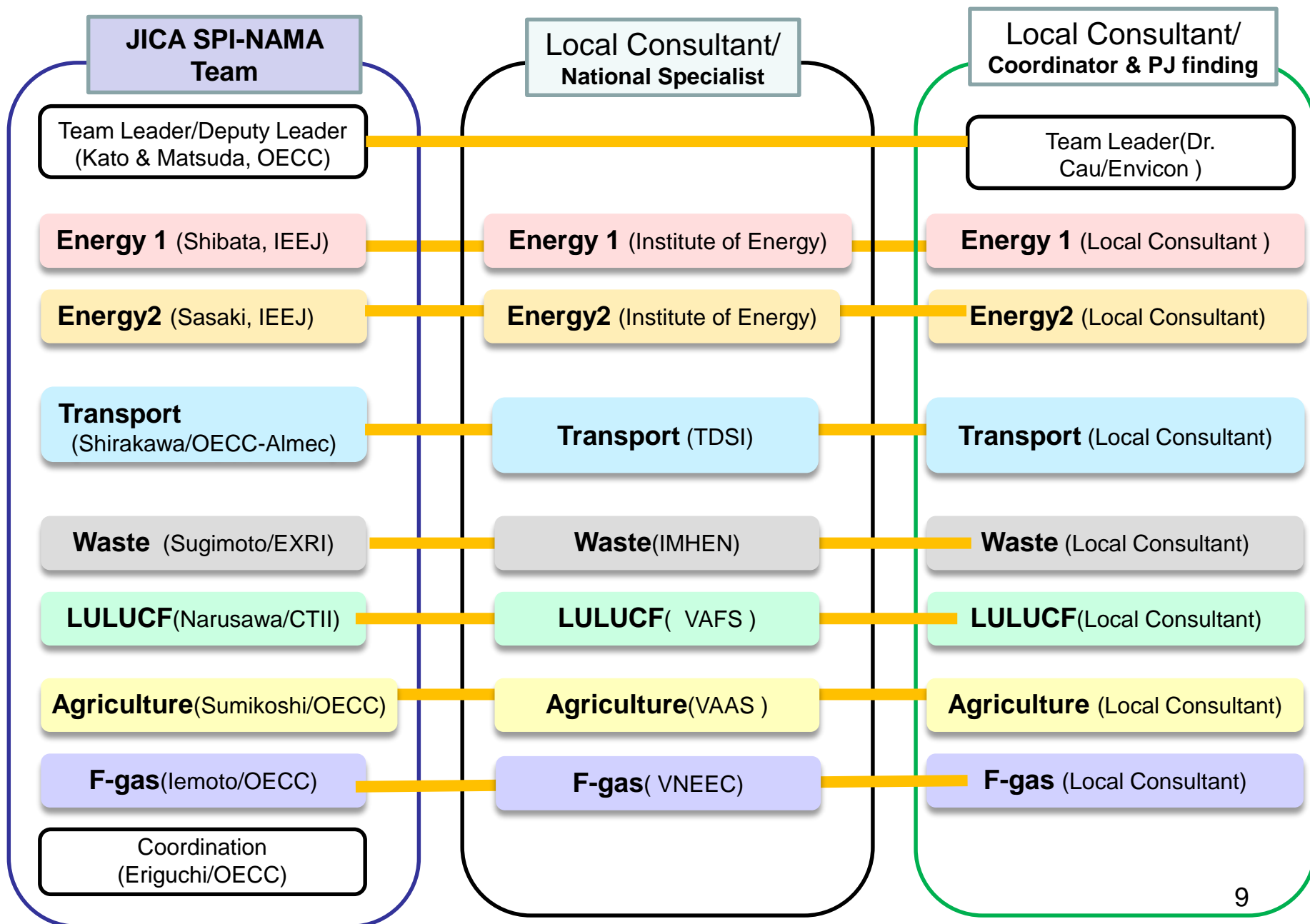
Comment/advice

Development Partners

International private
sector partners

Discussion

Sector-based Work Arrangement for the Assessment



7. Activities

7.1. Inception Workshop in Viet Nam

Overall Objectives of the WS

1. To announce the launch of Technology Needs Assessment Work by Viet Nam counterparts (Vice Minister His Excellency) and JICA (Deputy Head of Office)
2. To acquaint stakeholders (LMs, DPs, relevant agencies) of its contents (the Work Plan and its methodology/approach is clarified for the line ministries, Project activity is well addressed to the development partners and stakeholders)
3. To officially initiate technical discussion for introducing low carbon technologies and pilot projects for the Viet Nam INDC implementation (in the form of tripartite interaction among TNA Expert team, Advisory Committee and stakeholders).

Date and Venue: September 27, Daewoo Hotel, 8:00 – 12:30

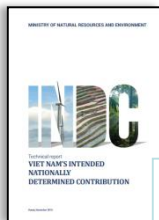
Organizers: MONRE/DMHCC and JICA

Participants:

Line Ministries, Development Partners, Technical Advisory Committee(TAC)
Members

Approximately 100 people

7.2. Technical sheet for the LC technologies for the INDC Sectors and F-gas sector (HFC refrigerant)



① **Viet Nam's INDC**

+

② **Existing reliable technology list (see WP in page 13, table 3-1)**

+

③ **Other potential technologies (proposed by JICA study team)**

- 5+2 evaluation indicators
- Discussion with LM for sectoral strategy
- Interviews with private sector

Bottom up approach to collect information will be assured.

shortlisting

Subsector	Category	Current situation on technologies	Technical element, apparatus, facilities management technology (Technology holders)	Technical characteristic and superiority / required circumstances / operation problems	Viet Nam-based major firms (Market situation) / relevant foreign company	Other donors	Initial cost / Reference on GHG reduction	Others (Existing technology list)	External review for quality control and objective
Consumer	E1 - High-efficiency air conditioner for household	National standard (TCVN7831:2012) introduced	Inverter air conditioner Constant-speed air conditioner (without inverter)	Power consumption is reduced about 30% when compared with an air conditioner without inverter. (Increasing standard of energy-saving labeling system in stages)	Distributor of Panasonic has advanced as representative manufacturers. Other manufacturers include Daikin, Samsung (South Korea), and LG (South Korea).	Improvement of energy conservation of household appliances by Australia, etc.	450 USD/unit /XXX CO2e/t	List of 2015 winter versions of L2-Tech-authorized products, Ver.1.01 (D-10-001)	

Refer to INDC Technical Report

*

Collect through study (1st mission)

*

* : Information will be collected during 1st mission and work in Japan (up to Dec. 2016)

7.3. Evaluation and prioritization of LC technology for the INDC mitigation options & F-gas sector (1)

Suggested Criteria	Evaluation indicators
Economic performance	Initial cost, operational cost, life cycle cost etc.
GHG reduction impact	Referential value from catalogue, case study or benchmark
Easiness of Applying /Operationalization	Higher maintenance performance, easy operation, and space-saving etc.
Other environment impacts(positive/negative)	Health effect and noise pollution/odor impact on surrounding communities (check positive/negative aspects)
Vietnamese context	Suitability for local consumption behavior, accessibility to maintenance service

Sub-sector	INDC option category /product	Technology/device/facility/maintenance	Technical characteristics/comptetitiveness	Manufacture in the Viet Nam's market	Criteria 1					Criteria 2				Note
					Economic performance	GHG reduction impact	Easiness of Application	environment impacts	Other context	Vietnamese context	Total	Market pull	Policy push/ countries	
Commercial product	E1 Household high efficiency air conditioning	Inverter air conditioning	30 % lower in electricity use	manufacture in the market: X company	5	2	4	4	1	16 / 25	Policy Push (increasing)	High	High	<p>【Feasibility】JCM scheme is suitable for short-term project. In a long-term, it can be introduced by market distribution by means of enhancement of energy efficiency standard (QCVN).</p> <p>As a policy push, gradual elevation of the EE standard is a key (XXXX wh/unit in 2016, YYY wh/unit in 2018, ZZZ wh/unit in2020</p> <p>【credit mechs MRV】It can be MRVable by measurement of energy consumption in each project.</p> <p>For micro label project, MRV can be done by sales number referring plan for achievement of goal described in the Kyoto protocol.</p>

A procedure to weight on each indicator is to be determined through discussion with Viet Nam C/P and JICA Study team

7.3. Evaluation and prioritization of LC technology for the INDC mitigation options & F-gas sector (2)

Example 1: List of the prioritized technologies

Consumer	Saving energy at household level	E1 Household high efficiency air conditioning	Inverter air conditioning
			Constant speed air conditioning
		E2 High efficiency residual refrigerators	Non F-gas refrigerators
	
	
Power generation, transmission, distribution	Saving energy in power generation sector	E11 Biomass power plants	Small scale biomass power plant / Stirling engine
	
	Non INDC technologies	Enhanced efficiency in electric grid	Amorphous transformer

Presenting a complete picture of the identified LC technologies and options

Example 2: Technical sheet of the prioritized technologies

Low Carbon Technology Information Sheet			
Category	Energy efficiency	Sub category	Electrical transmission
Technology	Amorphous Transformers	Technology owner	Hitachi Metals THIBIDI (Vietnamese capital)
Description	Amorphous Transformer needs less energy consumption than conventional silicon type transformer by reducing standby electricity consumption up to 60%. Subsequently, it leads to GHG emission reduction.		
Outline of the system	<p>1. Power supply Transformer Pylon 2. Power transmission and distribution</p> <p>5. Residence 4. Transformer on power pole 3. Distribution substation</p> <p>4. Transformer on power pole can be subsidized.</p> <p>Amorphous transformer</p>		
Amount of introduction	The 1 st phase: 632 tCO ₂ /yr (1,618 units) The 2 nd phase: 4,360 tCO ₂ /yr (4,834 units) The 3 rd phase: 5,943 tCO ₂ /yr (3,047units) (Adopted in JFY 2016)		
Introduction track record	JCM Model project subsidized by the Ministry of the Environment of Japan (2015, 2016)		
Status	Developed (Ex. Hitachi Industrial Equipment System Co. Ltd)		
Overseas Investment	Amorphous transformer has been introduced in European countries, China, India and other Asian countries.		
	reduced by 50% load factor, reduced by 28% load factor from comparison Super Amorphous Zero S with the immersed transformer)		
Other	N/A		
URL	Introduction of Amorphous high efficiency transformers in power distribution systems Transformers – Amorphous Metal Core Transformers		
Contact	Yuko Keiso Co., Ltd: +81-3-5720-3231 Hitachi Industrial Equipment System Co., Ltd :+81-3-4345-6067 (Eng)		

Illustrating more details of the technologies in this technical sheet

7.4. LC technology pilot project and site selection

Technical review and scoping by sectoral engineers through:

0. Interviews with key stakeholders;
1. Low carbon technical mission (site examination) to identify a specific needs in low carbon technologies at each candidate location;
2. Information collection for appropriate assistance schemes to enable technology deployment (and diffusion).



Reference: Project finding (“The Final report on project seeds finding for the JCM under the program of the Ministry of the Environment, Japan in 2013”, OECC)

7.5 Technical workshop on low carbon technologies

Aim of the WS

In addition to updating of the outcome from the assessment work proposed in (1)-(6), the followings are expected:

1. The information of the low carbon technologies is exchanged between Viet Nam and international private sectors and motivation to penetrate the technologies in Viet Nam is enhanced among the stakeholders;
2. A valid opinion regarding the low carbon technology policy between Viet Nam private sector and public sector is exchanged.



Reference: Project finding (“The Final report on project seeds finding for the JCM under the program of the Ministry of the Environment, Japan in 2013”, OECC)

7.6 Project outcomes and outreach activity

In addition to updating of the outcome from the assessment work proposed in (1)-(6), the followings are expected:

1. A project visibility especially in Vietnamese is enhanced;
2. Brochures introducing the project in Vietnamese is distributed.
3. Outreach at relevant international conferences

7.7 Final Workshop

Purpose of WS

1. Based on the technology needs assessment, Vietnamese private and public sectors are further motivated to penetrate the low carbon technologies.

2. The outcome of the Project will address:

✓ A contribution to the Viet Nam public sector enabling an implementation of the INDC (e.g. make use of the Project outcome for developing further detailed mitigation options);

✓ A technical contribution to further development of the INDC.

3. Continuous dialogue mechanism between key stakeholders, especially the private sectors, is established to develop their further cooperation.

**Engagement of High-Level Officials in Viet Nam*

**Technology Policy Inputs from experienced officials*

•Dr. Kazuhiko Takemoto, OECC President (current United Nations University Institute for Advanced Studies/UNU-IAS, and a former Vice Minister for Global Environmental Affairs, Ministry of the Environment)

•Mr. Akihiro Kuroki, IEEJ Managing Director (a former member of the UNFCCC CDM Executive Board(CDM EB), and director in METI, Japan)

Guiding Questions

Q1. How LC Technology List for INDC Options can be best developed?

Q2. Inputs for suggested evaluation indicators for prioritizing LC technology options?

Q3. How can Policy Dialogue be best designed to facilitate deployment and penetration of LC technologies?

Q4. Other topics that requires discussion

Thank you very much