Expectation to AIM

-From experiences with cooperation with climate change mitigation policies and plans in Southeast Asian countries-

Makoto Kato

Member, Board of Directors

Overseas Environmental Cooperation Center, Japan

Key words of discussion

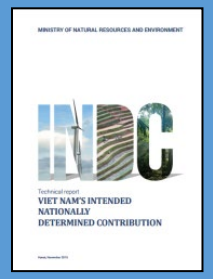
- Long-term strategy (LTS)
- Nationally Determined Contribution (NDC)
- National and sectoral mitigation plans
- Local mitigation plan

- ☐ Decision making on scientific evidence
- ☐ Needs of capacity strengthening

JICA Low Carbon Technology Assessment in Viet Nam(2020)

Methodologies for technology assessment

1. Viet Nam INDC45 Mitigation Option Report



+

2. Technology list in other countries for reference

+

3. Survey by JICA Expert Team

- **Consistency with Line Ministry's Sectoral Policy**
- **Interviews with private sector**
- **Inputs from technology owners**

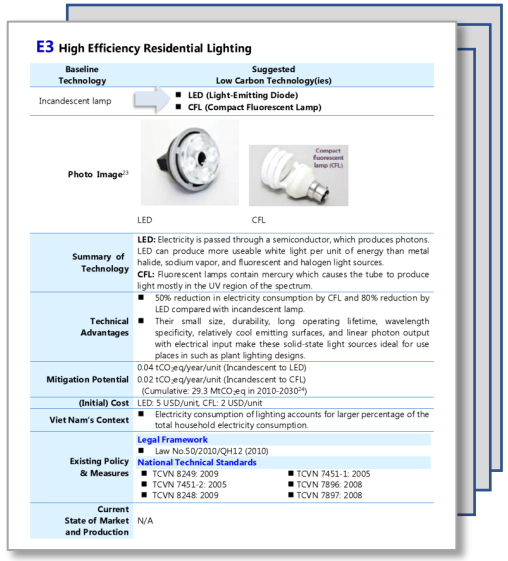
Technologies and socio-economic condition

Selection

Meeting needs both from upstream and downstream of policy/projects

Securing of quality, objectivity by the outside review

Review by international and Vietnamese experts



[Products]

- **Low carbon technology catalogue**
- **Technology list and information sheet for 45 NDC mitigation options**
- **Prioritization through multi-criteria assessment**

JICA Low Carbon Technology Assessment in Viet Nam(2020)

Image of identified low carbon technologies

	NDC Mitigation options	Identified technologies
Residential and commercial	High efficiency air conditioner for Household (**E1**)	■ Inverter air conditioner ■ Constant-speed air conditioner
	High efficiency residential Refrigerators (**E2**)	■ Inverter compressed type (Insulator/ Insulation type)
	High efficiency residential lighting (**E3**)	■ LED ■ CFL (Bulb, F tube)
	Solar water heaters (**E4**)	■ Hot water tank ■ Heat collection unit
	High efficiency commercial air conditioning (**E10**)	■ Building multi air conditioner
	Green building	■ Building multi air conditioner ■ LED ■ Pair glass ■ High efficiency insulator
Industry	Cement-making technology improvements (**E5**)	■ Waste heat recovery ■ Dry kilns with multistage pre-heaters and vertical calcination
	Brick-making technology improvements (**E6**)	■ Vertical shaft brick kilns (replace traditional brick kilns)
	Pulp and paper	■ Efficient debarking ■ Batch digester modification (indirect heating)
	Steel	■ Coke dry quenching ■ WHR-based power generation, etc.
	Refinery	■ Online furnace cleaning, etc.
	Beverage	■ Pasteurizer heat pump system ■ Cascade cooling system ■ CO_2 recovery
	Fertilizer	■ Calcium silicate insulation of high pressure steam pipe line ■ Isothermal CO conversion reactor

- ✓ Summary of technology information
- ✓ GHG mitigation potentials(tCO_2eq)
- ✓ Initial investment cost
- ✓ Strengths/weakness of technology
- ✓ Current barriers for introduction in Viet Nam/Necessary actions
- ✓ Contributed to Decree on GHG emissions reduction No.6

Technology info sheet

E3 High Efficiency Residential Lighting

Baseline Technology	Suggested Low Carbon Technology(ies)
Incandescent lamp	■ LED (Light-Emitting Diode) ■ CFL (Compact Fluorescent Lamp)

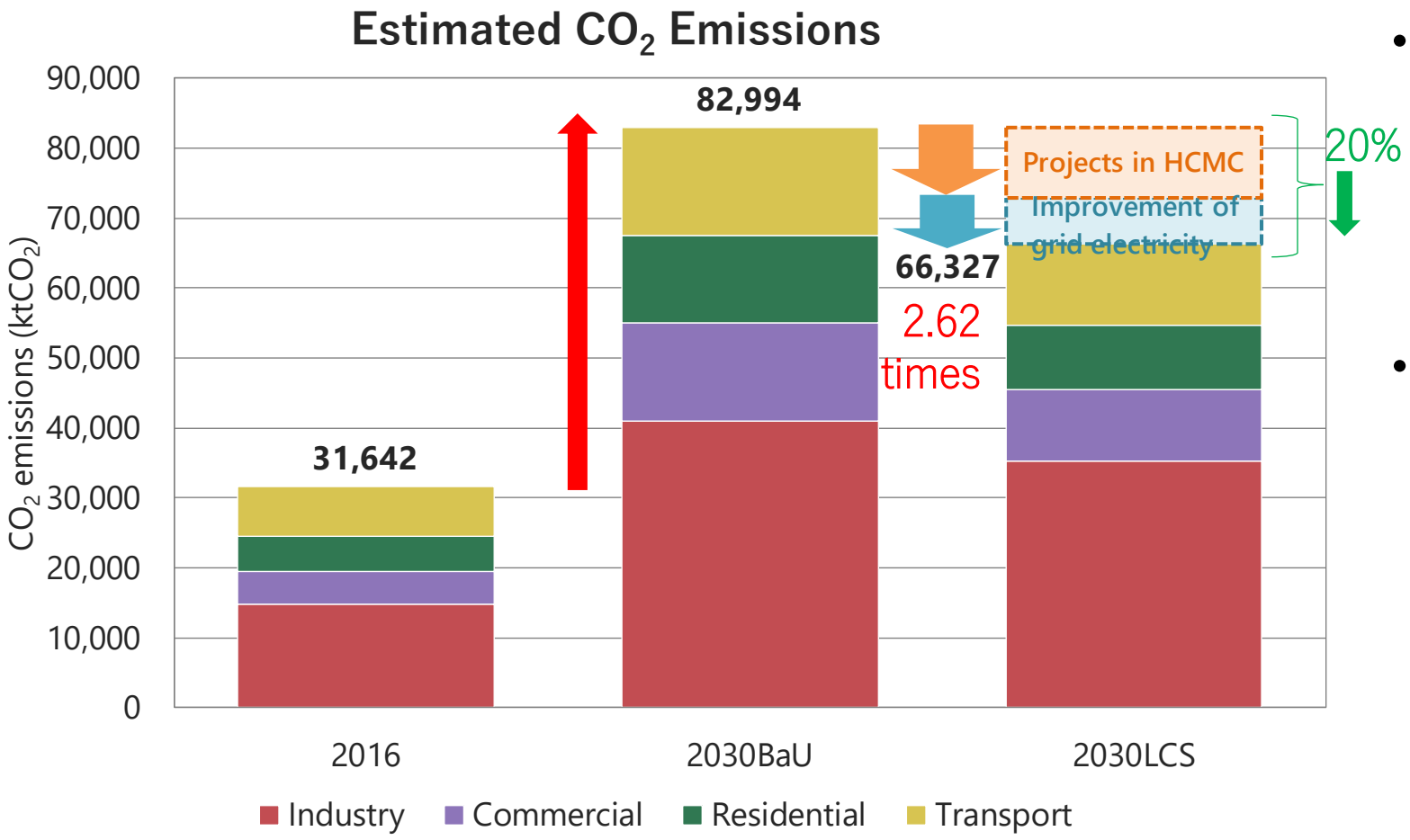
Photo Image[23]

LED CFL

Summary of Technology	**LED:** Electricity is passed through a semiconductor, which produces photons. LED can produce more useable white light per unit of energy than metal halide, sodium vapor, and fluorescent and halogen light sources. **CFL:** Fluorescent lamps contain mercury which causes the tube to produce light mostly in the UV region of the spectrum.
Technical Advantages	■ 50% reduction in electricity consumption by CFL and 80% reduction by LED compared with incandescent lamp. ■ Their small size, durability, long operating lifetime, wavelength specificity, relatively cool emitting surfaces, and linear photon output with electrical input make these solid-state light sources ideal for use places in such as plant lighting designs.
Mitigation Potential	0.04 tCO_2eq/year/unit (Incandescent to LED) 0.02 tCO_2eq/year/unit (Incandescent to CFL) (Cumulative: 29.3 $MtCO_2eq$ in 2010-2030[24])
(Initial) Cost	LED: 5 USD/unit, CFL: 2 USD/unit
Viet Nam's Context	■ Electricity consumption of lighting accounts for larger percentage of the total household electricity consumption.
Existing Policy & Measures	**Legal Framework** ■ Law No.50/2010/QH12 (2010) **National Technical Standards** ■ TCVN 8249: 2009 ■ TCVN 7451-1: 2005 ■ TCVN 7451-2: 2005 ■ TCVN 7896: 2008 ■ TCVN 8248: 2009 ■ TCVN 7897: 2008
Current State of Market and Production	N/A

JICA Cooperation on the Development of Ho Chi Minh Climate Change Action Plan 2021-2030, Viet Nam(2019-2020)

Projection of CO_2 Emissions in 2030 by using the Asia-Pacific Integrated Model(AIM)



- If there are no low carbon measures in the BaU scenario, CO_2 emission in 2030 will become **2.62 times** as large as that in 2016.
- In the LCS scenario, **CO_2 emission can be reduced by 20%** compared with the BaU scenario through both HCMC's actions and improvement of national grid electricity.
- *First NDC of Vietnam: By 2030 Viet Nam will reduce GHG emissions by **8%** compared to BAU. The contribution could be increased to **25% if international support is received**.*

Expectation to AIM

- Growing needs of national and local governments for capacity to formulate and implement climate policies based on scientific evidence.

- Continuous update/gradual improvement is necessary along with elevating political momentum.

- Science research ➔ Policy development ➔ Implementation ➔ Monitoring & Review / Feedback from the current implementation and technology improvement