EE&C Tasks and Countermeasures of the Commercial sector in Japan

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contents

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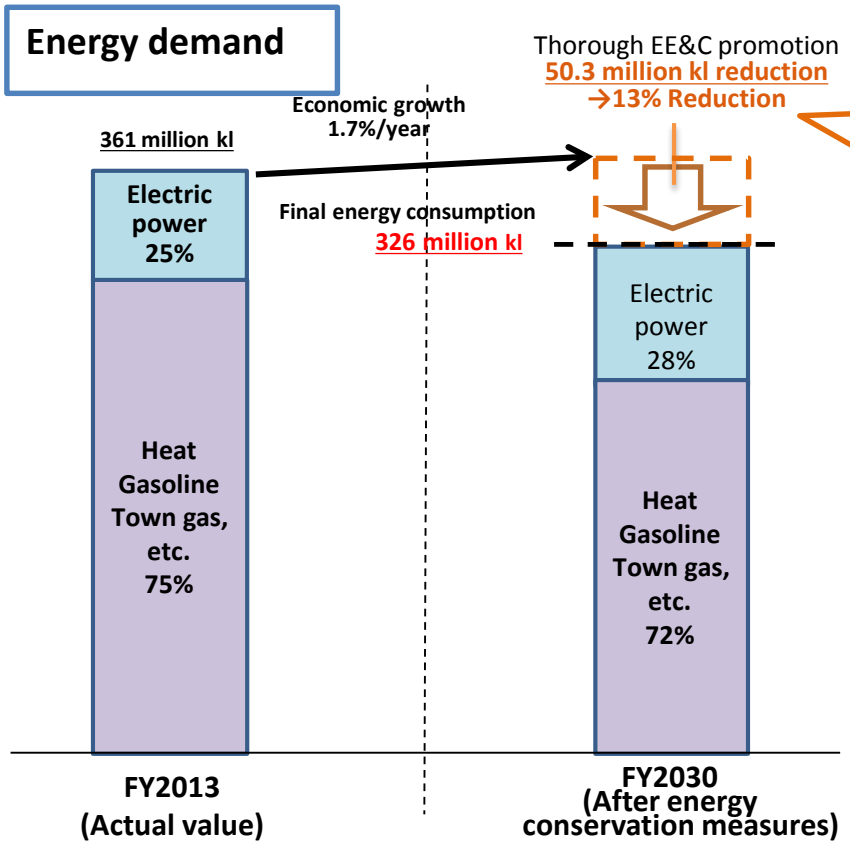
  - Task: Improvement of the EE&C performance (▼20%)
  - Countermeasures under Act on the Rational Use of Energy (hereinafter "the Act"):
    - Promotion of the Benchmark System
    - Dissemination of the Business Appreciation System
    - Miscellaneous (ZEB etc)
- Brief introduction of ECCJ's ECAP14(2017FY)
  - Follow-up of out-come of the workshops in the past
  - Brush-up of the ASEAN ENERY AWRD（BEC /GBC）
  - ZEB(Zero Energy Building)

Japan's Target of Energy Efficiency & Conservation in 2030

- According to "Long-term Energy Supply and Demand Outlook" established by the Government, 50.3billion kl reduction (13% energy reduction) is expected by 2030.

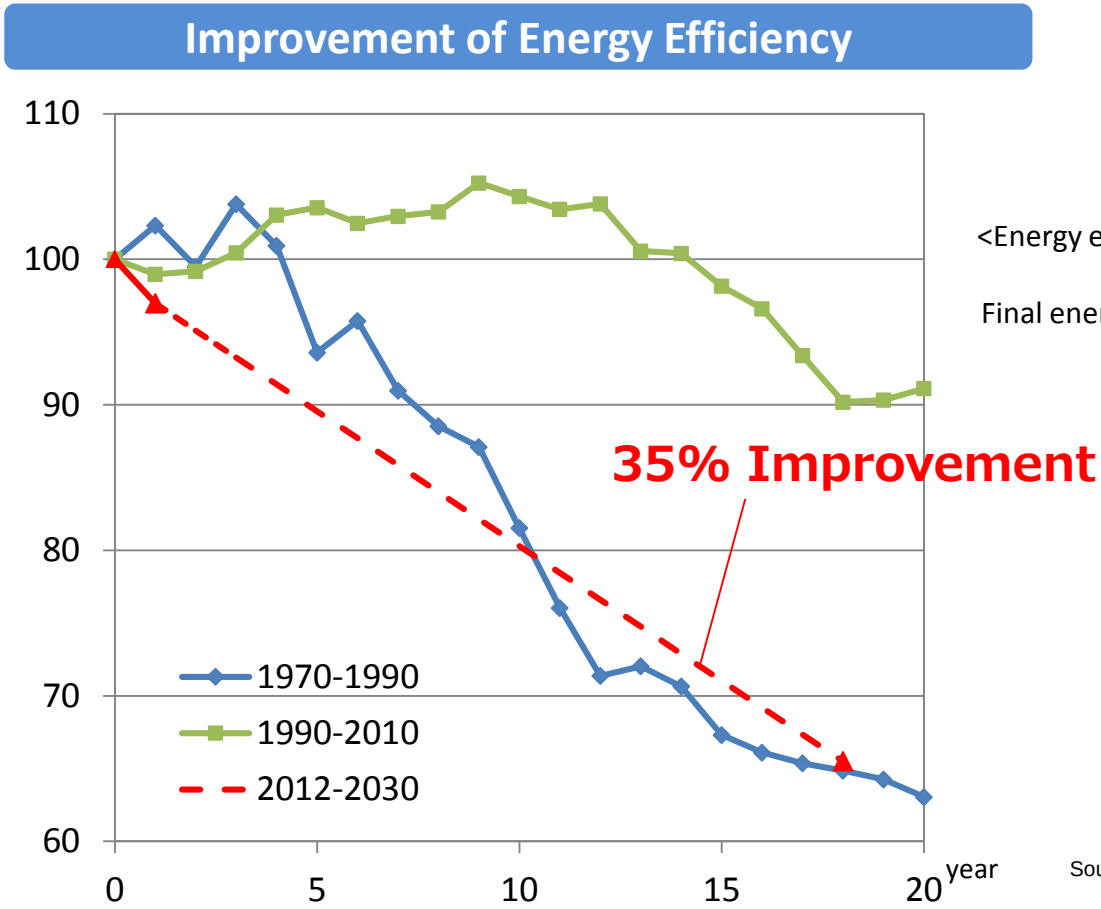


35% improvement of energy efficiency is necessary to reduce 13% energy in 2030.

source: "Long-term Energy Supply and Demand Outlook" METI, July 2015

EE&C Target in 2030

- Japan will further pursuit 35 % improvement of energy efficiency in 2030.
- This 35% is on the same level as the high improvement ratio after oil crisis.



<Energy efficiency rate >

Final energy consumption ／real GDP

Source: Ministry of Economy, Trade and Industry

Goals and measures to realize it in each sectors

➢ **energy conservation of approx. 50.3 billion liter by piling up the energy conservation measures in each sector.**

<Major energy conservation measures in each sector>

Industrial sector <Approx. 10,420,000 kl >

➢**4 major sub-sectors (steel, chemical, cement, and paper and pulp)**
→ Promotion of a low-carbon society implementation plan

➢**Thorough reinforcement of energy management level at site**
→ Improvement of energy efficiency through "Mieru-ka" of a production line

➢**Development and introduction of innovative technologies**
→ Introduction of an environmentally friendly steel-making process (COURSE50)
(Approx. 30% CO_2 reduction by iron ore hydrogen reduction, blast furnace gas CO_2 separation, etc.)

Introduction of a technology to turn CO_2 into raw material, and so on (Production of key chemicals by solar energy, using CO_2 and water as raw materials)

➢**Introduction of high-efficiency facilities to various sectors**
→ lighting, air-conditioner, industrial heat-pump, Low-carbon industrial furnaces, high-performance boilers, cogeneration, FEMS equipment etc.

Transportation sector <Approx. 16,070,000 kl >

➢**Diffusion of next-generation vehicles and improvement of fuel efficiency**
→ One out of two cars becomes next generation vehicle.
→ Fuel-cell vehicles: Max. annual sales of 100,000 units or more

➢**Traffic flow measure**

Commercial sector <Approx. 12,260,000 kl >

➢**Energy-efficient buildings**
→ New buildings are obliged to comply with the energy conservation standards from 2017FY, introduction of ZEB

➢**"Mieru-ka"(Visualization)and energy management by BEMS**
→ Introduction into half of the buildings in number

➢**Introduction of high-efficiency facilities to various sectors**
lighting(LED, organic EL etc.), air-conditioner, water-heater, transformer, refrigerator- freezer etc.

Household sector <11,600,000 kl >

➢**Energy-efficient houses**
→ Obligation for new houses to comply with the energy conservation standards, ZEH, EE-oriented retrofit

➢**Introduction of LED lighting and organic EL**
→ Diffusion of high-efficiency lighting such as LEDs

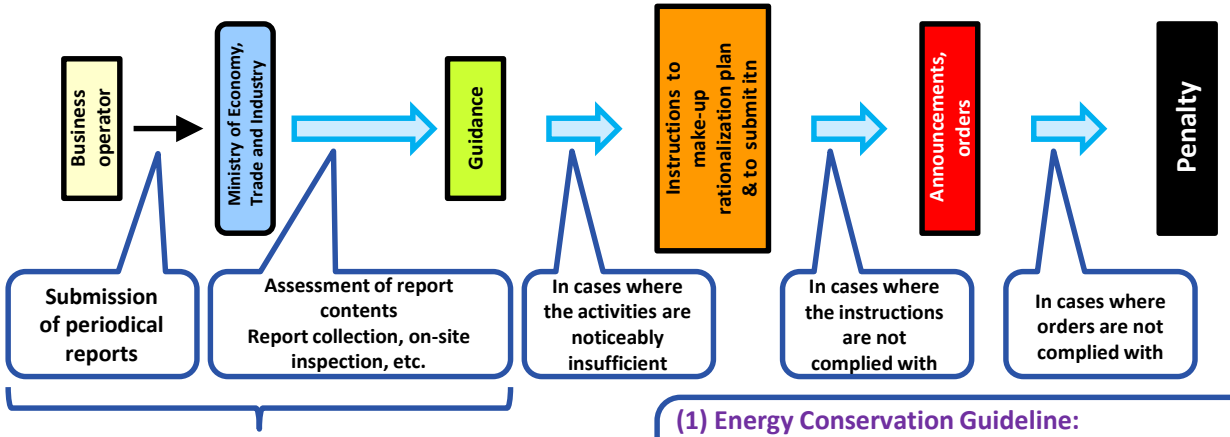
➢**"Mieru-ka"(Visualization)and energy management by HEMS**
→ Introduction into all the households

➢**Promotion by a national movement**

Source: Ministry of Economy, Trade and Industry

Regulation of factory and office under the Act

- **Business operators annually consuming 1,500 kl or more of energy are obligated to submit an annual periodical report.**
- **Based on the periodical report, they give guidance, etc. from a viewpoint of energy conservation to the business operators having a problem in the process of rational use of energy.**



<Evaluation items in periodical report>

- **Status of activities related to energy conservation measures**
- **Changes in energy unit consumption (energy intensity)**
- **Status of benchmark indicators**

(1) Energy Conservation Guideline:
Matters to be observed by the business operators in relation to the management system and management method of individual equipment are stipulated by Energy Conservation Guidelines (public notice).

(2) Target of utmost efforts: Reduction of an average of 1% or more each year

Energy intensity = Energy consumption / Production quantity, etc.

(3) Benchmark indicators and standards that should be aimed for:
Industry : Iron and steel, electricity, cement, paper, oil refining, chemicals
Standards to be aimed for: Standards to be achieved by the most outstanding business operators in the industry

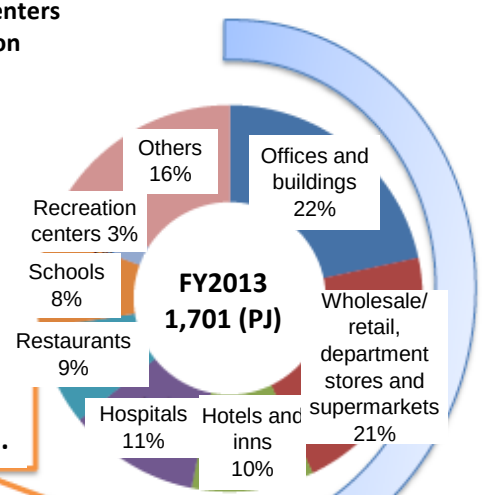
Source: Ministry of Economy, Trade and Industry

Study of the expanded application of the benchmark system to the commercial sector

- In the commercial sector, energy consumption continued to grow due to an increased total floor area, but it peaked out in 2004 and started decreasing as a trend.
- For further reduction of the energy consumption in the sector , it was concluded to apply the benchmark system to the sector.

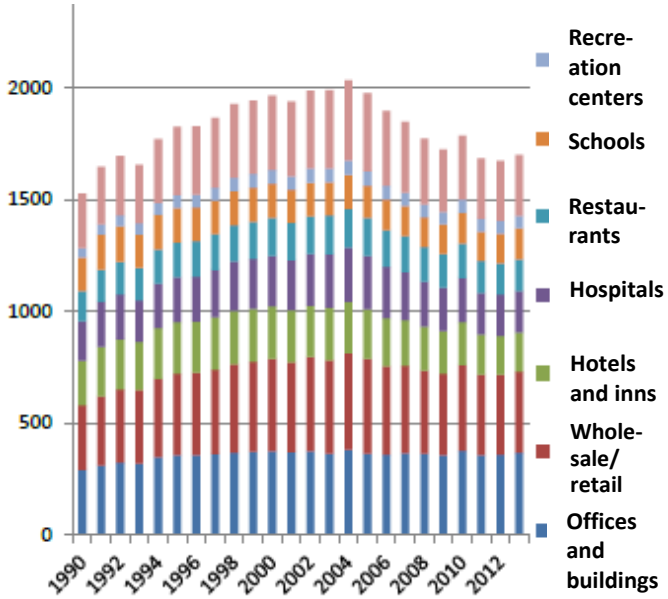
Organizations which the workshop has studied the benchmark assessment criteria and its levels

- Japan Council of Shopping Centers
- Japan Chain Stores Association
- Japan Department Stores Association
- Japan Building Owners and Managers Association
- Japan Franchise Association
- Japan Hotel Association
- The Real Estate Companies Association of Japan



Approx. 50% of the commercial sector is covered.

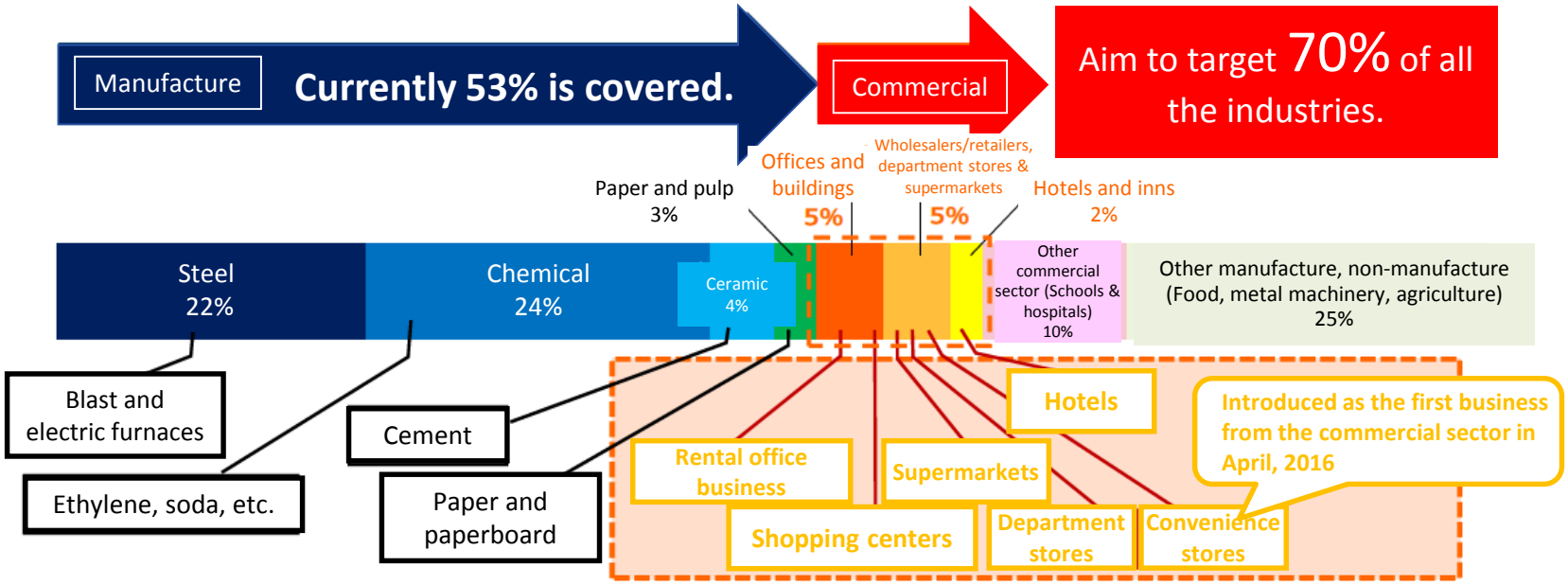
Energy consumption (PJ)



Source: Ministry of Economy, Trade and Industry

Expansion of application of the benchmark system in the commercial sector

- The 1st expansion of application (6 industries) realizes the coverage rate of 65% and the 2nd expansion (schools, hospitals, etc.) will increase it up to 75%.
  → Expand from the applicable fields as soon as possible to aim at 70%.



Source: Ministry of Economy, Trade and Industry

Overview of the business operator classification assessment system

- This system classifies all the business operators, who submit the periodical report stipulated by the Energy Conservation Act, into 4 classes of S, A, B and C to take explicit responses according to the classes.
- They make public and praise the business operators with superior energy conservation in each industry, on the other hand examine those with inactive energy conservation in a stricter manner.
- The business operator can compare himself with others to understand his own position.
- The system will start from 2016.

Class S Business operators with superior energy conservation performance 6,657 companies (58.3%)*1	**Class A** General business operators 3,378 companies (29.6%)*1	**Class B** Business operators that are inactive in energy conservation 1,386 companies (12.1%)*1	**Class C** Business operators to be required cautious attitude
[Standards] (1) The target of utmost efforts*2 are achieved. or (2) The benchmark targets*3 are achieved. [Response] As superior business operators, the business operator's name and the number of successive years that the targets were achieved are displayed on the Ministry of Economy, Trade and Industry website.	[Standards] Business operators that do not correspond to the Class S or Class B [Response] No particular response	[Standards] (1) The target of utmost efforts*2 are not achieved, and the intensities of the most recent two years in succession have increased compared to the previous fiscal year, or (2) The five-year average intensity shows an increase of more than 5% per year. [Response] Caution documents are sent, and local investigations, etc. are implemented with high priority.	[Standards] Among the Class B business operators, these are operators whose compliance with Energy Conservation Guideline is particularly insufficient. [Response] Guidance based on Article 6 of the Act of Ratinal use of Energy is implemented.

*1 FY2016 periodical reporting (Actual results from FY2015) Calculated from the total number of 11,421 business operator companies.
*2 The target of utmost efforts: There should be a reduction of 1% or more per year in the five-year annual intensities.
*3 Benchmark targets: Standards that should be aimed at by business operator in the subject sector in the medium to long term .

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History of ECCJ's BEC related work

ECAP

- ECAP4(held in 2013FY)
  - Introduction of Green Building
  - revision of the methodology of AEA
- ECAP7(held in 2014FY)
  - Brush-up of AEA evaluation criteria
  - Introductory of IBEC GBC, IPEEC Top Tens and Japan's Energy Conservation Grand Prize Award
- ECAP9(held in 2015FY)
  - Brush-up of AEA evaluation criteria
  - BEC and best practice of EE&C in Japanese buildings

SEforALL

- Tokyo Forum in October 2015 with the theme of "City-led policies for building energy efficiency"
- Workshop on BEC for the ASEAN members in February 2017
  - Sharing information on SEforALL BEA platform
  - Up-dated information on Japan's BEC
  - Operation know-how of EE&C building
  - Benchmark system in various building types

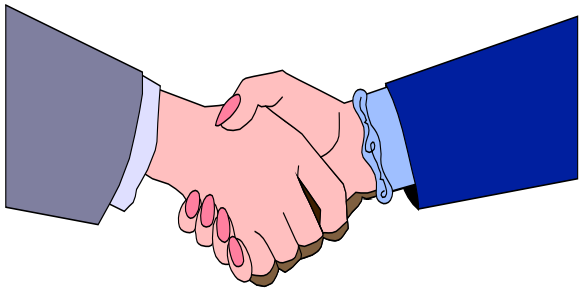
ECAP14(to be held in November 2017)

- Follow-up of the previous year's workshop
- Tackling with ASEAN's main issue: refinement of AEA to establish BEC &GBC
- New technology : ZEB(Zero Energy Building)

Aim of ECAP 14

Follow-up of 2016 WS	• Up-dated status and pending issues of mandatory BEC in Japan • Collaboration of the relevant parties to fill the gap of design and operation • others
ASEAN ENERGY AWARD	• Refinement of AEA in terms of increased number of the submission & improvement of the selection methodology • Present status and potential problem of BEC and GBC in each country
ZEB	• Introduction of the technique • Visit of the typical ZEB site • How to incorporate ZEB standard into the existing BEC and GBC evaluation criteria

Thank You Very Much



Energy conservation symbol

SMART CLOVER

Since 2005, ECCJ has been disseminating the SMART CLOVER, a four-leaf clover which is believed to bring happiness, as a symbol of people who are concerned with energy conservation.

The Energy Conservation Center, Japan