

A proposal for additional screening criteria of ASEAN Energy Award

ZEB Family Concept

**JAPANESE BUSINESS ALLIANCE FOR
SMART ENERGY WORLDWIDE**



<http://www.jase-w.org/english>

ASEAN ZEB Dissemination SWG in JASE-W

The purpose of this Sub-Working Group:

To establish the ISO standard of ZEB family concept in order to disseminate ZEB in the world

For the moment, it is important to establish the unified principle of ZEB family concept in ASEAN region.

A Proposal

Additional guideline for ASEAN Energy Award

The concept of ZEB is very useful for designing energy efficient building.

We would like to introduce you ZEB Family concept and suggest you to apply to the assessment point for Asean Energy Award.

1. Take a step-by-step approach
2. Continuous energy management & monitoring
3. Clear roadmap to realize ZEB

1. Take a step-by-step approach

First step to ZEB is Energy Saving.

Design Phase

- Building envelope
- multi-layered Glass
- Efficient Air conditioners
- LED

+

Operation

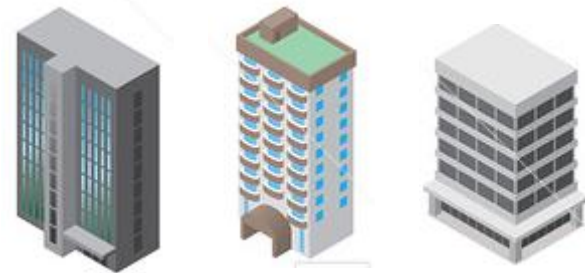
- Controllers
- . . .

- To reduce energy consumption in cities, it is reasonable to build more energy efficient buildings than only one real ZEB.



ZEB

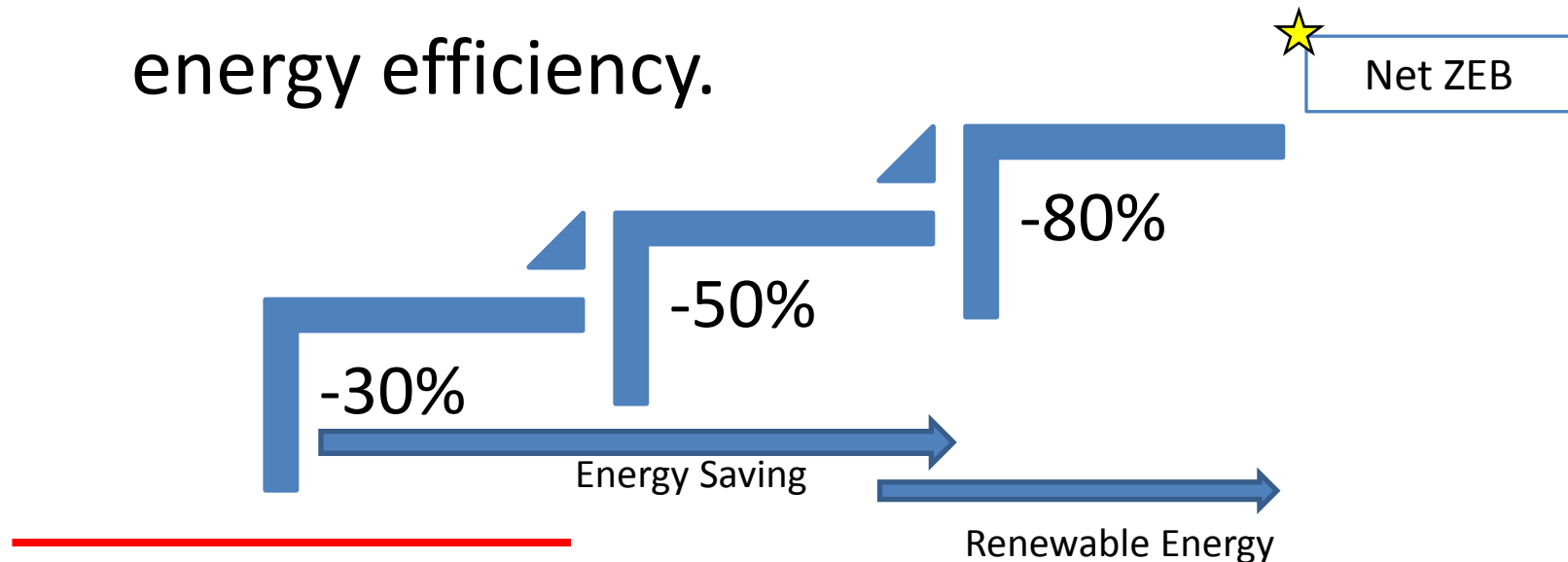
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Energy efficient buildings

2. Clear vision to realize ZEB

- Setting milestones to ZEB,
is helpful to make issues clear and improve energy efficiency.



⌘ How to set the baseline is the issue for discussion

3. Continuous energy management & monitoring

- It is necessary to secure the performance as initially designed,
 - ✓ By monitoring energy consumption continuously
 - ✓ Through regular inspection



Additional guideline for ASEAN Energy Award

1.Set reasonable baseline and target

- In Japan, we set benchmarks in industrial and commercial sectors to accelerate energy savings. This initiative will cover around 70% of all industrial and commercial sectors.

Industrial sector

6 categories 10 areas

Utility company

Steel industry

Oil refinery

Paper Industry

▪

▪

Commercial sector

6 categories

▪ Convenience store

▪ Hotel

▪ Department store

▪ Rental Office

▪ Supermarket

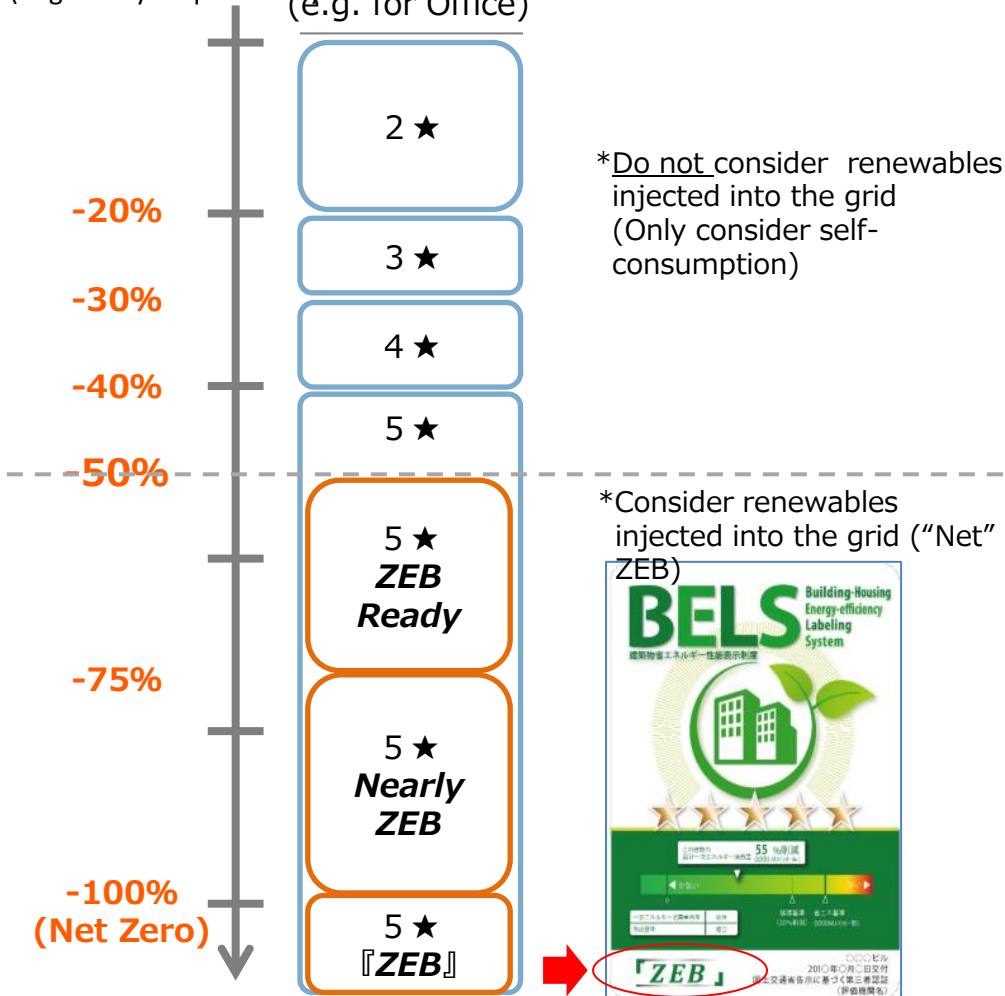
▪ Shopping Mall

Category	Benchmark index	Goal	Target
Convenience store	Total amount of electricity consumption	Energy Conservation Law level	50% less?

To promote ZEB Family in Japan...

2017 Energy Performance Standard

(Regulatory Requirement) (e.g. for Office)



- ✓ The Baseline is 2017 Energy Performance Standard.
- ✓ Labeling system for energy saving ⇒BELS

- ✓ Japanese government announced “ZEB design Guideline”.
- ✓ The Energy consumption of ZEB Ready Office in Japan is approx.185kWh/m².

2. Feasible Energy management plan

Energy management Plan

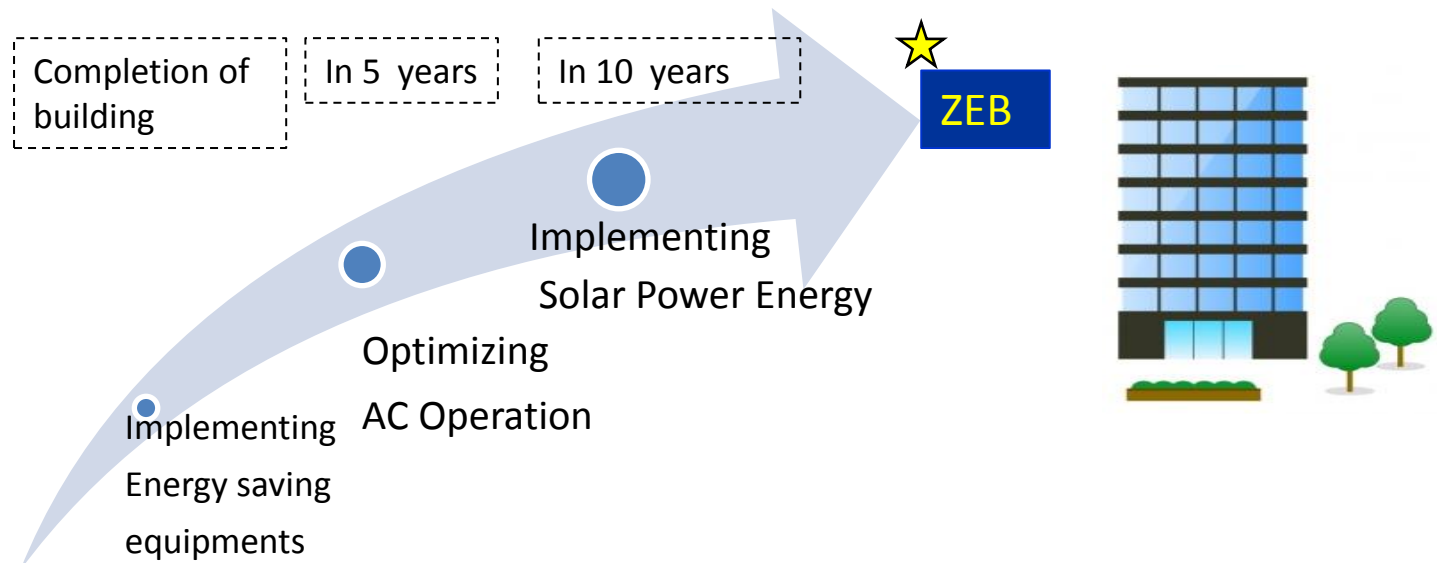
Who?	What?	How ?	How often?	Target
	Operation of <ul style="list-style-type: none"> ▪ Air Conditioner ▪ Ventilation ▪ LED etc... 			Until ... save ..%

Inspection

Who? (The third party)	What?	How ?	How often?	Target
e.g. Green Building Committee			Every Year	e.g. Win the official award

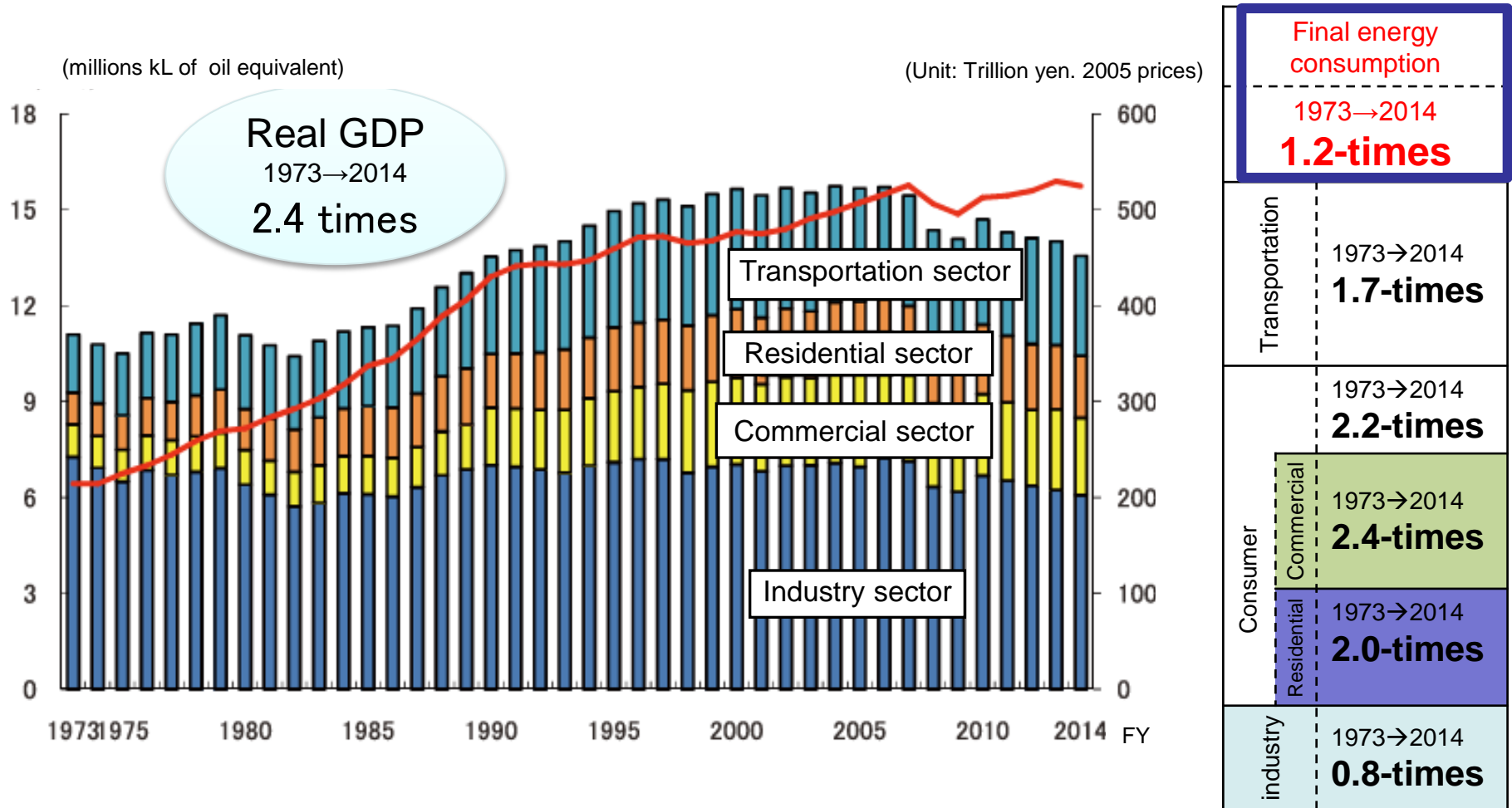
3. Make a Roadmap to ZEB

- A roadmap to ZEB is useful
for continuous energy savings.



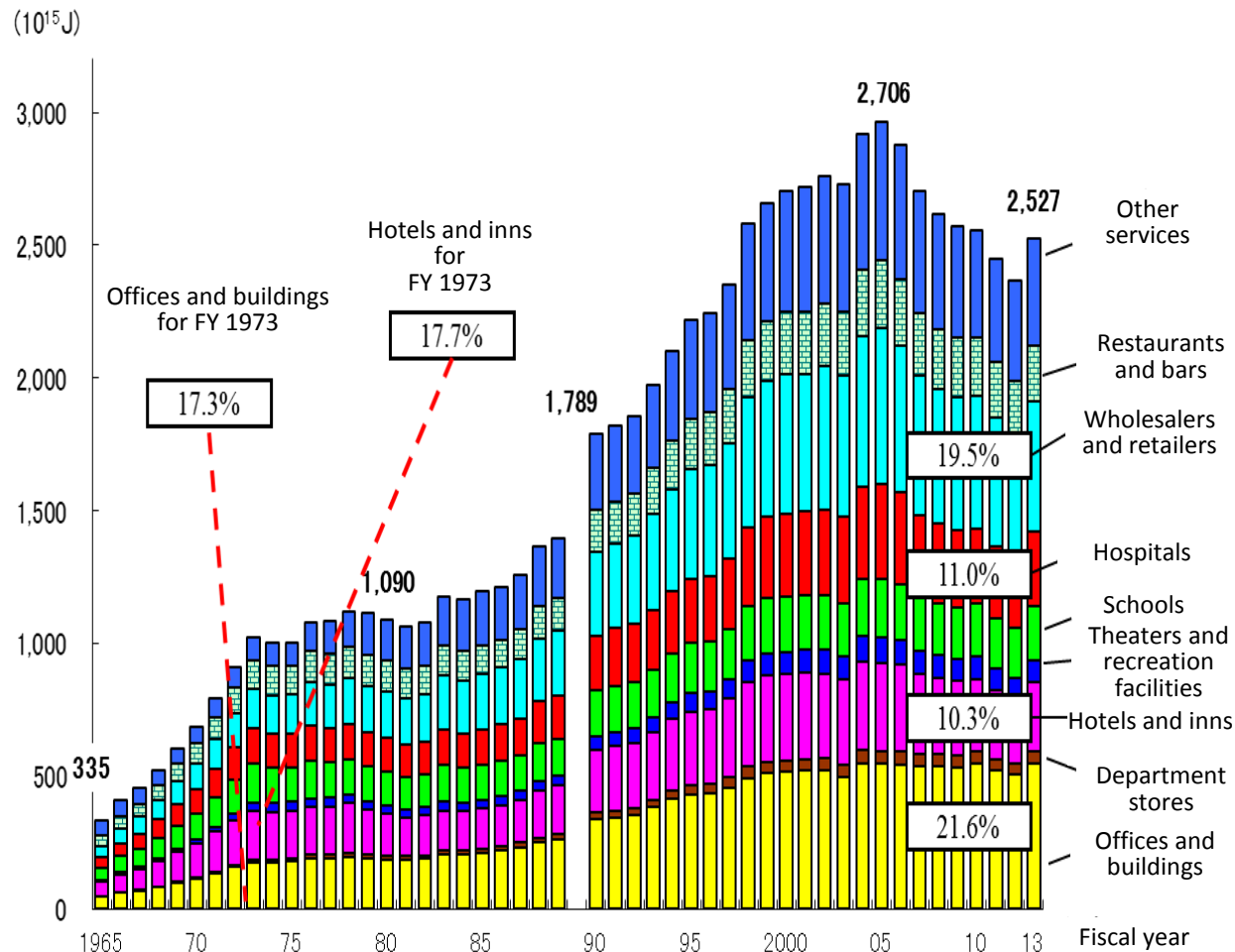
ZEB Family Concept in Japan

Energy Consumption Trends in Japan



Sources: Comprehensive Energy Statistics” and “Annual Report on National Accounts.

Evolution of energy consumption by subsector of the commercial sector



(Note)
In the *Comprehensive Energy Statistics*, the methods to calculate the values were modified from FY 1990.

(Sources)
Estimation based on the *Handbook of Japan's & World Energy & Economic Statistics* issued by the Institute of Energy Economics, Japan and *Comprehensive Energy Statistics* by the Agency for Natural Resources and Energy

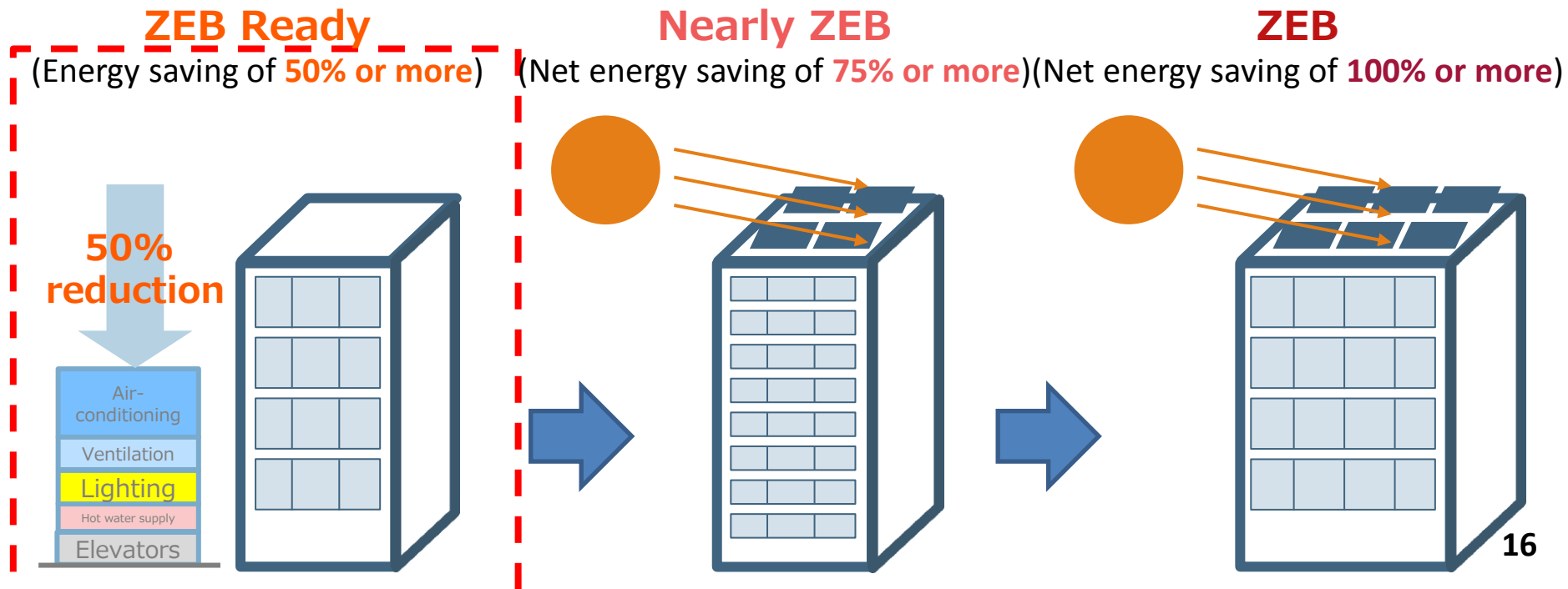
Introduction of ZEB Family Concept

- The ZEB (Net Zero Energy Building) is receiving a lot of attention because it can minimize indoor energy consumption (e.g., in offices, schools, hospitals, hotels, etc.) and allow buildings to function independently in terms of energy during a disaster.
- Japan's Strategic Energy Plan (adopted at the Cabinet Council in April 2014) establishes the following goals to realize and promote of ZEBs:
 - Realize ZEBs in newly constructed public buildings by 2020
 - Realize ZEBs in average newly constructed public and private buildings by 2030
- To achieve the above goals, the ZEB Roadmap Examination Committee, which is composed of scholars, experts, and professionals from developers, architects, and general contractors, has been established to examine (1) the definition and evaluation method of ZEBs, (2) the feasibility, and (3) measures to promote ZEBs.

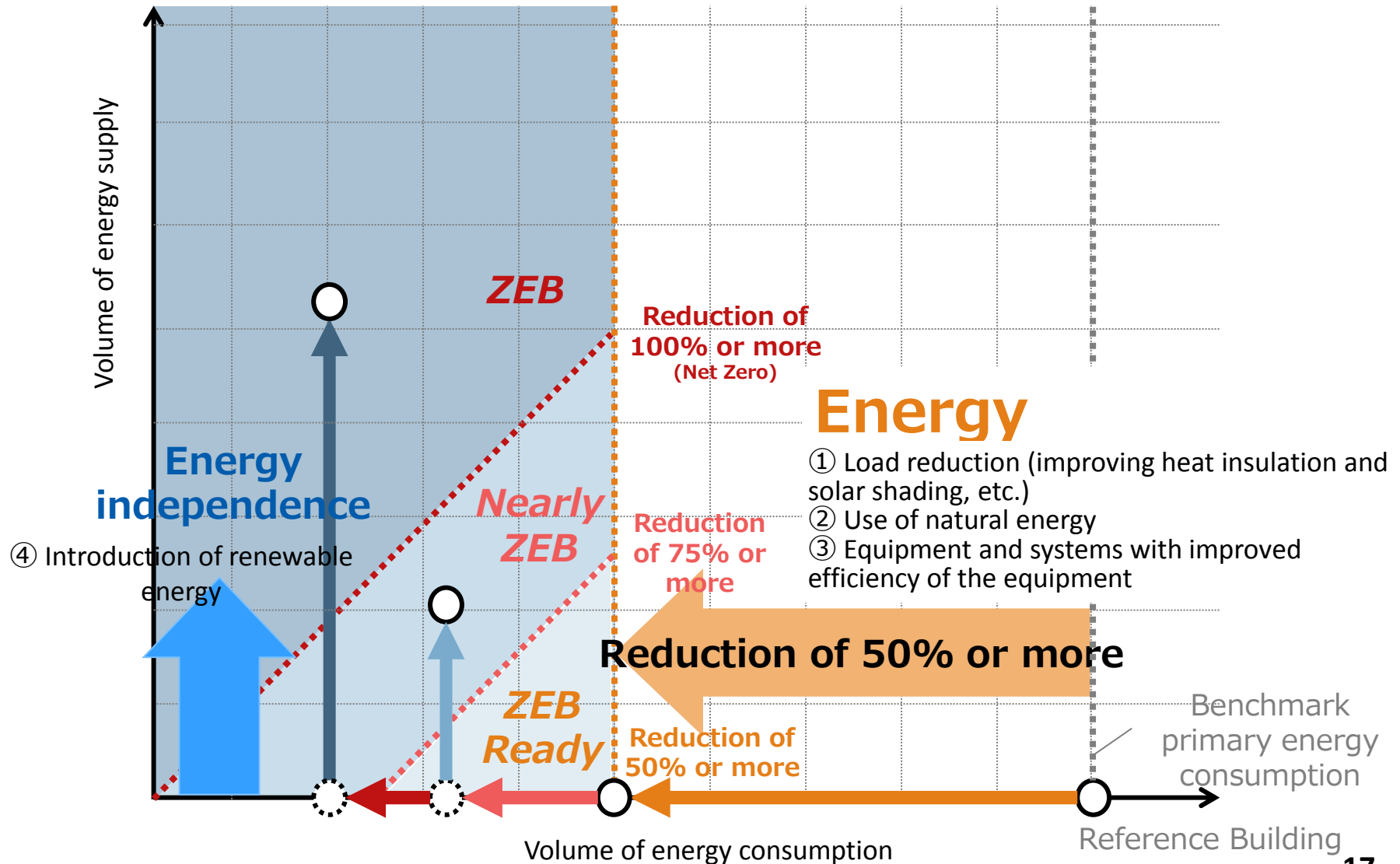
Definition and evaluation methods of ZEB Family

- The goal is to achieve net zero energy consumption by creating energy (e.g., via solar power) while fulfilling the higher than 50% energy saving (ZEB Ready).
- However, the evaluation method should take into account that high-rise and large-scale buildings have limited rooftop areas, and consequently, limited energy production capabilities.
- If energy savings of at least 75% is achieved the Nearly ZEB status is granted.
If energy savings of 100% or more is achieved, the ZEB status is granted.

* The method to determine 100% or 75% energy savings should follow the Energy Saving Standard. This rule should apply to air-conditioning, hot water supply, ventilation, lighting, and elevators. In addition, the production of renewable energy on site (inside the premises), including the part of electricity sold (only the surplus power sold), should be taken into account.



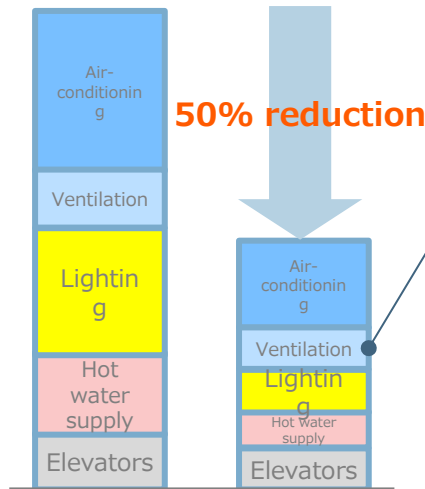
Definition and evaluation methods of ZEB Family



Definition and evaluation methods of ZEB Family

- In the design phase of a ZEB, it is important to achieve energy savings by
 - Upgrading the building envelope, which has long life and is difficult to renovate
 - Improving the efficiency of the equipment
 - Maximizing the architectural planning methodso as to reduce by at least 50% compared to the existing Energy Saving Standards.
- The above energy saving rate should be evaluated at the design phase by the calculated value.

Ordinary buildings **ZEB Ready**



Requiring a minimal amount of energy

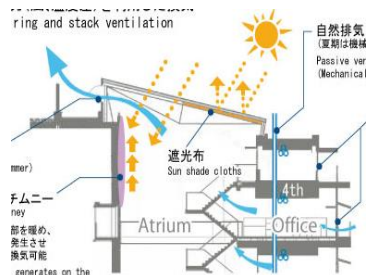
Improving heat insulation



Solar shading



Use of natural ventilation and daylight

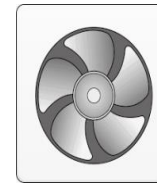


Efficiently using energy

High-efficiency air-conditioning



High-efficiency ventilation



High-efficiency lighting



High-efficiency hot water supply



High-efficiency elevators



* The calculation method should be consistent with the Energy Saving Standard. However, the 50%-higher energy saving rule applies to air-conditioning, hot water supply, ventilation, lighting, and elevators. In addition, reduction due to renewable energy should not be taken into consideration.

**ZEB Family Concept
As Standards,
proposed at AJEEP
Inception Meeting 2017**

An agreement to promote ZEB Family Concept in ASEAN at AJEEP Inception Meeting

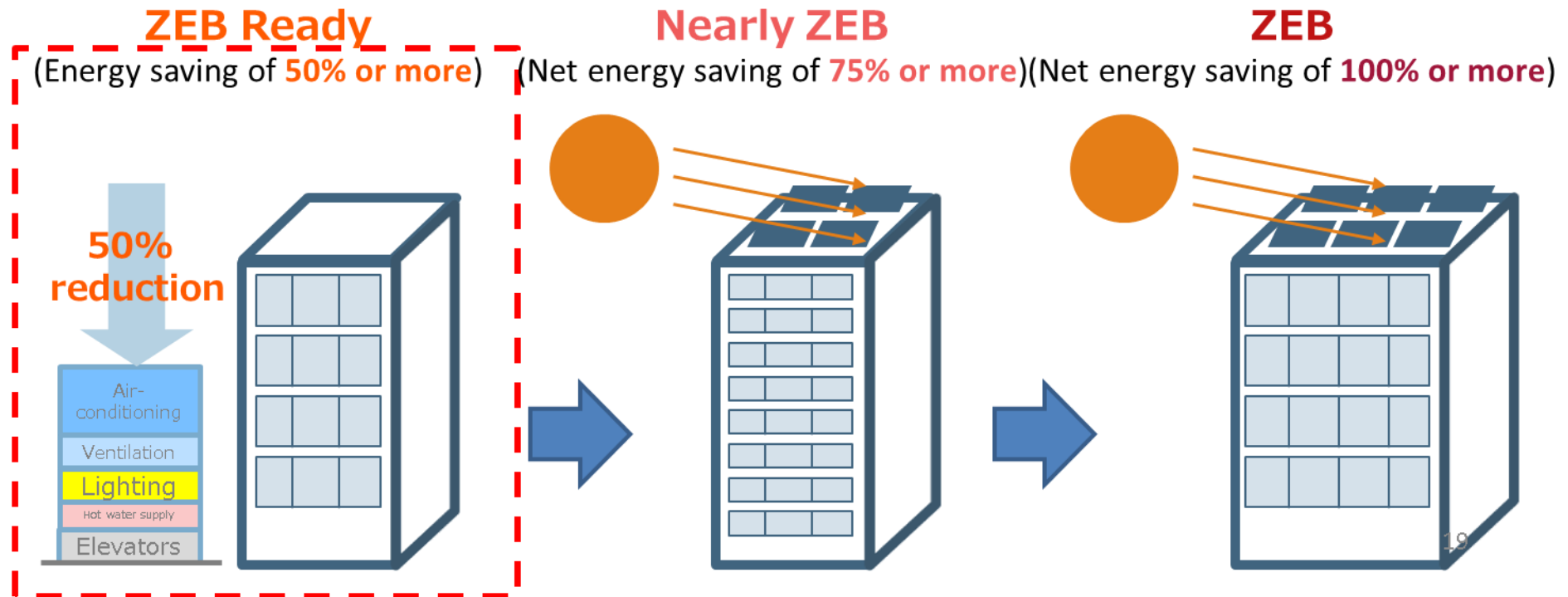
ADDITIONAL SESSION: INFORMATION SHARING ON ZERO ENERGY BUILDING (ZEB)

35. The representative of ECCJ presented Energy Efficiency for the Buildings for the Sustainable Development toward the Future 2050, which appears as ANNEX 20. The following key points were presented:

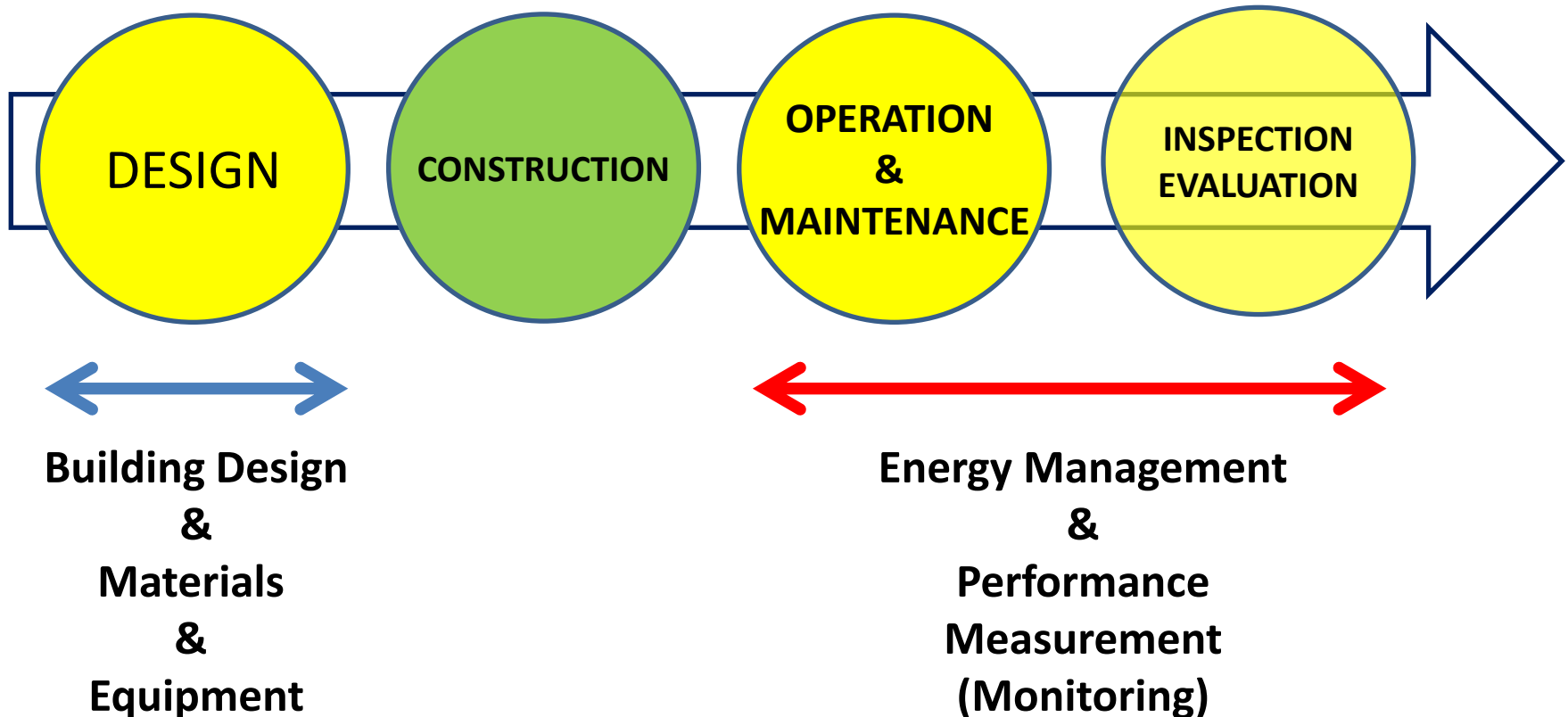
- a. Introduction of Japanese Business Alliance for Smart Energy – Worldwide (JASE-W) which founded in 2008 to solving energy issues through promotion of Japanese initiative with government
- b. ASEAN ZEB Dissemination Sub-Working Group
- c. Experience of ZEB in Japan and ZEB Family Concept
- d. To promote opinion exchange and collaboration among ECCJ, ASEAN ZEB Dissemination Sub-Working Group, AMS and ACE in order to disseminate ZEB Ready concept in ASEAN region.
- e. The JASE-W expressed their strong interest to establish a collaboration with ACE in promoting the ZEB in ASEAN through information sharing, capacity building and conducting a survey study on the ZEB development status in ASEAN region.

ZEB Ready is the First Step to Real ZEB

ZEB Family Concept



Coverage of the Standard



Summary

Additional guideline for ASEAN Energy Award

1. Reduction of Energy Consumption to the target level* based on ZEB family concept.
* A baseline has to be specified
2. Feasible plan for continuous energy management & monitoring system in order to apply ZEB family concept.
3. Clear step by step roadmap to realize ZEB in the future

**Thank you for your listening
Please support us for dissemination
of ZEB family concept in ASEAN
region.**



**Japanese Business Alliance for
Smart Energy - Worldwide**

<http://www.jase-w.org/english>

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Ministry of Economy, Trade and Industry**