



Concept of ZEB Family And Activity for Standardization as ISO/TR 2019.10.9 BKK, Thailand

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Contents

1. What is the Concept of ZEB Family?

**2. Activity for standardization of
ZEB Family Concept in ISO/TC205**

Appendix

Awareness rising / Capacity building



Background of ZEB Family Concept

- ❑ The current energy efficiency measures cannot achieve COP21 requirements for reduction of global warming gas even in Japan.
- ❑ The current Japanese E. E. Law for buildings does not have enough power to achieve the target for reduction of GHG in building sector. Therefore, the following target has been set in order to promote and disseminate high level energy efficient buildings, through the continuous efforts to realize (net)ZEB

1. Realize ZEBs in newly constructed public buildings by 2020
2. Realize ZEBs in average newly constructed public and private buildings by 2030

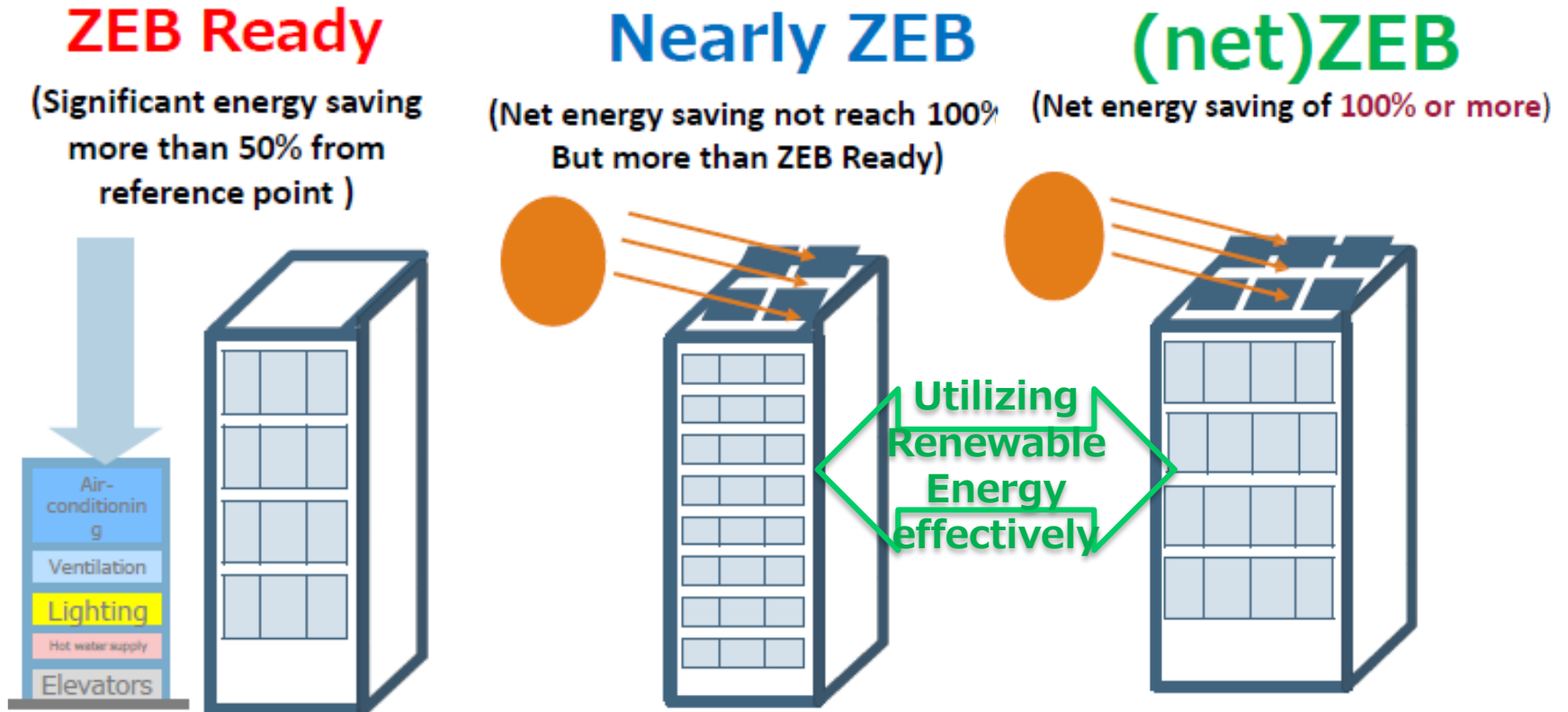
Change the way of thinking flexibly to approach net Zero Energy Building and make an innovative guideline!

**Studied by Academia + Related Government
Organizations + Related Private Sectors**

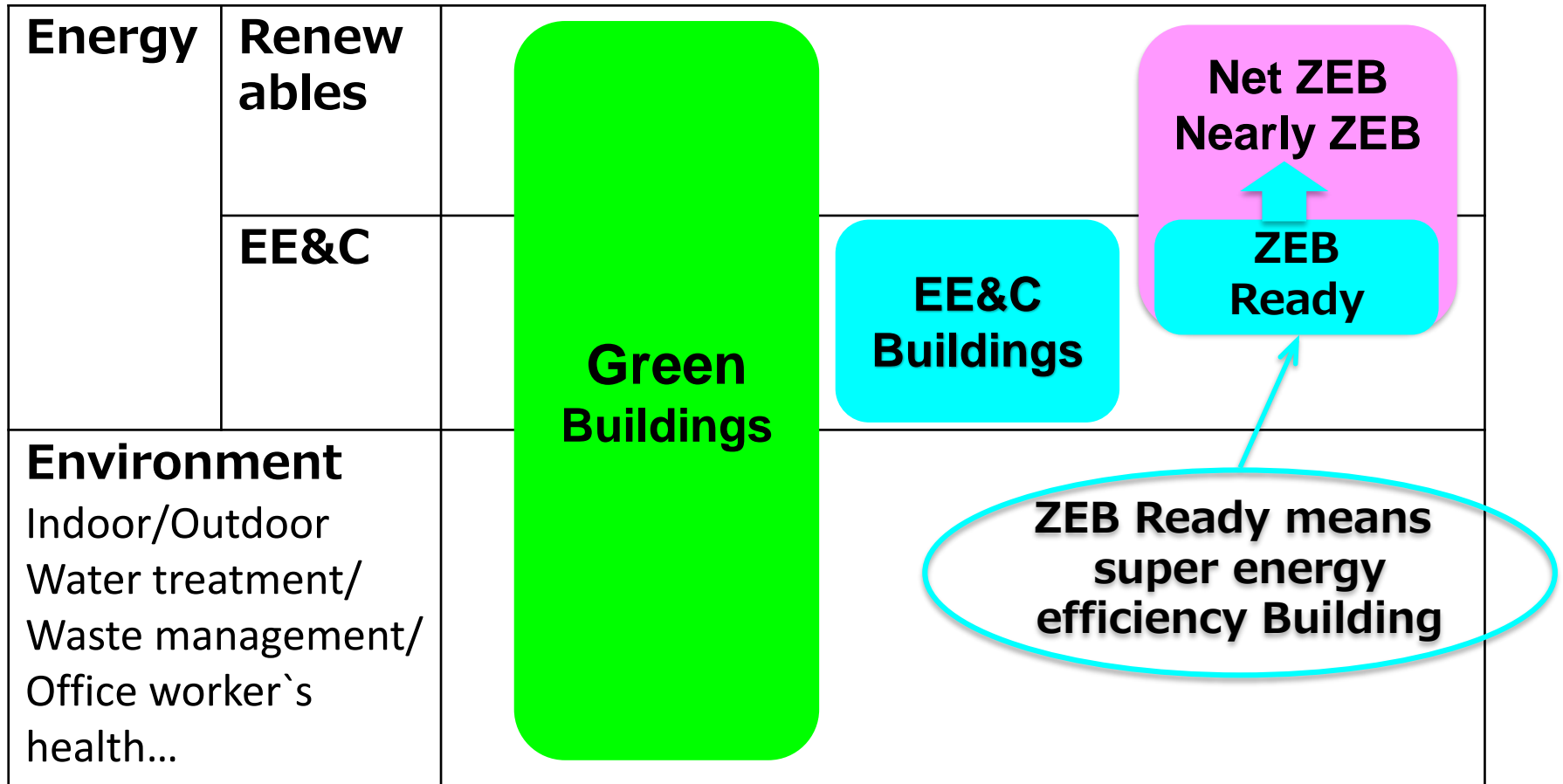


1. ZEB family Basic Concept

The concept of ZEB has been expanded to “ZEB series” according to actual conditions. First step is to aim for super low-energy buildings which are defined as “ZEB ready”, and then aim for “Nearly ZEB” and “(net) ZEB”.



Positioning of Green Building and ZEB Family



ZEB family Fundamental Principle

- ❑ If you pursue net Zero Energy Building at planning and design stage, there are many difficulties on finance or technologies in order to realize it.
- ❑ **However, once if you plan and design the building with the clear concept of “ZEB Family”, you can realize (net)ZEB through the step-by- step approach starting from “ZEB Ready”.**
- ❑ “ZEB Ready” buildings can be designed, constructed and operated by use of not only advanced technologies but also other exiting materials/equipment with measurement, verification and management not only developed countries but also emerging countries.

2. Activity for standardization of ZEB Family Concept in ISO/TC205

1971.1 Establishment New Study Platform

Make Sympathizers ⇒ Private, Government & Academia

NPW Proposed from JISC ISO/TC205 International Meeting

2018.9 Oslo, Norway ⇒ Accepted as PWI/ TR23764

Make Sympathizers internationally

Mainly ASEAN Counties

TR/WD submitted from JISC ISO/TC205 International Meeting

2019.9 Seoul, Korea ⇒

Decided go to ballot new ISO/TR

Purpose of Standardization

Energy saving in building sector

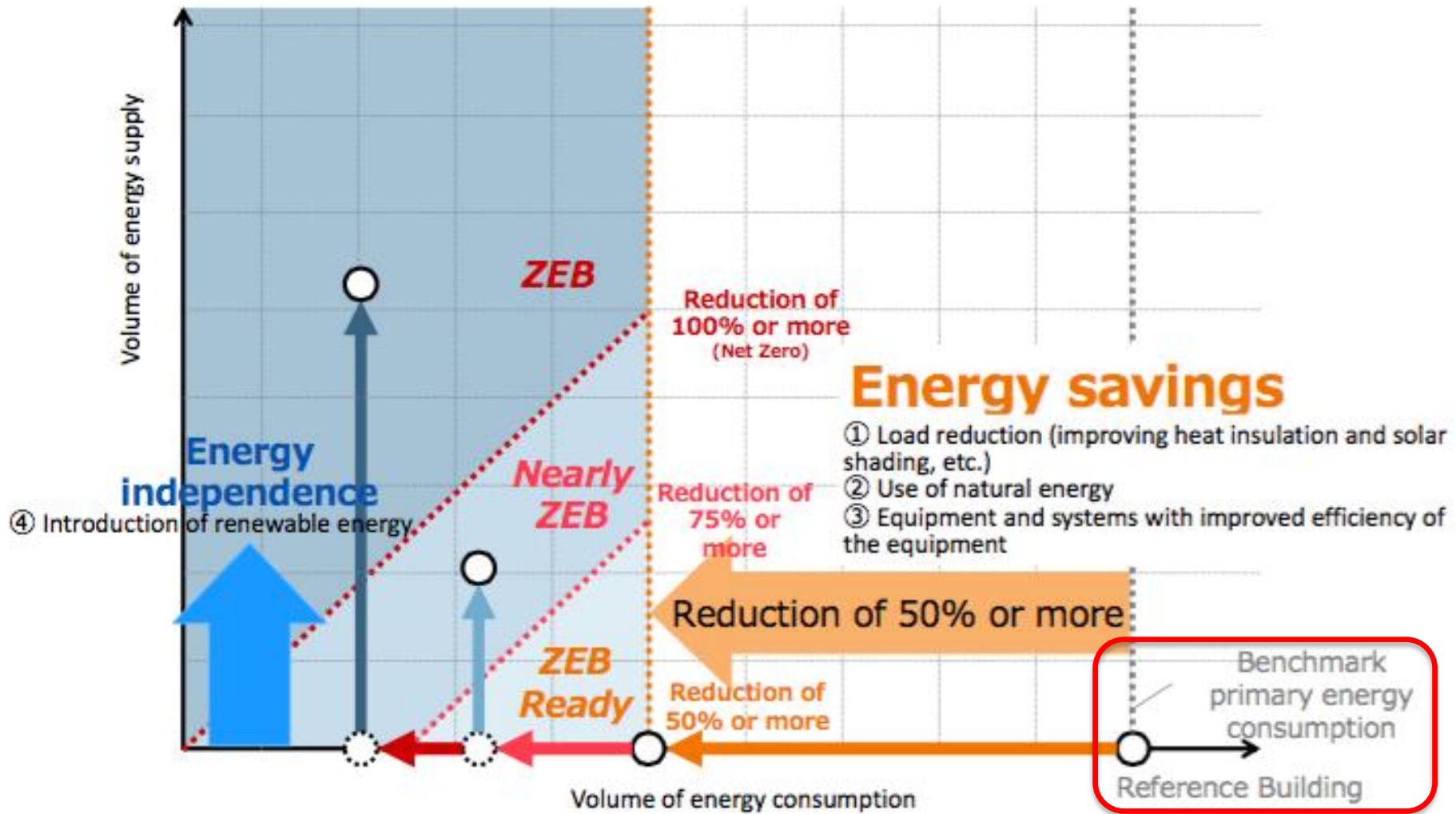
Reduction of GHG to provide
Global Warming

Healthy market growth of construction
materials and equipment

Six Core Elements in ISO/TR

- ① **At planning stage**, to have clear policy to achieve ZEB by the three steps, ZEB Ready → Nearly ZEB → (net)ZEB, but not to achieve it by only one step to (Net) Zero Energy Building.
- ② **At the design stage**, to select proper materials and equipment, which are certified by the domestic standard or international standard, as much as possible.
- ③ **During construction**, to install the selected materials and equipment correctly according to the drawings and specifications.
- ④ **After completion of building**, to realize the energy consumption targeted at the design stage.
- ⑤ **After operation start**, to inspect actual energy consumption continuously (suitable times per year) whether there is any difference of energy consumption between targeted at design stage and measured at actual operation.
- ⑥ **After completion**, to calculate the primary energy consumption periodically by using simulation software, if possible.

Reference: Basic Definition & evaluation of ZEB Family



Appendix Awareness rising /Capacity building

Activities are in parallel with Standardization

ZEB Family Concept was added to the new **special submission category of the ASEAN Energy Award from 2019.**

It was confirmed in the **Joint Ministerial Statement The Fifteenth ASEAN+3 (China, Japan and Korea) Ministers on Energy Meeting 29 October 2018, Singapore.**

- AOTS WS arranged in Tokyo, Japan 3 times
(Dec.2017, Sep.2018, Jan.2019)
- By WS in Malaysia Feb.2019, in Philippines Jul.2019 based on request by those countries.
- Other many activities in other ASEAN Countries



Thank you for your attention.

