Application of SBs for wider climate change mitigation projects and frameworks

-Gajanana Hegde and Kenjiro Suzuki, Regulatory Development

Outline

- SB status (statistics and timelines)
- SB application in CDM PA/POAs
- SB application outside of CDM
- SB potential: case study building EE
- Barriers communicated and improvements being made

SB Statistics

- **69 Standardised Baselines (SB) submitted/developed, 48 SBs approved**

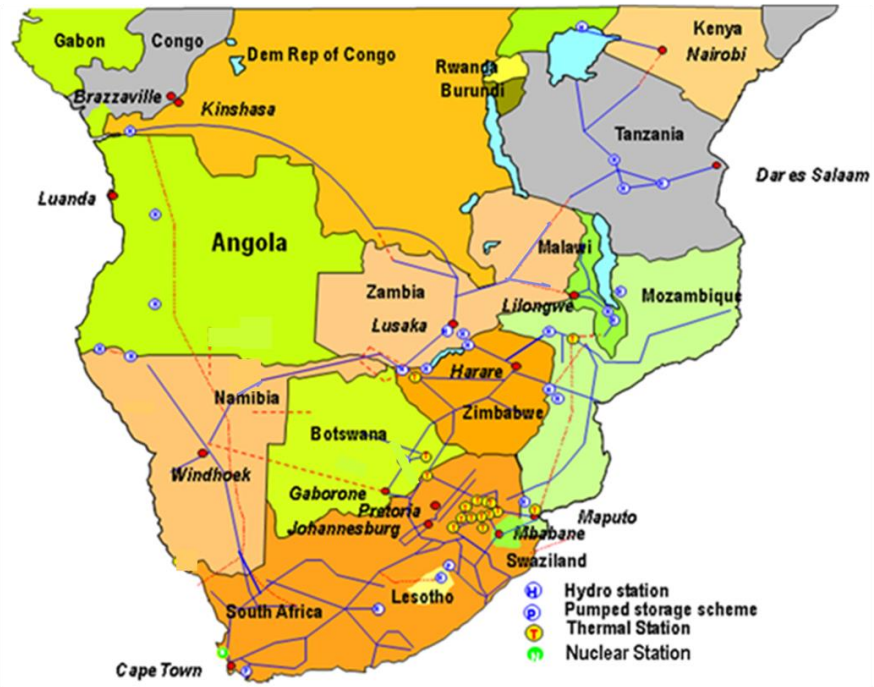
- **Out of 48 approved SBs**
  - ✓ **16 SBs remain valid** (including 1 A/R SB)
  - ✓ **32 SBs expired**

- **Sectors covered:**
  - Power (grid emission factor)
  - Cookstoves (baseline biomass consumption and fNRB)
  - Charcoal production
  - Waste
  - Wastewater
  - Rice cultivation
  - Rice mill power generation
  - A/R
  - Transport
  - Buildings

(as of 15 June 2020)

Regional SBs

SAPP: 9 countries



WAPP: 9 countries

Yearly trends of submitted/developed SBs

	2012	2013	2014	2015	2016	2017	2018	2019 (until 11 Nov)
Bottom-up SBs	4	6	17	9	5	2	4	5
Top-down SBs			6		5	1	1	2
Update of SBs					1	3		
Clarification of SBs								1
Total	4	6	23	9	11	6	5	8

(as of 11 Nov. 2019)

Use of approved SBs for CDM projects/PoAs

- **For CDM projects**

  - **Direct use of approved SBs**

(as of 15 June 2020)

	No. of CDM projects/CPAs	No. of CDM projects/CPAs whose CERs were issued
ASB0001: GEF for SAPP	15	6 (> 1 million CERs)
ASB0002: Charcoal in Uganda	1	0
ASB0015: GEF for The Dominican Republic	1	0
ASB0019: GEF for Mauritius	3	1 (9,000 CERs)
ASB0040: GEF for SAPP	10	0

Use of approved SBs for CDM projects/PoAs

Continued….

- ✓ In addition, fNRB values for hundreds of PAs/PoAs/CPAs for clean cookstoves (validity expired now)

- ✓ Official from South Africa highlighted the importance of SAPP SB for decarbonisation in the region (at EB side event in April, 2018)

➢ **Indirect use** of approved SBs as a benchmark

- ✓ E.g. in PoA10474, “ASB0018: Baseline woody biomass consumption for household cookstoves in Burundi” CME compared their value with ASB0018 to demonstrate conservativeness

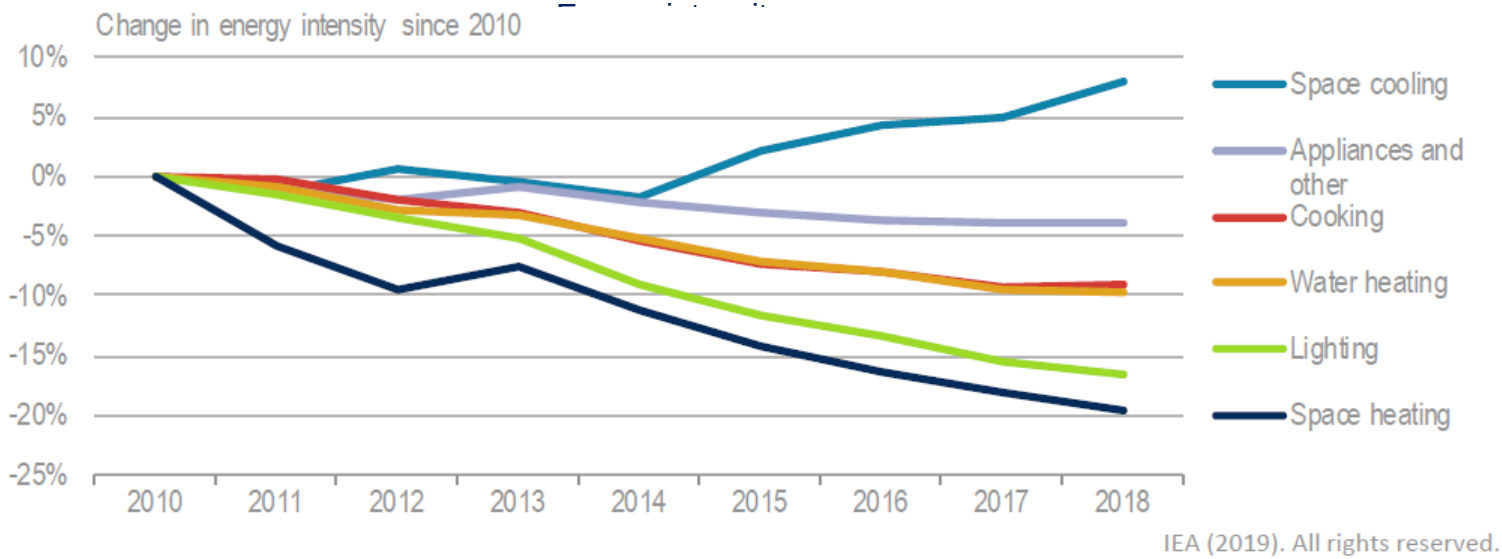
Use of approved SBs in climate funds/mechanisms

- **For GCF projects**
  - ✓ FP105 “BOAD climate finance facility to scale up solar energy investments in Francophone West Africa LDCs” uses “ASB0034: Grid emission factor for West African Power Pool”
  - ✓ FP104 “Nigeria solar IPP support program” uses “ASB0034: Grid emission factor for West African Power Pool”
  - ✓ FP103 “Promotion of climate-friendly cooking: Kenya and Senegal” uses “ASB0035: Baseline woody biomass consumption for household cookstoves in Kenya” and “ASB0025: Cookstoves in Senegal”
  - ✓ FP080 “Zambia Renewable Energy Financing Framework” uses “ASB0040-2018: Grid emission factor for Southern African Power Pool”
- **For NAMAs**
  - ✓ e.g. Philippines Rice NAMA developed by UNDP uses “ASB0008: Methane Emissions from Rice Cultivation in the Republic of the Philippines”
- **For IFI projects**
  - ✓ e.g. Renewable energy projects financed by IDB use “ASB0042-2019: Honduran Grid Emission Factor”

Case Study of potential: SBs for Building energy efficiency

- Building and construction account for 40% of global CO2 emissions
  - operational emissions (energy for heating/cooling and lighting) is 2/3rd, 1/3rd embodied emissions in materials
- High ER potential recognized (e.g. 40% less embodied emissions by 2030, 100% net zero emissions by 2050- World Green Building Council, 2019)
- Building sector: **15** approved methodologies, **2** methodological tools, > **200** registered projects/CPAs
- **Yet only 4.5** million CERs issued
- Many reasons (some not related to CDM)
  - High efforts to quantify but low revenue

Case Study: SBs for Building energy efficiency

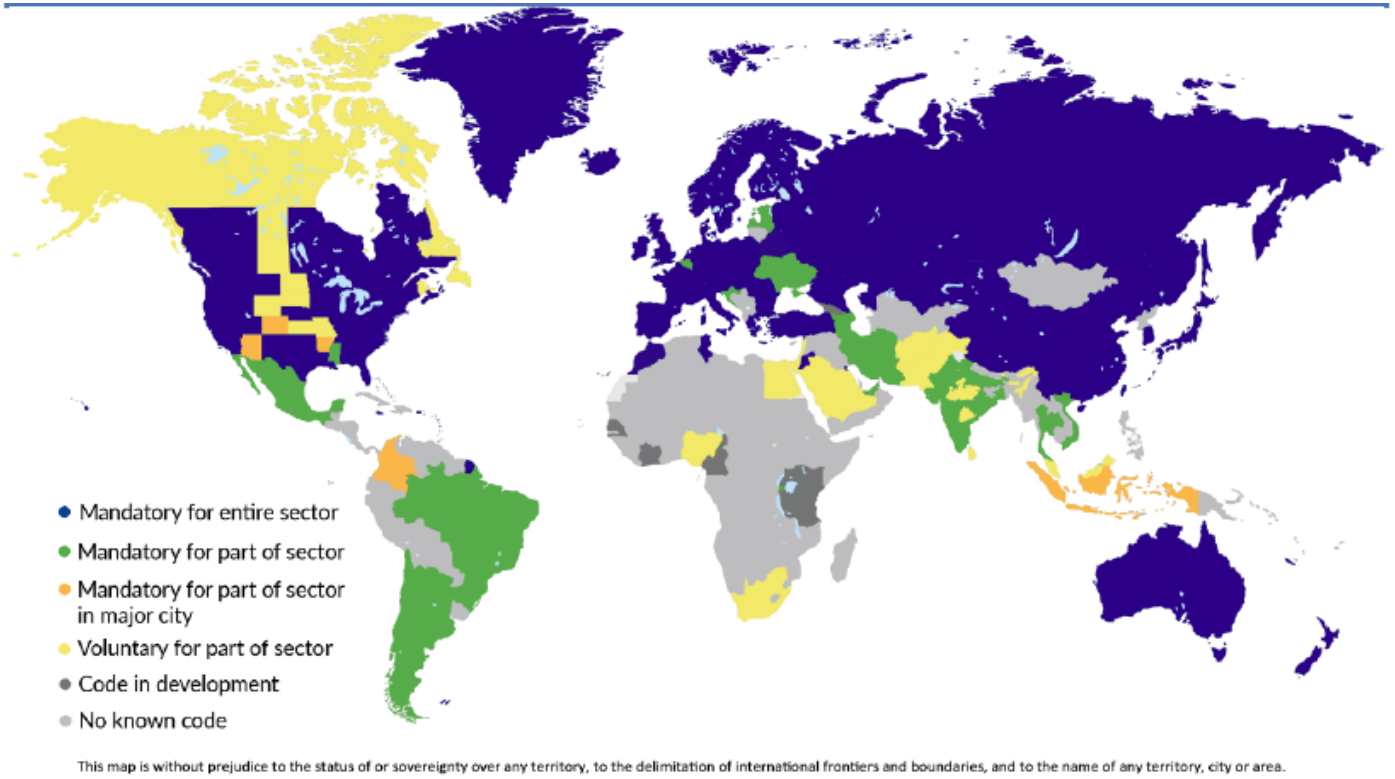


Notes: *Energy intensity* is final energy used per unit of floor area. *Appliances and other* includes household appliances (e.g. refrigerators, washers and televisions), smaller plug loads (e.g. laptops, phones and other electronic devices) and other service equipment.

Source: GlobalABC 2019 Global Status Report for Buildings and Construction based on IEA World Energy Balances and Statistics

Case Study: SBs for Building energy efficiency

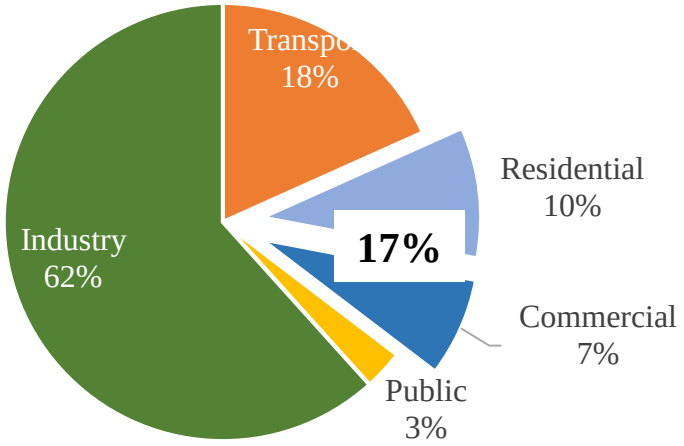
Energy codes for buildings



Source: GlobalABC 2019 Global Status Report for Buildings and Construction based on IEA World Energy Balances and Statistics

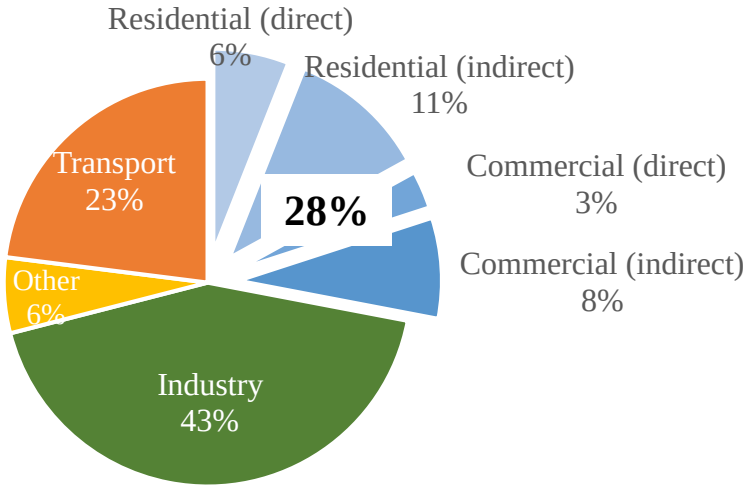
Case Study: PSB 0054 (Building EE S Korea, ongoing)

Korean Energy consumption



Sources: *World Energy Statistics and Balances 2018,* IEA (2018)

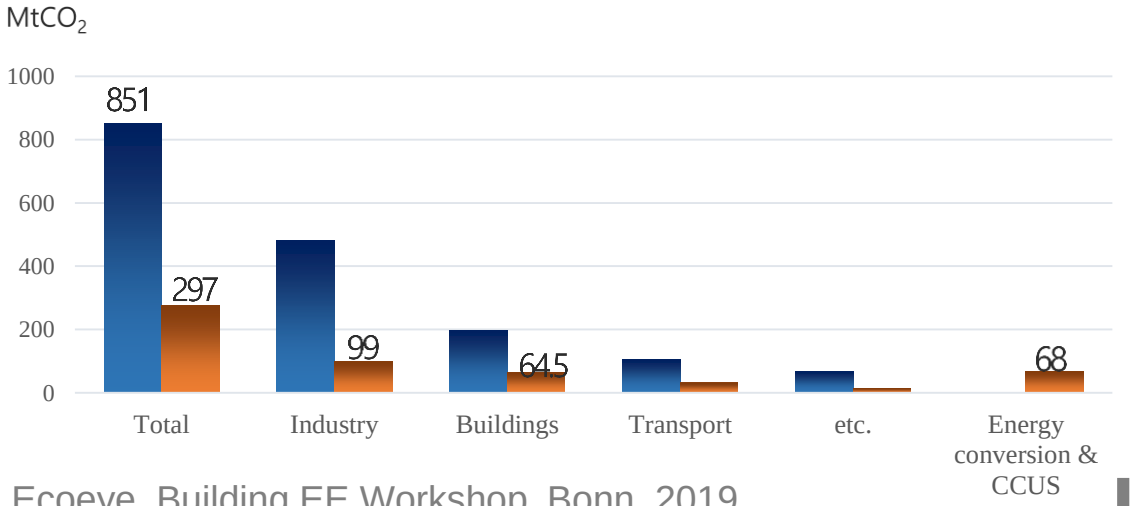
Global Emissions



Sources: Yearbook of Energy Statistics, Korean Energy Economics Institute (2018)

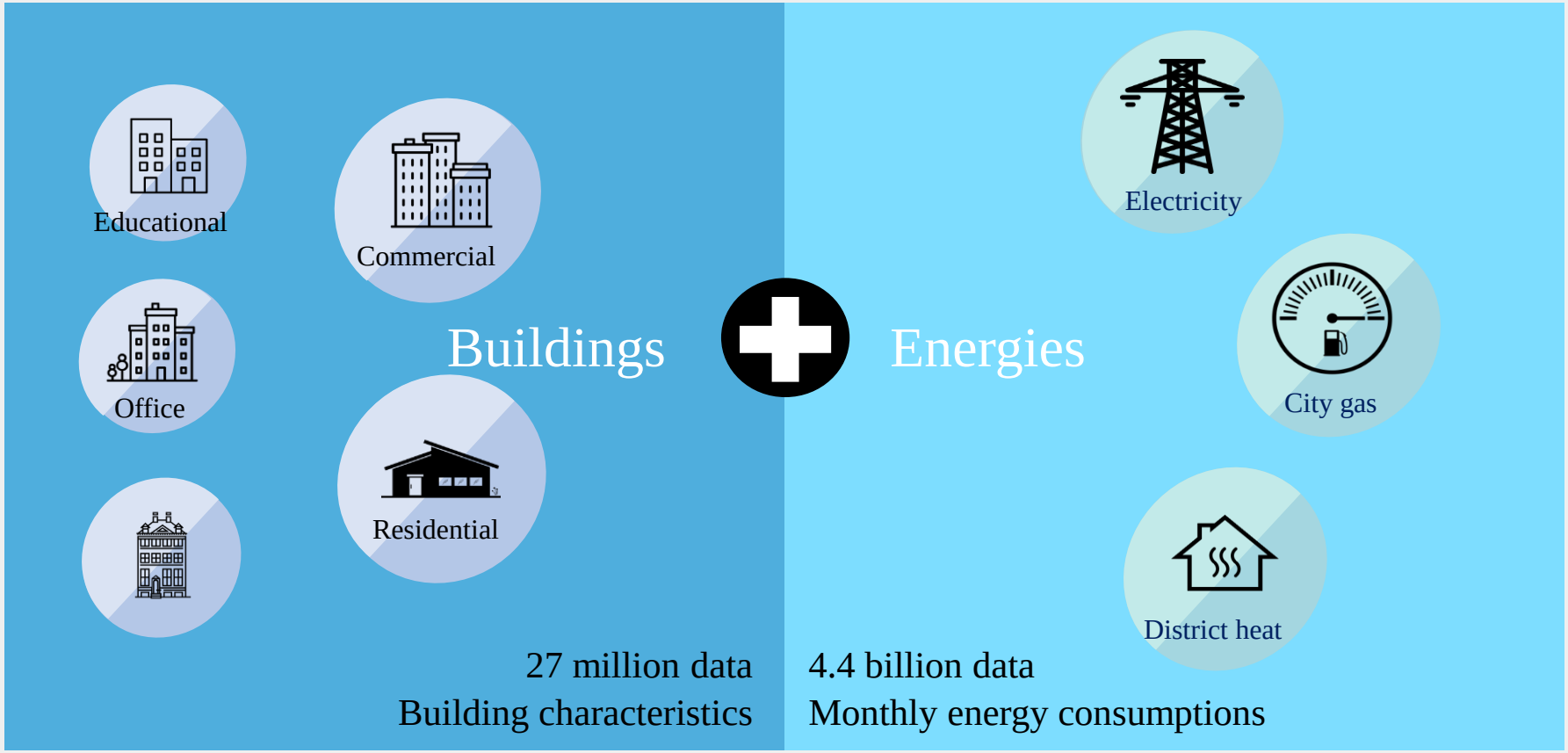
Paris Agreement

By 2030, 37% reduction compared to BAU, 64.5 million tons of buildings GHG reduction target



Source: Korea Appraisal Board and Ecoeye, Building EE Workshop, Bonn, 2019

Case Study: SBs for Building energy efficiency



7.2 million buildings

27 Building registers

Building administration system

57 million Meters

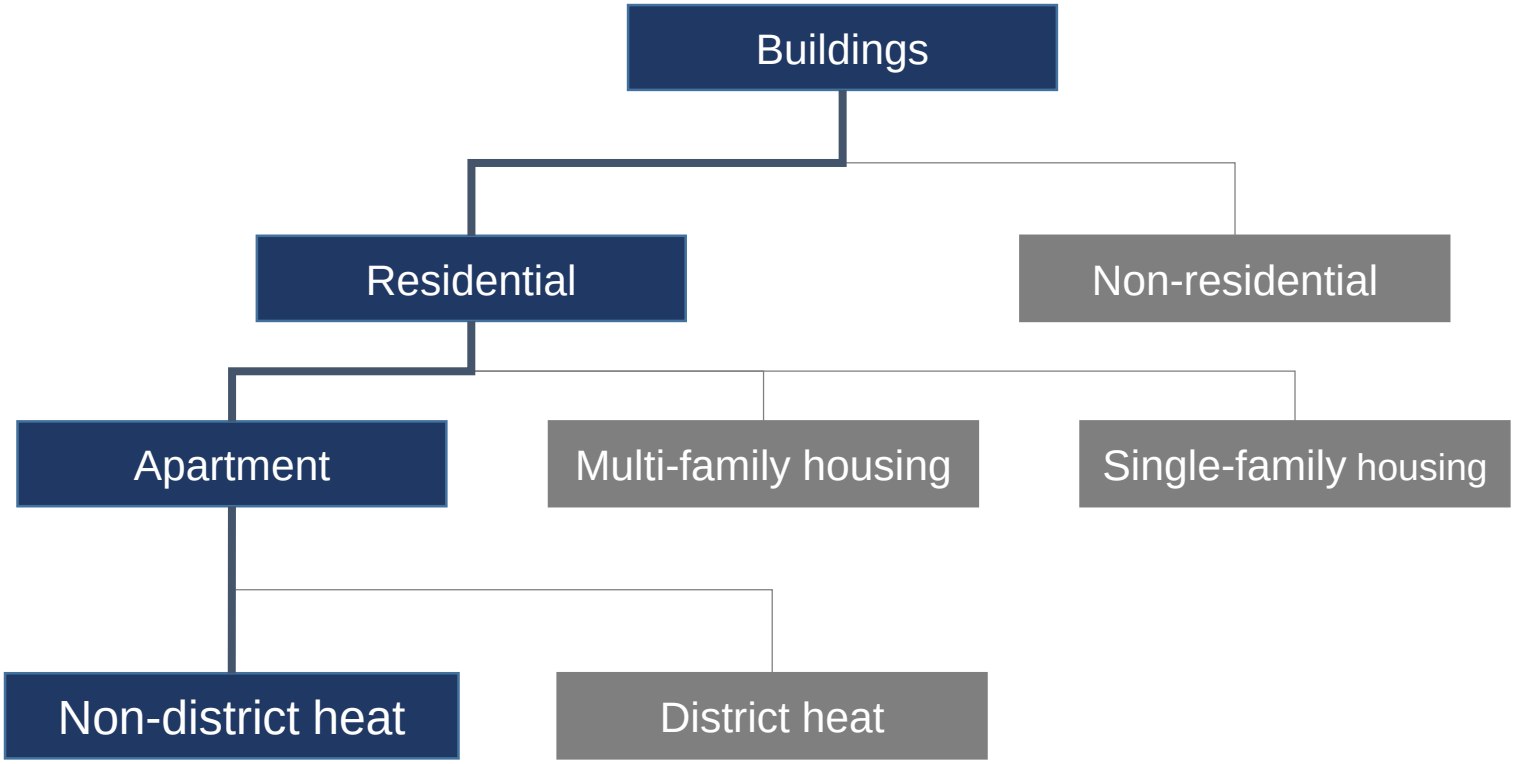
80 Supply Agencies

6 Apartment Mag. Agencies

Source: Korea appraisal Board and Ecoeye, Building EE workshop, Bonn 2019

Case Study: SBs for Building energy efficiency

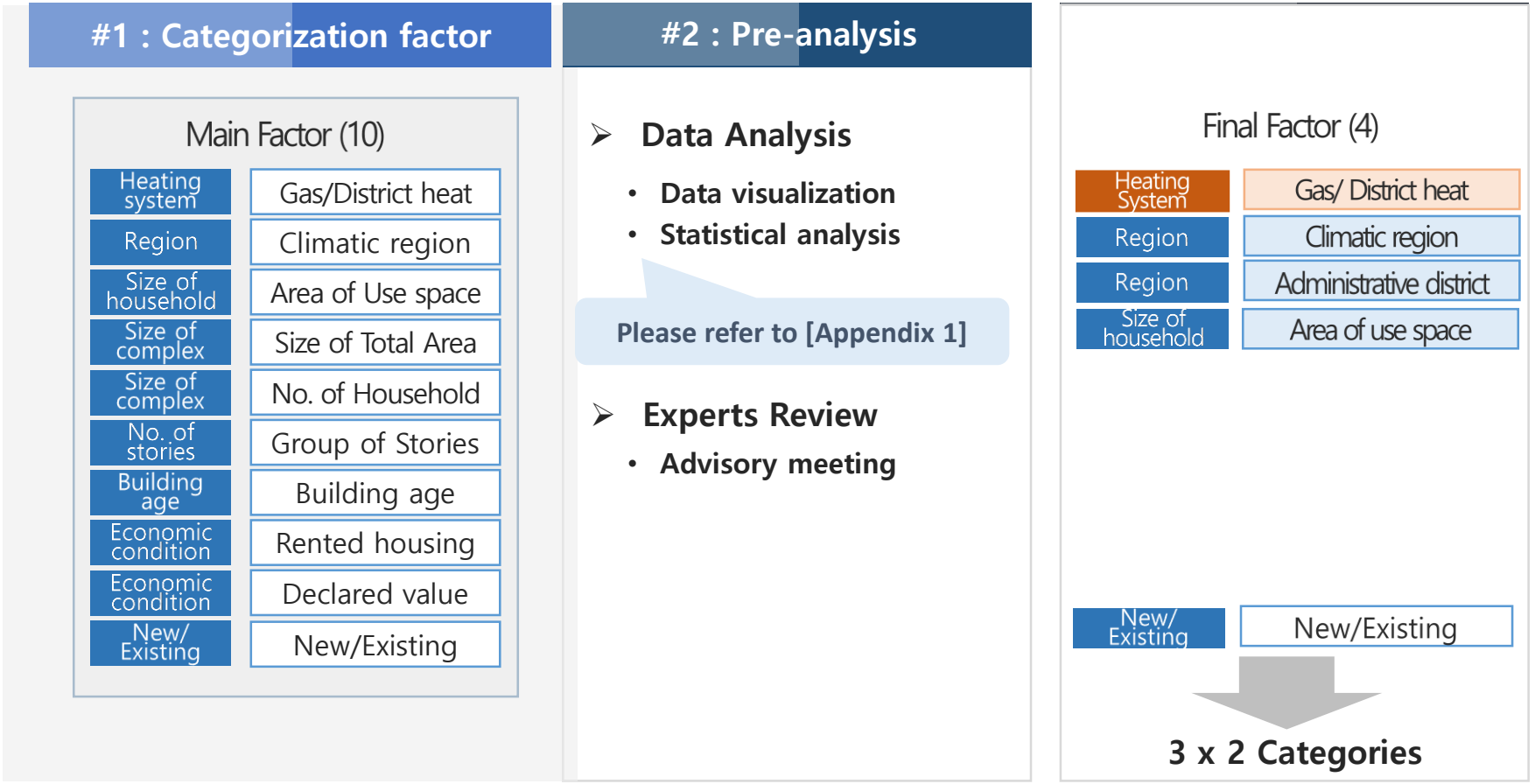
Target buildings



- The target building is limited to **apartments that receive electricity from grid power system and use urban gas from pipeline** only for heating
- **The apartments using district heating is excluded from this SBL** due to the various emission factors depending on the suppliers

Source: Korea appraisal Board and Ecoeye, Building EE workshop, Bonn 2019

Case Study: SBs for Building energy efficiency



Source: Korea appraisal Board and Ecoeye, Building EE workshop, Bonn 2019

Stringency of thresholds :EE in Buildings

Level	Residential buildings	Non-residential buildings
	Required primary energy per unit area per year (kWh/m2 , year)	Required primary energy per unit area per year (kWh/m2 , year)
1+++	Less than 60	Less than 80
1++	60 ~ 90	80 ~ 140
1+	90 ~ 120	140 ~ 200
1	120 ~ 150	200 ~ 260
2	150 ~ 190	260 ~ 320
3	190 ~ 230	320 ~ 380
4	230 ~ 270	380 ~ 450
5	270 ~ 320	450 ~ 520
6	320 ~ 370	520 ~ 610
7	370 ~ 420	610 ~ 700

Red box: level of Top 20% SBLs,
Blue box: Domestic mandatory standard

Stringency of thresholds: Road Testing RAC SB

- Road testing refrigerator news sales and refrigerator replacement (data courtesy GIZ and Energy Commission Ghana) under the tool 29: Determination of standardized baselines for energy-efficient refrigerators and air-conditioners
- 2440 models of refrigerators ranked (sales data was not available)

Threshold of models in sale in shops	number of models in sale below threshold	EEI	SEC	SEC thresholds for six volume classes		
90th percentile	244	28.11	0.75	1.28	1.11	0.81
				0.69	0.66	0.63
80th percentile	488	30.57	1.00	1.70	1.48	1.08
				0.92	0.88	0.84
Top 40%	960	42	1.5	2.55	2.22	1.62
				1.38	1.32	1.26

- 90th percentile is very rigorous (equivalent to EU class A++)

Barriers communicated with regard to the wider uptake of SBs

- While some SBs (e.g. SAPP grid emission factor) have significantly supported project development, many others have been underutilized or not used at all
- Barriers indicated by stakeholders include:
  a) A mandatory DOE assessment report at every renewal leading to transaction costs for the DNA
     - Some donors funded the initial development but not renewal
  b) Limited three-year validity of approved SBs
     - Narrow window of time for renewal leads to creation of new SBs (e.g. ASB0001 vs ASB0040 leading to complexities for DOE and PP)
  c) Stringency of thresholds in some cases (on the other hand may facilitate better alignment with climate goals?)
- EB99 resolved validity issue, longer periods now allowed when justified under the SB procedure
- EB 106 mandated further work to address other issues

Thank You