DIRECTORATE ENERGY CONSERVATION
DIRECTORATE GENERAL OF NEW RENEWABLE ENERGY
AND ENERGY CONSERVATION
MINISTRY OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA

THE INDONESIAN ENERGY CONSERVATION
AND EFFICIENCY SOCIETY

ENERGY CONSERVATION POLICY IN INDONESIA

Presented on:
The 63rd Meeting of
APEC Expert Group on Energy Efficiency & Conservation (EGEEC)

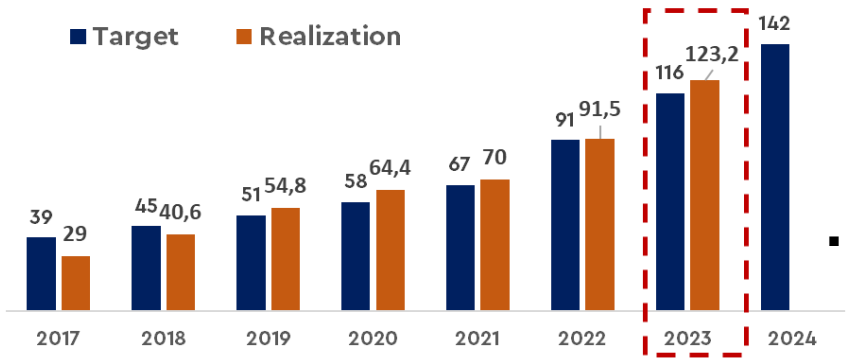
Tianjin | 7 November 2024

TARGET NDC 2030 & NZE 2060

No	SeCtor	GHG Emissions 2010 (Juta Ton CO_2e)	GHG Emissions in 2030			Reduction	
			BaU	CM1	CM2	CM1	CM2
1.	**Energy**	**453,2**	**1.669**	**1.311**	**1.223**	**358**	**446**
2.	Waste	88	296	256	253	40	45,3
3.	IPPU	36	70	63	61	7	9
4.	Agriculture	111	120	110	108	10	12
5.	Forestry	647	714	217	-15	500	729
	TOTAL	**1.334**	**2.869**	**1.953**	**1.632**	**915**	**1.240**

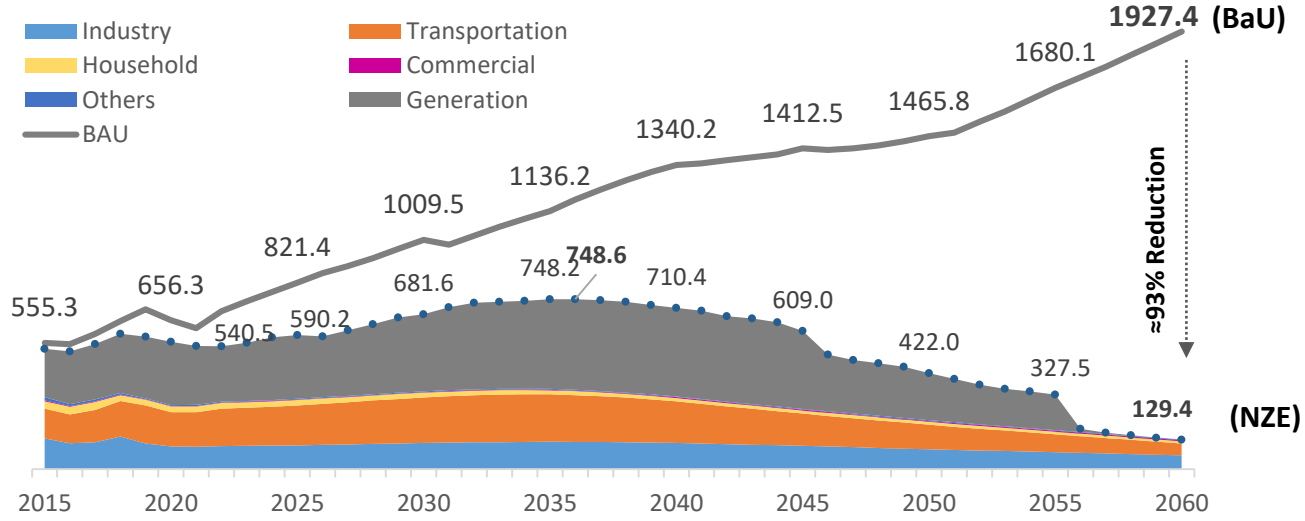
Note: *CM: Counter Measure;* CM1: *self effort;* CM2: *international assistance;* IPPU: *industrial processes and production use*

Realization of Energy Sector Mitigation Actions in 2023



- By 2023, the energy sector will be able to reduce GHG emissions by 123.2 million tonnes of CO2e.
- Energy efficiency contributed for 24% of the realization or equal to 31.87 million tonnes of CO_2e

Net Zero Emission 2060 | Million Ton CO_2e



NZE emission reduction is 93% of BaU through optimizing supply with NRE and demand by implementing energy efficiency

NZE Strategies

1. **Electrification** (EV, induction stove, electrifying agriculture, etc)
2. **NRE Development** (offgrid, ongrid, biofuel)
3. **CFPP Moratorium & early retirement** of existing CFPPs
4. **New energy sources** (hydrogen and ammonia)
5. CCS/CCUS
6. **Energy efficiency applicatio n**

IMPLEMENTATION OF ENERGY CONSERVATION – Gov Reg. 33/2023

Energy Conservation Upstream Side

To conserve energy resources

Through conservation of energy resources

1. management of energy resources that are prioritized to be developed and/or provided
2. regulating the amount of energy resources that can be produced
3. limitations on energy resources that cannot be exploited within a certain time limit

"accordance with the provisions of regulations"

Energy Conservation Downstream Side

To improve energy efficiency

Through the implementation of energy-saving behavior and/or the implementation of energy-efficient technology

carried out in **energy supply activities** (exploitation of energy resources and energy production) and **energy utilization** (industrial, transportation, building construction and household sectors)

Energy Producers	Energy Source users	Energy users
1 Energy Management	4 ESCO	7 Research and Innovation
2 MEPS and Label	5 *Awareness*	8 Cooperation
3 Financing	6 *Capacity Building*	

"regulated in this Government Regulation"

IMPLEMENTATION OF ENERGY CONSERVATION : ENERGY MANAGEMENT

Energy Management **must** be carried out by Energy Producers, Energy Source Users and Energy Users if **energy consumption in one year exceeds a certain threshold**.

Before :
Threshold on Gov Reg 70/2009

Energy Souce Users and Energy Users
≥ 6000 TOE

After:
Threshold based on Gov Reg 33/2023

Energy Producers
≥ 6000 TOE

Industrial Sector
≥ 4000 TOE

Transport Sector
≥ 4000 TOE

Commercial Building Sector
≥ 500 TOE

Government and Regional Gov
No Threshold / Must Conduct Energy Mgmt

Energy Management

1. Energy Manager Appointing
2. Have energy conservation program
3. Conduct Energy Audit
4. Imlement Energy Audit Recommendation

Report to Government (MEMR)

Estimated impact from changing threshold of energy management

Energy Producers

3,56 MTOE
Energy Saving in 2030

Rp 9,4 Trillion
Cost Energy Saving in 2030

Industrial

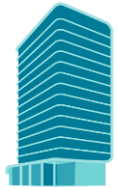
5,28 MTOE
Energy Saving in 2030

Rp 20,8 Trillion
Cost Energy Saving in 2030

Transportation

0,4 MTOE
Energy Saving in 2030

Rp 4,2 Triliun
Cost Energy Saving in 2030



Building

66 thousand TOE
Energy Saving in 2030

Rp 0,9 Triliun
Cost Energy Saving in 2030

TOE = Tonne Oil Equivalent

IMPLEMENTATION OF ENERGY MANAGEMENT

Apply energy management by :

- Appointing energy manager;
- Formulating energy conservation program;
- Conducting Energy Audit Periodically;
- Implementing energy audit recommendations; and
- Reporting the implementation of energy conservation to the Government (MEMR)

Appointing energy manager

- Energy Managers must be **competency certified**
- Competency certificates are obtained through competency tests.
- Competency tests are carried out in accordance with regulation.

Formulating energy conservation program

- Planning.
- Energy type and consumption.
- use efficient equipment
- Energy efficiency measures;
- Number of products produced; and
- Energy performance.

Conducting Energy Audit Periodically

- Carried out by Internal/External Energy Auditors who have competency certification.
- Competency certificates are obtained through competency tests.
- Competency tests are carried out in accordance with regulation.

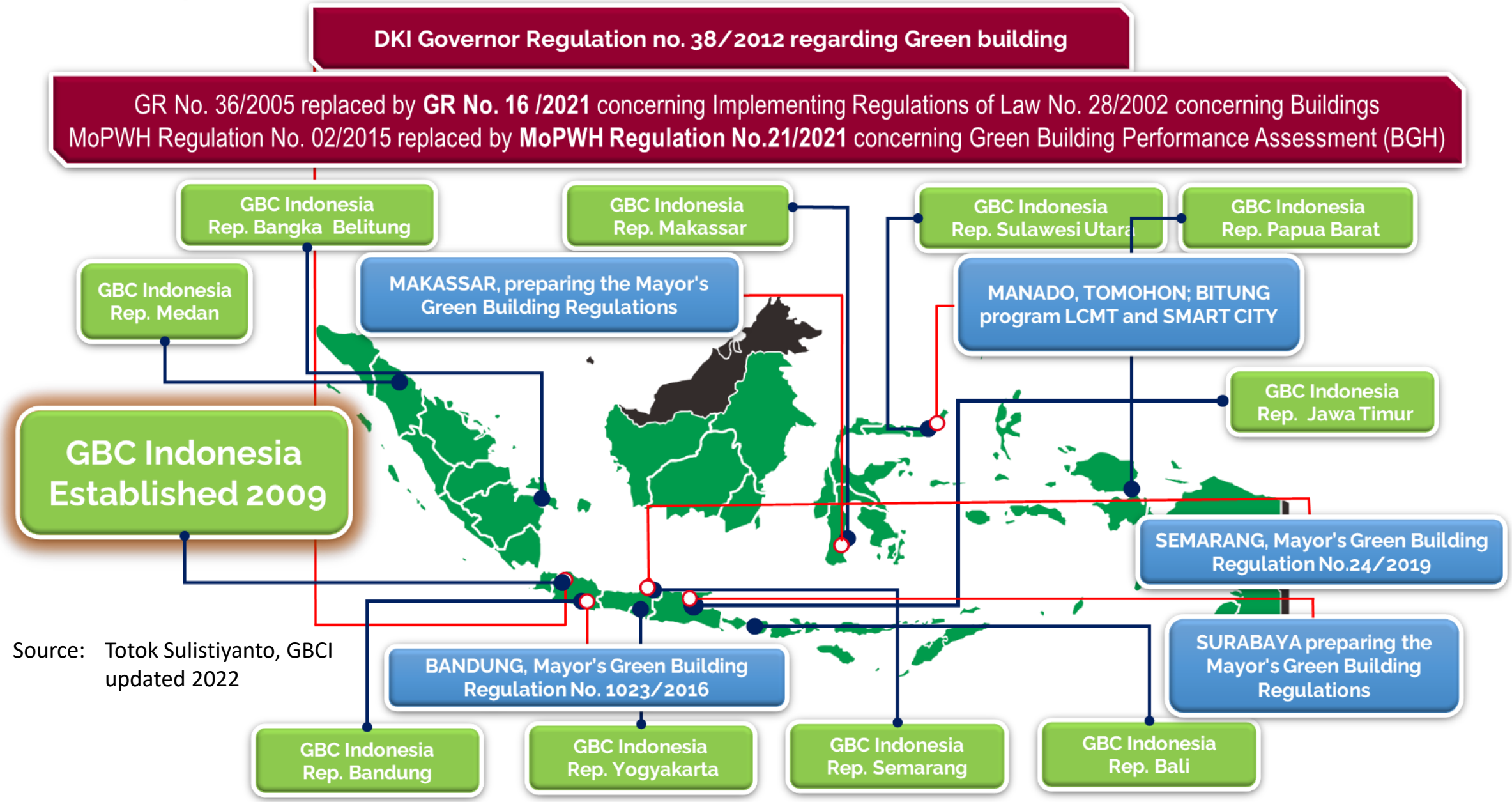
Implementing energy audit recommendation

- Implementation of recommendations from Energy Audit.

Reporting

- Reporting through Online System: https://simebtke.esdm.go.id/sinergi

GREEN BUILDING INITIATIVE IN INDONESIA



Source: Totok Sulistiyanto, GBCI updated 2022

GREEN BUILDING COUNCIL INDONESIA

- Market Transformation
- Educate people and industry
- Developing leadership in green movement
- Opening the dialogue to industry
- Building community
- Provides tools and experts

GREEN BUILDING COUNCIL INDONESIA'S

ADVANCING NET ZERO

COMMITMENT

Green Building Council Indonesia is an independent organization and corporation established in 2009 by professionals in building from market and industrial players to be more responsible and sustainable. Our four main programs are Rating Development, Training and Education, Green Building Certification and Stakeholder Engagement.

GREENSHIP New Building (NB) version 1.2

GREENSHIP Existing Building (EB) version 1.1

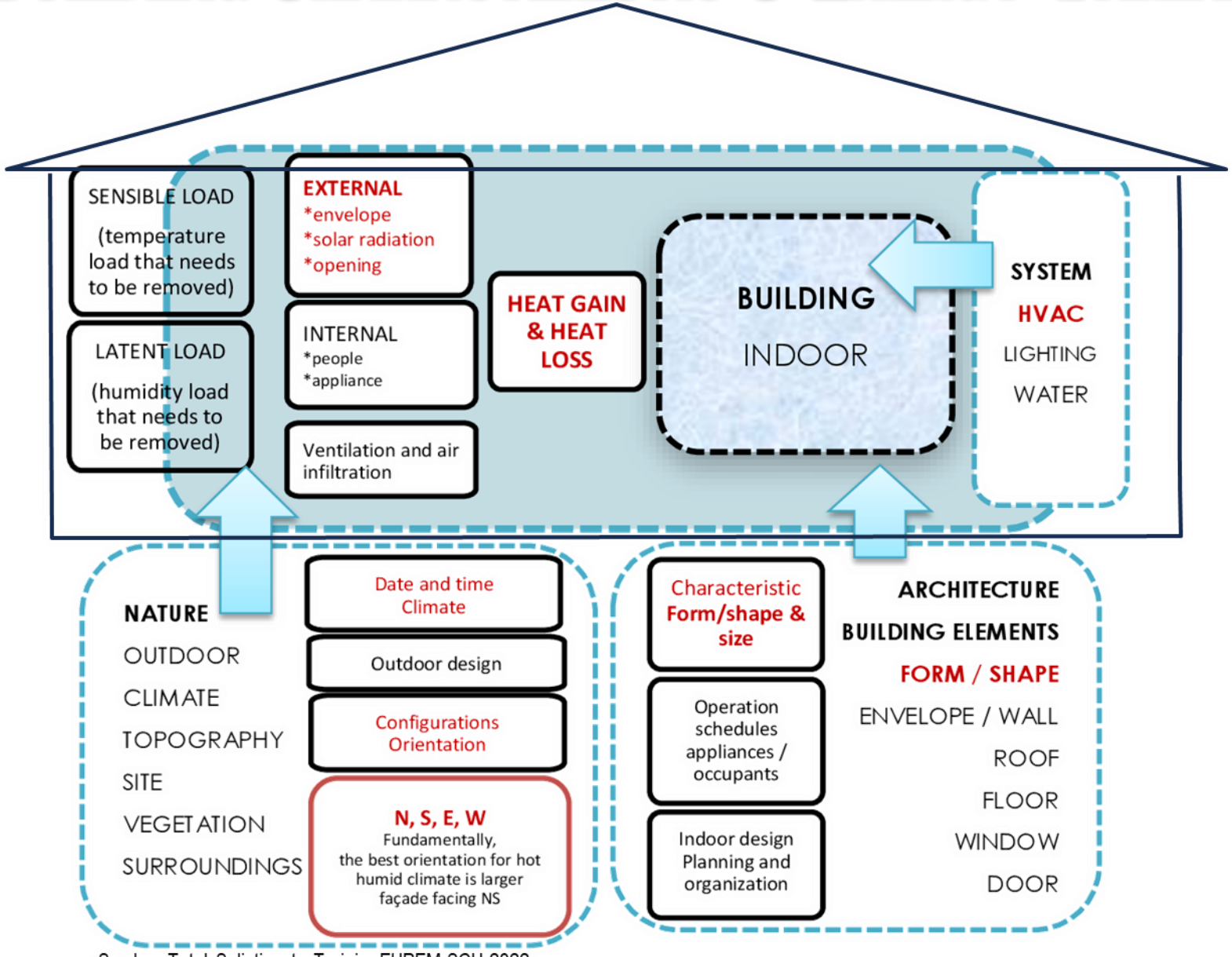
GREENSHIP Interior Space (IS) version 1.0

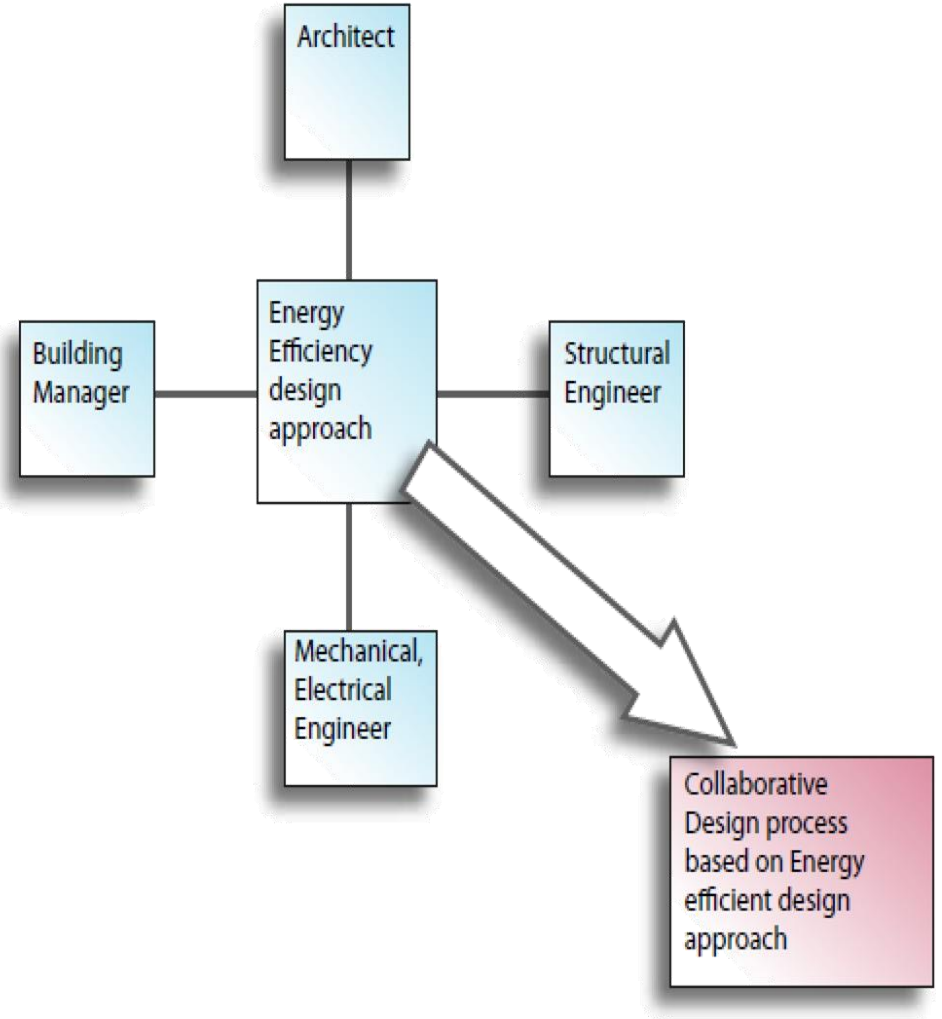
GREENSHIP Homes version 1.0

GREENSHIP Neighborhood (version 1.0

Source: GBC Indonesia, 2022

BUILDING CHARACTERISTIC & ENERGY VARIABLES





Sumber: Totok Sulistiyanto, Training EUREM-SGU-2022

BASIC REQUIREMENT OF RCX FOR GREENSHIP

1. Central Air Conditioning System:

a) **Chiller performance** in **generated capacity (TR)** and **chiller efficiency in KW/TR** are based on **ARI-550 standards.**
b) **AHU performance** in **cooling capacity (Btu/h)** and **air flow rate (CFM)** is based on **ARI-430 standards for fans** and **ARI-410 for cooling coils.**
c) **Chilled Water Pump; Cooling Tower; and Cooling Water Pump.**

2. Power (included *voltage drop*, *phase balance*, *infrared analysis*) at least have to be measured at the main panel

3. Plumbing System

4. The performance of the water recycling system is in accordance with planning.

5. Room Comfort Level:

a) **Thermal Comfort**: Indoor air conditions are **25.5 ± 1.5 ^{0}C** and **60 ± 5 % RH**.
b) **Visual Comfort - Lighting System:** The minimum illuminance level (according to the type and function of the room) must meet the requirements as stated in **SNI 6197-2020 (or the latest SNI)**.
c) **Noise Level:** must meet the requirements as stated in **SNI 03-6386-2000 (or the latest SNI).**

INDOOR AIR QUALITY

Parameter

IHC – 4 Physical and Chemical Pollutants

Air pollution from outside the building

- Sulphidic Acid (H_2S)
  - NAB: 1 mg/m3 atau - ppm
- Ammonia (NH_3)
  - NAB: 17 mg/m3 atau - ppm
- Carbon Monoxide (CO)
  - NAB: - mg/m3 atau 8 ppm
- Nitrogen dioxide (NO_2)
  - NAB: 5.6 mg/m3 atau 3 ppm
- Sulfur dioxide (SO_2)
  - NAB: 5.2 mg/m3 atau 2 ppm

Standard

Minister of Health Decree No. 1405/Menkes/SK/XI/2002

per sample / 1000 m2, maximum 25sampel

Air pollution from inside buildings

- Formaldehyde (HCHO)
  - NAB: 0.37 mg/m3
- Total Volatile Organic Compound (TVOC)
  - NAB: 1.0 mg/m3
- Pollutant Matter (PM) 1.0, 2.5 & 10)
  - NAB: 150 µg/m3

Standard

SNI 19-0232-2005 Limit Value (NAB) of Chemical Substances in Workplace Air

per sample / 1000 m2, maximum 25 samples

Thermal Comfort

- Room Temperature & Humidity
  - NAB:
    - Temperature: 24 – 27 °C
    - Humidity: 55 – 65 %

Standard

SNI 6390:2020: Energy Conservation of Building Air Conditioning Systems

measurements per sample / 10 m2

Measurements were taken at night (not exposed to sunlight)

Visual Comfort

- Artificial Lighting
  - NAB:
    Minimum: 350 Lux
- Day Lighting
  - NAB:
    Minimum: 300 Lux

Standard

SNI 6197-2022 concerning Energy Conservation in Lighting Systems

measurements per sample / 10 m2

Accoustic Level

- Noise (dB)
  - NAB:
    Maximum: 45 dB

Standard

SNI 03-6386-2000 concerning Specifications for Sound Levels and Reverberation Time in Buildings and Residential Buildings

measurements per sample / 10 m2

Measurements are taken after hours (no more occupant activity) and the AC is on

THANK YOU

www.esdm.go.id

Kementerian Energi dan Sumber Daya Mineral

@kesdm

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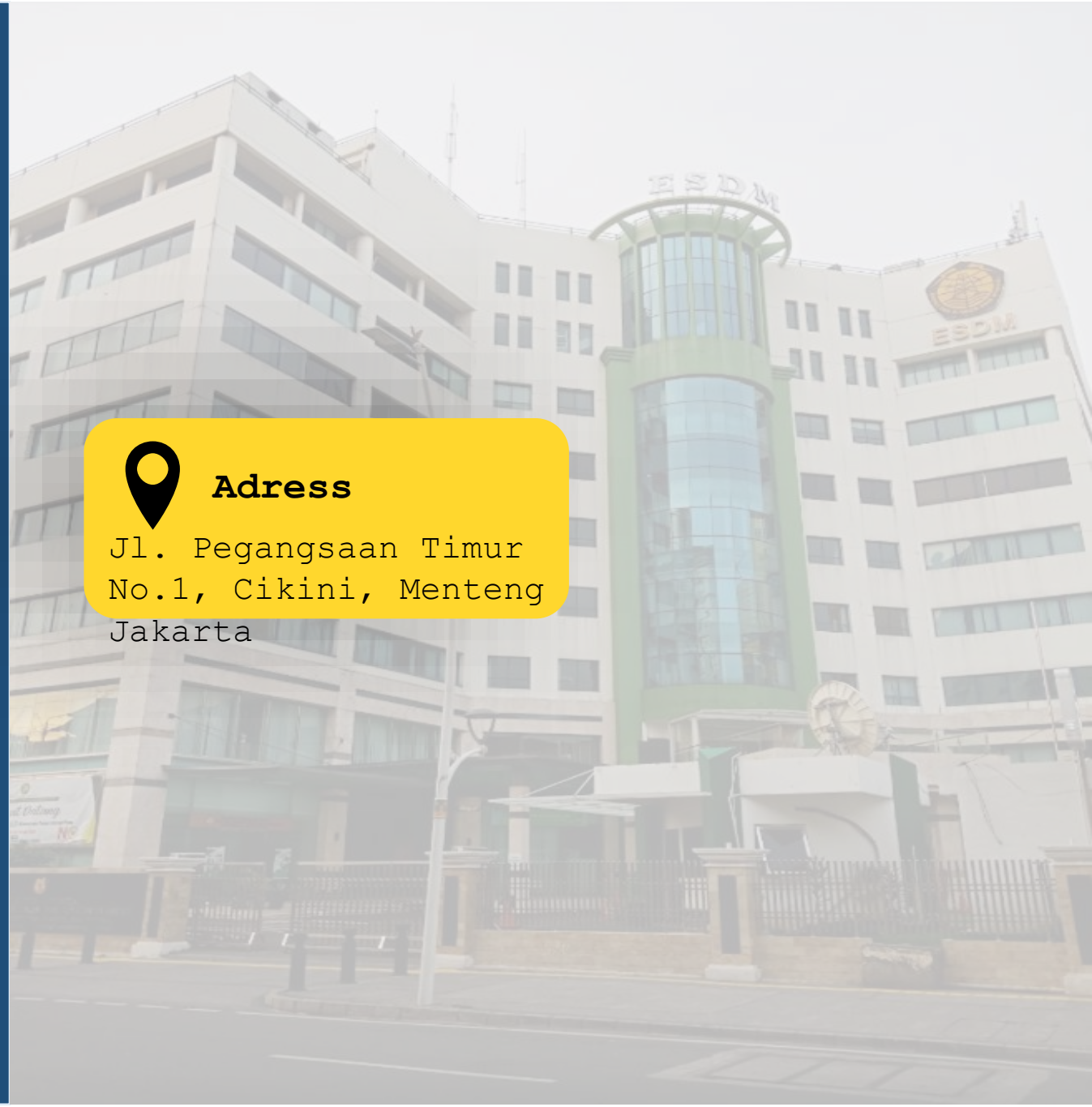
KementerianESDM



Adress

Jl. Pegangsaan Timur No.1, Cikini, Menteng Jakarta

Indoor Air Quality Measurement

Chemical pollution from outside buildings





Thermal Comfort



Visual Comfort




Air pollution from inside buildings

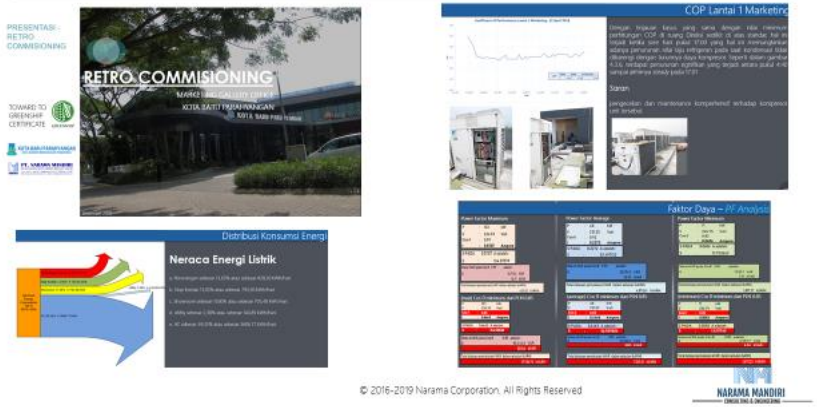



Accoustic Level


Retro Commissioning Project Reference

Business Overview | Project Reference | Kota Baru Parahyangan

Retro Commissioning

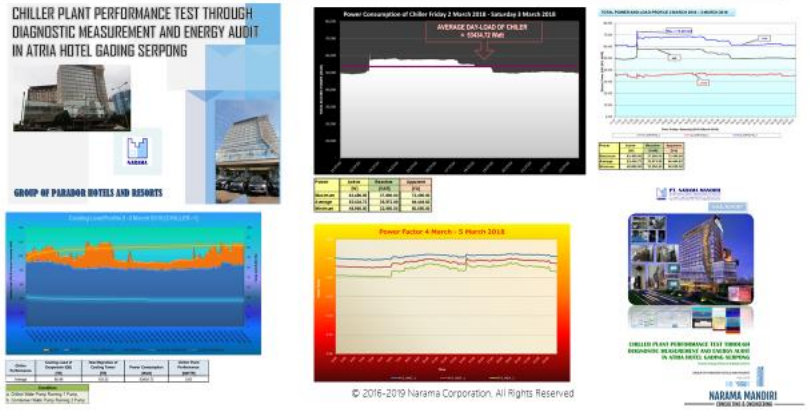


Business Overview | Project Reference | Palembang Indah Mall

Retro Commissioning

Business Overview | Project Reference | Atria Hotel

Retro Commissioning



The EAST Tower

Energy Audits- Indoor Air Quality Measurement

Jakarta Box Tower

Energy Audits- Indoor Air Quality Measurement

TOTO Tower

Energy Audits