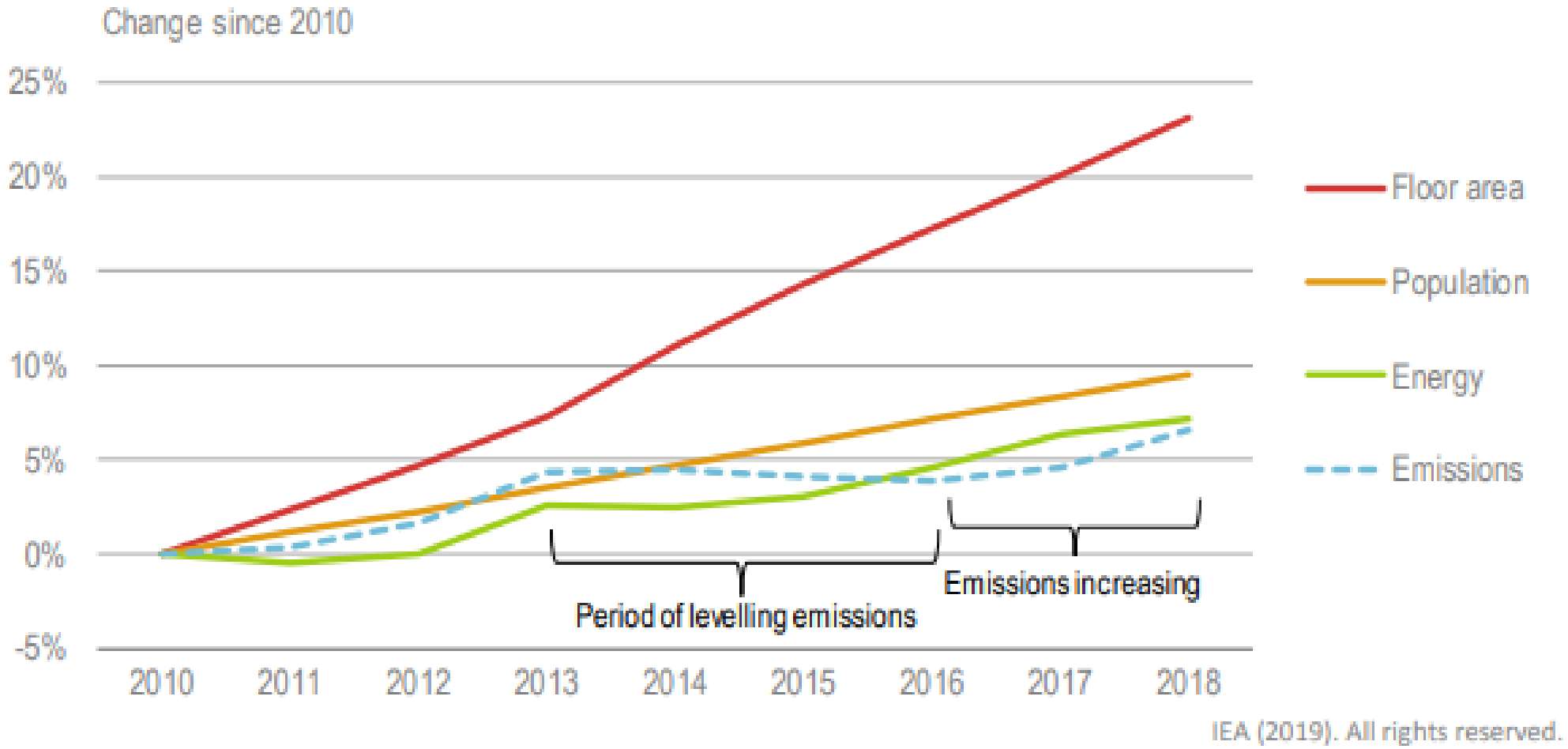
Beyond the Business Case for Green Buildings

Juanita Lourdes

Changes in floor area, population, buildings sector energy use & energy-related emissions globally, 2010-2018



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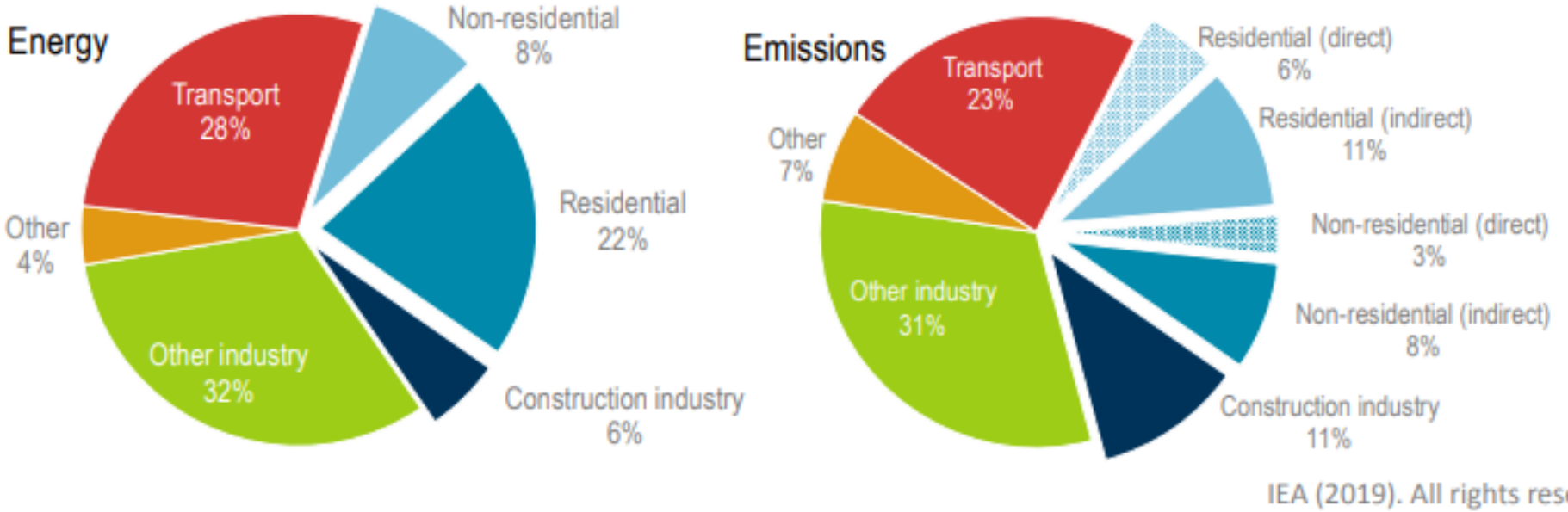
Source: Derived from IEA (2019a), *World Energy Statistics and Balances 2019*, www.iea.org/statistics and IEA (2019b) *Energy Technology Perspectives*, buildings model, www.iea.org/buildings.

Global share of buildings & construction final energy & emissions, 2018



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Notes: *Construction industry* is the portion (estimated) of overall industry devoted to manufacturing building construction materials such as steel, cement and glass. Indirect emissions are emissions from power generation for electricity and commercial heat.

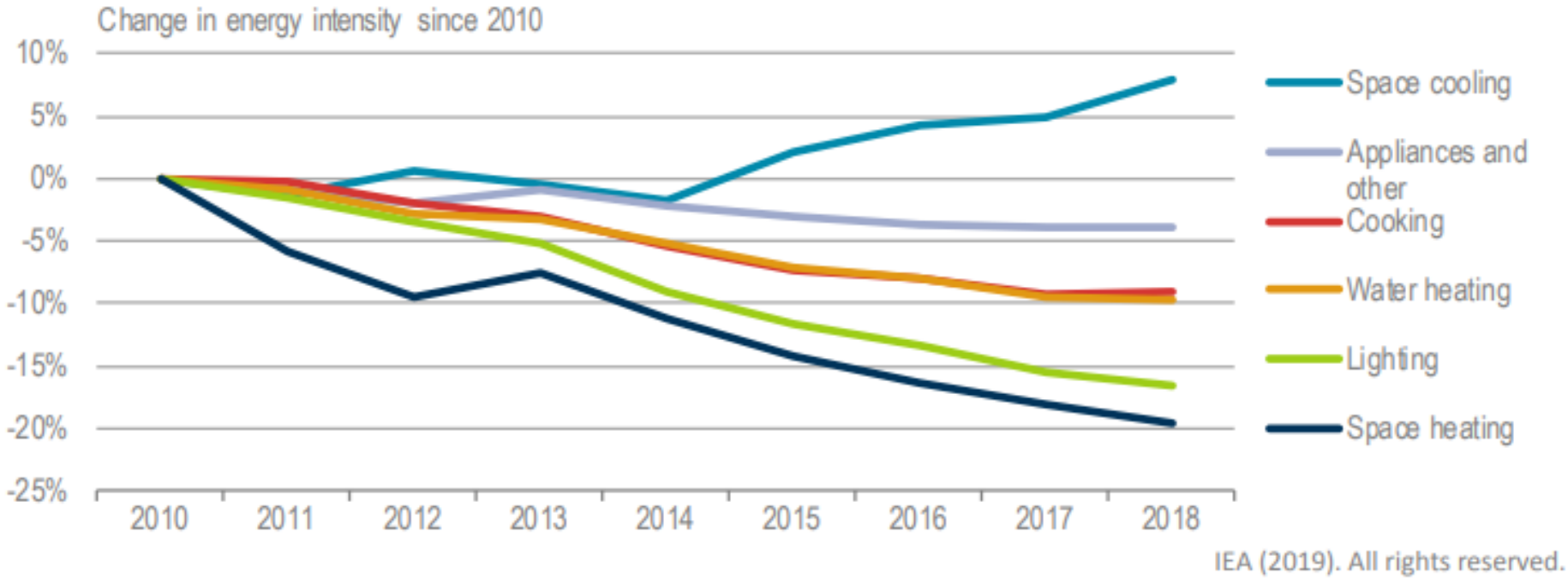
Sources: Adapted from IEA (2019a), *World Energy Statistics and Balances* (database), www.iea.org/statistics and IEA (2019b), *Energy Technology Perspectives,* buildings model, www.iea.org/buildings.

Key message • The buildings and construction sector should be a primary target for GHG emissions mitigation efforts, as it accounted for 36% of final energy use and 39% of energy- and process-related emissions in 2018.

priority actions, eight key areas:

- **urban planning**
- **new buildings**
- **existing building retrofits**
- **building operations**
- **systems**
- **materials**
- **resilience**
- **clean energy**

Global buildings sector final energy intensity changes by end use, 2019-2018



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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.

Sources: Adapted from IEA (2019a), *World Energy Statistics and Balances* (database), www.iea.org/statistics and IEA (2019b), *Energy Technology Perspectives,* buildings model, www.iea.org/buildings.

Key message • **Owing to technological improvements, overall reductions have been made in energy intensity for space heating, lighting, appliances, cooking and water heating. However, space cooling energy intensity has increased as a result of greater cooling demand in hot regions.**

Green Building Certification Standards have Environment, Economic and Health Benefits

In the 'new normal' scenario…

- With USD 5.8 billion in health benefits from reductions in air pollution emissions and USD 7.5 billion in energy savings across six countries (Brazil, China, Germany, India, Turkey and the US) (MacNaughton et al., 2018).
- Offices: Increased job satisfaction, value and engagement compared to similar buildings without a green-certification design (Newsham, Veitch and Hu, 2018).

In a recently published research paper in the journal of Environmental Research & Public Health, COVID-19 Lockdown: Housing Built Environment's Effects on Mental Health (Amerio et al):

…Built environment is a key determinant of health- availability of resources, site location planning & green spaces…

The Malaysian Scenario…

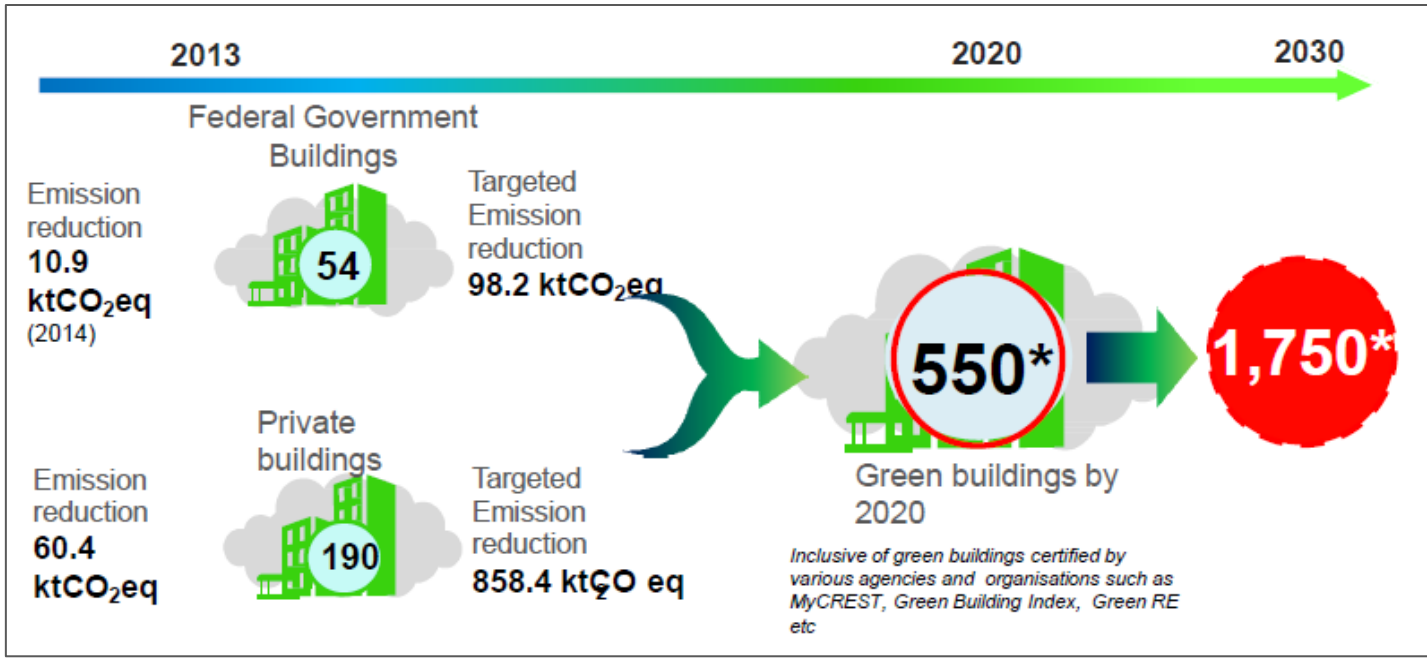
Property Inventory H1 2019

	RESIDENTIAL	SHOP	SOHO	SERVICED APARTMENTS	INDUSTRY
EXISTING STOCK	5.63 M	521,574	33,396	228,242	116,066
FUTURE SUPPLY	916,080	75,474	48,953	293,446	11,764
H1 2019 VS H1 2018	-0.9%	-5.6%	12.1%	7.9%	-5.9%

FUTURE SUPPLY = INCOMING SUPPLY + PLANNED SUPPLY

NAPIC Data

Green Technology Master Plan



About Us: GreenRE (Green Real Estate)

REHDA

GreenRE

Green Building Certification

Training Programmes

GreenRE Managers Courses (GREMC)

Technical Seminars (GRETS)

Short Courses

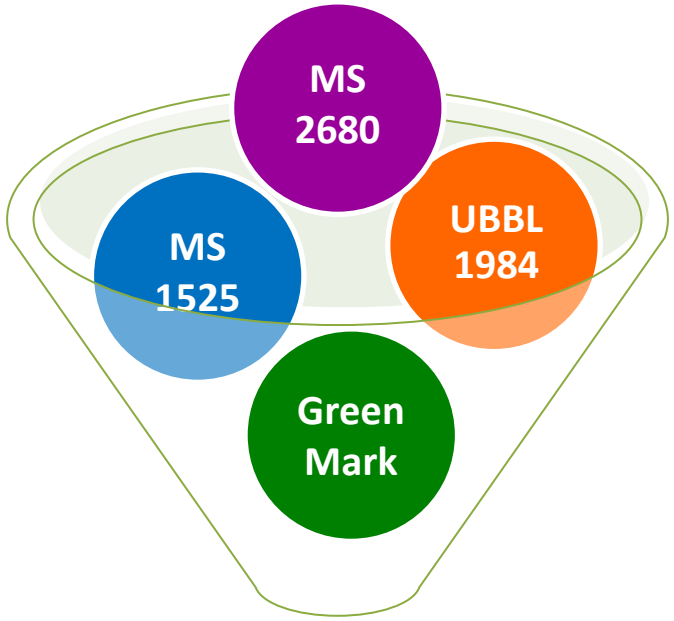
Collaborations (R&D & Awareness Drives)

Portfolio

- **Endorsed by the Federal Government for Tax Incentives (ie. MIDA, IRB etc)**
- **MGTC's MyHijau Mark**
- **Tax exemption incentives for the Iskandar Region under IRDA**
- **Recognised By Local Authorities in planning approvals e.g. DBKL, MBSA and MBPJ**

GreenRE Rating Tools

- ✓ **Established Based On Singapore BCA's GreenMark Tool**
- ✓ **Inclusive of Malaysian standards**



Locally Developed GreenRE Rating Tool

Building Tools	▪ Residential Building & Landed Home **(RES v3.1)** ▪ Non-Residential Building **(NRB v3.1)** ▪ Existing Non-Residential Building **(ENRB v3.1)** ▪ Healthcare **(HC 1.0)** ▪ Industrial Facilities **(IND 1.0)** ▪ Office Interior **(OI 1.0)** ▪ **Restaurant (PILOT)** ▪ **Data Centre (PILOT)**
Township Tools	Township **(TS 1.0)**
Infrastructure Tools	Infrastructure **(v1.0)**

Requirements for Green Certification

Elective Requirement for Energy Improvement (Combination of the following items to meet 30 credits)

Part 1 – Energy Efficiency

NRB 1-1 Thermal Performance of Building Envelope -OTTV
NRB 1-2 Air-Conditioning System
NRB 1-3 Building Envelope – Design/ Thermal Parameters
NRB 1-4 Natural Ventilation/Mechanical Ventilation
NRB 1-5 Daylighting
NRB 1-6 Artificial Lighting
NRB 1-7 Ventilation in Carparks
NRB 1-8 Ventilation in Common Areas
NRB 1-9 Lift and Escalators
NRB 1-10 Energy Efficient Practices & Features
NRB 1-11 Renewable Energy

Elective Requirement for Other Areas (Combination of the following items to meet 20 credits)

Part 2 - Water Efficiency

NRB 2-1 Water Efficient Fittings
NRB 2-2 Water Usage and Leak Detection
NRB 2-3 Irrigation System and Landscaping
NRB 2-4 Water Consumption of Cooling Tower

Part 3 – Environmental Protection

NRB 3-1 Sustainable Construction
NRB 3-2 Sustainable Products
NRB 3-3 Greenery Provision
NRB 3-4 Environmental Management Practice
NRB 3-5 Green Transport
NRB 3-6 Stormwater Management
NRB 3-7 Refrigerants

Part 4 - Indoor Environmental Quality

NRB 4-1 Thermal Comfort
NRB 4-2 Noise Level
NRB 4-3 Indoor Air Pollutants
NRB 4-4 Indoor Air Quality (IAQ) Management
NRB 4-5 High Frequency Ballasts

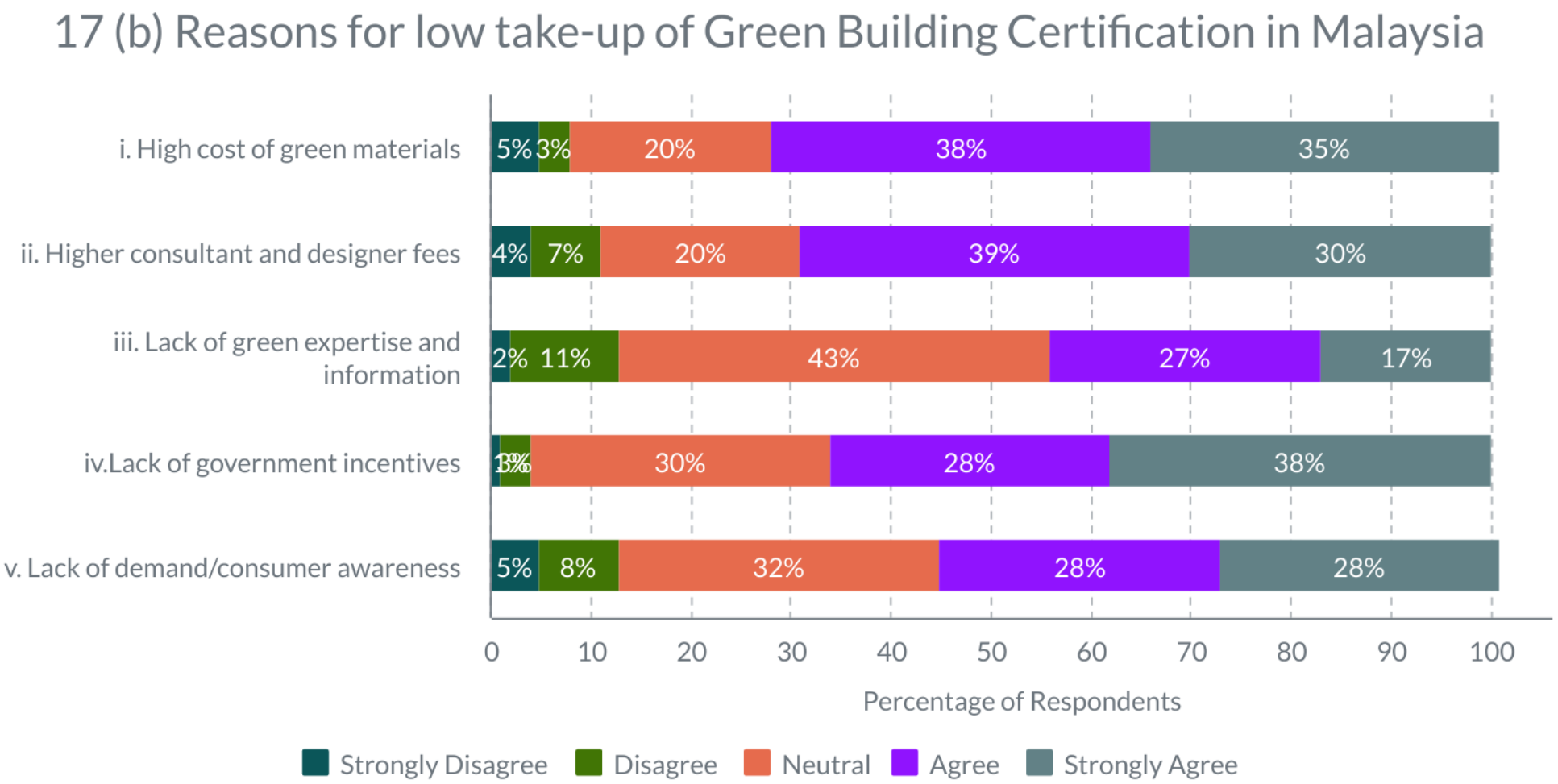
Part 5 – Other Green Features

NRB 5-1 Green Features & Innovations

Part 6 – Carbon Emission of Development

NRB 6-1 Carbon Emission of Development

REHDA Survey
Q1 2020



Thank You

www.greenre.org

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