SINGAPORE GREEN BUILDING COUNCIL

Buildings and The Climate Challenge

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Singapore Green Building Council

Singapore Green Building Council (SGBC): Who Are We?

SINGAPORE GREEN BUILDING COUNCIL

Government Bodies & Institutions

REDAS

Building and Construction Authority

jtc
Breaking New Ground

URBAN REDEVELOPMENT AUTHORITY

National Environment Agency
Safeguard · Nurture · Cherish

NUS National University of Singapore

Private Companies

Keppel Land

CDL

MARINA BAY SANDS SINGAPORE

CITY DEVELOPMENTS LIMITED

LUTRON

Beca

CITYGAS
Warming hearts in the city

TRANE

3M

SGBC's Focus Areas

1 Market Transformation



2 Capability-building



3 Engagement & Outreach



Responsible Procurement



CO_2 Reduction for Buildings



Healthier Buildings

Responsible Procurement

Complementary Schemes to BCA Green Mark

BCA GREEN MARK

Green **Building** rating system to evaluate buildings for their environmental impact and performance



SINGAPORE GREEN BUILDING PRODUCT SGBC

SINGAPORE GREEN BUILDING SERVICES SGBC

Green **Product** & **Services** certification schemes to rate building products and recognise consultants for their environmental contribution

If you want to go quickly, go alone. If you want to go far, go together.

African proverb

World Green Building Council
Growth

100 GREEN BUILDING COUNCILS WORLDWIDE

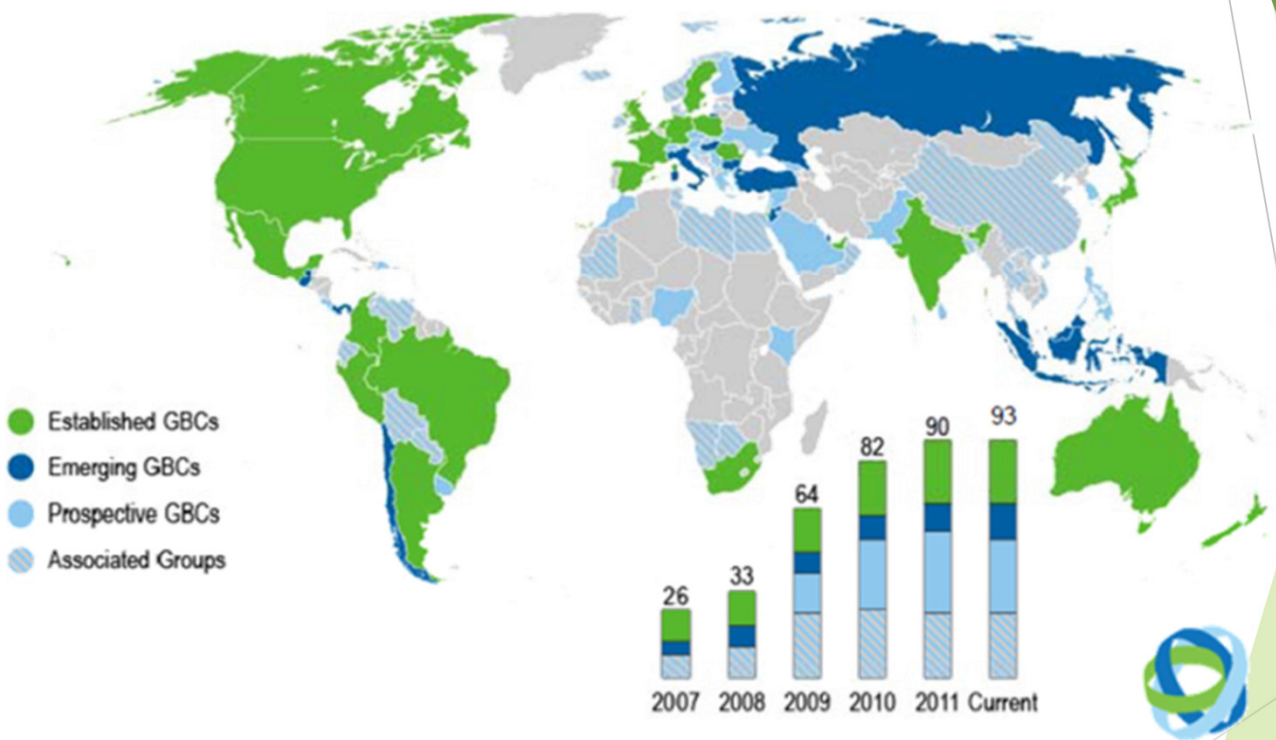
WITH OVER **27,000** MEMBER COMPANIES AND ORGANISATIONS

MORE THAN **1.2** BILLION SQUARE METRES OF GREEN BUILDING AREA REGISTERED BY OUR RATING SYSTEMS

720 STAFF DRIVING OUR NETWORK

MORE THAN **400,000** PEOPLE EDUCATED BY OUR NETWORK

+ **32,000** VOLUNTEERS POWERING THIS GLOBAL MOVEMENT



Buildings and The Climate Challenge



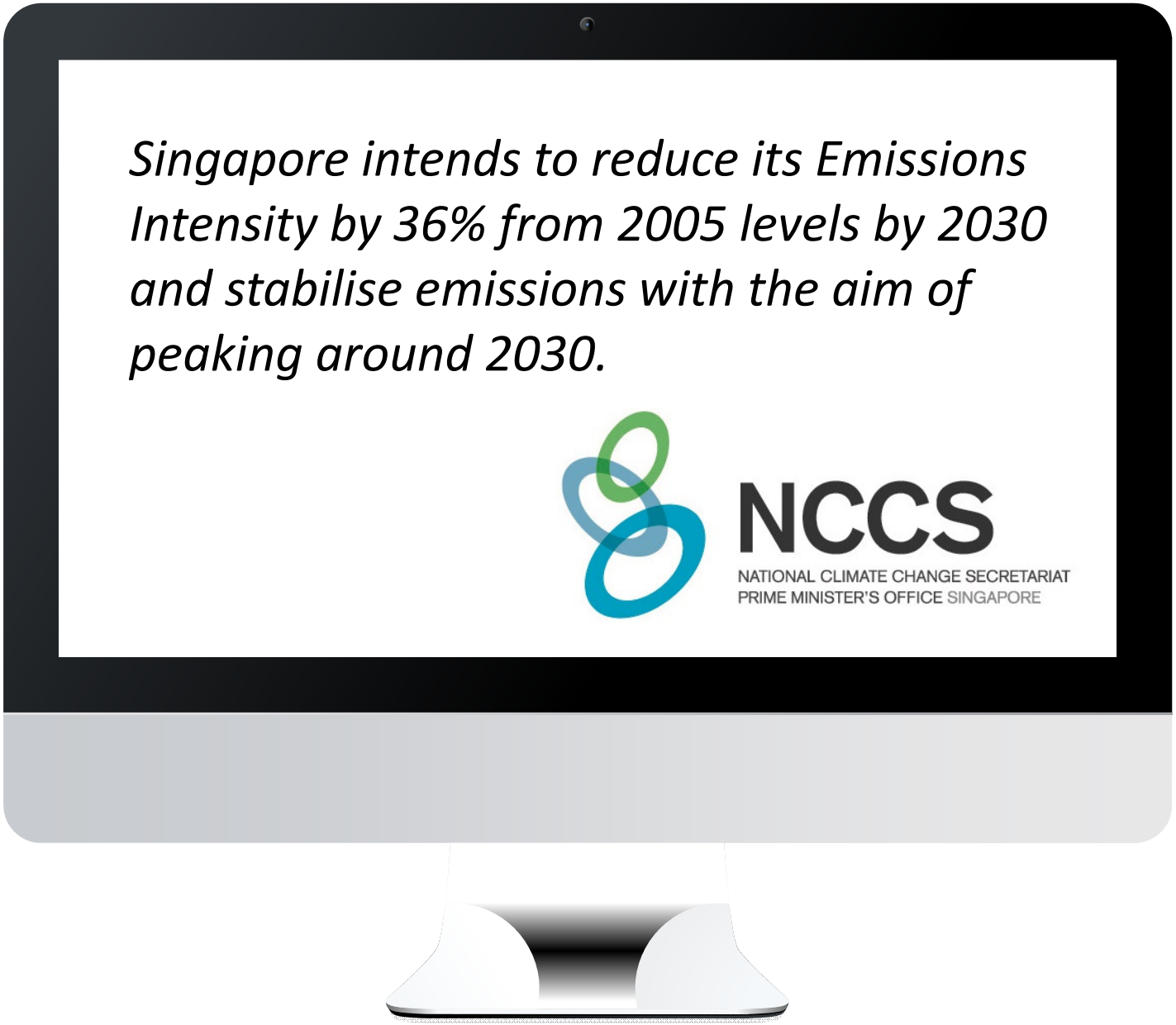
What have buildings got to do with Climate Change?



Why should I care?



Should I do something?



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Singapore's Submission to the United Nations Framework Convention on Climate Change

Buildings offer the greatest potential for achieving significant GHG emission reductions, at least cost, in developed and developing countries.

Energy consumption in buildings can be reduced by 30 to 80% using proven and commercially available technologies.

UNEP
United Nations Environment Programme



IMPROVE ENERGY AND CARBON EFFICIENCY

Industry

- Increase industrial energy efficiency
- Reduce non-CO_2 GHGs from industrial processes
- Adopt cleaner fuels

Buildings

- Achieve BCA Green Mark standards for 80 per cent of buildings by 2030
- Improve energy efficiency of building tenants
- Improve energy efficiency of data centres

Transport

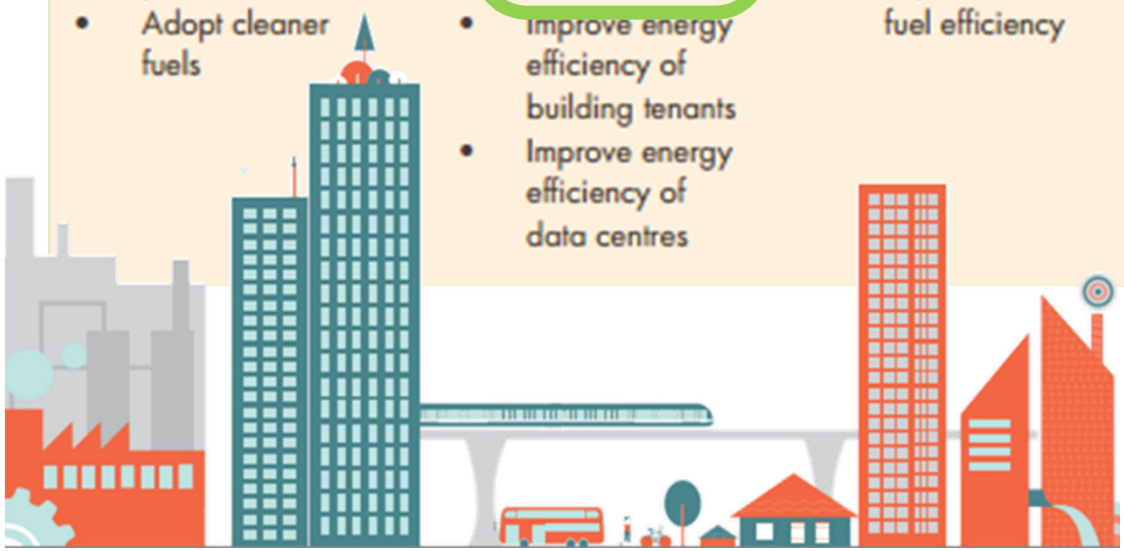
- Achieve 75 per cent use of public transport by 2030
- Encourage cycling and walking
- Improve vehicle fuel efficiency

Household

- Raise Minimum Energy Performance Standards (MEPS) for household appliances and introduce MEPS for more appliances
- Encourage adoption of efficient appliance models
- Introduce smart home technology

Water and Waste

- Reduce plastics incineration
- Improve energy efficiency in desalination and used water treatment



Source:
Singapore's Climate Action Plan: Take Action Today, For a Carbon-Efficient Singapore
National Climate Change Secretariat

Progress in Green Building



2005	2010	2017	2020	2030
< 0.1% Green Buildings	> 13% Green Buildings	> 33% Green Buildings	>50% Green Buildings	>80% Green Buildings

Current Status:

> 3,000 Green Building projects

> 90 million square metres of green GFA

Buildings and The Climate Challenge



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Should I do something?

Mandatory Environmental Standards for Buildings

Singapore Green Building Council

Building Control (Environmental Sustainability) Regulations 2008

For All New Buildings



Environmental Sustainability Measures for Existing Buildings (2012)

BCA GREEN MARK

Minimum GM Standards for Existing Buildings

3 -yearly Energy Audit on Cooling System

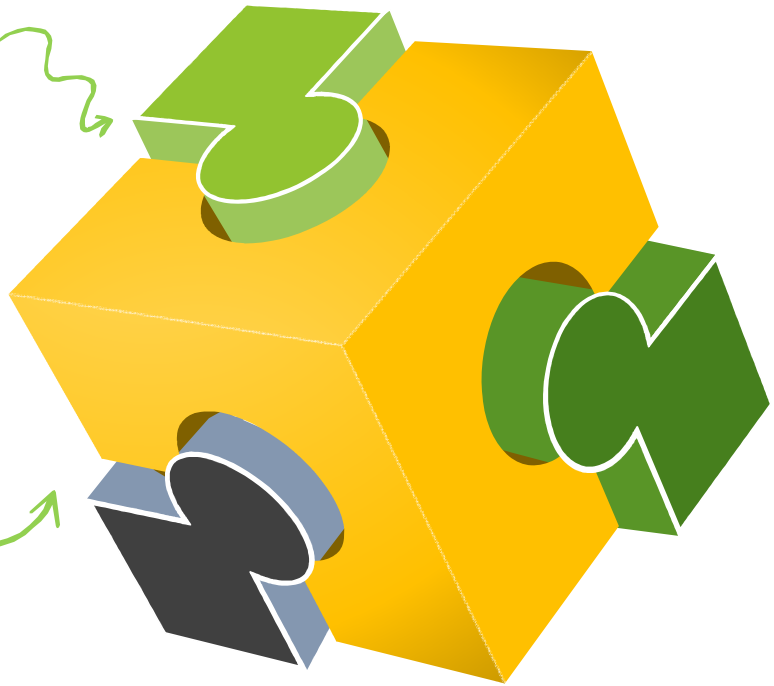
Annual Submission of Building Information & Energy Consumption Data thru BESS

Mandatory Environmental Standards for Existing Buildings

Singapore Green Building Council

Environmental Sustainability Measures for Existing Buildings (2012)

Area: GFA <
5,000m²



All
Building Types

Trigger Point:
Major Energy Use Change
e.g. Install/ Replace
Chiller

Effective from
2 Jan 2017

Public Sector Sustainability Plan 2017 – 2020

Singapore Green Building Council

97 Green Mark certified Hotels

As at 1 July 2017

PUBLIC SECTOR SUSTAINABILITY PLAN 2017-2020



Events and functions organized by **public sector agencies** are to be held in venues with at least **Green Mark Certified** rating from 1 Jan 2015 onwards.

Buildings and The Climate Challenge



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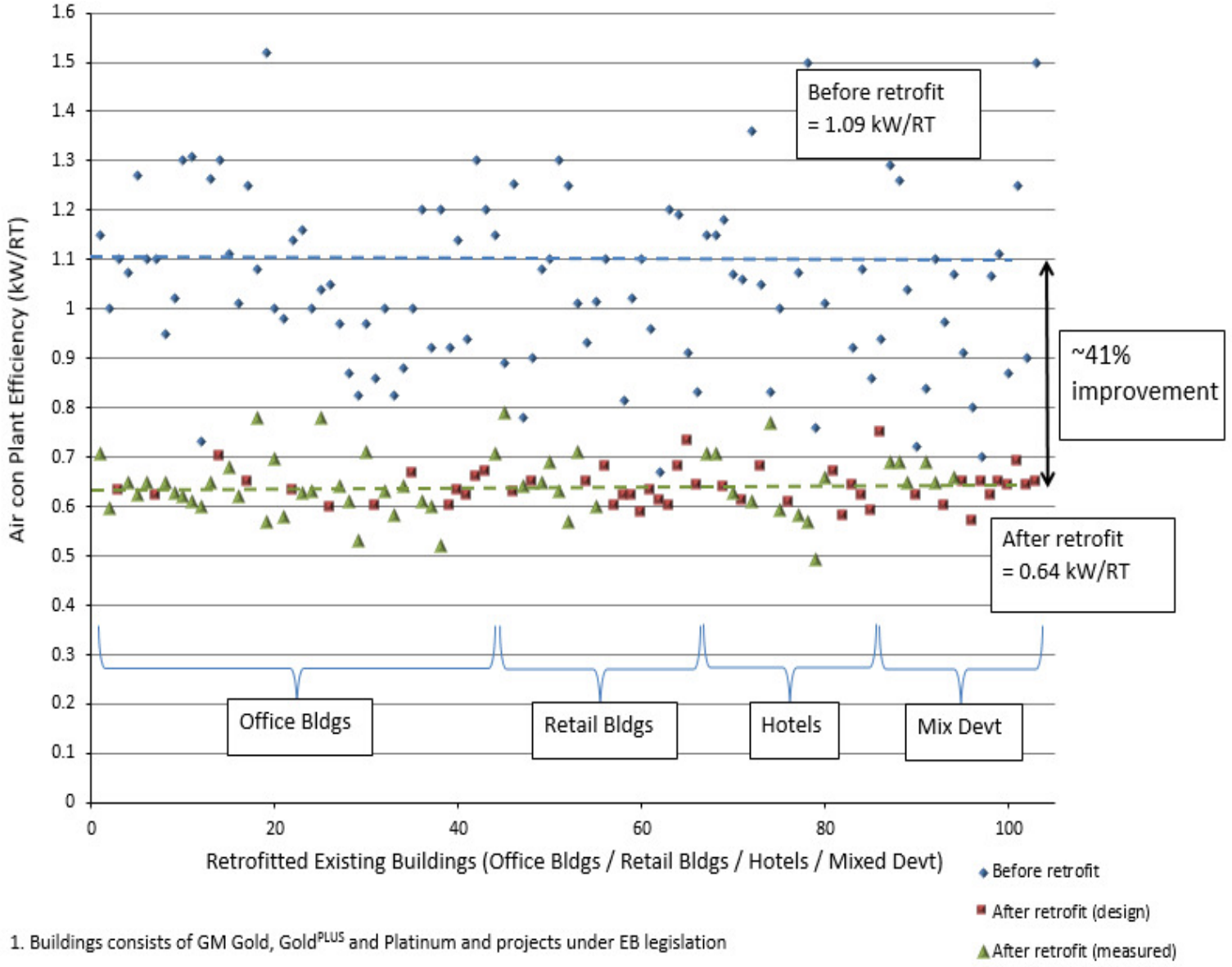
Should I do something?

Retrofit Your Building Aircon Systems!

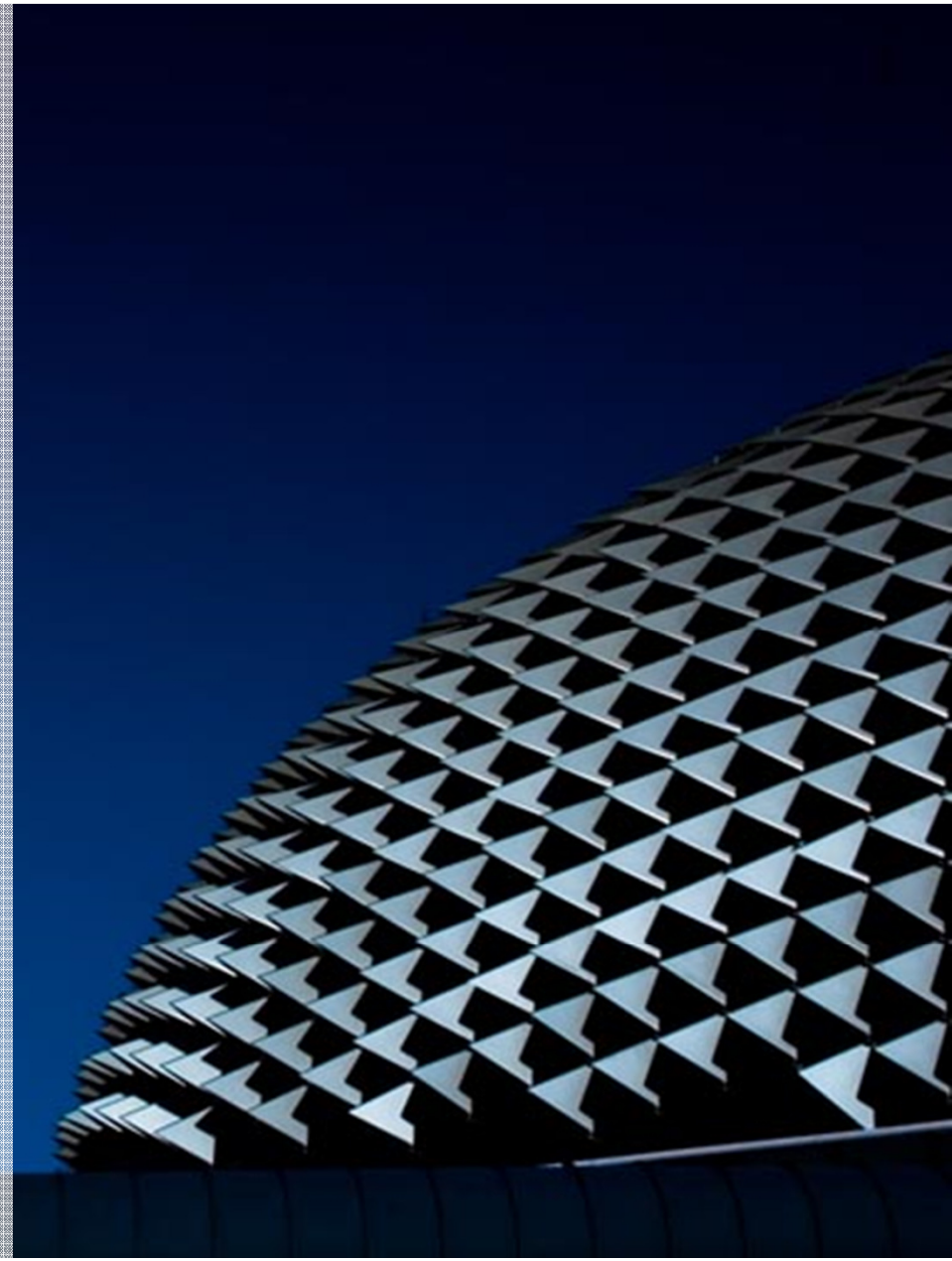
Quantum Leap in Technology Improvement (40 – 50% savings)

Business Case for Going Green



Note: 1. Buildings consists of GM Gold, Gold^{PLUS} and Platinum and projects under EB legislation

Singapore Green Building Services



Energy Performance Contracting (EPC)

Singapore Green Building Council

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Directory of **Certified Services**



- **Guaranteed** energy savings for the building over a period of time, either in **monetary terms** or in **share of savings**.

SINGAPORE GREEN BUILDING SERVICES SGBC

SGBC Certified Services – EPC









































Johnson Controls

TRANE

SGE Singapore Green Engineers Pte Ltd

kaer

SIEMENS

COMFORT MANAGEMENT

BSD building system & diagnostics

CUSHMAN & WAKEFIELD

CBM Solutions

&

eComfort

G-ENERGY GLOBAL

LJ Energy Pte Ltd

engie

Carrier

SAC ENERGY

Keppel DHCS

BBP Barghest Building Performance

18 EPC firms

Incentive: GMIS – EBP

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Enhancement: Optimisation

BCA GREEN MARK

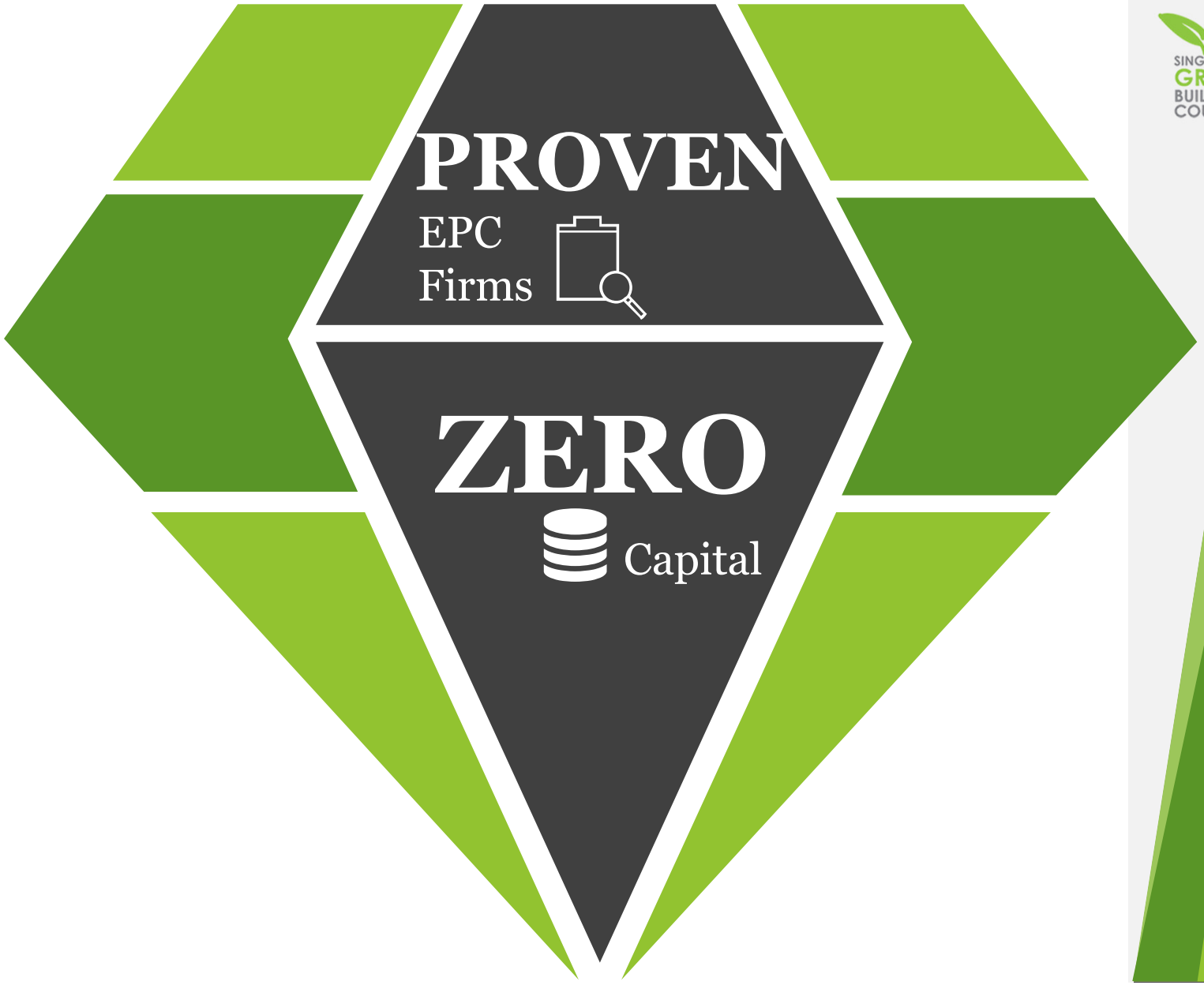
Energy improvement works need not necessarily include chiller replacement, building optimization works will be funded under GMIS-EBP.

GMI online
Green Mark Incentive Scheme

In order to ensure energy savings through this optimization, building owner will be required to adopt **Energy Performance Contracting (EPC)**, where EPC firms guarantee the committed energy savings

Cash incentive amounting up to **50%**

Capped at **$700k**



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EPC-Zero Capital Partnership

SGBC Certified Services – EPC with ZCP

Singapore Green Building Council

Johnson Controls

Carrier

kaer

SAC ENERGY

SIEMENS

SGE Singapore Green Engineers Pte Ltd

G-ENERGY GLOBAL

BBP Barghest Building Performance

&

Keppel DHCS

COMFORT MANAGEMENT

11
EPC firms with ZCP



Green Facilities Management Certification

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Certified Green FM Firms

Singapore Green Building Council



BCA - SGBC EPC Roadmap

2015	2016	2017	2018	
Energy Performance Contracting (EPC) Chiller Plant Retrofit	Zero Capital Partnership for EPC	EPC Lighting Retrofit for occupiers	EPC Maintenance for Chiller Plant (Water-Side)	EPC Maintenance for Chiller Plant (Air-Side)
	EPC Contract Template	Green Facilities Management (FM) firms Accreditation		Chiller Plant Proficiency Test for maintenance crew



Singapore Green Building Council


We know how to build
bigger and bigger.
The challenge is to
build bigger and better.
#betterbuildgreen
WORLD
GREEN
BUILDING
COUNCIL
#betterbuildgreen
SINGAPORE
GREEN
BUILDING
COUNCIL

Thank You



@singapore_gbc



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