

Singapore Green Policies and Experiences

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on behalf of

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Sustainable Development in Singapore

Innovative, Scalable and Replicable

Land Area : 712 km²
Population : 5.1 million

- City-State with no hinterland
- Accommodate housing, IFC, Ports and Ind. Base, Refineries, Power Plants.....

KEY: SUSTAIN ECONOMY AND ENVIRONMENT

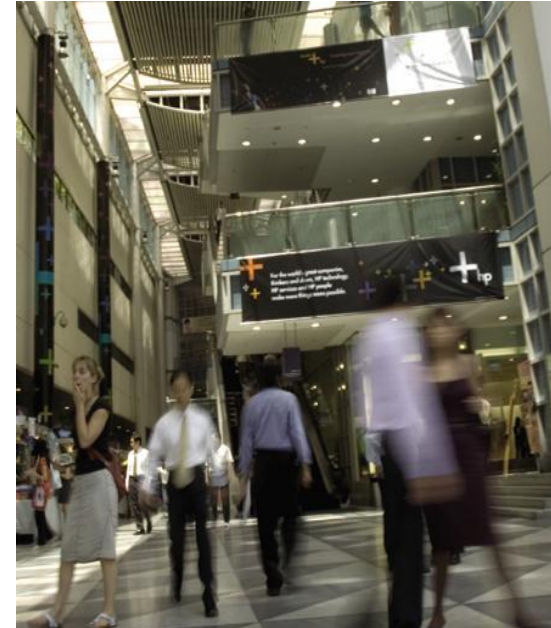


A Sustainable Built Environment for All

Live in a Green Home



Work in a Green Building



Study in a Green School



Shop in a Green Mall

NATIONAL SUSTAINABILITY INITIATIVE

Inter Ministerial Committee for Sustainable Development

Formed in 2008

Chair : MND and MEWR

Members: MFA, MTI and MOT

Task : Blue Print for Singapore's Sustainability Journey



**Sustainable
Singapore
Blueprint
2030**



Energy
Reduce energy intensity
by 35%



Waste
Improve recycling
rate to 70%



Water
Reduce water
consumption per
capita per day by
10%



Community Engagement
Nurture an environmentally
responsible community



Air
Reduce ambient
fine particulate
matter by 25%

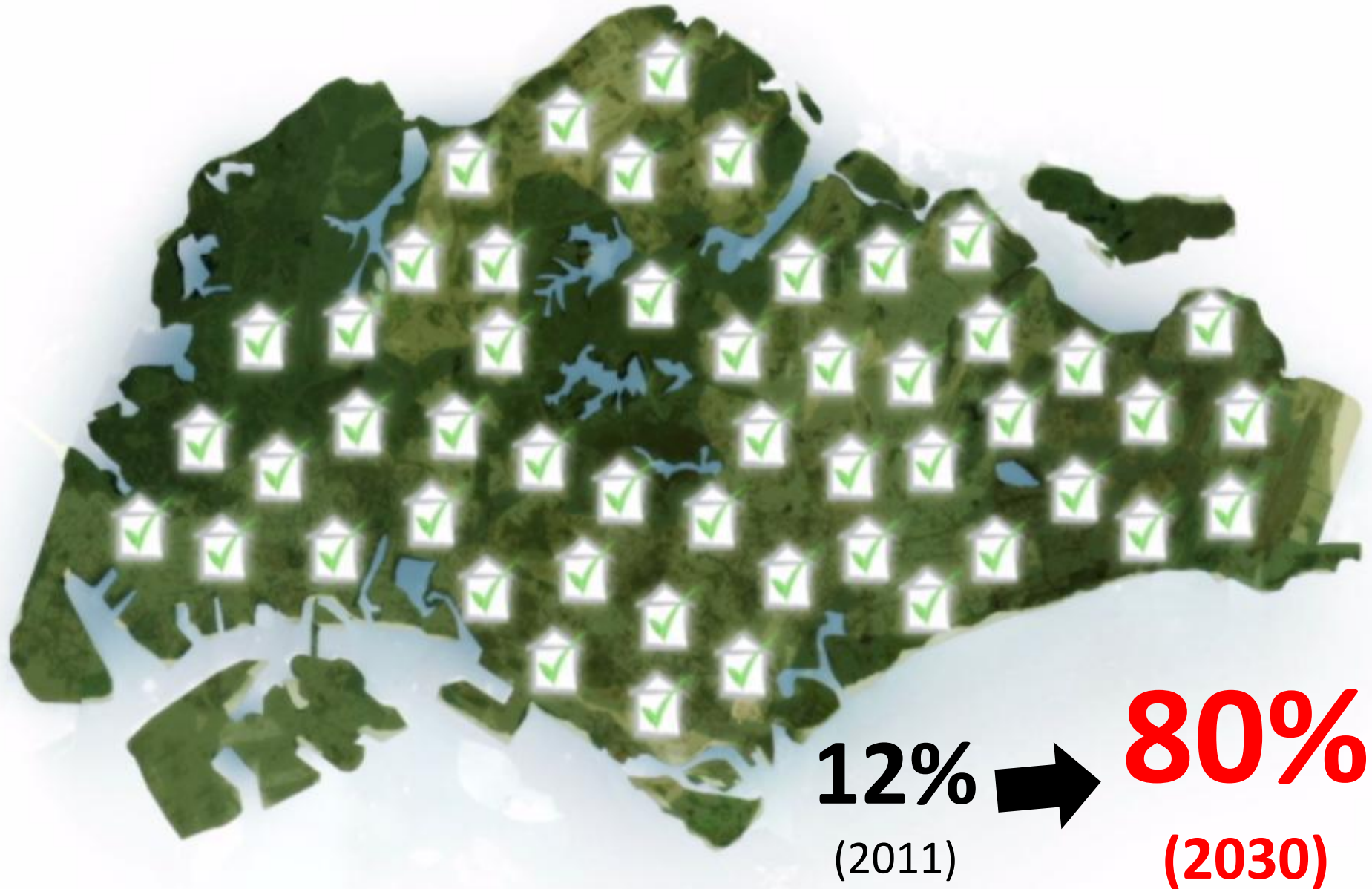


Capability Building
Build Singapore into
an environmental
knowledge hub

**Physical
Environment**
Increase
reservoirs,
parks,
waterways,
skyrise greenery



Current Status vs Future Goal



The Singapore Approach



BCA GREEN MARK

5 Key Assessment Criteria

1. ENERGY EFFICIENCY 	2. WATER EFFICIENCY
	3. ENVIRONMENTAL PROTECTION
	4. INDOOR ENV. QUALITY
	5. OTHER GREEN FEATURES



Green Mark	Try Again	Certified	Gold	Gold ^{Plus}	Platinum					
Score	0	49	50	74	75	84	85	89	90	100

Estimated Energy Savings

10% to 15%

15% to 25%

> 25%

> 30%

BCA-NParks Green Mark for Parks

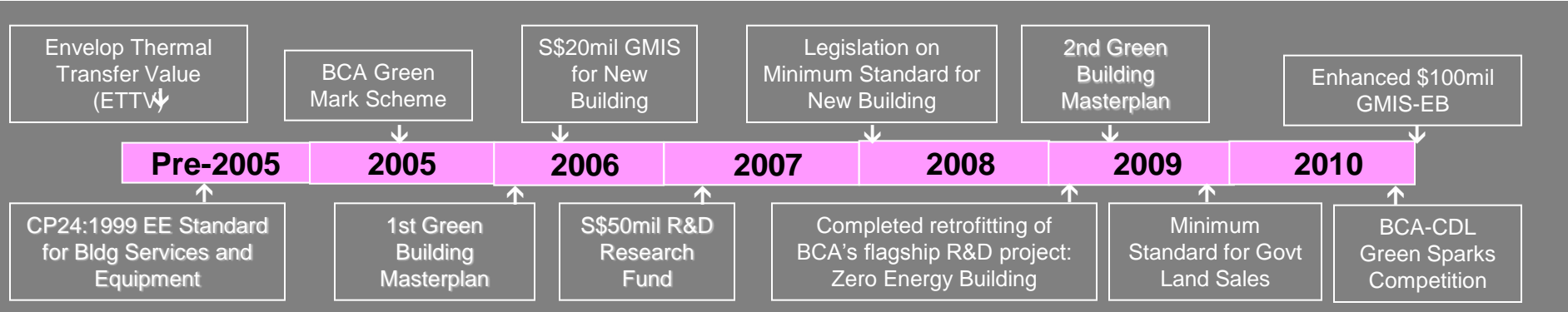


2008

BCA Green Mark for Districts



2009



2009

BCA Green Mark for Infrastructure



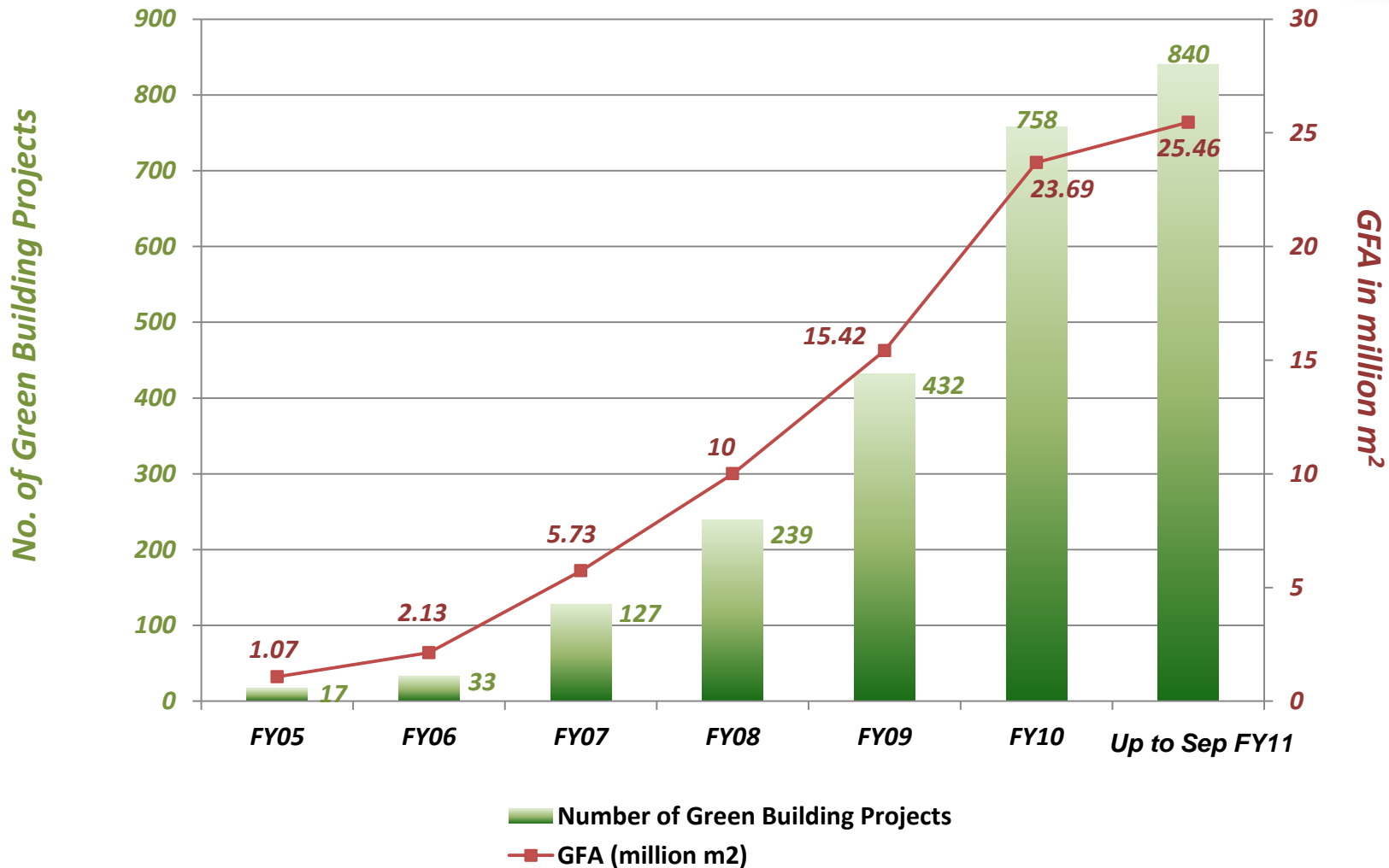
2010

BCA Green Mark for Rapid Transit System

Current State of Play

840 Green Mark Building Projects
25 mil m² GFA

Singapore's Green Building Figures (Cumulative)



Inertia to Green Buildings

Balance sheet commitment?

What is a green building?

Funding Considerations?

Developers
Owners

Upfront Costs?

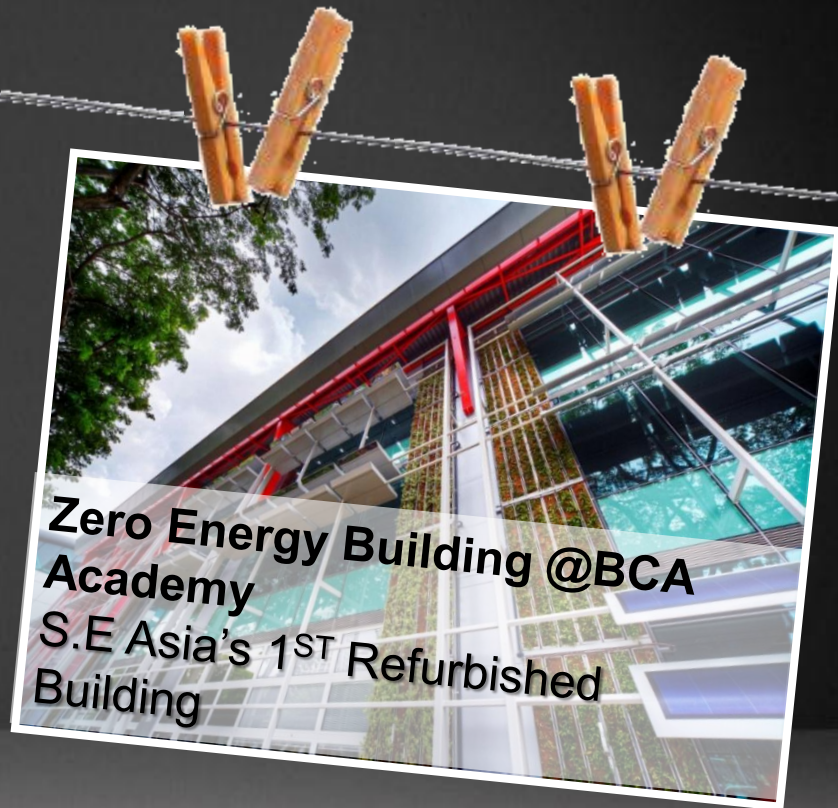
Consultants
Builders

How to Build Green?

Disruptions to operations?

Payback vs lease period?

Government Taking the Lead



- **New larger public buildings to achieve GM Platinum**
- **Existing larger public buildings to achieve GM Gold^{PLUS} by 2020**

Imposing Minimum Standards on Environmental Sustainability

April 2008. All New Buildings
and Existing Buildings
undergoing major retrofitting
works (*with GFA $\geq 2000 m^2$*) to
meet at least **Green Mark
Certified Standard**



BCA GREEN MARK

Levelling the Playing Field



GOVERNMENT INCENTIVES

\$50 mil
Research Fund
For Built
Environment

\$20 mil
for New
Buildings

Green Mark
Gross Floor Area
Incentive
Scheme

\$5 mil
for Design
Prototype

\$100 mil
Incentive for
Existing Building
Retrofits

BCA Green Mark Award Type	Green Cost Premium (%)	Payback Period (years)
Platinum	2% to 8%	2yrs to 8yrs
Gold Plus	1% to 3%	2yrs to 6yrs
Gold	1% to 2%	2yrs to 6yrs
Certified	0.3% to 1%	2yrs to 5yrs

Strengthening the Business Case



BCA GREEN MARK

Call for banks to give loans for 'green' buildings



BUSINESSES keen to go green may soon receive a boost from financial institutions.

Banks could give out loans for buildings that are designed with the environment in mind, as part of their social corporate responsibility.

This is one of the recommendations from an international panel of experts on boosting sustainable buildings in Singapore.

There are currently more than 130 Green Mark buildings here.

Another 200 are still waiting to be recognised by the Building and Construction Authority as being more sustainable and energy efficient.

Building Retrofit Energy Efficiency Financing (BREEF) Scheme

financial institutions to provide loans to building owners and energy services companies for building energy retrofits

Unleashing the value proposition of green buildings



“BUILD GREEN, FROM COST TO VALUE”

A Collaboration – BCA, NUS, Leading Valuation Firms

Training Framework to Build 'Green Workforce'

Executive Programmes

- CEO Breakfast Talk
- Leadership in Green Building- Lecture Series
- EDP Leadership in Environmental Sustainability
- EDP Innovations in Sustainable Design & Technology
- EDP Green Building Training for Mgrs/Profs from Tianjin Eco-city

Seminar & CPD

- Annual Green Mark Seminar
- Course on Requirements For Environmental Sustainability in Buildings
- BIM Submission Requirements

Academic Programmes

POST GRADUATE DEGREE

- MSc in Sustainable Building Design (University of Nottingham)
- MSc in Facilities & Environment Mgmt

DEGREE

- BSc in Facilities & Event s Mgmt (UniSIM, BCAA & SPoly)

DIPLOMA

- Dip (Mechanical Engineering) [Green Building Technology]
- Dip (Strategic Facilities Management)
- Dip (Electrical Engineering and Clean Energy)

NBQ

- Green Bldg Ops & Maintenance

Specialist Certification Programmes

Certification Courses for Professional

- Green Mark Professional
- Green Mark Manager
- Singapore Certified Energy Manager (Professional)
- Green Mark Facilities Manager

Certification Courses for Associate

- BIM Techniques & Implementation

Certification Courses for Technician

- Application of PV in Bldgs
- Maint of Air-con Systems

Professional Level

Assoc Professional Level

Supervisory Level

Legend- Programmes

- Existing
- Under development

Spreading the Green Message



BCA Roving Green Building Exhibitions



**BCA Green Mark
Photography Competition 2011**

Reaching out to the Region



International
Green Building
Conference 2011
Singapore

part of the
Singapore Green Building Week

Building and Construction Authority

Build Green. Act Now.

13 - 16 Sept 2011 • Suntec Singapore



Register Now @ www.sgbw.com.sg



Thank You

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