



**GREEN MARK INCENTIVE SCHEME
for
Existing Buildings**

APPLICATION GUIDELINES

**GUIDELINES FOR
APPLICATION OF GREEN MARK INCENTIVE SCHEME
EXISTING BUILDINGS (GMIS-EB)**

1.0 OBJECTIVE

- 1.1 The Green Mark Incentive Scheme for Existing Buildings (GMIS-EB) aims to encourage private building owners of existing buildings to undertake retrofits to achieve substantial energy improvement in energy efficiency. It provides a cash incentive that co-funds up to 35% (capped at \$1.5 million) of the upgrading/retrofitting costs for energy efficiency improvement in their existing buildings.
- 1.2 Through this scheme, building owners will be able to enjoy a cash incentive for energy efficient retrofitted projects which meet at least a BCA's Green Mark Certified rating with >20% energy savings or higher.

2.0 ELIGIBILITY CRITERIA

- 2.1 Building owners will be eligible for the incentives if their buildings meet the following criteria:
- a. It is an existing non-residential development with gross floor area of 2,000 square metres and above that is centrally air-conditioned. The GMIS-EB is targeted mainly at energy intensive buildings such as shopping malls, hotels, office buildings, hospitals, and other centrally air-conditioned buildings.
 - b. The building must achieve the BCA Green Mark Certified rating or higher with the targeted energy savings.
- 2.2 The scheme is not applicable to buildings in which energy improvement retrofitted works commenced prior to the implementation date of 29 April 2009.

3.0 DETAILS AND CONDITIONS OF INCENTIVE SCHEME

- 3.1 The amount of cash incentive for projects which achieve various BCA Green Mark ratings with 20% or higher energy savings are shown in the Table 1.

Table 1: Green Mark Incentive for Existing Buildings

Qualifying Criteria ⁽¹⁾	Green Mark Incentive (for Developers/Building Owners)	
	Rate ⁽²⁾	Cap
GM Certified with 20% Energy Savings ⁽³⁾ Or GM Gold (with 15% Energy Savings)	20% Co funding	\$150,000
GM Gold with 32.5% energy savings Or GM Gold ^{PLUS} (with 30% Energy Savings)	30% Co funding	\$500,000
GM Gold ^{PLUS} with 37.5% Energy Savings Or GM Platinum (with 35% energy savings)	35% Co funding	\$1,500,000

- Note: (1) The prevailing version of the BCA Green Mark Criteria for Non-Residential Existing Building will apply.
 (2) These rates (Co fund) apply to the equipment purchased in achieving the energy savings. (See Annex B for list of commonly approved equipment list)
 (3) The energy savings must be demonstrated by electricity bills before and after retrofits.

3.2. The evidence of energy savings is based on actual energy consumption before and after the retrofitting works. The percentage of energy savings shall be determined using in the following formula. The EEI computation for office, hotel and retail mall can be found in <http://www.e2singapore.gov.sg/buildings/energysmart-building-label.html>.

$$\% \text{ of energy savings} = \frac{EEI_{\text{before retrofit}} - EEI_{\text{after retrofit}}}{EEI_{\text{before retrofit}}} \times 100\%$$

4.0 SUBMISSION PROCEDURES

4.1 All applications should be made in the prescribed format found in Annex A and sent to:

Deputy Director
Technology and Innovation Development Department
Green Mark Incentive Scheme
Building and Construction Authority
5 Maxwell Road
#17-00 Tower Block MND Complex
Singapore 069110

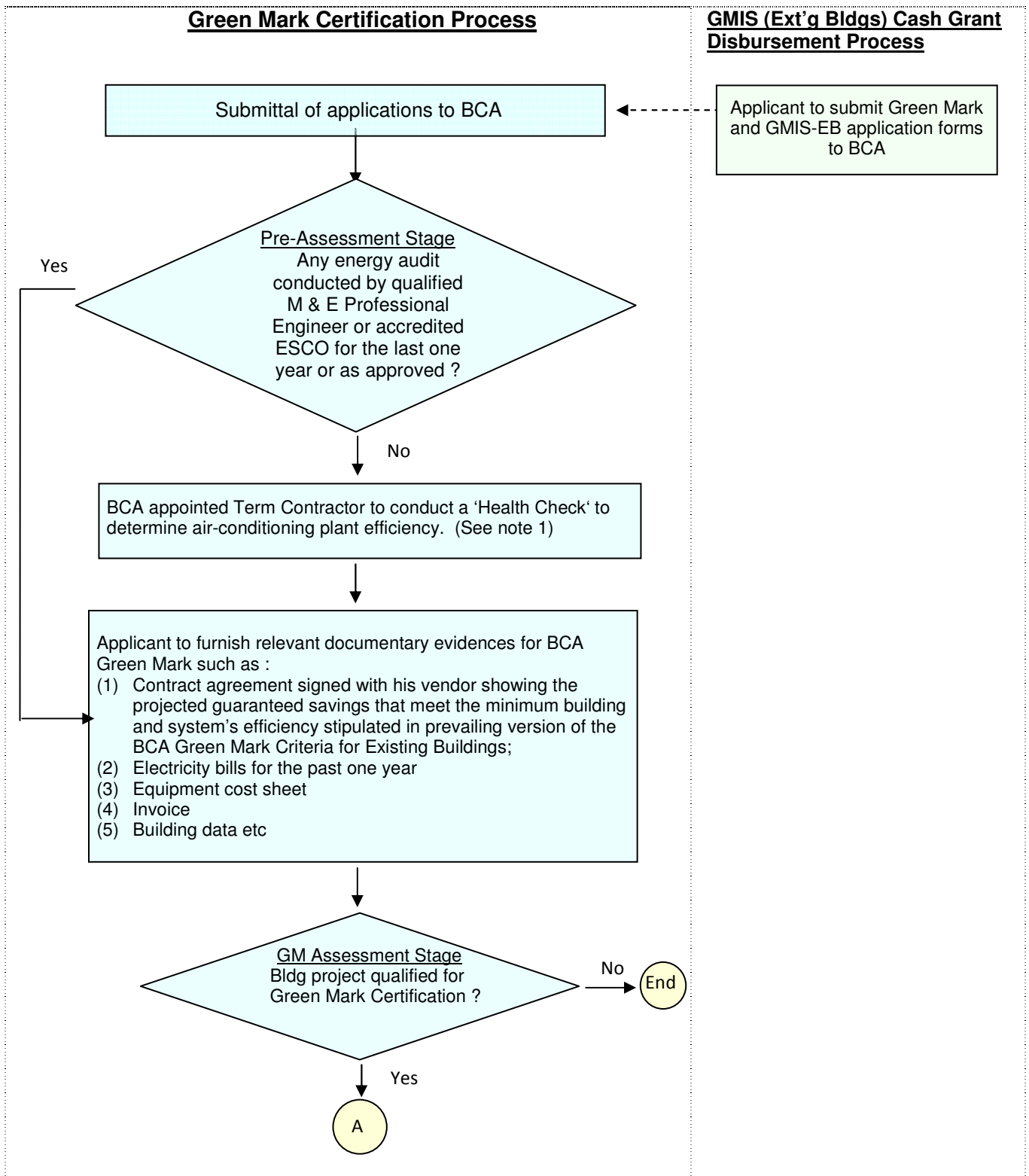
4.2 Submission of applications should be accompanied by the following documents:

- a. All necessary evidence documenting the actual equipment cost, such as Letter of Awards to ESCO, commencement date, purchased orders, invoice etc. Monthly electricity bills (before and after retrofit), energy savings documentation and verification on site for equipment retrofit completion.
- b. Documentary evidence of building ownership

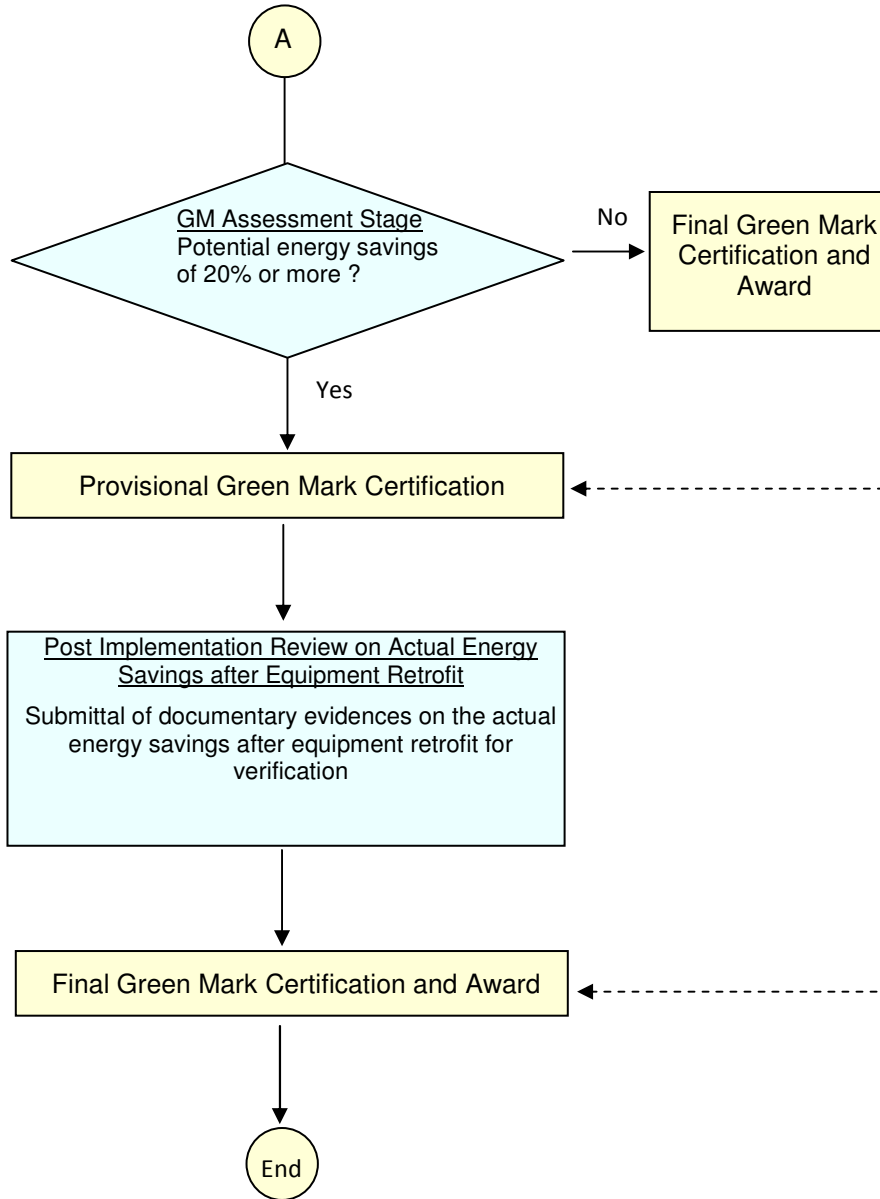
5.0 DISBURSEMENT OF INCENTIVE

5.1 The cash incentive would be disbursed in two stages: The first disbursement, which is 50 % of the approved grant is upon completion of the energy improvement retrofits. The final disbursement of the remaining grant is upon Green Mark certification and verification of energy savings achieved. See Annex A for cash grant disbursement process and illustrations.

Figure 1 - Green Mark Certification and GMS-EB Cash Grant Disbursement Process



Green Mark Certification Process



GMIS (Ext'g Bldgs) Cash Grant Disbursement Process

First 50% Disbursement of Grant after equipment retrofit completed
Amount will be based on 50% of the next lower tier of co-funding incentive or its corresponding cap, whichever is lower (see illustration).

Final Disbursement of Remaining Grant
Final amount will be based on the first disbursement quantum, the Green Mark Rating achieved and the actual energy savings verified subject to the corresponding cap as stipulated in the qualifying criteria (see illustration).

Note :

(1) The 'Health Check' is meant to determine only the air-conditioning plant efficiency and performance of the building. BCA will co-fund 50% of the cost for conducting the 'Health Check' by appointed BCA term contractor. The remaining 50% will be borne by building owners/developer. Applicant may engage their own qualified M & E Professional Engineer or ESCO to conduct the Health Check but the co-funding of 50% will be based on the BCA term contractor's rate.

ILLUSTRATION :

Building owner of an existing office building with GFA > 2000 m² applies for Green Mark Certification and the GMIS-EB incentive for the energy improvement retrofits.

Cost of the energy improvement retrofits for the building is \$ 1,000,000
(Equipment from the approved listing in Annex B)

Upon completion of Green Mark assessment and installation of all equipment

Assume that the building can meet the Green Mark Gold^{PLUS} standard with a potential energy savings of 30% over its baseline standard. BCA will issue provisional Green Mark certification at this stage.

First disbursement of cash grant will be based on 50% of the next lower tier of co-funding incentive or its corresponding cap, whichever is lower. That is

$$\begin{aligned} \text{First Disbursement of Cash Grant} &= 50\% \times \text{Co-fund rate of next lower tier} \times \text{Cost of energy improvement retrofits} \\ &= 0.5 \times \$ 1000,000 \times 0.2 = \$ 100,000 \text{ (Capped at } \$ 150,000) \end{aligned}$$

Upon completion of post implementation review on actual energy savings after retrofit

Assume that the actual energy savings after equipment retrofits of 30% are verified and can be realised and the building performance meets the Green Mark Gold^{PLUS} standard. BCA will issue the final Green Mark certification.

Total cash grant eligible will be based on the GM rating and percentage of energy savings as shown in Table 1.

In this instance,

Total Cash Grant based on GM Gold ^{PLUS} (with 30% saving)	= Co-fund rate for qualifying criteria x Cost of energy improvement retrofits
	= 0.3 x \$ 1000,000
	= \$ 300,000

Therefore,

$$\begin{aligned} \text{Remaining amount of total cash grant to be disbursed} &= \text{Total Cash Grant} - \text{First Disbursement of Cash Grant} \\ &= \$ 300,000 - \$ 100,000 \\ &= \$ 200,000 \end{aligned}$$

LIST OF COMMONLY APPROVED ENERGY EFFICIENCY EQUIPMENT

- 1) Variable Speed Drives (VSD)
- 2) Capacitor Banks
- 3) Motion Sensors
- 4) Energy Efficient Lighting e.g. T5/T8, PLC etc
- 5) Electronic Ballast
- 6) Building Automation System (BAS)
- 7) CO Carpark Ventilation Control System
- 8) Chiller Optimizer System
- 9) Hydro Carbon/Energy Efficient Refrigerant for Chillers, Air Con systems
- 10) Chiller Auto Condenser Tube Cleaning System
- 11) Photo Sensors
- 12) New Efficient Chiller replacement
- 13) Lighting Control System
- 14) CO2 Sensors for AHU System
- 15) Heat Pipe & Energy Recovery Wheel
- 16) Light Emitting Diodes (LED) Lightings
- 17) Energy Efficient lifts and escalators
- 18) Solar Energy or other renewable energy sources
- 19) Solar Film
- 20) Energy Saving Lighting Controllers
- 21) Voltage Regulators
- 22) Building façade/envelope that improves the Envelope Thermal Transfer Value (ETTV)

Note: Any other equipment not in the above common list will be subject to review and approval from BCA.