

GBE PROFESSIONAL SERIES 2018

ADVANCING GBI SUBMISSION

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Camelia Room, MyIPO
Tower B, Menara UOA Bangsar

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COMMON MISTAKES in Green Cost (M&E)

Ir. CHEN Thiam Leong DL&F.ASHRAE
FIFireE, P.E., C.E.

Investment Tax Allowance

What are the eligible **M&E Green Cost items ?**

(incremental capex costs)
(must score GBI criteria point)

GBI M&E Green Cost Items

Part	Criteria	Description (NRNC)
1.1	EE	Energy Efficiency
	EE1	Sun shading devices including automatic controls
	EE1	Energy Management System
	EE2	Daylight auto sensor devices for lighting control
	EE2	Motion sensor devices for lighting control
	EE3	Electrical sub-meters for EE monitoring
	EE4	RE such as Fuel Cells, Biomass, Hydro, Wind, Geothermal etc
	EE4	BIPVs and PVs (not under FiT or similar program)
	EE4	Solar powered application viz STC

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.1	EE	Energy Efficiency
	EE5	EE HVAC Equipment
	EE5	Enhanced HVAC systems such as TES, DCS, Cogen
	EE5	Enhanced HVAC technologies/ strategies viz UFAD, chilled slabs/ ceilings, Active/ Passive chilled beams
	EE5	EE light fixtures
	EE5	Heat Pumps, Heat Machines
	EE5	Gas/ Solar Water Heaters
	EE5	Hot Water Heat Reclaim System viz Desuperheater System
	EE5	Variable Speed Drives
	EE5	High Efficiency Motors

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.2	EQ	Indoor Environmental Quality
	EQ3	CO ₂ Monitoring & controls for EE & IAQ
	EQ6	Additional controls and devices to enhance thermal controllability, viz VAV terminals
	EQ7	UFAD system, Dedicated work-station air supply system, LLD/TDV system
	EQ11	High Frequency Ballasts and Luminaries (negligible or insignificant today)
	EQ14	Permanent air flushing system (negligible)

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.3	SM	Sustainable Site Planning & Management
		No M&E items
1.4	MR	Material & Resources
	MR7	Refrigerants and fire suppression (clean) agents (not eligible for CAPEX)

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.5	WE	Water Efficiency
	WE1	Rainwater Harvesting System
	WE2	Black Water Recycling System
	WE2	Grey Water Recycling System
	WE3	Water Efficient Fixtures & Flow Restrictors, automatic rain sensors and devices
	WE4	Waterless Urinals or Low Flushing fixtures
	WE5	Water sub-meters for monitoring and leakage

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.6	IN	Innovation
	IN1	Solar Thermal Technology viz STC
	IN1	Solar Light/ Tube Systems
	IN1	Heat Pipe Technology
	IN1	Heat Recovery System viz Heat Wheels
	IN1	Regenerative Lifts and Sensor Controlled Escalators (almost negligible nowadays)
	IN1	Non-Chemical Cooling Tower Water Treatment System
	IN1	Auto-condenser tube cleaning system
	IN1	Advance Air Filtration technology

GBI M&E Green Cost Items cont'd

Part	Criteria	Description (NRNC)
1.6	IN	Innovation
	IN1	Central Pneumatic Waste Collection System
	IN1	Central Vacuum System
	IN1	Refrigerant leakage and recycling facilities
	IN1	Condensate Water Harvesting
	IN1	Recovery pipe for Fire Testing water (sprinkler system)

GBI Investment Tax Allowance

**How to compute the claimable (M&E) items ?
(including Innovation items)**

What is the claimable (incremental) cost benchmarked against ?

What is Reference Base Cost ?

GBI M&E Green Cost Items

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC HVAC				
AC System	EE4,5; MR7; IN1	Total Plant <u>System</u> incorporating TES, Chilled Slab/ Ceiling, STC, Cogen	Total <u>System</u> Cost of Water-cooled CHW plant with CAV Air Distribution System	Incremental cost to be based on entire plant system. If claim is on this item then not eligible for separate similar ac equipment claim

GREEN COST CAN ONLY BE CLAIMED WHEN AT LEAST ONE CREDIT SCORE IS AWARDED FOR THAT CRITERIA

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC ACMV				
Air Distrib System	EE5; EQ6,7	VAV, UFAD, LLD/TDV, Active/ Passive Beams	CAV System	Incremental cost to be based on entire air distribution system. If claim is on this item then not eligible for separate similar component claim

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC ACMV				
Cooling Plant/ Eqpt	EE5	DX ACPU and WCPU	Minimum COP in MS 1525	Compare 'Like to Like' eqpt; viz WCPU to WCPU
	EE5	Absorption Chiller	Electric Chiller with min. COP in MS 1525	
	EE5	Chiller/ Unitary AC	Min. COP in MS 1525	Compare 'Like to Like'
	MR7	HFC, HFO, Natural Refrigerants	HCFC	Not eligible for CAPEX

GBI M&E Green Cost Items cont'd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC ACMV				
Other Eqpts & Accesso ries	EE1	Energy Management System	Base EMS installation	100% claimable if ac space < 4000 m ² . Otherwise, only the additional cost apply
	EE5	VSD	Nil	100% claimable
	EQ3	CO ₂ Sensor & Monitoring	Nil	100% claimable
	IN1	Heat Pipes	Nil	100% claimable
	IN1	Heat Recovery Wheels	Nil	100% claimable

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC ACMV				
Other Eqpts & Accessories	IN1	Non-Chemical Cooling Tower Water Treatment System	Conventional Chemical Water Treatment System	
	IN1	Refrigerant Leakage Detection & Recycling Facility	Nil	100% claimable
	IN1	Advance Air Filtration Technology	Conventional Washable Air Filters	
	IN1	Auto-condenser tube cleaning system	Nil	100% claimable

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC ACMV				
Mech Ventn	EQ14	Permanent Air Flushing System	Smoke Spill System	100% claimable only where Smoke Spill System is not required by Bomba

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Electrical System				
Lighting	EE5	T16/T5 Fixtures	T26/TL8 Fixtures	Rapidly decreasing incremental cost
	EE5	TC/CFL	Incandescent equiv	
	EE5	LED	Incandescent or T26/TL8 equiv	
	EE5; IN1	Solar Powered Light Fixtures	Electric Powered Fixtures	
	EQ11	Electronic Ballasts	Electromagnetic Ballasts	
	EE5; IN1	LED for Façade Lighting	Base Design (PAR or HID Lamps)	

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Electrical System				
Others	EE2	Occupancy/ Motion Sensors	Nil	100% claimable
	EE2	Photo Sensors	Nil	100% claimable
	EE3	Electric Sub- metering	Base sub- metering	Additional EE monitoring meters for GBI compliance
	EE4	PVs (non FiT or equiv)	Nil	100% claimable
	EE4	BIPVs	Base roofing	
	IN1	Solar Light Pipes/ Tubes	Nil	100% claimable

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Elevators & Escalators				
Lifts	EE5	ACVVVF Gearless Lifts	ACVVVF Geared Lifts	Negligible today
	EE5; IN1	Regenerative Lifts or equiv	ACVVVF Geared Lifts	Negligible today
Escalators	EE5	Variable Speed/ Auto Start Stop or equiv	Single Speed Escalators	Negligible today

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Hydraulics System				
Plumbing System	WE1	Rainwater Harvesting System	Nil	100% claimable (excl base gutters etc)
	WE2	Grey Water Recycling Sys	Nil	100% claimable
	WE2	Black Water Recycling Sys	Nil	100% claimable
	WE3	WE Irrigation System	Conventional Base Design	
	WE5	Water Sub-metering	Nil	100% claimable for GBI compliance

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Hydraulics System				
Plumbing System	EE5	Gas Instantaneous Water Heater	Electric Instantaneous Water Heater	
	EE5	Electric Heat Pump/ Machine Hot Water System	Electric Storage Hot Water System	
	EE5	Hot Water Heat Reclaim System	Electric Storage Hot Water System	
	EE5	Solar Hot Water System	Electric Storage Hot Water System	

GBI M&E Green Cost Items contd

Service	Criteria	Green Item	Ref Base Cost	Remarks
NRNC Others & Innovations				
Motors	EE5	IE3 Motors	Standard Motors	
Innovation	IN1	Central Vacuum System	Nil	100% claimable
	IN1	Central Pneumatic Waste System	Nil	100% claimable
	IN1	Condensate Water Harvesting	Base Condensate Water Piping	Associated Additional Cost
	IN1	Recycled Fire System Piping	Nil	100% claimable

GBI M&E Green Cost Items

Common **MISTAKES**

General:

1. Incremental cost is a govt incentive for buildings to go green but not for 'greenwashing'
2. The base reference cost must be real and applies even if the building is not going green
3. If going green results in 'cheaper' costs, then the green agenda is achieved and there is no need to include deduction on the 'savings'; eg reused timber
4. Do not adopt technology of insignificant advantage for application in Malaysia but yet costly; eg variable speed chillers

GBI M&E Green Cost Items

Common **MISTAKES**

General:

5. Professional services fees are not eligible, eg GBIF, CxS, Lighting Specialist, Accoustics Specialist, etc
6. Do not claim for items which have been claimed separately under ITA (assets) such as VAV, VRF systems etc
7. Do not offer the excuse “it is a GBI requirement”, eg when “redundant” meters are installed.

GBI M&E Green Cost Items

Common **MISTAKES**

EE1 : EMS/BAS

1. The base BAS system comprising computer hardware, softwares and various control and monitoring devices; eg thermostats etc are not eligible
2. Must itemise eligible claims for additional devices and I/O points that support GBI criteria, eg Digital Water Meters for leak detection etc
3. Humidity sensors for office application is not eligible apart from being a waste of \$
4. Must avoid excessive provision of DPMs, BTU meters, DWMs

GBI M&E Green Cost Items

Common **MISTAKES**

EE1 : EMS/BAS

5. other non eligible items include;

- i. dirty filter sensors unless
- ii. redundant I/O points
- iii. separate software package for MDL programming
- iv. separate 'intelligent' software program for EE system operation

GBI M&E Green Cost Items

Common **MISTAKES**

EE5 : EE Chillers, WPCUs, VRFs, EE components

1. Even if “approved” by other agencies, additional cost for 'variable speed' chillers for comfort cooling application will not be eligible
2. Avoid excessive additional cost claim - due to either low base cost or high green cost
3. Heat exchangers (for pressure breaks) are not eligible

GBI M&E Green Cost Items

Common **MISTAKES**

EE5 / IN1:

IN1 items contributing to EE must demonstrate performance.

E.g. of mistakes include;

1. External CO₂ monitoring and control of FA intake
2. Provision of refrigerant detection system only without the storage cylinders for recovery does not qualify



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the end

THANK YOU

tlchen55@gmail.com