



BMA

Accelerating Climate Action in Bangkok

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Table of Contents

- **History of BMA's cooperation with JICA on climate change action**
- **Bangkok Master Plan on Climate Change**
- **Climate Action: Initiative by the Governor**
- **Private Sector Engagement**
- **JICA's Study on Public Private Partnership**
- **Recent Discussion on Finance Options**
- **Lessons Learned from case Studies (1) A/C and (2) Solar City**
- **Summary Insights**



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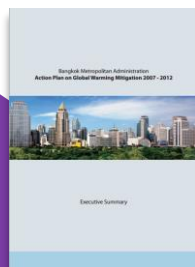
History of BMA's cooperation with JICA

on climate change action

Bangkok Action Plan on Global Warming Mitigation 2007-2012

Phase 1 (2009-2013)

- ❖ Basic capacity development of BMA officials



Bangkok Master Plan on Climate Change 2013-2023

Phase 2 (2013-2015)

- ❖ Developed 10 years Master Plan with emission reduction targets + Adaptation goals (Transport, Energy, Waste & wastewater, and Green Urban)



Bangkok Master Plan on Climate Change 2021-2030

Phase 3 (2017-2022)

- ❖ Implemented the Master Plan and achieved GHG reduction target by 2020
- ❖ Designed and implemented mitigation + adaptation projects
- ❖ Updated the Master Plan by 2030 with a long-term goal in 2050





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Bangkok Master Plan on Climate Change 2021-2030

Climate Action - Mitigation

- ❖ **Transportation**
BRT (ev bus), ev boat, BMA feeder
- ❖ **Energy and Renewable Energy**
solar PV rooftop, LED streetlight
- ❖ **Waste and Wastewater**
waste separation at source, RDF
- ❖ **Green Urban Planning**
1 M trees planting, 15 mins park

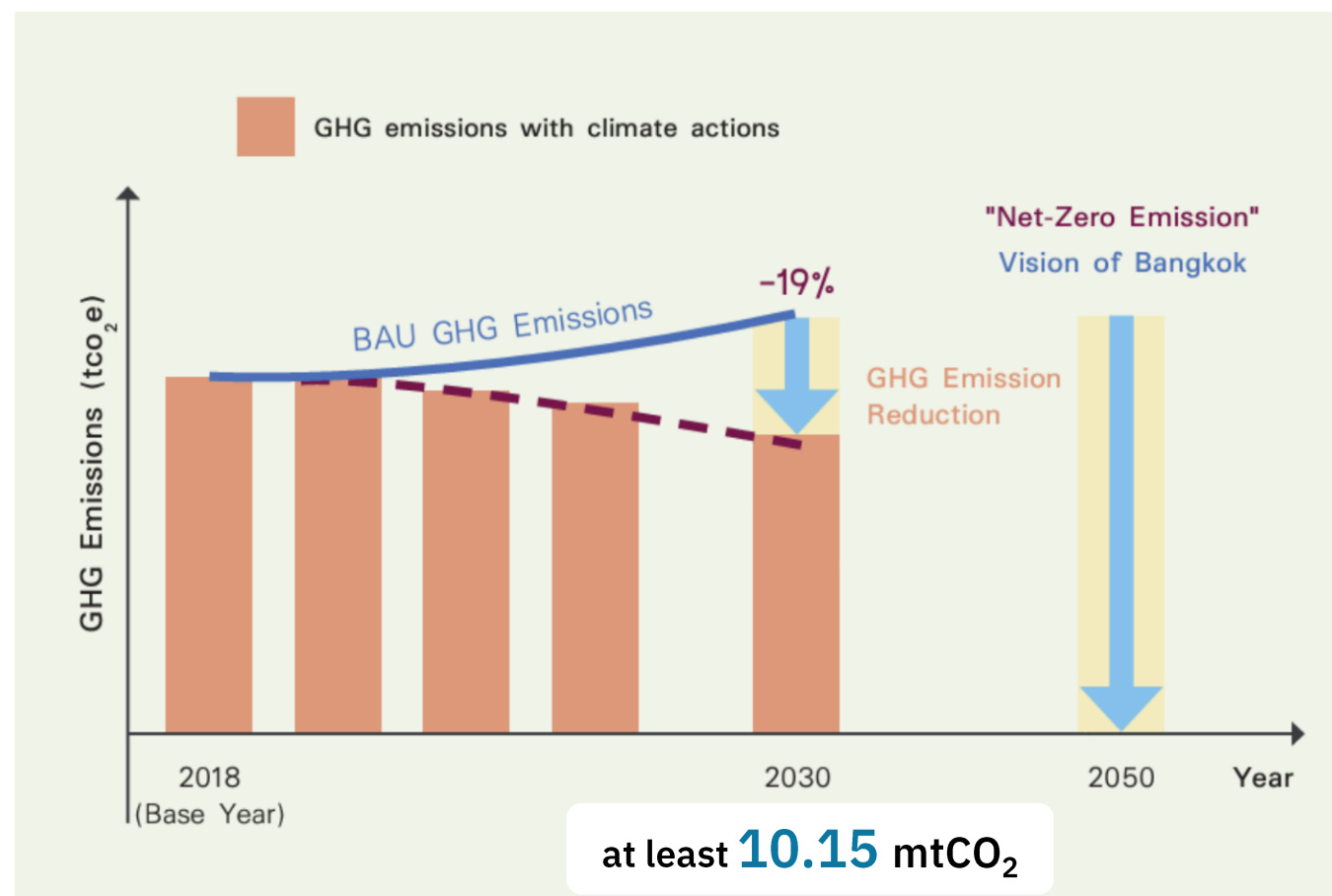
Climate Action - Adaptation

- ❖ Flood prevention & control system
- ❖ GIS - Early warning system for proactive water management



Climate Change
Mitigation Target

-19% by 2030





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Climate Action Initiative by the Governor





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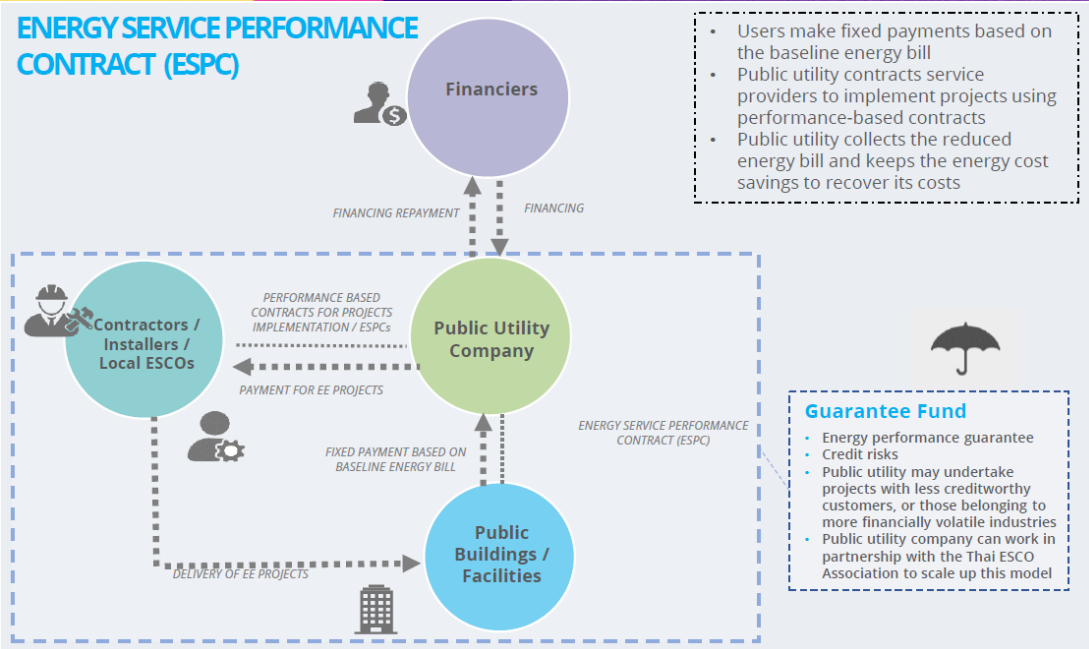
Private Sector Engagement

JICA Project



The City-to-City Collaboration Project





JICA's Study on Public Private Partnership in cooperation with IFC



JICA Study Session on PPP Financing (Jan 2024)



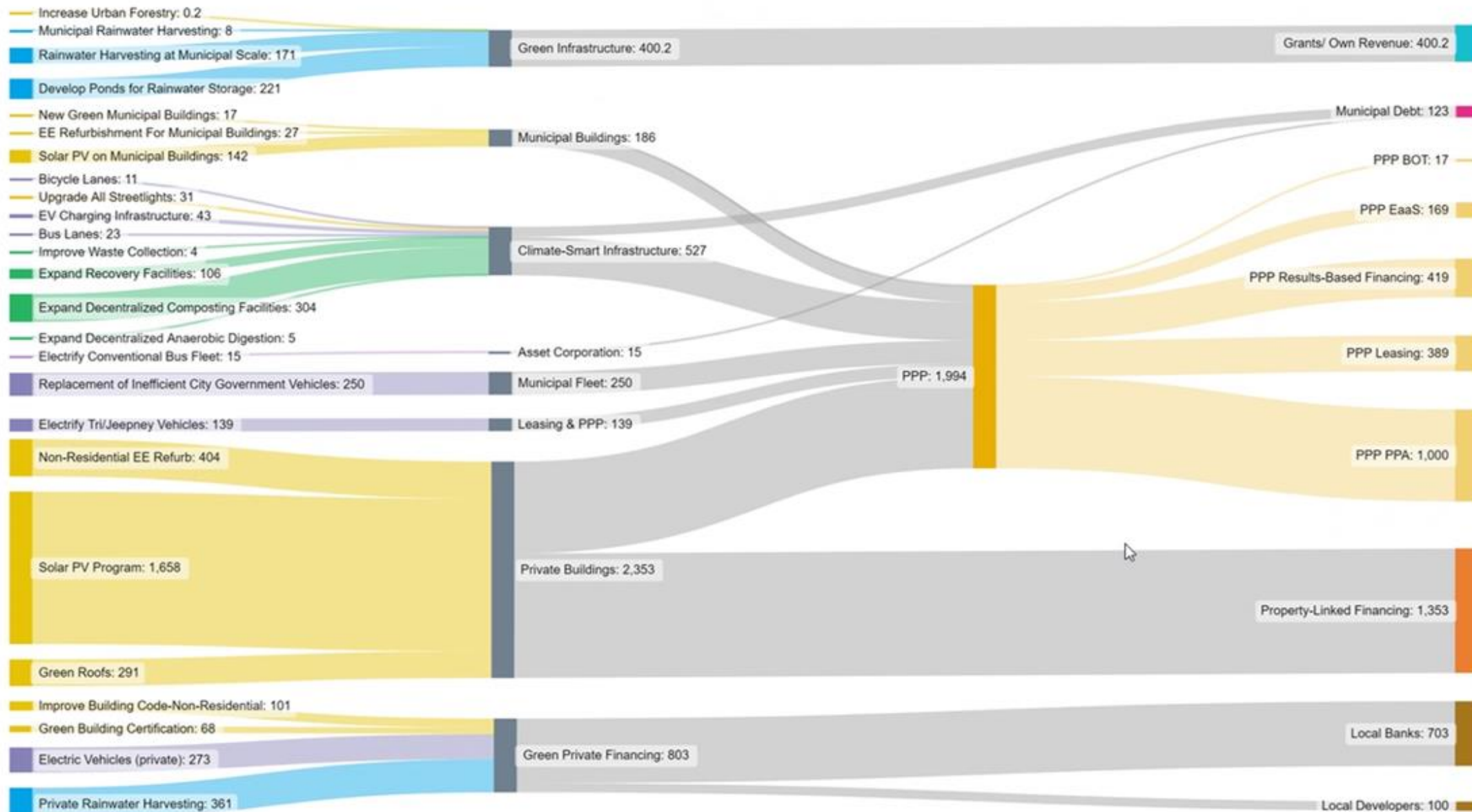
IFC workshop "Green City Solution for Bangkok" (April 2024)

Recent Discussion on Finance Options



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IFC's analysis on financing options for urban infrastructure development



Bangkok Green Investment Pipeline

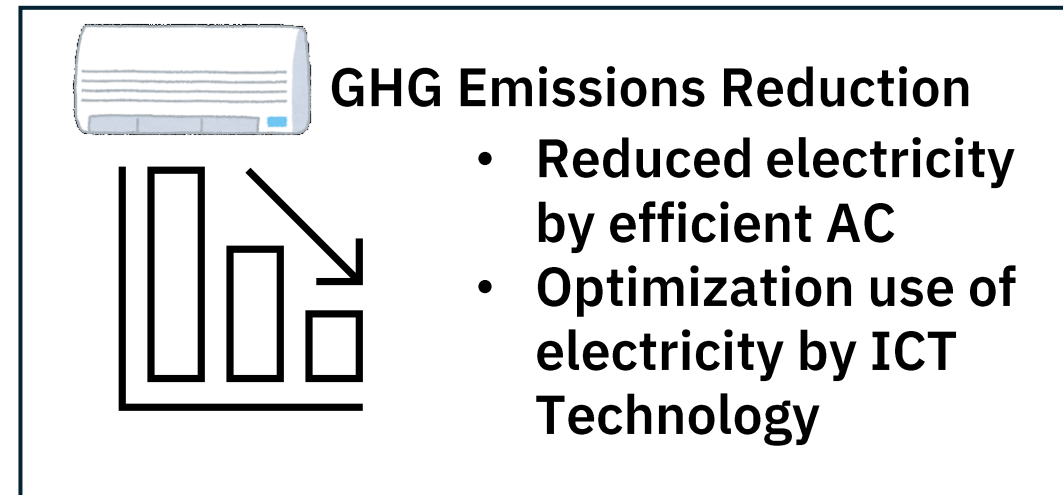
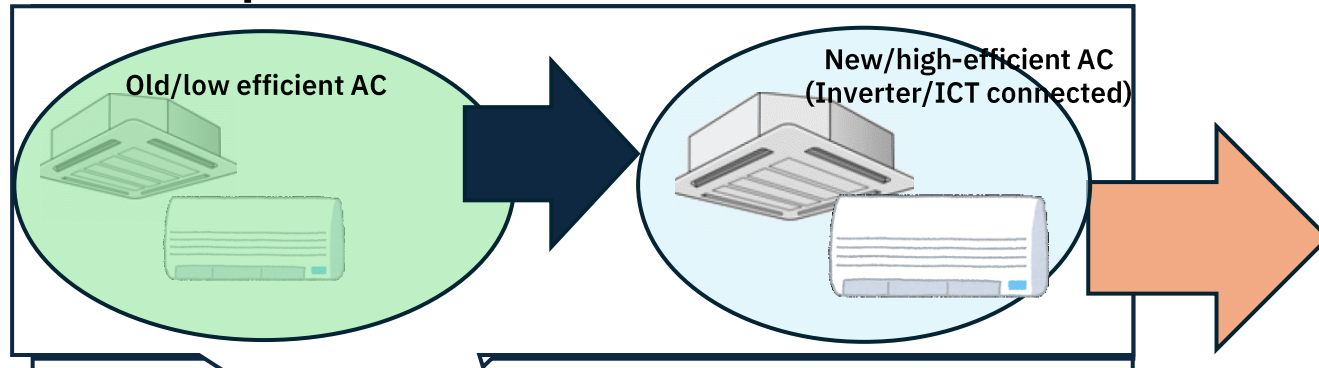
	MEASURES	Direct (BMA) Cost (THB Million)	Direct (Other) Cost (THB Million)	Indirect Cost (THB Million)	GHG Savings (%)	Possible Financing Options						
						Own Revenues	Municipal Loans/Bond	PPPs (Multiple Contract Modalities)	Energy Service Performance Contracts & Guarantee Fund	Leasing	On-bill Financing	Private Financing through Local Banks
BUILT ENVIRONMENT	Private Solar PV			91,800	6.8%						✓	✓
	EE Refurbishment of Private Buildings			190,260	1.3%						✓	✓
	EE Refurbishment of Municipal Buildings	116,460			0.9%		✓		✓			
	Municipal Solar PV		9,180		0.7%		✓		✓			
	Energy Efficient Streetlights	1,404			<0.1%		✓		✓			
	Energy Efficient Traffic Lights	396			<0.1%		✓		✓			
	Urban Green Corridors & Parks	288			<0.1%	✓	✓					
TRANSPORTATION	Extend BTS and MRT		1,467,000		3.5%			✓				✓
	EVs for Private Consumers			360,000	1.0%					✓		✓
	Extend Monorail and ARL		223,560		0.4%			✓				✓
	Electric Buses		13,392		0.2%		✓	✓		✓		
	Electric Motorbikes for Private Consumers			36,000	0.2%					✓		✓
	Park-and-ride in Transit Stations	864			<0.1%		✓	✓				
	Bus Lanes	216			<0.1%		✓	✓				
	Bicycle Lanes	72			<0.1%	✓		✓				
WASTE	New Materials Recovery Facilities	2,808			2.6%		✓	✓				
	Waste to Energy	8,604			1.9%		✓	✓				
	Centralized Composting Facilities	14,724			1.5%		✓	✓				
	Centralized Anaerobic Digestion Facilities	324			1.1%		✓	✓				
	Improve Waste Collection	1,368			0.7%		✓	✓				
WATER	New Wastewater Treatment Facilities	17,532			0.3%		✓	✓				
	Rainwater Storage	14,796			<0.1%	✓	✓					
	Wastewater Reuse at Municipal Scale	5,220			<0.1%		✓	✓				
	Wastewater Reuse for Flushing/Outdoor			1,476	<0.1%						✓	✓
		185,076	1,713,132	679,536	23.0%	15,156	13,932	1,741,680	127,440	-	283,536	396,000

INITIAL COSTS BASED ON LOCAL & APEX CITIES DATA; SUBJECT TO FURTHER STUDIES

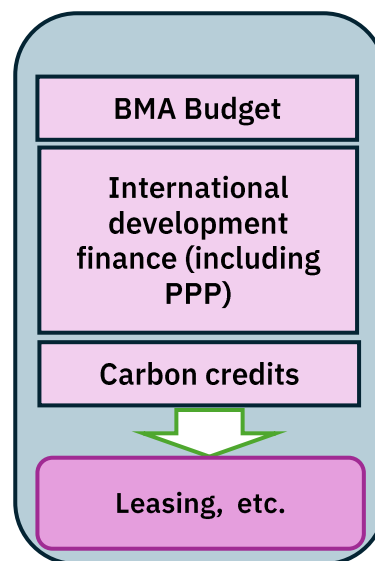
✓ 1st Option; ✓ 2nd Option

Official Use

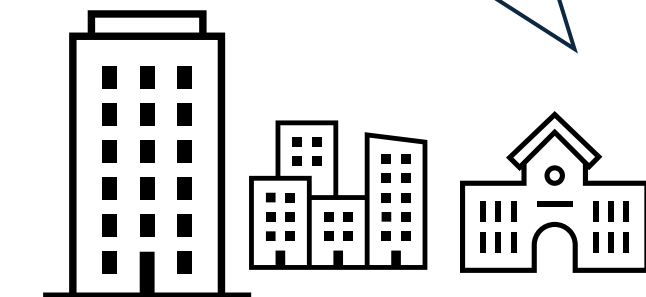
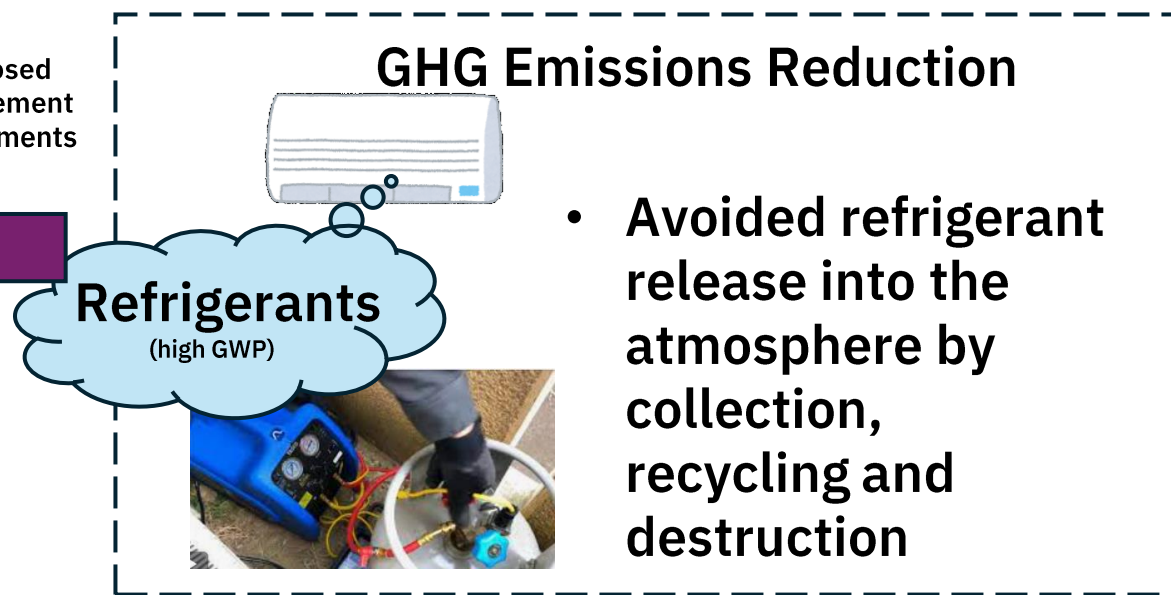
Upgrading BMA's Air Conditioners for GHG Reduction Replacement of Air Conditioners



Options for Financing



Proposed procurement requirements



- Split type: 32,000 units.
12,780 units in operation for more than 10 years
- Chiller type: 40 units in 11 buildings.
25 units in operation for over 15 years.



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Bangkok Solar City



Bangkok Solar City (one stop services/green jobs)





Preliminary Study on Solar City Project (Potential roles to be played by the BMA)

Player	Type	Key Barriers	Possible Solutions
Building / Roof Owners	Financial	<ul style="list-style-type: none">• Inadequate incentives• Low feasibility of the project due to demand during daytime• Opportunities to sell electricity to the grid	<ul style="list-style-type: none">• Tax rebates,• Upfront rebates• Higher tariff• Net metering✓ FAR bonus
		<ul style="list-style-type: none">• High upfront cost while limited capacity/access to financing• Require collateral with higher values than the RTS & Short loan payment loan• Limited capacity to gain benefits from selling environmental attributes	<ul style="list-style-type: none">✓ Leasing Model✓ Aggregator model✓ PPA model
	Technical	<ul style="list-style-type: none">• Lack of technical capacity to conduct feasibility• Challenges in procuring RTS & finding right suppliers / EPC	<ul style="list-style-type: none">✓ Training✓ Guidebook✓ Standardized specification✓ Standardized TOR✓ Standardized contract✓ Aggregator model
	Information	<ul style="list-style-type: none">• Unaware of Solar PV	✓ Training, Guidebook
		<ul style="list-style-type: none">• Lack of information on financing options, supplier options	✓ Solar PV Portal
Bank/Financial institute & Solar PPA Service Providers	Financial	<ul style="list-style-type: none">• High administration cost due to small project (Non-bankable Scale)• Limited access to target customers	<ul style="list-style-type: none">✓ Aggregator model✓ Solar PV Portal✓ Matchmaking Event/Platform
EPC contractor	Technical	<ul style="list-style-type: none">• Reliability of installers	✓ Whitelist of EPC
	Financial	<ul style="list-style-type: none">• High administration cost due to small project (Non-bankable Scale)• Limited access to target customers	✓ Matchmaking Event/Platform

Summary Insights

- ❖ The Governor of Bangkok plays a crucial leadership role in advancing climate initiatives.
- ❖ JICA's capacity development initiatives are incredibly valuable and have made a significant positive impact.
- ❖ The partnership with the City of Yokohama has strengthened our efforts and enhanced our capacity to implement effectively.
- ❖ Engaging citizens and the private sector has led to a significant reduction of GHG emissions in Bangkok.
- ❖ Initiatives in climate finance, including through PPP, facilitates Bangkok to scale up climate action.





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Climate Action Starts with You

Let's Heal the Earth Now!

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