Challenges and Opportunities for Corporates' Transition to Carbon Neutrality
企業應對碳中和的挑戰與機遇

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Agenda

1 Introduction

2 Current Status of HK Businesses

3 Challenges & Opportunities

4 Roadmap and Strategies

5 Green Technologies

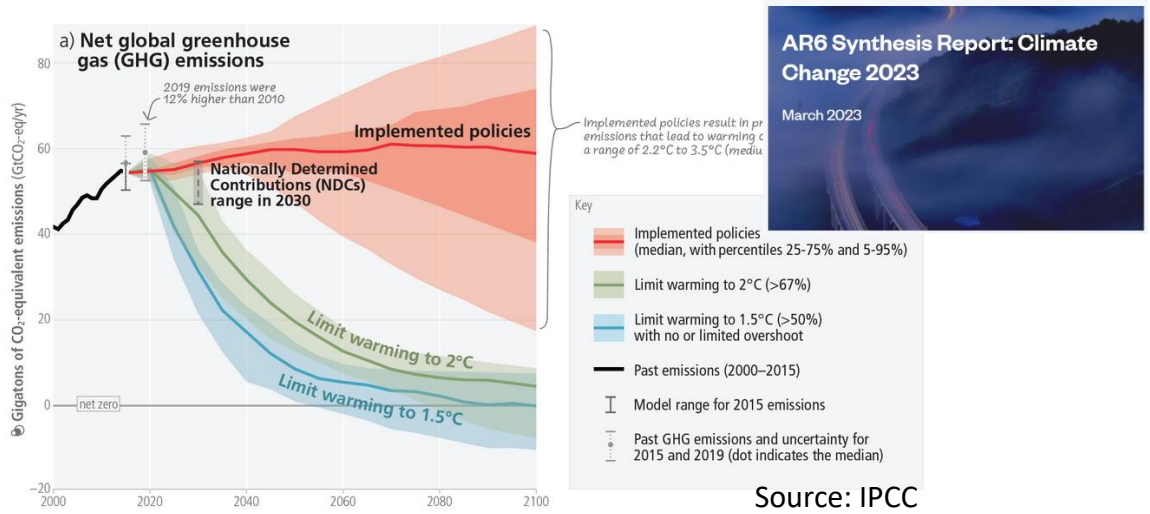
6 Conclusion

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Point of No Return? Now or Never

IPCC's latest AR6 Synthesis Report: Climate Change 2023 (20 Mar 2023)



Source: IPCC

Key Takeaways:

- *Human-induced global warming of **1.1°C** has spurred unprecedented changes in climate*
- *Likely exceed 1.5°C of warming "in the near term"*
- *Must cut GHG to 60% below 2019 levels by 2035*
- *Require deep cuts across the economy this decade*

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In short, our world needs climate action on **all fronts** — everything, everywhere, all at once.

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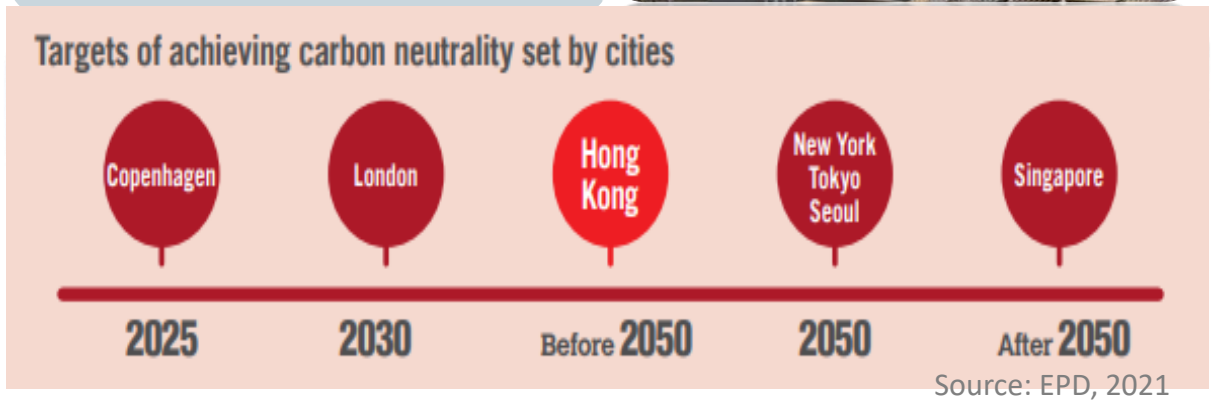
Government Commitments

Hong Kong:

- *Hong Kong's Climate Action Plan 2050*
  - Vision: **"Zero-carbon Emissions · Liveable City · Sustainable Development"**



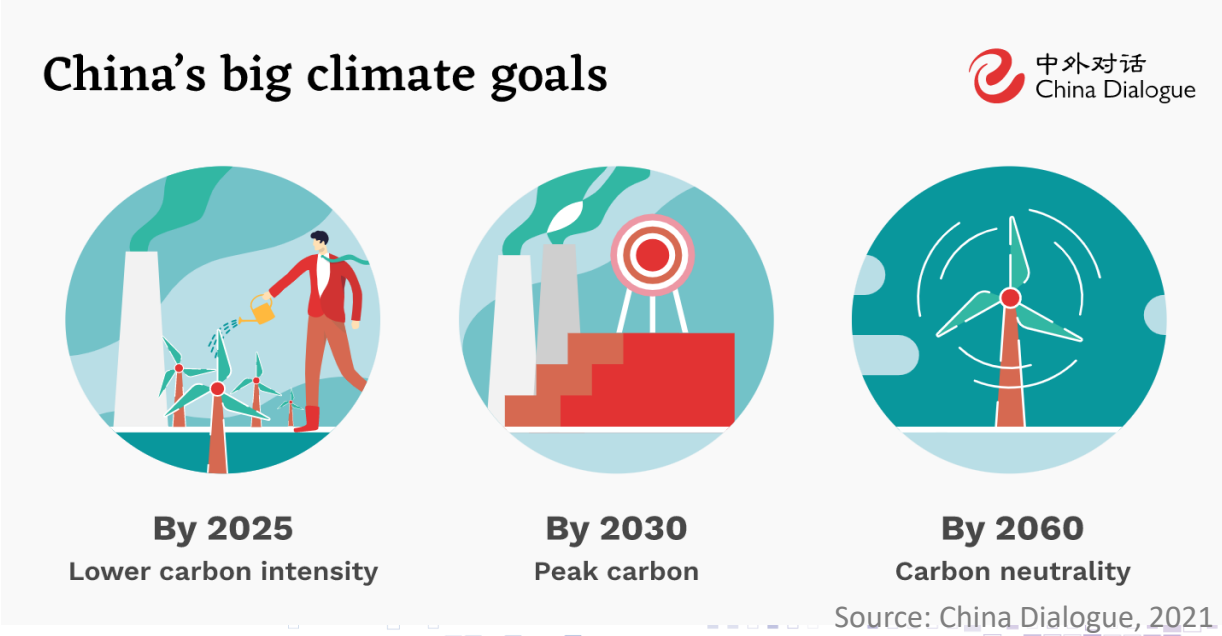




Source: EPD, 2021

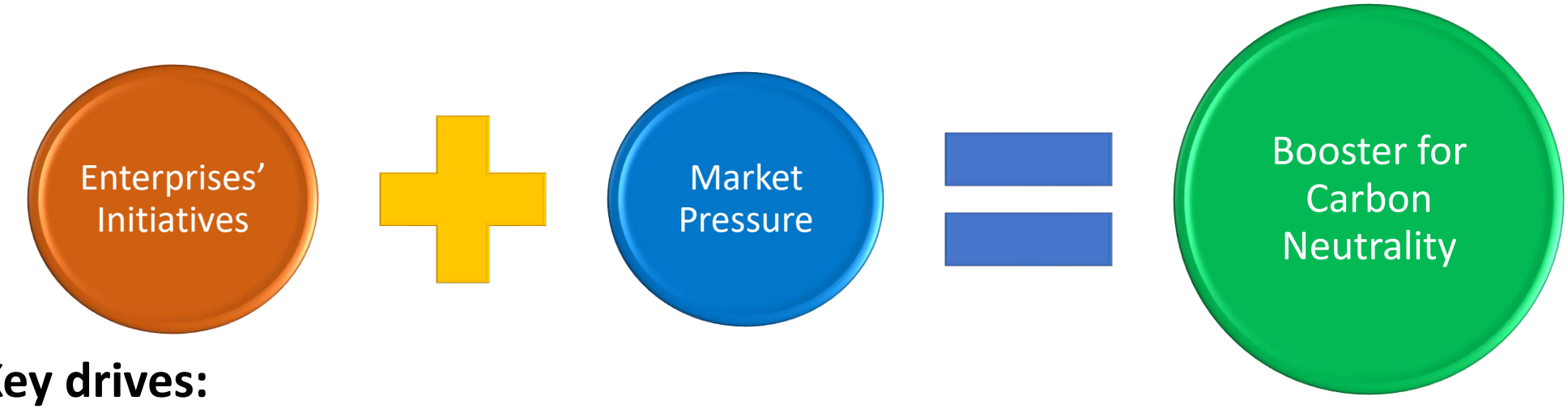
China:

- *Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy*
  - **Fully established a green, low-carbon and circular economy and a clean, low-carbon, safe and efficient energy system by 2060**



Source: China Dialogue, 2021

Why Carbon Neutrality for Enterprises?



Key drives:

- Meet regulatory / compliance requirements (e.g. ESG)
- Identify energy / waste management opportunities to save cost
- Response to the market pressure (investors, consumers, supply-chains)
- Enhance reputation and gain competitive edge in the market:
  - *Carbon Neutrality Partnership*
  - *Carbon Reduction Certificate, etc.*



減碳證書
Carbon Reduction
—Certificate—

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Current Status

- How Hong Kong businesses are progressing towards Carbon Neutrality

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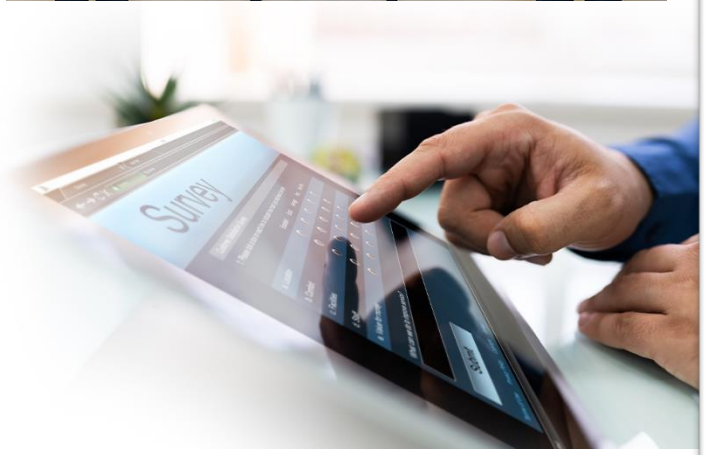
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Industry Survey on Carbon Neutrality Progress and Challenges

HKPC collaborated with CityU to conduct a survey (Oct-Dec 2022) to understand:

- how businesses are progressing towards decarbonization and challenges encountered





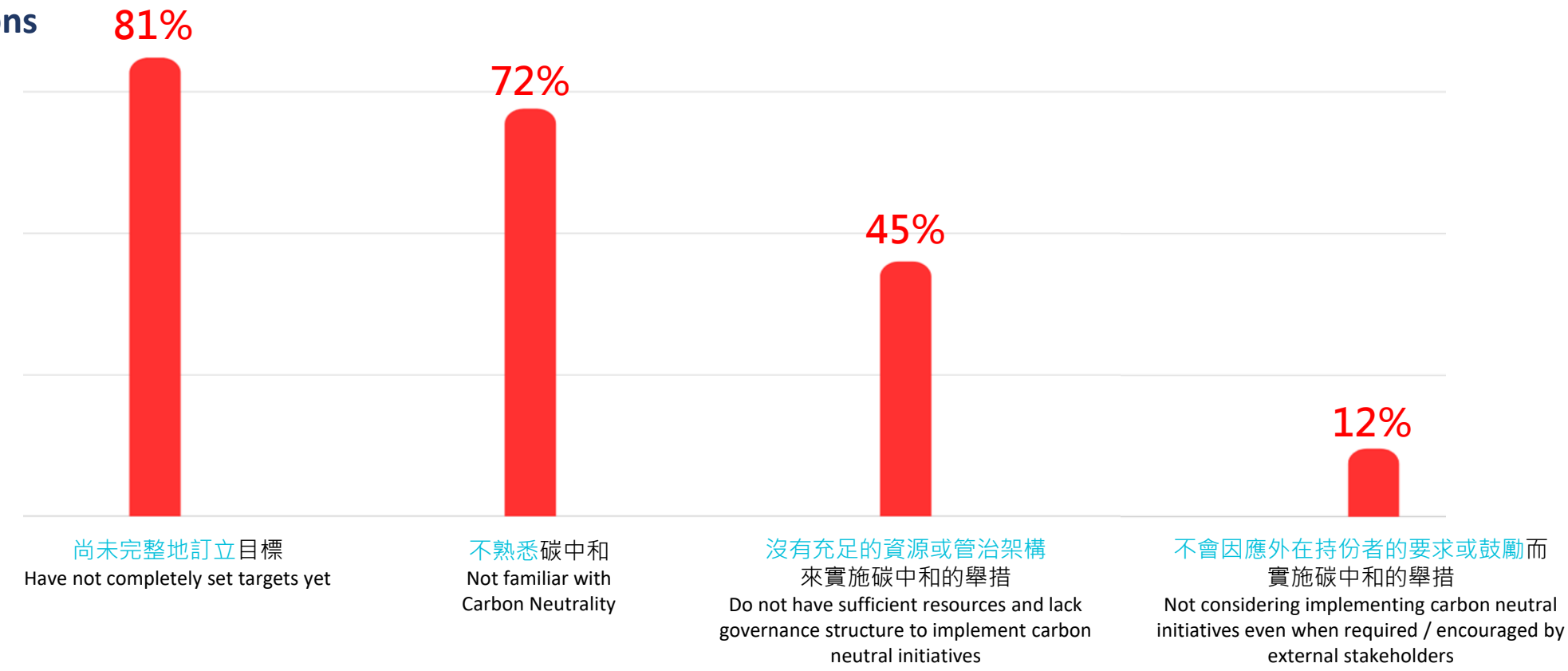


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摘要 Executive Summary (1)

觀察重點
Key Observations



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碳中和目標訂立的進展 Progress on Carbon Neutrality Target Setting

在**尚未訂立**目標的受訪者當中 For those who have **NOT** set targets yet

三大因素
Top 3 Reasons

尚未訂立碳中和目標的因素
Reason(s) of Not Setting Carbon Neutrality Targets

- 缺乏外部支持
  Lack of external support **76%**
- 尚未與機構之運作相關
  No relation to the organisation's operation yet **73%**
- 意識/認知不足
  Lack of awareness / knowledge **71%**

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碳中和目標訂立的進展 Progress on Carbon Neutrality Target Setting

在已訂立/ 正在訂立目標的受訪者當中 For those who **HAVE SET / ARE IN PROGRESS TO SET** targets

訂立碳中和目標的驅動因素
Driver(s) of Setting Carbon Neutrality Targets



90%

品牌形象、名聲及競爭力
Brand image, reputation and competitiveness



48%

規管要求
Regulatory mandates



44%

滿足客戶要求
Meeting clients' requirements

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挑戰及需求 Challenges and Needs

邁向碳中和的挑戰及需求
Challenges and Needs in Transition to Carbon Neutrality

最大挑戰 Top Challenges

較高的財務資本需求
High financial capital requirement



低碳的作業模式成本較高
Low carbon business model costs more

缺乏消費者及客戶的需求
Lack of demand from consumers & clients

主要需求 Top Needs

資金/資助支援
Financial / Funding Support

技術支援 Technical Support
1. 評估工具 Assessment Tools
2. 培訓 Trainings
3. 顧問服務 Consultancy Services
4. 綠色技術 Green Technologies

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我們提供給業界的支援 Our Support to the Industry

通過是次調查，我們瞭解到不同企業在低碳進程上的現狀、挑戰和需求。我們將就以下範疇與政府及業界緊密合作，以協助各界跟上碳中和的趨勢：

Through the survey, we have understood enterprises' status, challenges and needs along their low carbon journeys. We will closely work with the government and the industry on the following in the near future to help enterprises catch up with the carbon neutrality trend:

1

研發碳評估工具
Develop carbon assessment tools

2

提供更多能力提升和相關顧問服務
Offer more capacity building and related consultancy services

3

推廣和研發低碳技術
Promote and develop low carbon technologies

4

為行業提供技術支援以尋求政府或其他相關資助
Provide technical support for industry to seek government or related funding

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Challenges & Opportunities

of Achieving Carbon Neutrality for Corporations

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Challenges faced by Enterprises



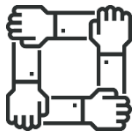
Cost



Technological Limitations



Cultural Barriers



Lack of Supports



Suppy Chain Challenges



Difficulty in measuring emissions

Innovative Examples:

- **Swire**
  (Sustainable Development Fund)
- **Microsoft**
  (Internal Carbon Tax)
- **Apple**
  (Supplier Clean Energy Program)

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Opportunities for Enterprises

Cost savings

Enhanced Brand Reputation

Access to New Markets

Improved Employee Morale and Retention

Regulatory Compliance

Increased investor confidence

Case Studies:

- **Walmart** *(Project Gigaton)*
- **Patagonia**
- **IKEA**



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Roadmap and Strategies

for Corporations to Achieve Carbon Neutrality

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Roadmap to Enterprise Carbon Neutral

1 Commit
Management's commitment

2 Measure
Carbon footprint

3 Gap
Analyse gaps & bridging options

4 Target
Set goals & timeframe

5 Action
Reduce and offset emissions in phases

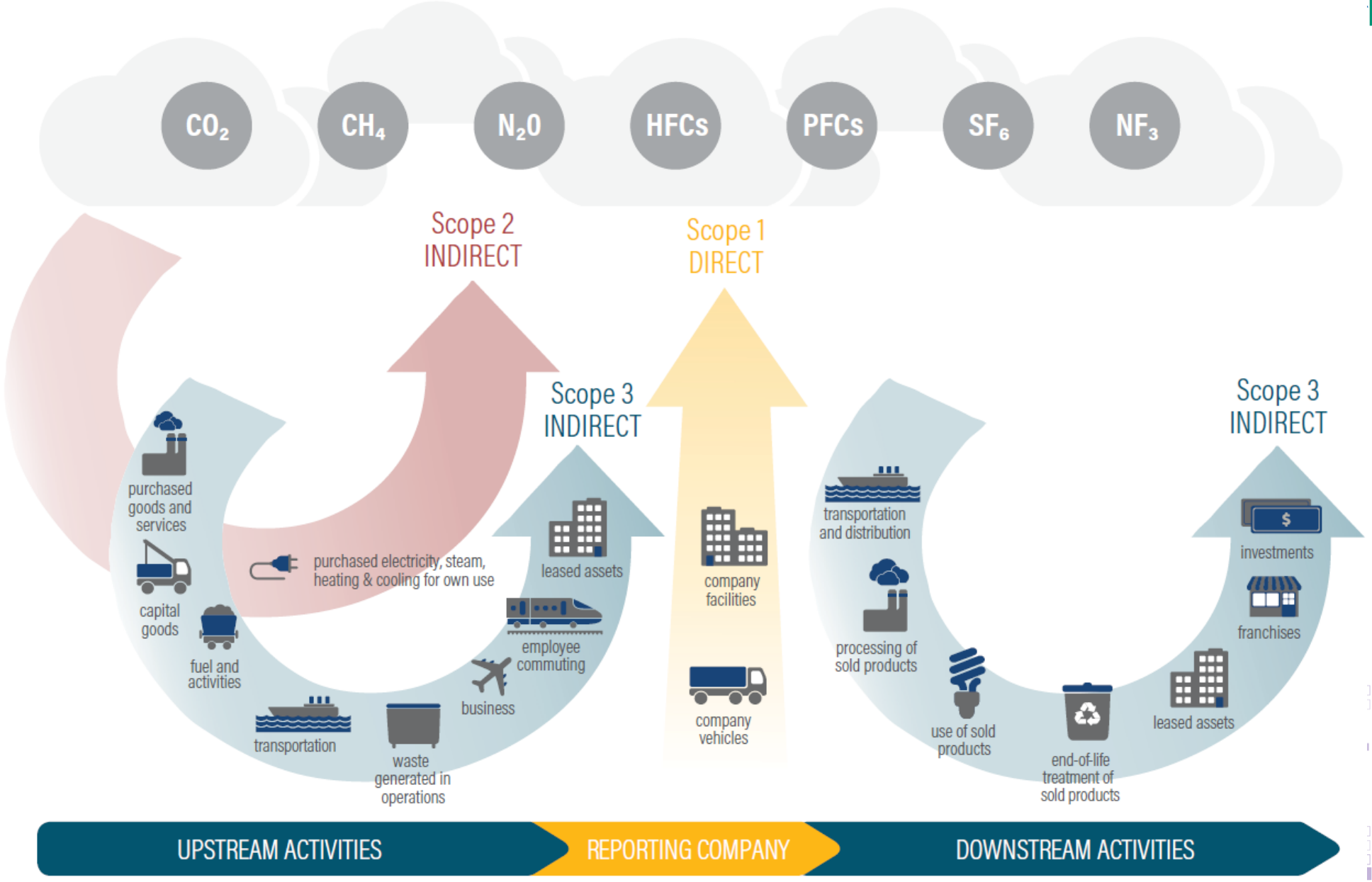
6 Disclose
Communicate, track & review

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Commit and Measure

- Commit
- Measure
- Gap
- Target
- Action
- Disclose



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Source: Apparel and Footwear Sector: Science-Based Targets Guidance

Gap & Target

Commit

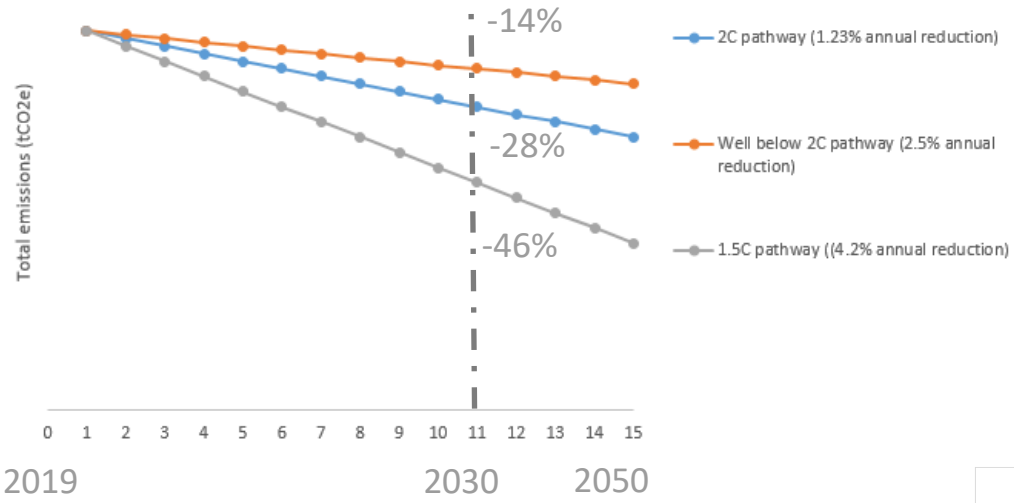
Measure

Gap

Target

Action

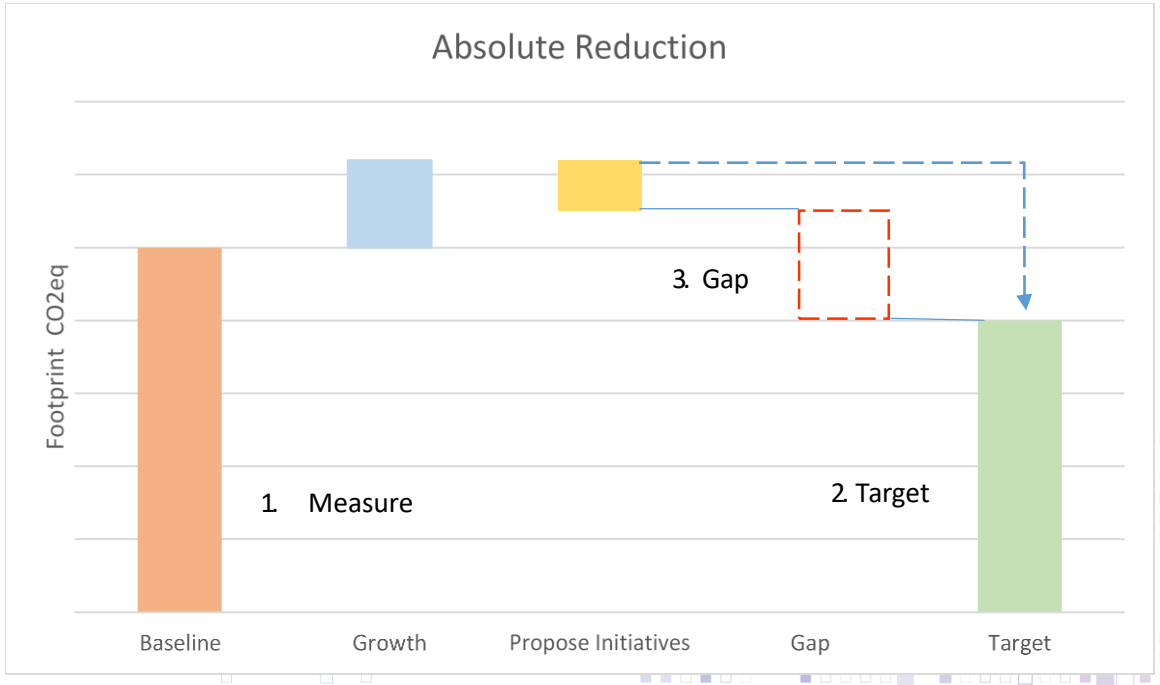
Disclose



SCIENCE BASED TARGETS

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

- Understand gaps, risks & opportunities
- Establish areas of leverage across value chain
- Prioritise effort to unlock cost effective reductions



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Actions & Disclosure

Commit

Measure

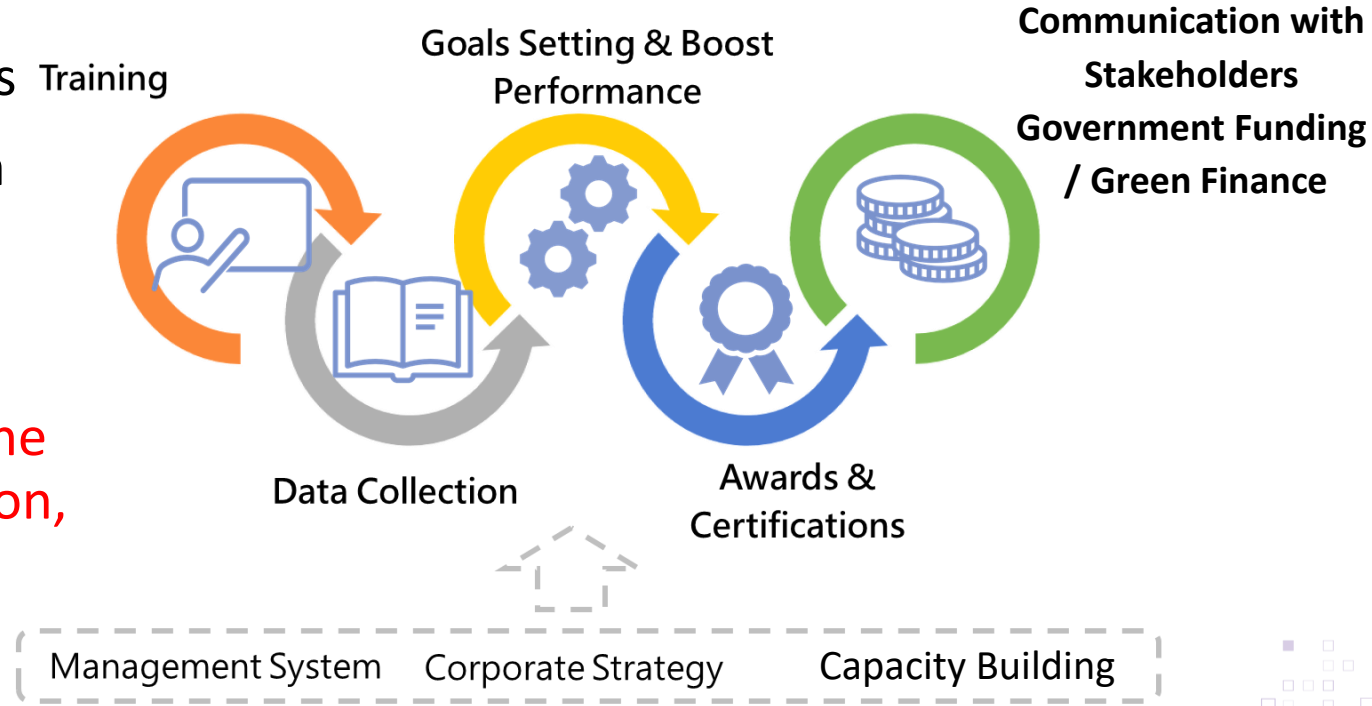
Gap

Target

Action

Disclose

- Energy efficiency measures
- Renewable energy sources
- Carbon sequestration
- Offset all remaining emissions
- Collaborate with supply chain
- Employee Engagement
- Collaboration
- Green technology is among the major tools for decarbonisation, more active than other ways!



Be Innovative and Active, NOT just Trading!

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Green Technologies

for supporting Carbon Neutrality

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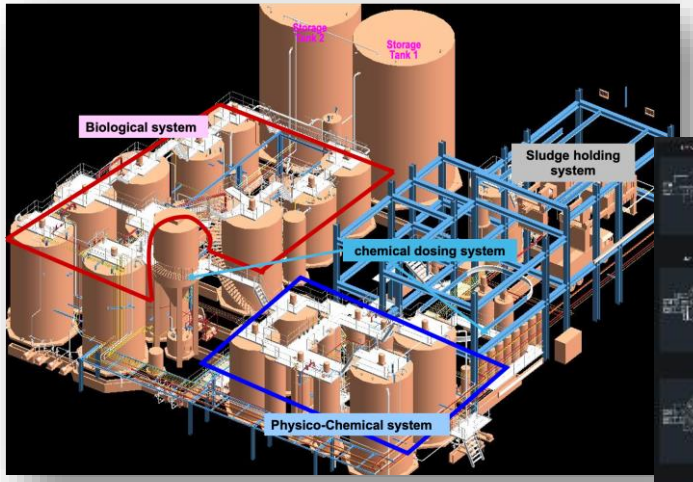
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Supporting Government's Decarbonisation:

HKPC's Support on Technology and Services for Decarbonisation



Source: EPD, 2021







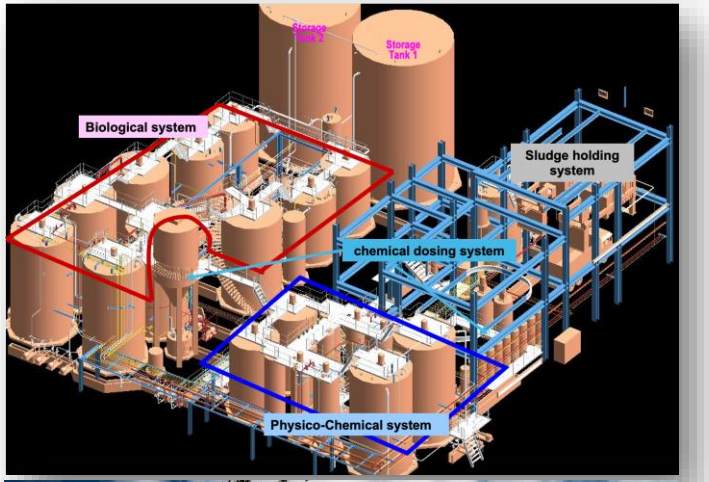


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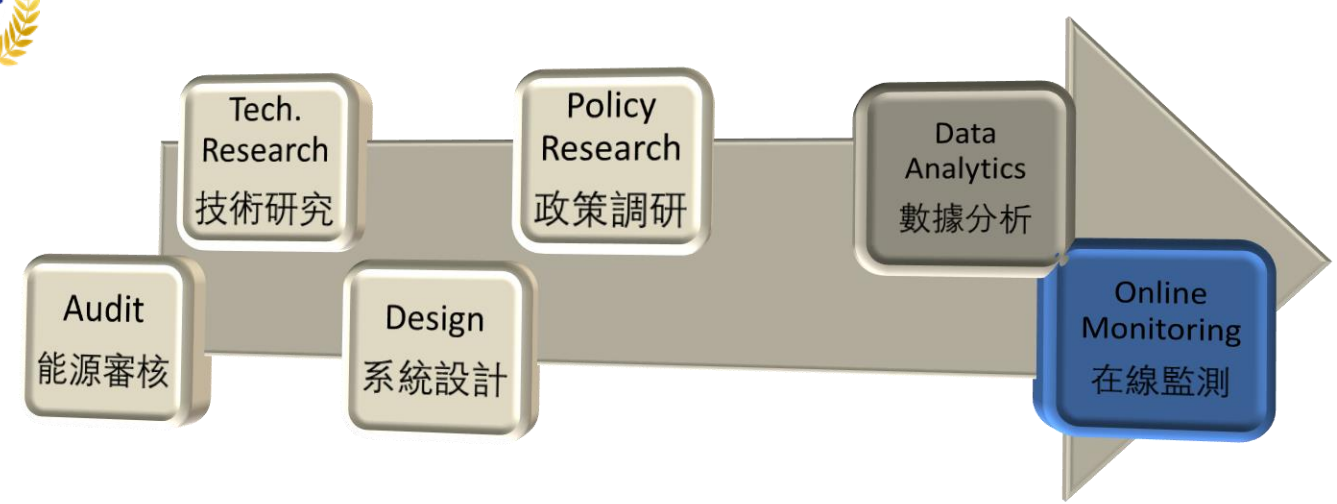
Net-Zero Electricity Generation

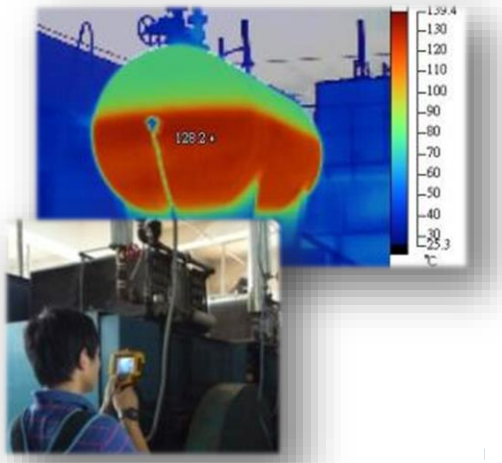
Zero-Liquid-Discharge for CLP Power Plants





Energy & Air Services









Energy Saving & Green Buildings

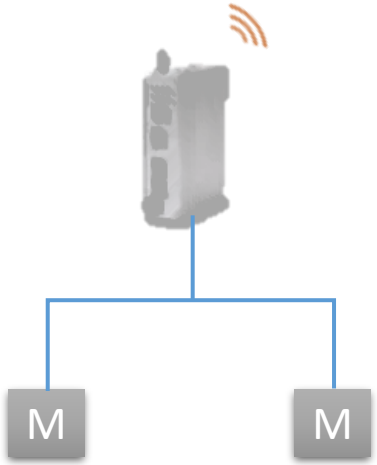
Smart Manufacturing



Smart Energy Monitoring



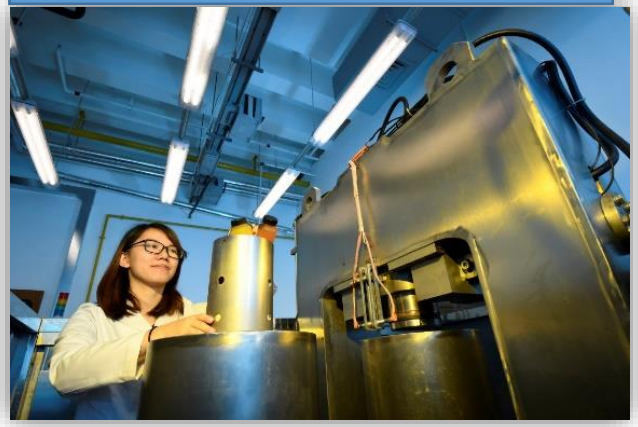




Greywater Recycle/Reuse



Smarter Processing

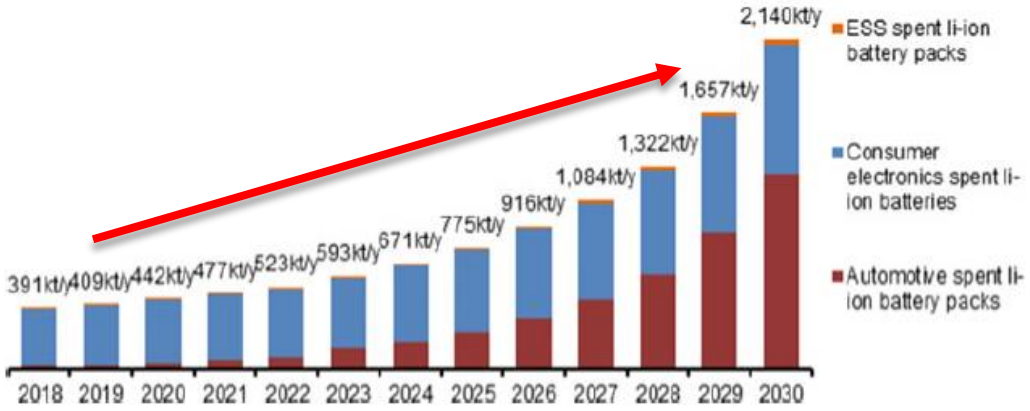


Constructed Wetland



Green Transportation

Arising concerns on EV batteries



↑ 10x spent batteries by 2030

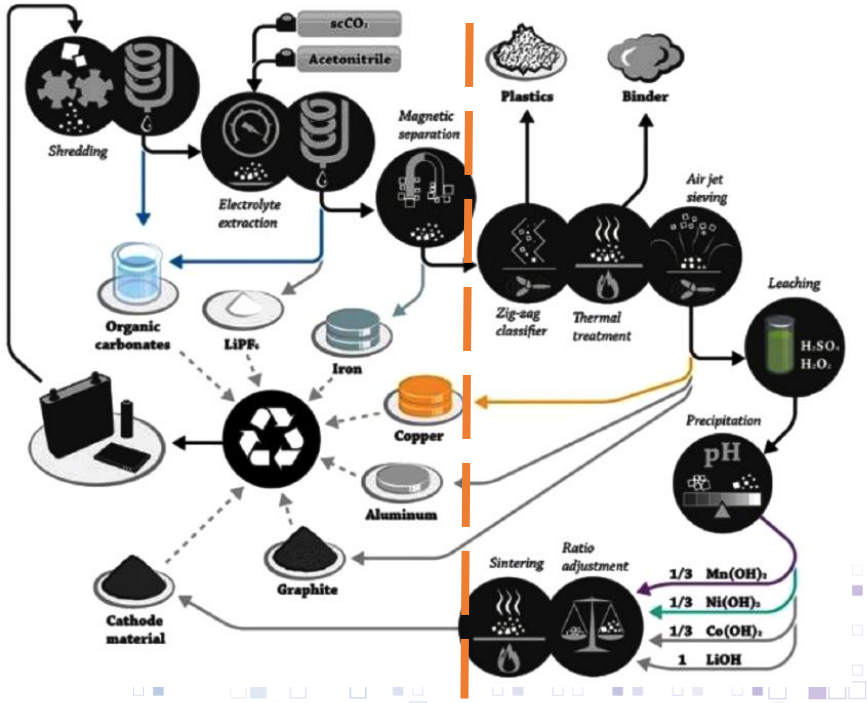
$ 6 Billion (US$) recoverable materials

3.4% 31,000 EVs in HK (Apr. 22)

Upcycling of EV batteries

Automatic dismantling process for "Black mass"

Recovery process for valuable from “Black mass”



Green Transportation

eCommercial Vehicles



Fuel Cell Forklift

Source: Toyota Industries Corporation, 2015



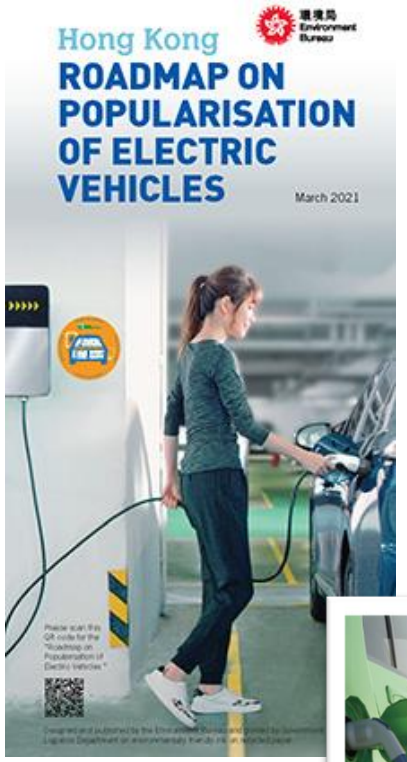
Hybrid Coach

Source: HKPC,2018



Heavy Duty eTruck

Source: HKPC,2018



Source: ENB, 2021

EV Charging facilities



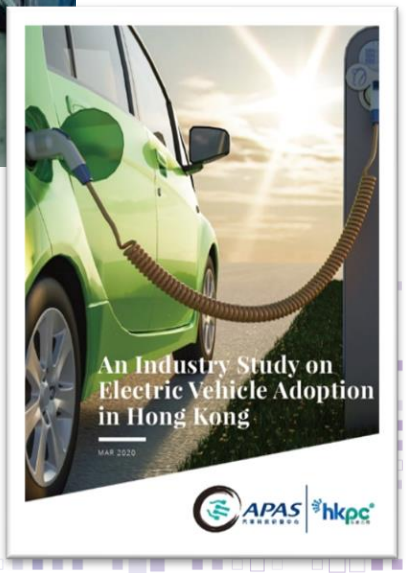
Infrastructure support

Source: HKPC,2021



Smart Mobile EV Charger

Source: HKPC,2018



Source: HKPC, 2018

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Waste Reduction

1. Collection → 2. Transportation → 3. Treatment









Star invention for ~~total~~ food waste recycling

Inventions Geneva





0%
Nearly Zero to landfill

>50%
Operation cost reduction

0.6
Ton CO_2 reduction /ton food waste

Waste Reduction

Novel Landfill Leachate Treatment







>90%

Color intensity removal

>50%

Power consumption reduction

>590

Ton CO2 reduction /year

What's to come

- **Full-scale Demonstration Plant**
- **Further Decarbonisation**

Waste Reduction

Full-scale Waste Management Capability



- Conduct waste audit / content analysis, and evaluate waste management practices
- Identify cost-effective improvement areas
- Formulate waste reduction & recycling work plan
- Conduct workshops on waste management

Waste Upcycle Researches

Plastic Wastes Recycling via Catalytic Pyrolysis



Feasibility Study
Technology Partner: HKUST

Pilot Trial (Client project/GTF)
Target products:
Fuel oil (e.g. petro, diesel)



Commercialisation

Smart Monitoring System for Municipal Solid Waste (MSW) Charging



Feasibility study of applying AI monitoring technologies in MSW charging trials



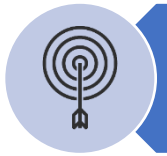
Conclusion and Recommendations

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Recommendations to Enterprises

- Challenges ahead but great opportunities, too
- Important to take action NOW
- Various strategies and options for enterprises to reach this goal



Set clear goals and targets



Conduct a carbon assessments



Implement carbon reduction strategies



Invest in sustainable technologies and practices



Collaborate and advocate for policy change



Monitor and report progress

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Response to Industry Survey

Our Support to the Industry

Through the industry survey, we have understood enterprises' status, challenges and needs along their low carbon journeys. We will closely work with the government and the industry on the following in the near future to help enterprises catch up with the carbon neutrality trend:

1. Develop carbon assessment tools
2. Offer more capacity building and relating consultancy services
3. Promote and develop low carbon technologies
4. Provide technical support for industry to seek government or related funding

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All-in-One Support for Carbon Neutrality

Industry Support

Bridging Industry Needs:

- Industry Consultation
- Industry Survey on Carbon Neutrality

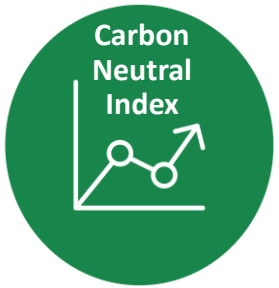


Facilitating Tools:

- (TSF) Comprehensive Study and Carbon Footprint Calculator for Electroplating Industry



- Carbon Neutrality Advancement Index (under development)



Enterprise Support

Commit / Measure

- Carbon/ energy/ waste audit
- Data / reports verification
- ESG reporting
- Staff training
- Carbon data management and analytics (Data is king!)

Gap / Target

- Assist in setting targets
- Formulate a carbon neutral roadmap
- SBTi (Science-based Target)

Actions / Disclose

- Advise on carbon reduction opportunities
- Green procurement support
- Set carbon reduction plans & monitor progress
- Assist in gaining recognitions
- GreenTech R&D and application

All-in-One Support

Service + Green Tech

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Thank you

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