

Green FinTech & Net Zero: From Global Goals to Hong Kong Action

How green financial technology can help achieve net zero goals, with a focus on Hong Kong's role in the global climate action landscape.



by Victor Yim



Climate Course Roadmap

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Course Overview

1 Global Context of Net Zero

Understand the science and global commitments

2 Finance as the Engine

Learn about bonds, loans, and investment approaches

3 Carbon and REC Markets as tools

How carbon offset can help net zero and the limitation

4 Regulations for Trust

Taxonomy and Reporting Standards

5 Tech as the Enabler

Discover how green digital tech enables sustainable finance

6 Future Outlook and opportunities

How do we get prepared to capture the opportunities

The Climate Crisis: From Paris to COP28

Paris Agreement (2015)

Landmark accord setting 1.5°C warming limit with 195 nation nation signatories.

Established Nationally Determined Contributions as key implementation mechanism.



Accelerating Impacts (2016-2022)

Europe's "Cerberus" heatwave hit 48.8°C; Canadian wildfires wildfires burned 18M hectares.

Hurricane Otis surged from tropical storm to Category 5 in just 12 just 12 hours.



COP28 Breakthrough (2023)

First global agreement on fossil fuel phase-out with 190+ nations. nations.

Established \$700M Loss & Damage Fund for vulnerable countries. countries.



Emissions Reality Check (2024)

CO2 levels reached 419 ppm in 2024, far above pre-industrial 280 ppm.

Current trajectory heading toward 2.4–2.7°C warming by 2100. 2100.



Why Net Zero Matters for Hong Kong



Rising Sea Levels

Victoria Harbour sea levels rose 0.12m since 1995, threatening Central's financial district.



Typhoon threats & Extreme Weather

September 2023 deluge (158.1 mm/hour) flooded MTR stations across the city.
Super Typhoon Saola (2023) caused \$500M+ in damages with 10,000+ evacuations.
Hong Kong Observatory predicts 20% increase in intense typhoons by 2050.



HK's Commitments

50% emissions cut by 2035, net zero by 2050. Ban on ICE vehicles by 2035.

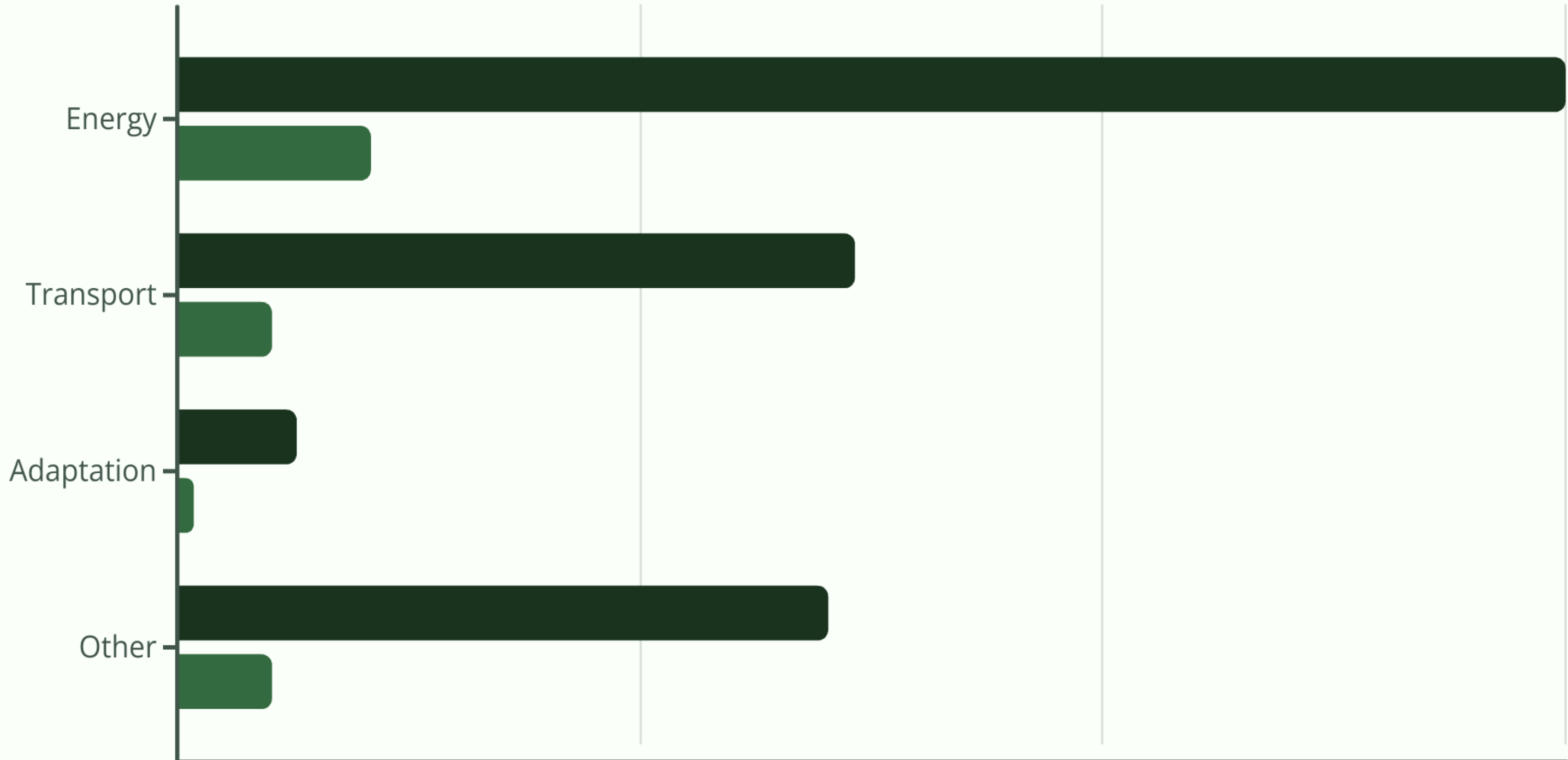


The Role of Finance in Net Zero



The Global Funding Gap

Meeting global net zero targets requires unprecedented investment. Current flows cover just 14% of what's needed annually.





Asia's Critical Role in Climate Finance

Asia generates half of global carbon emissions, making it a crucial battleground for climate action.

50%

Global Emissions

Asia's current share of worldwide carbon output

\$2.8T

Annual Need

Yearly investment required across the region

\$500B

India's Target

Funding needed for renewable transition by 2030

2030

The region's rapid industrialization creates both urgent challenges and unprecedented opportunities for opportunities for green finance innovation.

Hong Kong's Green Finance Leadership in Leadership in GBA

The Greater Bay Area requires **\$240B annually** for green infrastructure projects, yet current investment investment reaches only **\$80B per year**.

\$160B

Annual Funding Gap

Critical shortfall for sustainable GBA development development

37%

Asia's Green Bonds

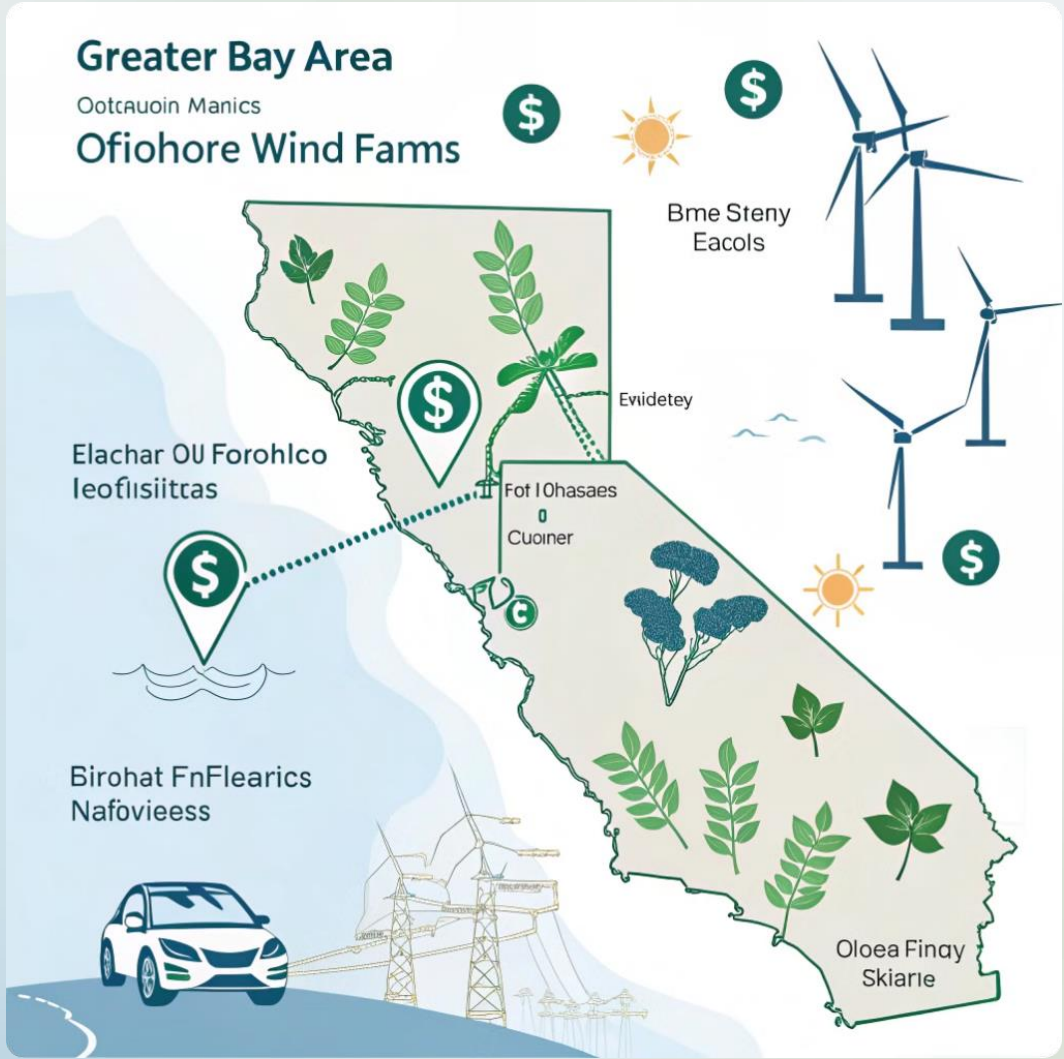
Issued through Hong Kong in 2023

3x

Scale-Up Needed

Current funding must triple to meet targets

Hong Kong's established financial infrastructure positions it as the natural green finance hub for the region's for the region's transformation.





Green Finance in Action – Bonds & Loans



Green Bonds

Use of proceeds frameworks (e.g., MTR's MTR's \$1B bond for rail electrification)
electrification)



Transition Loans

DBS Bank's loan to retrofit a Shenzhen
Shenzhen factory



Link REIT Case

Hong Kong's largest REIT issuing green
bonds for building upgrades

Green Bonds

HK Government's Digital Green Bond

\$6.8B raised in 2024 for offshore wind farms in Greater Bay Area. Area.

Purpose: Funds projects aligned with the HKSAR Government's Green Bond Framework, including renewable energy, green transportation, and energy efficiency.

Issued **natively** on **HSBC Orion** (DLT platform), with the Central Central Moneymarkets Unit (CMU) as the central securities depository

MTR's Sustainability-Linked Bond

Revolutionary performance-based financing model drives climate climate action.

- Science Based Targets initiative (SBTi)-approved decarbonization targets
- **Sustainability Focus:** Funds initiatives to reduce carbon emissions across MTR's rail network and property portfolio, portfolio, including green and climate-resilient measures

Transition Loans: Retrofitting Industries

HSBC: Etihad Airways Transition Sukuk Innovation

A \$600M Islamic bond raising funds for energy-efficient aircraft and sustainable aviation fuel (SAF) research.

- Conditionality: Etihad pledged to pay carbon offset penalties if it missed emissions-intensity target
- Finances next-generation aircraft with 20% 20% lower fuel consumption
- Supports research into sustainable aviation alternatives

Standard Chartered's Climate Leadership

\$200M strategic financing transforms high-emissions industries while setting ambitious climate targets across sectors.

- Completed setting interim 2030 financed emissions reduction goals for all 12 all 12 high-emitting sectors
- First Global Systemically Important Bank to Bank to obtain independent confirmation from EY for 9 of its 2030 targets
- Reached nearly \$1 billion in annual sustainable finance income in 2024

Transition Finance is Key

- Addresses the critical "hard-to-abate" sectors that traditional green loans often exclude but which represent the largest emissions sources (steel, cement, shipping, etc.)
- Creates pathways for carbon-intensive "brown" industries to progressively decarbonize rather than leaving them stranded without financial support for their transformation

The Investment Side – ESG & Impact Funds

ESG Screening
Excluding harmful industries



Thematic Investing
BlackRock's HK-listed ESG ETF

Risk Management
Climate risk integration



Impact Investing
Measurable outcomes (e.g., water access in rural GBA)

Investment as a Catalyst – Private Capital Mobilization

The climate finance gap requires massive private capital mobilization to supplement limited public funding.

\$6.2T

Annual Need

Required yearly funding until 2030 for climate action

\$18T

Cumulative Gap

Projected funding shortfall by 2030 according to BCG

85%

Private Sources

Proportion of current climate finance from private capital

\$114T

Asset Pool

Global investable assets potentially available for climate solutions

Hong Kong positions itself as a regional ESG hub with 31 SFC-authorized ESG funds and mandatory climate risk integration for asset managers.

ESG & Thematic Funds – Scaling Solutions

\$1.46T

Global ESG AUM

Tracked climate finance in 2022

20%

Annual Growth

CAGR since 2018

\$251B

Energy Storage

Annual investment needed

\$145B

CCUS

Annual funding required

Hong Kong leads with strict SFC regulations requiring enhanced ESG disclosures and demonstrated "key investment focus" to prevent greenwashing. greenwashing.

Thematic investment currently prioritizes energy (32%) and transport (50%) sectors - critical for regional climate transformation.

Carbon Market 101

Trading systems that enable the buying and selling of carbon credits to reduce emissions globally.



What is a Carbon Market?

Trading system for carbon credits to reduce emissions.

- Key players include governments, corporations, and individuals offsetting carbon footprints.



Types of Carbon Markets

- Compliance Markets: Mandatory systems with legally binding emission targets.
- Voluntary Markets: Optional offsetting by individuals and organizations.



How it Works

- Companies receive carbon credits (1 credit = 1 ton of CO₂).
- Those emitting less can sell surplus credits.
- Those exceeding limits must purchase additional credits.



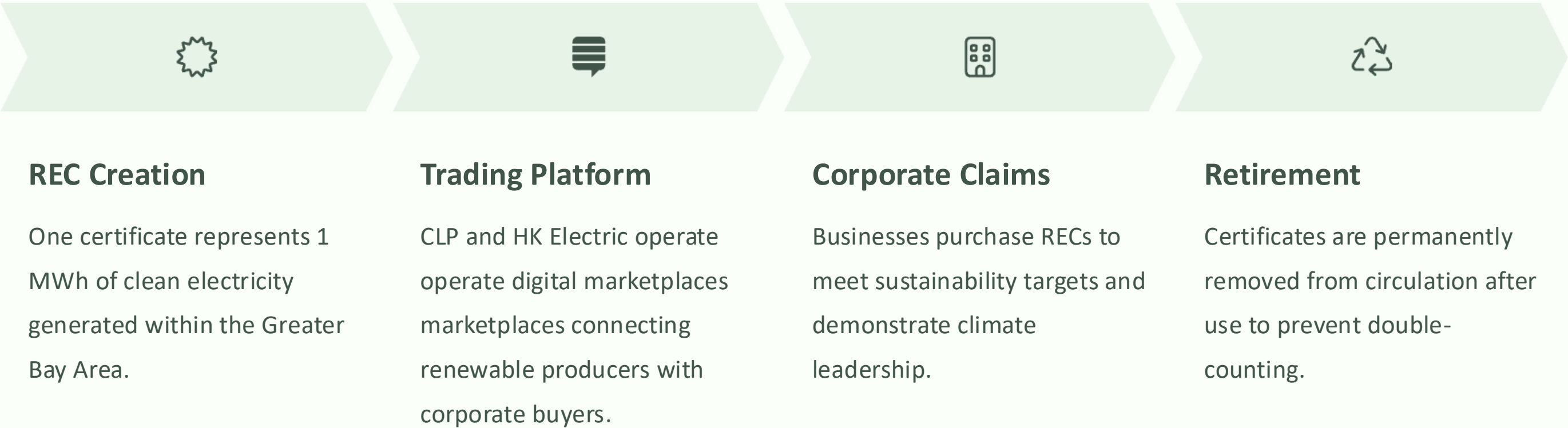
Benefits & Challenges

Benefits: Incentivizes emission reduction, drives green innovation, funds sustainable initiatives.

Challenges: Double-counting reduces credibility, lack of standardization creates inconsistent rules, transparency issues cause verification difficulties.

RECs & Renewable Energy in HK

Hong Kong's clean energy transition leverages Renewable Energy Certificates (RECs) to accelerate decarbonization despite limited land for renewable deployment.



RECs enable Hong Kong's financial sector to support mainland renewable projects while creating verifiable environmental claims for ESG claims for ESG reporting.

ESG Reporting: Driving Transparency & Sustainability

Financial markets increasingly demand standardized disclosure of climate impacts and sustainability performance to make informed investment decisions.



Metrics-Driven Accountability

Companies must quantify and disclose environmental footprints, governance structures, and social impacts annually.



Global Standards Convergence

ISSB, GRI, and Hong Kong's HKEX ESG guidelines create unified frameworks for for comparing performance.



Investor Decision Engine

Robust ESG data enables capital allocation toward companies genuinely committed to sustainable transformation.



ISSB: Globalizing ESG Reporting



Global Standardization Mission

IFRS Foundation established ISSB to create unified ESG disclosure standards across markets.



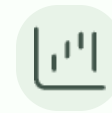
Dual Standards Approach

IFRS S1 covers general sustainability while S2 addresses climate-specific metrics like Scope 3 emissions.



Framework Convergence

Integrates existing frameworks (SASB, TCFD, CDSB) into a single global baseline standard.



Digital-First Reporting

Encourages XBRL tagging for machine-readable financial data financial data comparability across companies and jurisdictions.

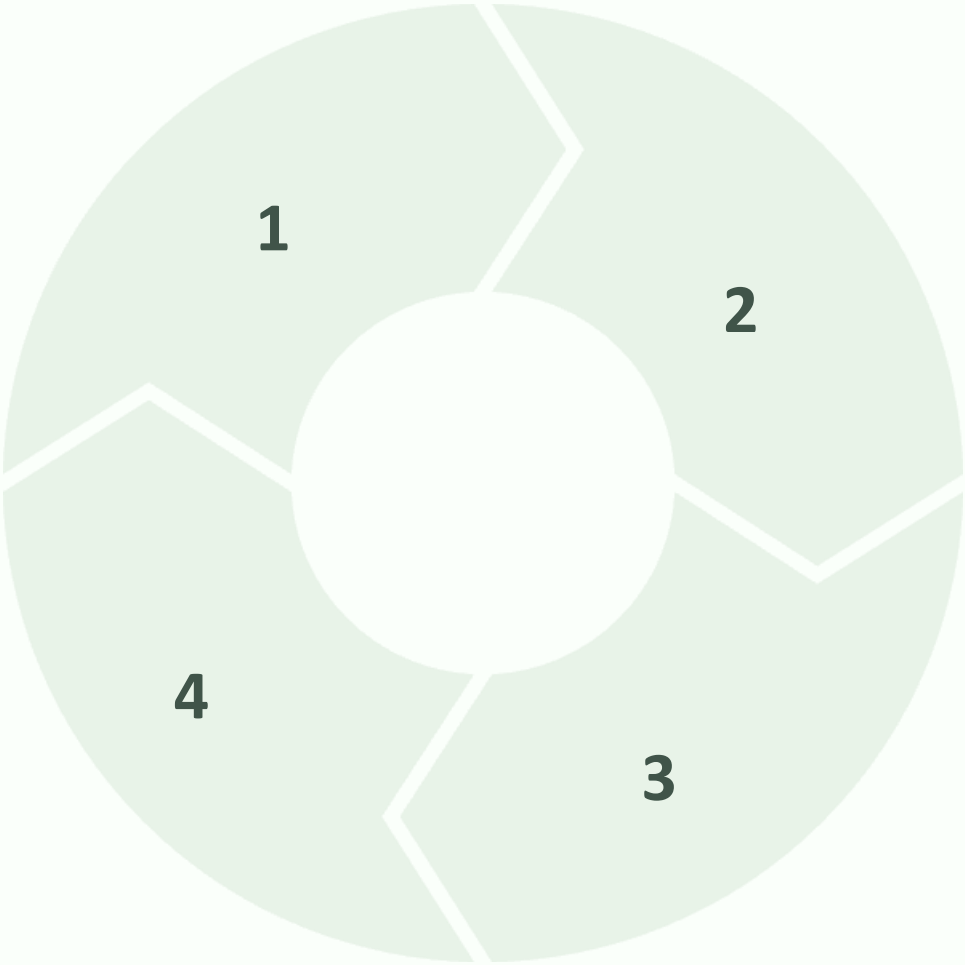
TCFD (Task Force on Climate-related Financial Disclosures)

Governance

Robust board and management oversight
oversight of climate-related risks and
opportunities

Metrics and Targets

Disclosure of specific metrics and targets
targets used to measure and manage
relevant climate risks and opportunities
opportunities




Strategy

Assessment of climate impacts on business
strategy and financial planning across
multiple scenarios

Risk Management

Systematic processes to identify, assess
assess and manage climate-related risks
risks within broader risk frameworks

The 1st layer of impact fintechs are establishing green data data credibility for financial services firms

ADVISORY	INVESTING	CREDIT RISK	REAL ESTATE	DATA INTEGRITY
ethic.	CLARITY AI	SIGMA RATINGS	measurabl	TRUVALUE LABS
Allows advisors to conduct negative and exclusionary screening	Auto rebalances portfolios to align with social impact goals	Provides scoring and reporting for non-quantifiable risk events	Platform for scoring and monitoring environmental outputs of RE assets	AI database that tracks, quantifies, and reports intangible risk for equities
				
CBINSIGHTS				

The next layer of impact fintech will establish credibility with next-gen investors, ahead of wealth transfer

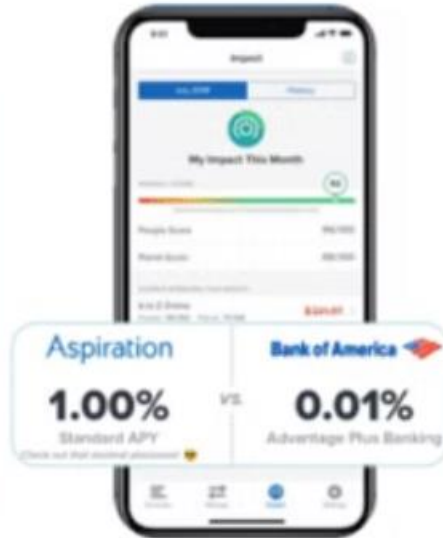
BANKING

Digital-first banks that use impact investments to generate interest on deposits and savings

NEWDAY⁺



Aspiration
Do Well. Do Good.



CBINSIGHTS

INVESTING

Automated wealth management software that allocates assets across thematic investment funds and ETFs

motif.



OpenInvest

What if your portfolio had a powerful social impact?



Swell



A portfolio of companies
concerning water, cleaning it up,
and streamlining our systems.
Think water filters and pipe
repairs.

see all 473 companies >



LENDING

Investment account that allocates assets to community development financial institutions (CDFIs)

CNote

Better interest on your interests
Earn 2.75% with 100% social impact



ESG & CLIMATE FINTECH LANDSCAPE

B2B

CLIMATE RISK

PHYSICAL RISK



TRANSITION RISK



RISK TRANSFER



CORPORATE ASSESSMENT AND REPORTING

ESG



CARBON

GOVERNANCE

DIVERSITY

ESG INTELLIGENCE & DATA ANALYSIS

GEOSPATIAL/ENERGY DATA/SECTOR BASED



ESG GENERIC/IMPACT

OFFSETTING ANALYTICS AND MARKETPLACES

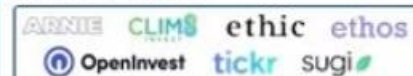


SUPPLIER SCREENING



B2C/B2B2C

INVESTING




BANKING































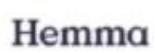









FOOTPRINT & OFFSETTING



 Citi Ventures portfolio company

Green Fintech Classification system from Swiss

 1 Green digital payment and account solutions	 2 Green digital investment solutions	 3 Digital ESG data and analytics solutions	 4 Green digital crowdfunding and syndication platforms	 5 Green digital risk analysis and insurtech	 6 Green digital deposit and lending solutions	 7 Green digital asset solutions	 8 Green regtech solutions
<p>Payment and account solutions integrating green features into the payment experience.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Automated carbon, plastic or water footprint accounting, based on transaction data. Automated offsetting of green externalities. <p>      </p>	<p>Digital platforms that provide automated solutions, algorithm-driven green financial planning and investment services with little to no human supervision.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Retail algorithmic trading with a focus on green assets. Automated green investment advice. Automated green portfolio allocation. Risk assessment according to environmental criteria. <p>     </p>	<p>Solutions for automated green data collection and analytics for finance, including automated green asset rating and indexing.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Credit scoring algorithms that integrate green data in the credit decision. Automated ESG rating of companies & funds. Digital green indexing. <p>     </p>	<p>Digital platforms for capital raising from a large number of individuals or from institutional investors to finance new green business ventures or projects.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Green equity crowdfunding. Green loan crowdfunding. Green donation crowdfunding. <p>     </p>	<p>Solutions that help optimize green insurance products and services as well as solutions to minimize physical climate and nature-related risks.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Automated risk evaluation and monitoring tools Digital green insurance Dynamic pricing and underwriting of green assets IoT for green asset insurance e.g., real-estate, electric vehicles etc. Smart contracts for green claims handling. <p>     </p>	<p>Digital savings solutions used to finance environmentally beneficial projects. Digital loans to finance projects or loans linked to green behaviors.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Green digital loans. Green linked or transition loans with automated monitoring. Green digital mortgages. <p>    </p>	<p>Tokens and crypto currencies with green properties and blockchain capital market infrastructure built for green use cases.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Green utility tokens as a reward for lowering carbon emissions. Green asset tokens, e.g. a tokenized carbon credit or biodiversity offset. Green cryptocurrencies designed to be spent on green products only. Green Security Token Offering (STO) issuance platforms, designed to enable green proof of impact reporting, with a green STO framework for the issuance process. <p>     </p>	<p>Applications of technology-enabled innovation for regulatory, compliance and reporting requirements implemented by a regulated institution or a financial supervisory authority.</p> <p>Use cases:</p> <ul style="list-style-type: none"> Using digital technology to analyse disclosed green and financial data to automatically calculate a green taxonomy alignment percentage of a financial product e.g. a fund. Levering Natural Language Processing capabilities of AI to automatically monitor the quality of green banking disclosures. <p>   </p>

HONG KONG GREEN FINTECH MAP

Carbon Credit Trading, Analytics and Technology



Climate Risk Modelling & Assessment



ESG Data, Intelligence and Analytics



ESG Disclosure, Compliance & Regulatory Reporting



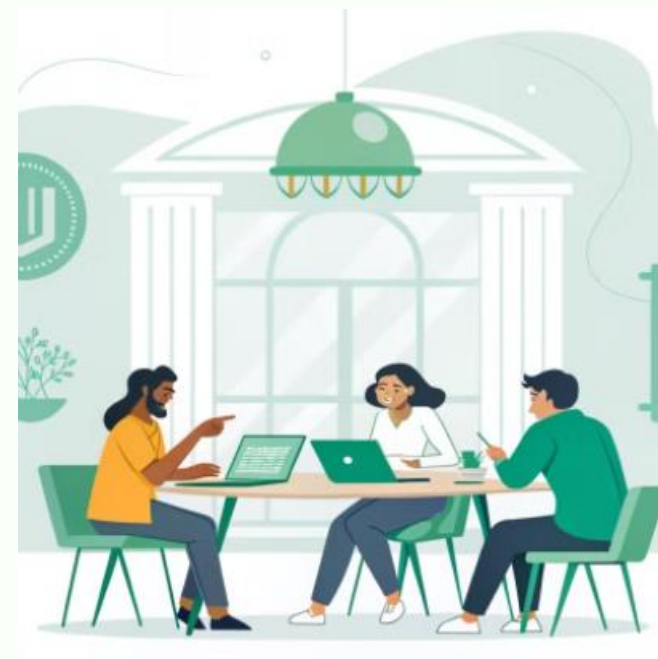
Green & Digital Finance and Investment



Pilot GSF Capacity Building Support Scheme (HK\$10k)



Closing – Call to Action



Key Message: "Hong Kong's Net Zero future needs YOUR innovation."