Navigating the path to Paris-aligned carbon emissions: the triad of knowledge, political will and finance in transforming cities

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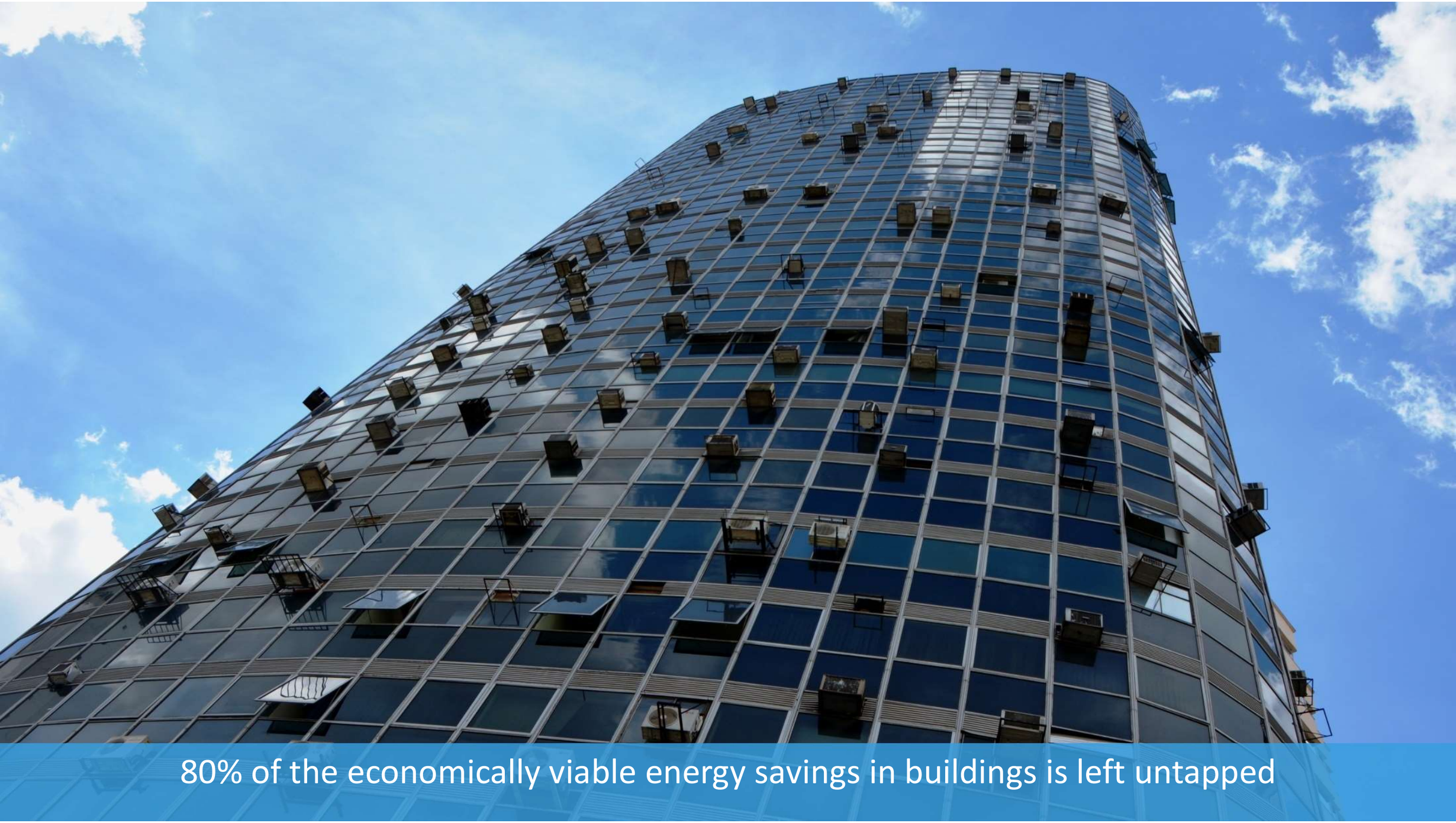


80% of the economically viable energy savings in buildings is left untapped

If ignorance is a problem, pre-conceived ideas of what is green are even a bigger problem.

Green projects can be ordinary.

EDGE makes it easy to design and certify resource-efficient and Zero Carbon buildings.

IFC created EDGE to respond to the need for an affordable, measurable and credible solution to prove the business case for building green and to help channel investment.

Affordable. The EDGE design software is free to use and instantaneously calculates the most cost-effective investments to make.
The certification process costs a fraction of the time and fees of traditional options.

Measurable. A simple green building standard based on quantified energy, water and materials savings; EDGE provides streamlined impact reporting.

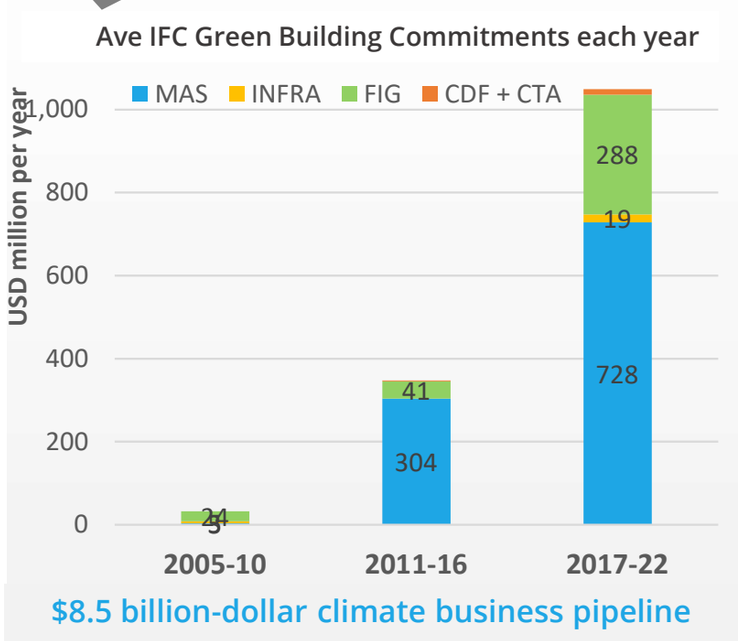
Internationally recognized for green finance
EDGE makes it fast and easy to verify the resource efficiency of a project.

IFC's Approach to Creating a Green Building Market

In 7 years, EDGE delivered value for over 8,000 projects and 376,000 housing units in over 90 countries and saved over 1.3 m tons of CO2 per year.

$1B

Per annum investment of IFC in Green Buildings



$8.5 billion-dollar climate business pipeline

IFC's Green Building Market Transformation Program

- Advice for policymakers: incentives and codes
- Technical assistance for developers
- **Direct IFC Investments in green buildings**

CREATES GREEN STOCK

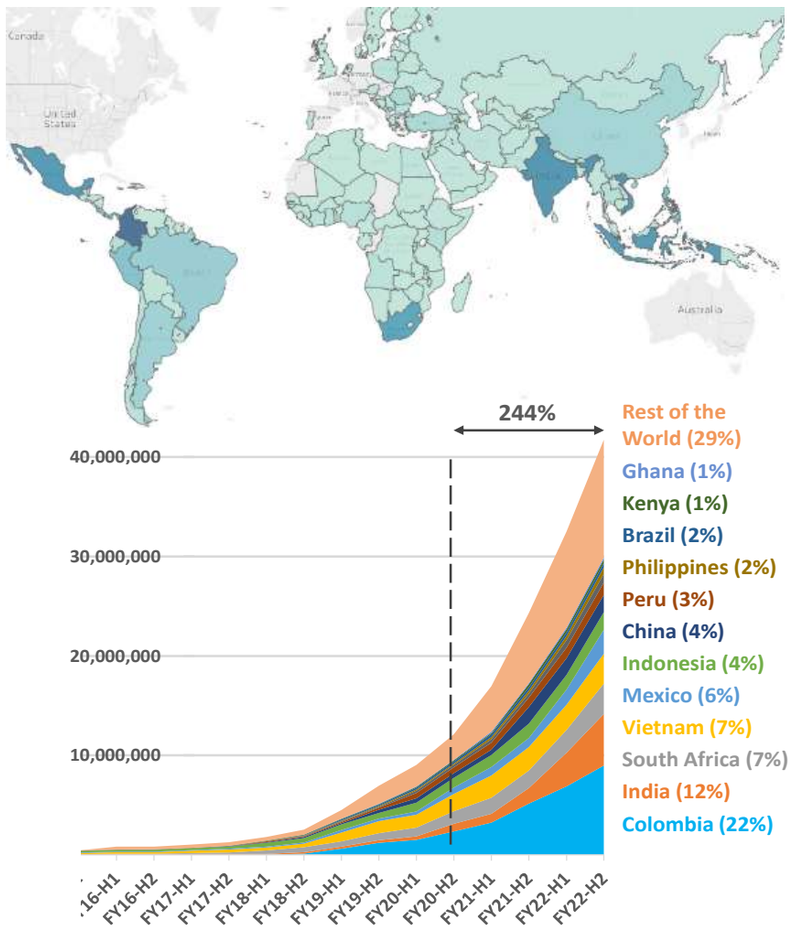
- EDGE certification system
- Local partnerships with Green Building Councils and industry associations

CERTIFIES GREEN STOCK

- Help FIs increase green building portfolios, launch new products and raise green finance
- **IFC Investment in FIs**

SCALES GREEN STOCK

IFC is a Global Leader in Green Buildings



EDGE has certified 69 million m^2

Financial Intermediaries such as Bancolombia have been key in Colombia for the Green Buildings Market Transformation

CASE STUDY: Rapid scaling of green buildings in Colombia

IFC worked with **policymakers and the leading industry association** CAMACOL created the right context for IFC client Bancolombia to launch green finance in 2017.

Bancolombia held 17 events with 500 developers, supported by a major marketing push and training for loan officers

IFC invested USD $115m in the first Green Bond in Colombia. Proceeds supported green building construction & mortgage finance.

Bancolombia

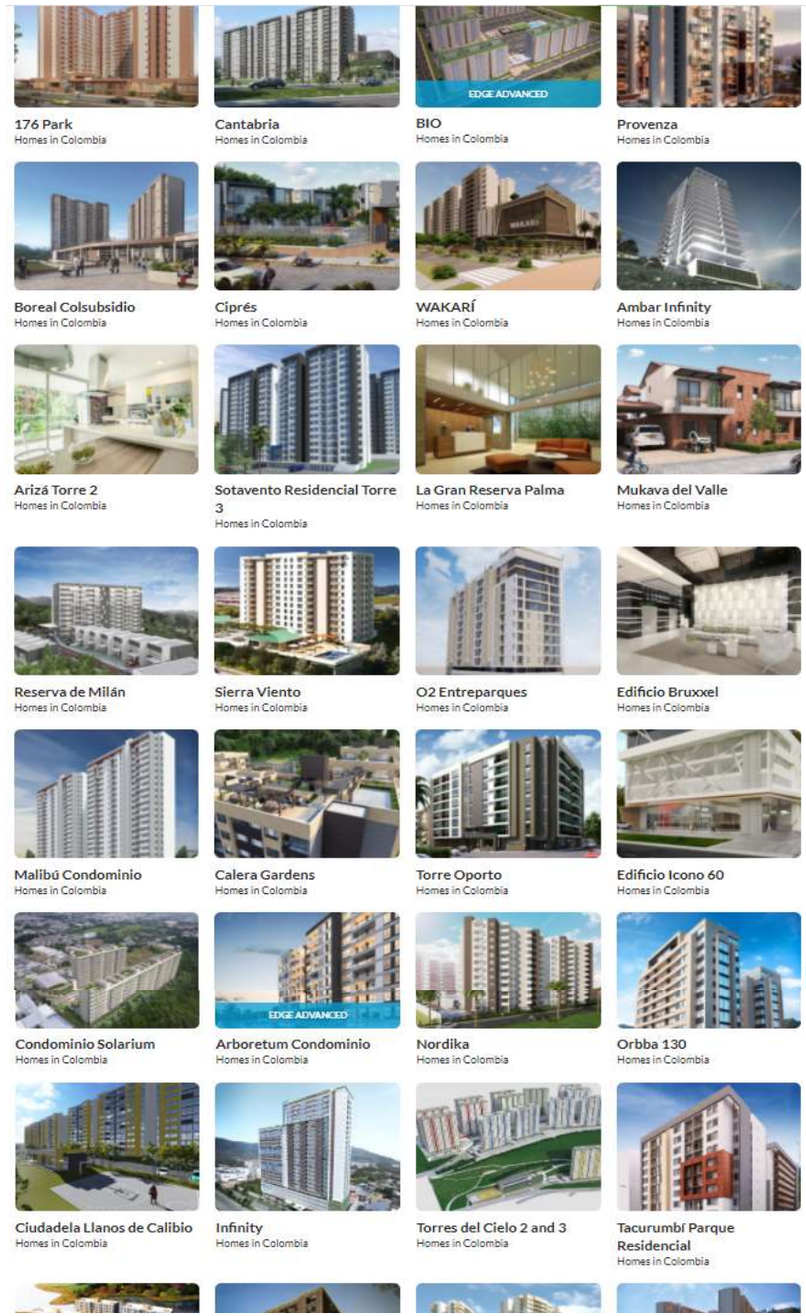
Within five years certified green buildings reached 27% of annual new build.

Impacts by end of FY22.

- 6 banks now offer green building finance products.
- ~$11.0 billion of floor space certified
- 114,000 homes EDGE certified, of which 60% affordable housing.
- In Aug 22, IFC fund BBVA $200m for Net Zero carbon ready homes

Homeowners save up to $20/month in utility bills

Edge




ENERGY
33%
WATER
39%
MATERIALS
23%
Edge
Homes
IFC
Valbhawa Bangalore
Block E, 3-Bed Units
EDGE Standard
for Design

Can this approach be applied to green cities?

An actionable approach to "green" cities can play a critical role in achieving global climate goals

2.5 billion people will be added to cities by 2050[1]

90% of waste is unmanaged in Low Income Countries[2]

Urban air pollution reduces GDP by **5%** in Emerging Markets[3]

50% increase in Urban water demand is expected by 2050[4]

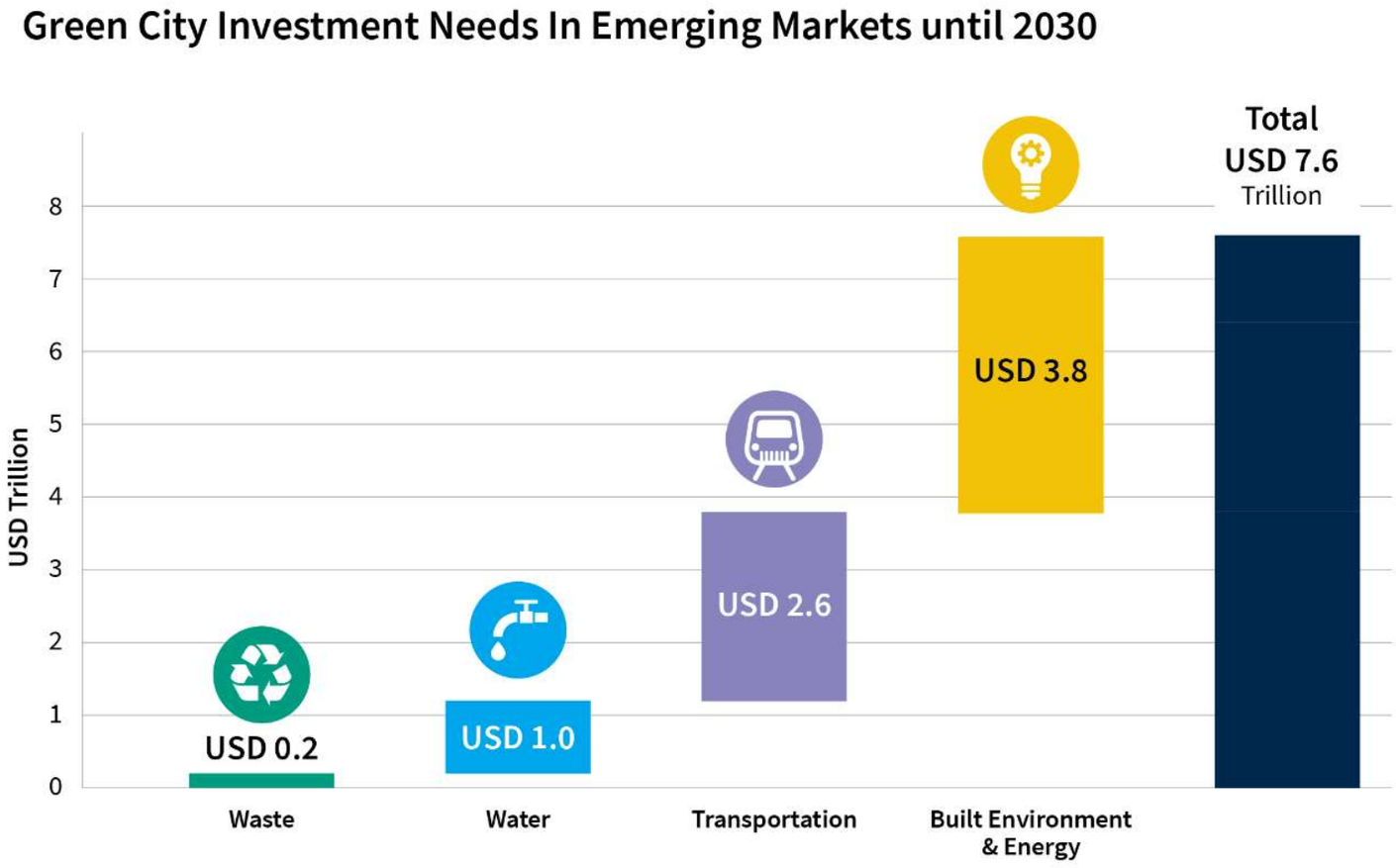
70% of the Global Carbon Dioxide Emissions are Generated In Cities [5]

Poor infrastructure can reduce firm productivity by **40%** [6]

1 UN 2018, World Urbanization Prospects
2 World Bank 2018, What a Waste Report
3 WE Forum 2020, The Economic Burden of Air Pollution
4 World Bank 2017, Water Scarce Cities Initiative
5 UNFCCC 2020, Urban Climate Action Is Crucial to Bend the Emissions Curve
6 UN 2015, SDG 9: Industry, Innovation And Infrastructure

Embarking on a green cities mission could present a huge investment opportunity

Cities in emerging markets have the potential to attract more than $7.6 trillion in cumulative climate-related investments in key sectors by 2030.

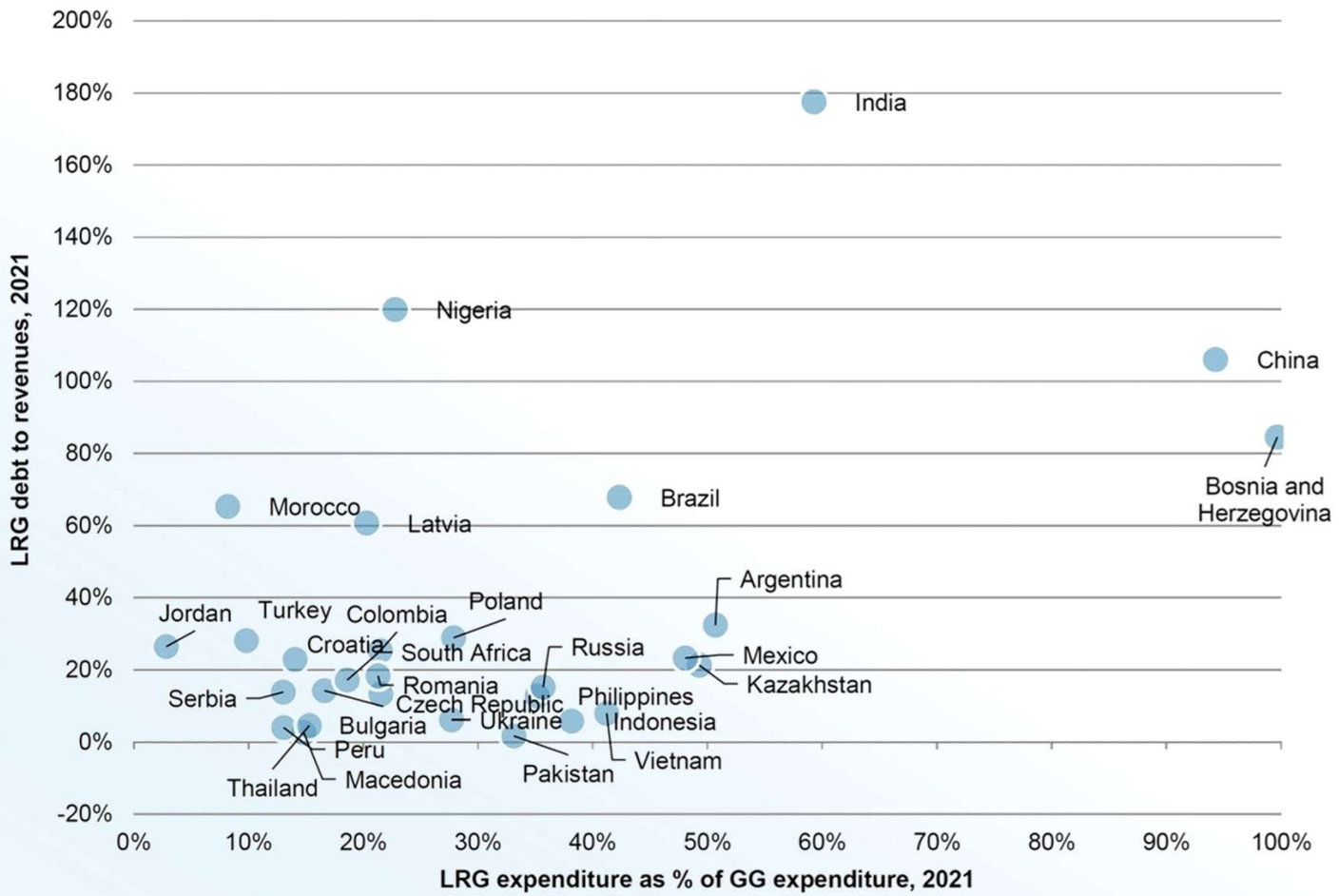


Yet, municipal finance flows remain limited in Emerging Market

Eastern Europe and Central Asia local and regional governments (LRG) historically do not borrow heavily.

Most LRG **debt stock below 60% of operating surplus**, while the bond market, while allowed, is non-existent.

LRG Have Borrowing Capacity in Most Emerging Markets



Data in local currency. Source: S&P Global Ratings.

Evidence-based learnings from tried and tested examples can translate into a success story for your city too

Freiburg: Solar Roof-top Panels

Lucknow: EV Rickshaws Taxies

London: Congestion Charging

Curitiba Bus Rapid Transport

Mexico City: Green Mortgages

Lima: Green Incentives

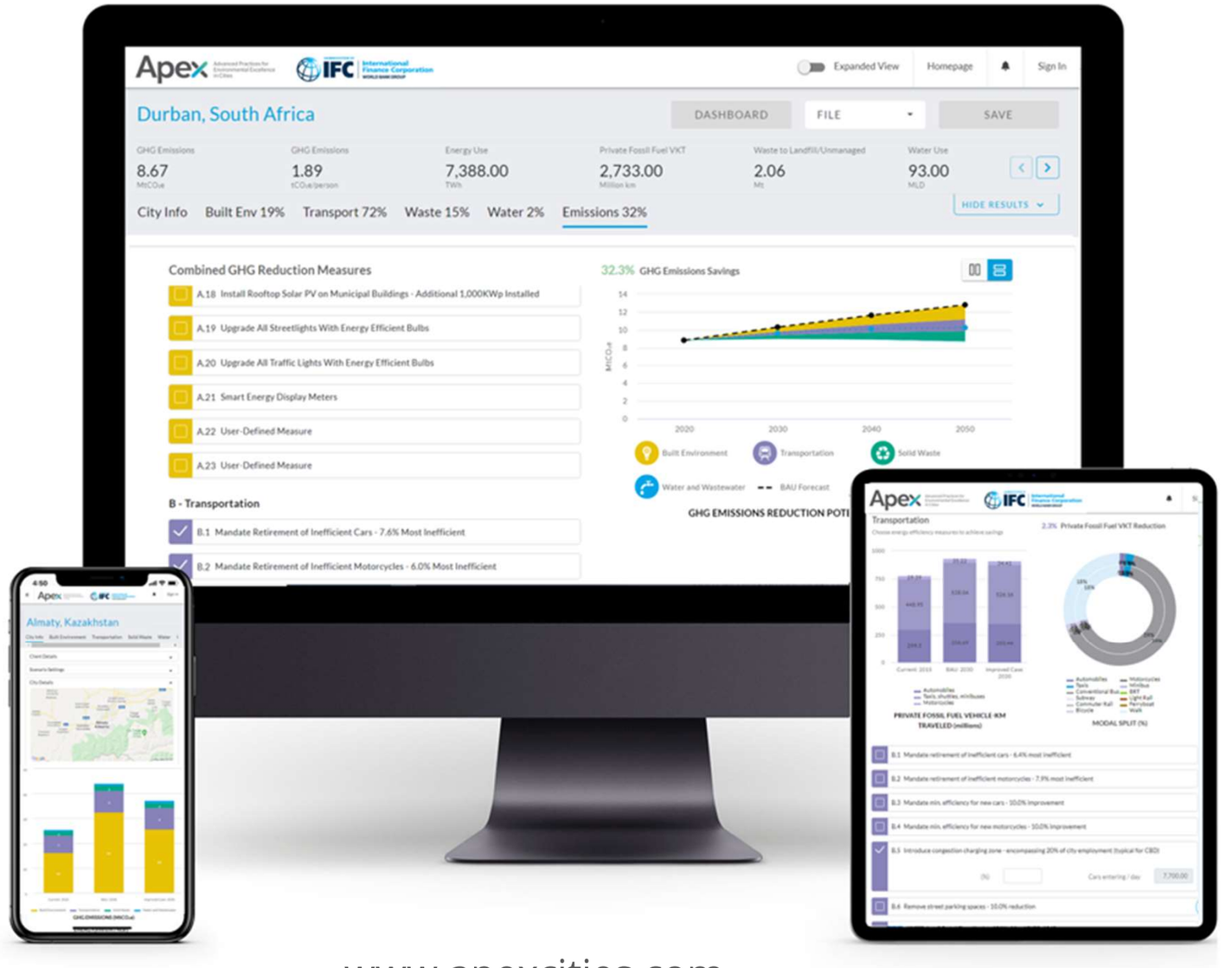
IFC's APEX tool: An Investment Planning Tool for Cities

An innovation of APEX tool informs the most impactful actions to reduce GHG emissions and resource efficiencies in cities. APEX provides an easy-to-use, affordable and standardised investment planning tool for cities

Identify investments suitable for green financing

Develop strategies for the long-term (e.g., Climate Actions Plans)

Assess, compare and track the performance of the cities



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IFC International Finance Corporation WORLD BANK GROUP

Expanded View | Prashant K...

Agra, India

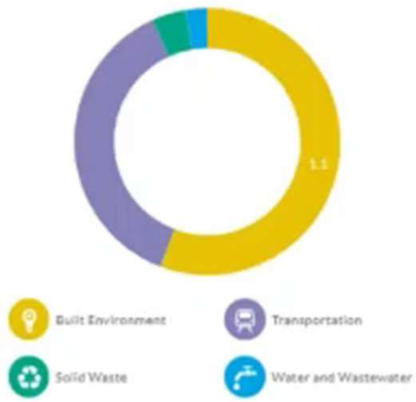
DASHBOARD | FILE | SAVE

City Info | Built Env 0% | Transport 0% | Waste 0% | Water 0% | Emissions 0% | SHOW RESULTS

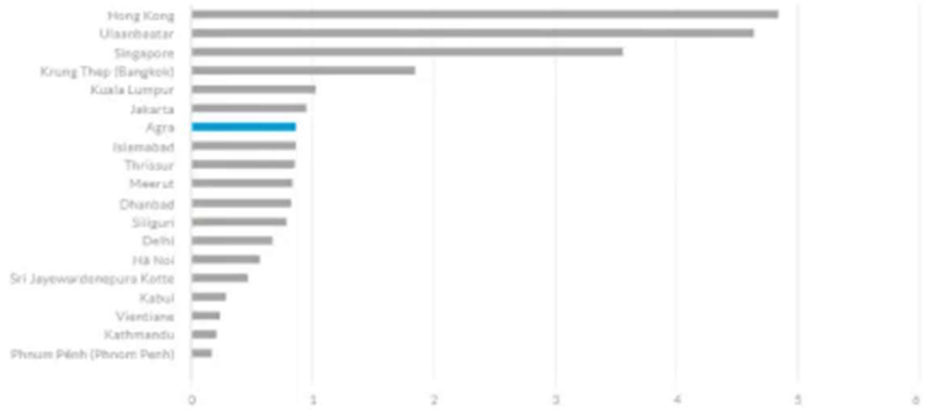
Country: India

City: Agra

Current GHG Emissions and City Comparison



2020 GHG EMISSIONS ($MtCO_2e$/year)



GHG EMISSIONS PER CAPITA (tCO_2e/person)

From Quantitative Insights to APEX Green Cities Action Plan

A comprehensive roadmap that outlines specific activities to reduce GHG emissions, including investments, policies, and planning measures.

Example: Ekurhuleni, South Africa

Actions & Potential Impacts

Based on the insights gathered through the APEX tool, IFC helped Ekurhuleni identified 20+ actions across the four APEX sectors, showing that it is possible to achieve ambitious climate and resource goals with complementary policies and investment actions that work in tandem to maximize benefits.

25% LESS ENERGY USE

- PACE Financing for Energy Efficiency Refurbishment
- Mandatory Green Building Requirement for Large Developments
- Green Municipal Buildings
- Energy Efficient Streetlights and Traffic Lights
- Solar Power Program

20% LESS PRIVATE TRAVEL

- Encourage Electric Vehicles
- Parking Restrictions
- New Buses and Priority Bus Lanes
- Integrated Payment System and Improvements for Minibus Taxis

65% LESS WASTE TO LANDFILL

- Composting
- Anaerobic Digestion
- Material Recovery Facility and Separated Collection of Recyclables
- Electricity from Landfill Gas
- Waste to Energy

24% MORE WATER SECURITY

- Reuse of Treated Wastewater
- Reduction in Water Losses
- Mandatory Efficient Fittings in New Buildings
- Upgrade Fittings in Existing Buildings
- Smart Water Meters
- CHP from Wastewater Biogas

Green City Action Plan Report

IFC helped Ekurhuleni develop a Green City Action Plan that recommends how identified projects and policy interventions can be implemented.

https://www.ekurhuleni.gov.za/document/https-ekurhuleni-gov-za-council-reports-environmental-reports-5423-coe-gcap-summary-report-final-file-html/

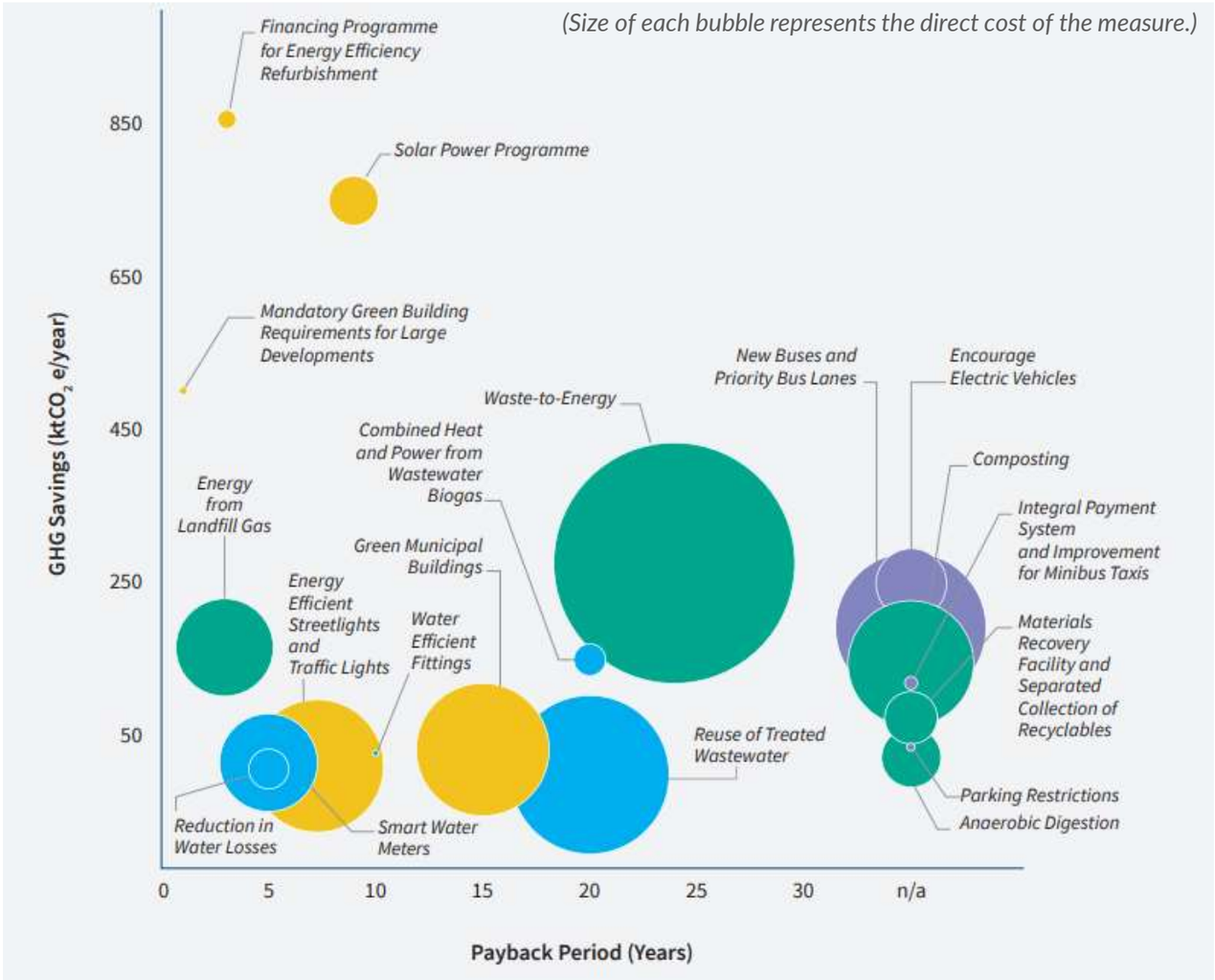
Ekurhuleni: Identifying a green investment pipeline

A Green Investment Pipeline was developed based on direct costs to the municipality and its agencies (i.e., falling within the City's mandate). However, the City can leverage other funding sources for these investments, including private sources of financing. Green City Actions can be supported by green finance. The largest 10 direct cost measures have a climate investment potential of over USD 650 million.

Green Investment Pipeline	GHG Reduction from 2050 BAU (%)	Direct Cost (ZAR Million)
Waste to Energy Plants	3.0%	3,600
Reuse of Treated Wastewater	-	1,300
New Buses & Priority Bus Lanes	1.4%	980
Composting	1.4%	790
Energy Efficient Street & Traffic Lights	0.1%	730
Green Municipal Buildings	0.2%	720
Encourage Electric Vehicles	2.3%	420
Reduction in Water Losses	0.1%	390
Electricity from Landfill Gas	3.0%	340
Solar Power Program	4.5%	170

Arranged by payback period and GHG savings.

Green Investment Pipeline with Largest 10 Direct Cost Measures*



*(ZAR Million)

Role of government policies to stimulate green retrofit market

Various policies have been introduced around the world to promote building green retrofit, whereas the uptake is rare for policy ineffectiveness.

NEW YORK CITY:
Setting Building Emissions Limits

- Max GHG emissions limit for buildings larger than 2,500 m2 (~50,000)
- 40% by 2030 from a 2005 baseline or penalty of US$268/tCO2
- Since 2019 introduction in, the overall performance of EE buildings improved by three points on average in 2021 compared to 2020

TOKYO:
Cap-and trade program for buildings

- Max GHG emissions cap from large buildings. Buildings that surpass the cap are taxed, while companies that cut their emissions may sell or trade unused credits.
- ~1200 Facilities that consume energy more than 16.7GWh/year
- Resulted in 25% GHG reduction among covered facilities during the five years (22% by 2011)

SINGAPORE:
Mandatory greening of retrofits

- Green building standards are mandatory for all new buildings and existing buildings undergoing major retrofits (replacing or upgrading their chiller systems),
- Submit periodic audits of building cooling systems and comply with cooling plant efficiency standards and submit annual energy consumption data.
- Complemented with grants (up to S$45/tCO2)


Nasdaq
SUSTAINABILITY
Helsingborg Becomes First City to List a Sustainability-Linked Bond, Supporting Efforts to Reach Net-Zero Emissions by 2035
MQ
EST 2008
The trajectory of the city's yearly emission reduction efforts serves as the key performance indicator for the bond.

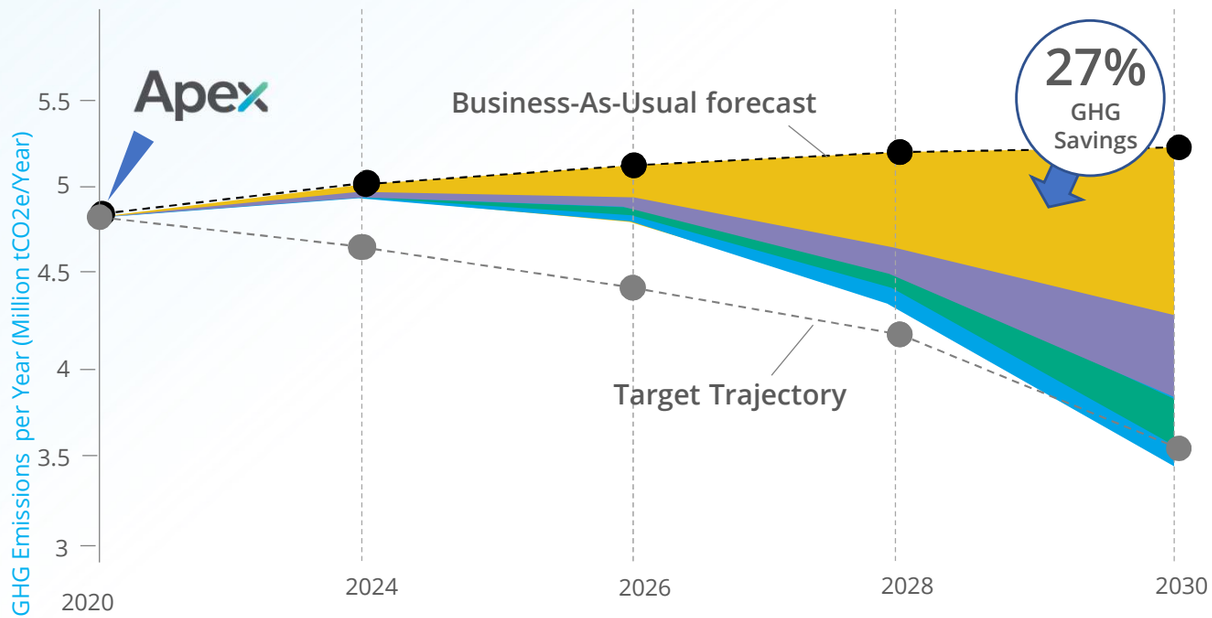
Keeping cities on a green path with green and sustainability-linked financing using APEX

APEX can help cities provide data for the necessary KPIs to underpin a sustainability-linked loan or bond. APEX city-level accreditation monitoring system (under development) can track the city's overall year-on-year performance and its progress toward the Sustainability-Linked Targets.

Sustainability-linked Financing

- Use of proceeds are more general
- Forward-looking targets
- Performance-based incentives

Cities GHG Reduction Pathway

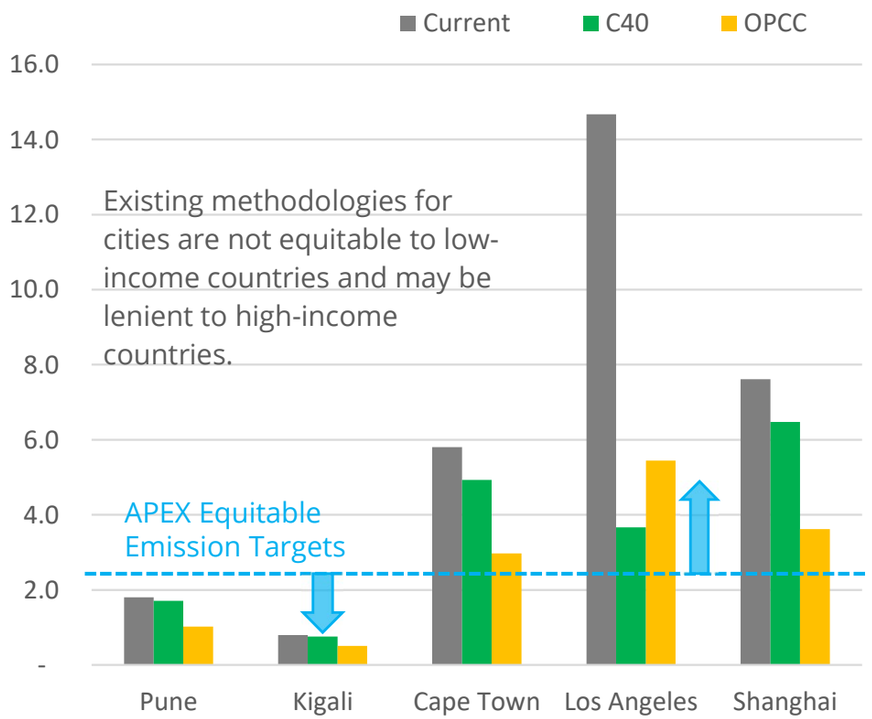


GHG Emissions Reduction Pathway

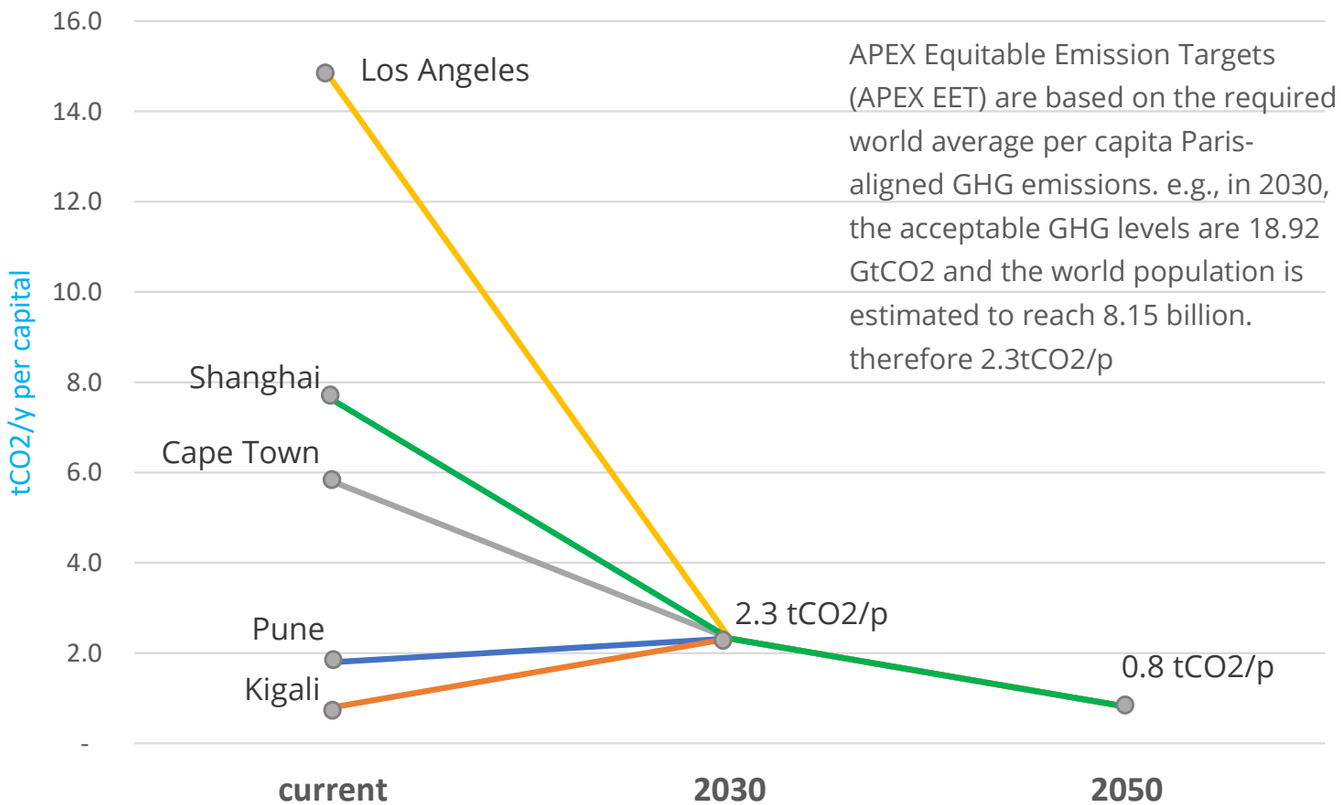
As part of the GCAP, the city will commit to a GHG emissions reduction scenario to achieve a 1.5°C or 2°C scenario.

SBTN GHG Emissions Reduction Targets

Comparison of 2030 Science-Based Target Network (SBTN) targets for selected cities



APEX Pathway for Cities



The combination of knowledge, financial resources, and political- will can bring our cities on a Paris-aligned path

KEY ISSUES TO RESOLVE

- How to ensure high-level leadership buy-in over a long period?
- How can we get the citizens behind this approach and plan?
- How we get the private sector to be a more active participant?
- How should we check if the cities are staying on the path to their targets?
- How can we scale this to 1000 cities in 5 years?

EDGE ACKNOWLEDGMENTS

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Confederaziun svizra

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State Secretariat for Economic Affairs SECO

UK Government

European Union

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