

C40 GOOD PRACTICE GUIDES

ZOE SPRIGINGS, HEAD OF THE ENERGY INITIATIVE

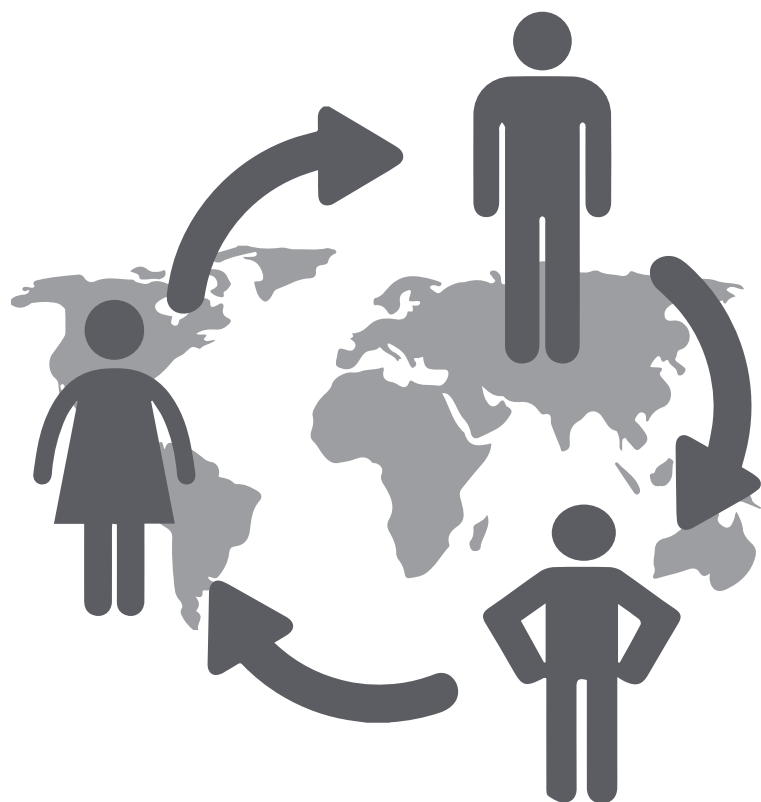
FRANCES DOWNY, NETWORK MANAGER, PRIVATE BUILDING EFFICIENCY



1. BACKGROUND TO C40'S WORK ON BUILDINGS
2. PRIVATE BUILDINGS EFFICIENCY NETWORK
3. MUNICIPAL BUILDINGS EFFICIENCY NETWORK

DELIVERING RESULTS THROUGH TARGETED INITIATIVES

C40 networks help cities replicate, improve and accelerate climate action.



CONNECT

INSPIRE

INFLUENCE

ADVANCE

C40
CITIES
CLIMATE LEADERSHIP GROUP

ADAPTATION & WATER

Climate Risk Assessment
Connecting Delta Cities
Cool Cities

ENERGY

District Energy
Private Building Efficiency
Municipal Building Efficiency

FINANCE & ECONOMIC DEVELOPMENT

Green Growth
Sustainable Infrastructure

SOLID WASTE

Sustainable Waste Systems
Waste To Resources

SUSTAINABLE COMMUNITIES

Food Systems
Land-Use Planning
Low-Carbon Districts
Transit Oriented Development

TRANSPORTATION

Bus Rapid Transit
Low Emission Vehicles
Mobility Management

Collaboration is working



80%

- of all C40 city-to-city collaboration is through C40



30%

- of climate action is as a result of this collaboration

Collaboration within specific C40 networks is mostly focused on **Building sector actions**.

Private and Municipal Building Efficiency networks together have seen participation of **nearly half of all C40 member cities**.



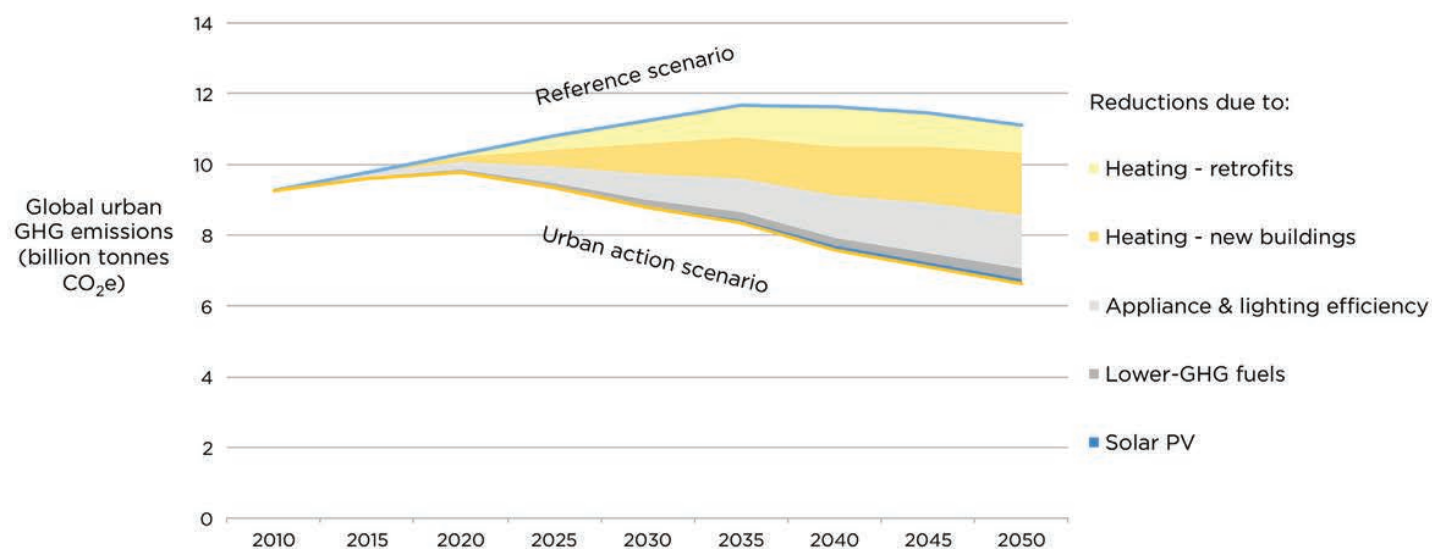
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Actions taken by C40 cities to address energy efficiency and emissions reduction in the buildings sector.

Urban Building Emissions

- New buildings which are highly energy efficient can reduce both energy costs and GHG emissions
- Majority of future building stock will be existing, therefore retrofitting is integral to reducing energy use
- Low-energy technologies could reduce urban building GHG emissions by 2.4 GtCO₂e in 2030

Urban building emissions in the reference and urban action scenarios



SOURCE:

Advancing climate
ambition: cities as
partners in global
climate action,
SEI/C40, 2014

SECTION:

Private Building Efficiency Network

Private Buildings

- The network spans Africa, Asia, Europe, North America and Oceania



- Sydney and Tokyo are the current leadership cities

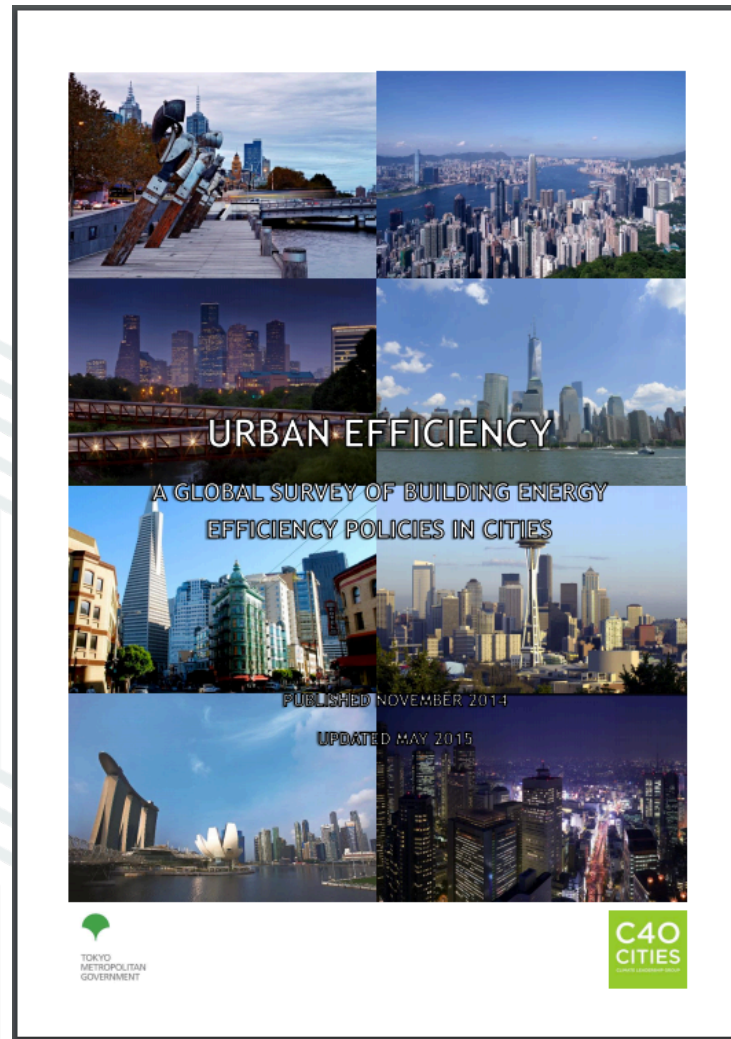
Private Buildings



- Approximately 2/3 of energy consumed by C40 cities comes from buildings
- Private buildings focus on residential and commercial buildings
 - Multifamily buildings, offices, retail and hotels
- Often limited city powers

Policy development

- Collaboration between C40, Tokyo MG and C40 cities
- Global survey of building energy efficiency policies in cities
- https://www.kankyo.metro.tokyo.jp/en/int/c40/c40_pse_r.html



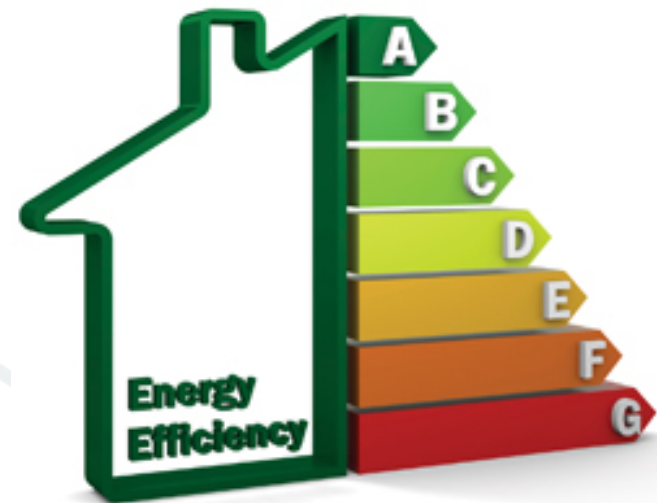
Dominant Policy trends

- Reporting and benchmarking



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- Green building and energy rating



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- Financial incentives



Dominant Policy trends

- Reporting and benchmarking
- Green building and energy rating
- Financial incentives
- Promoting green leases



Emergent Policy trends

- Building energy codes



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- Mandatory auditing and retro-commissioning



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- Voluntary leadership



Emergent Policy trends

- Building energy codes
- Mandatory auditing and retro-commissioning
- Voluntary leadership
- Interactive awareness raising



BCA Greenovate Challenge
Marsiling Secondary School

Policy Development



Table 3.3 Policy map of existing buildings³

	Country	China	Japan	Singapore	Australia	Canada	United States							United Kingdom	Sweden	South Africa	
	Cities	Hong Kong	Tokyo	Singapore	Melbourne	Sydney	Toronto	Chicago	Houston	Philadelphia	Portland	New York	San Francisco	Seattle	London	Stockholm	Johannesburg
Policy elements ^{9, 10}																	
1. Building Energy Codes*																	
2. Reporting and Benchmarking*																	
3. Mandatory Auditing and Retro-commissioning*																	
4. Emissions Trading Schemes*																	
5. Green Building and Energy Ratings*																	
6. Financial Incentives*																	
7. Non-financial Incentives																	
8. Awareness Raising Programmes																	
9. Promoting Green Leases*																	
10. Voluntary Leadership Programmes																	
11. Government Leadership*																	
12. Other																	

City-led programmes¹¹Regional, national or state government-led programmes¹²Partner-led programmes¹³



City-led programmes¹¹



Regional, national or state government-led programmes¹²



Partner-led programmes¹³

- This table can be used by cities to identify potential contacts across the C40 network to facilitate discussion around specific policies

Common challenges

Data management

- Difficulty in collecting accurate data and aggregating it effectively

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Skills gap

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Split tenant/landlord incentive

- Tenants hesitate to improve buildings they do not own

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Split tenant/landlord incentive


- Tenants hesitate to improve buildings they do not own

Lack of awareness

- Not a top priority

Key success criteria

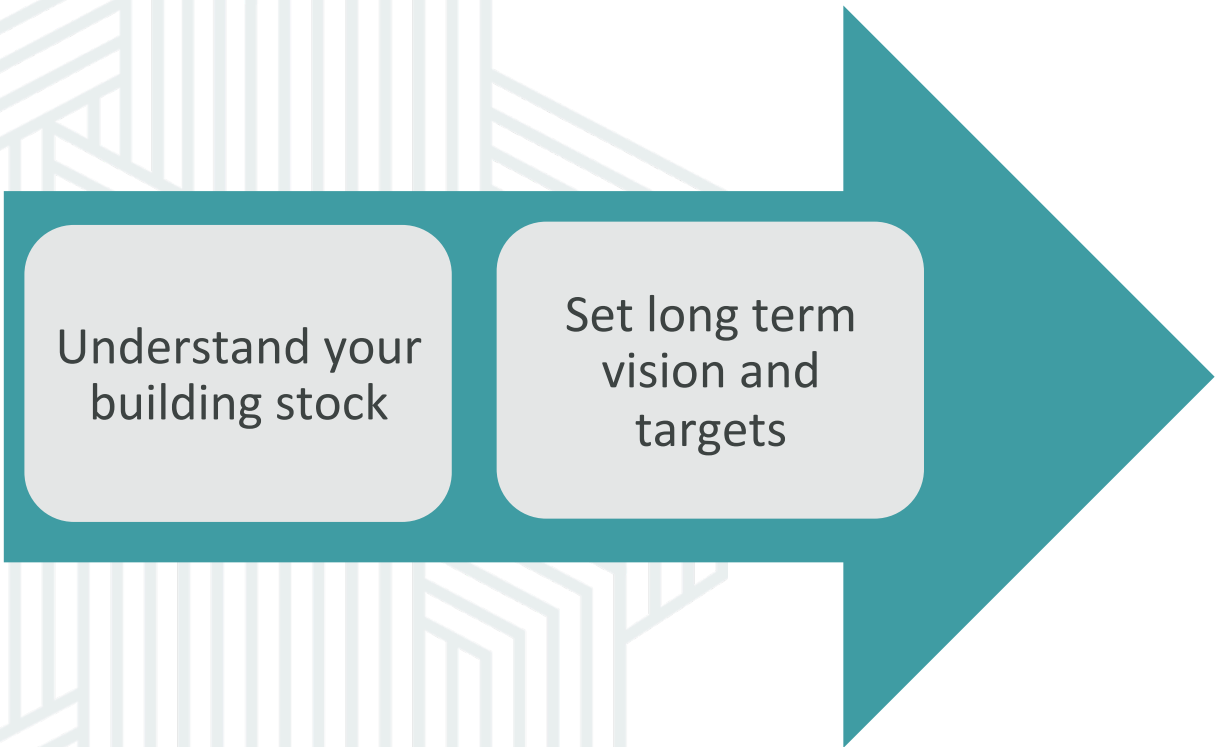
Key elements to successfully delivering building energy efficiency in private buildings:



Understand your
building stock

Private building efficiency

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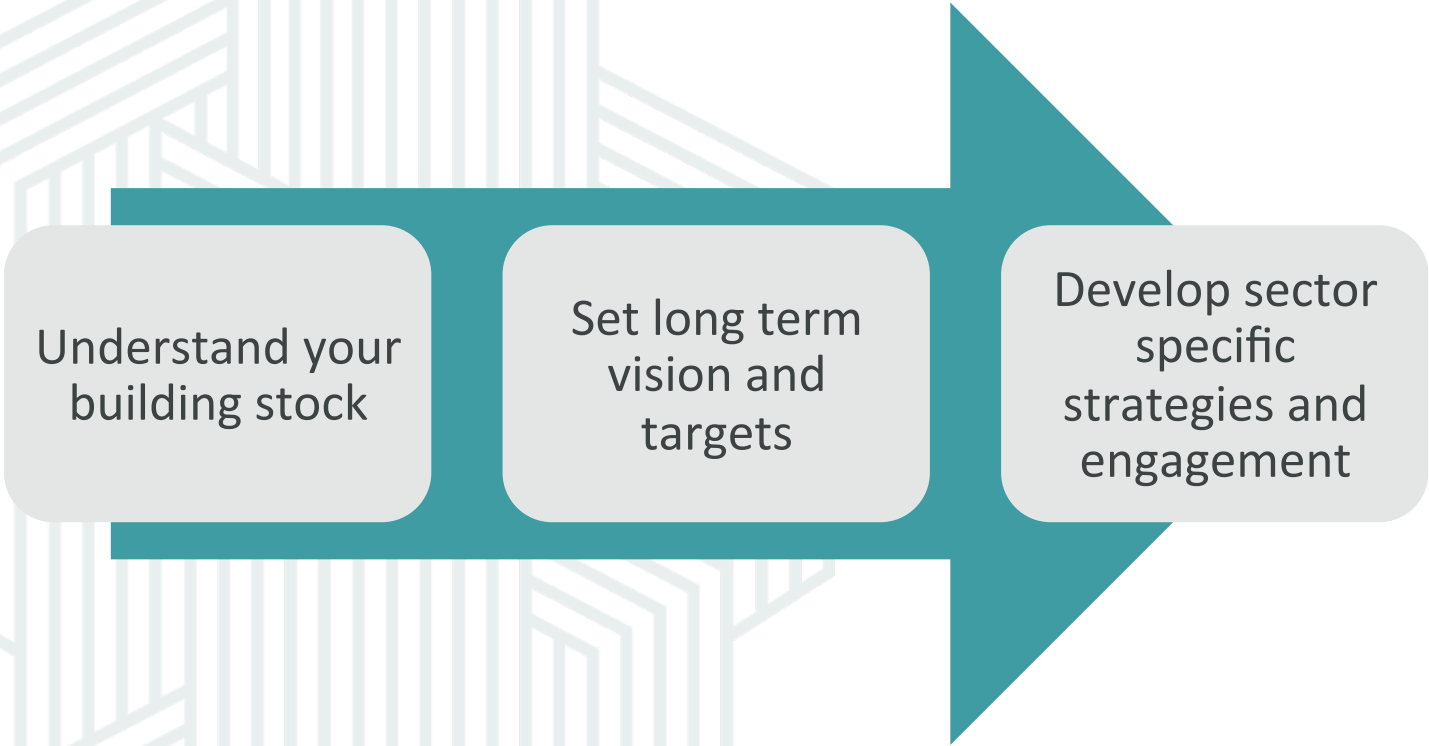


Understand your
building stock

Set long term
vision and
targets

Private building efficiency

Key elements to successfully delivering building energy efficiency in private buildings:



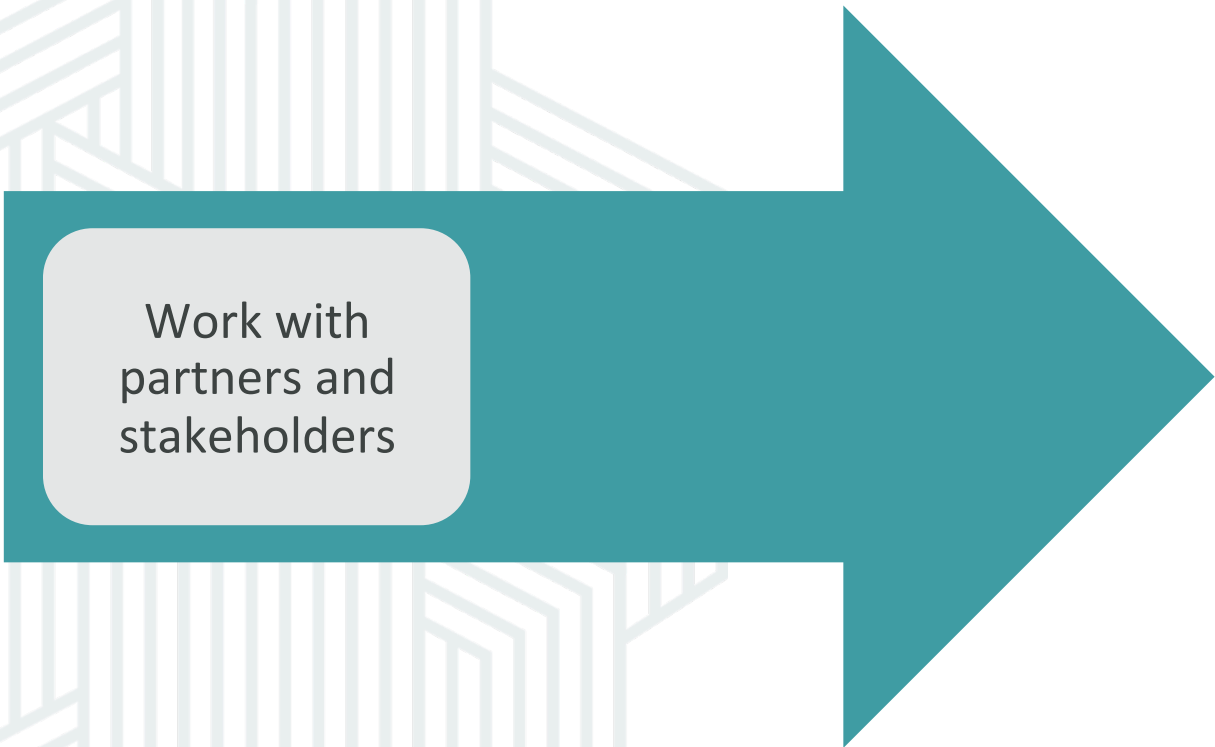
Understand your building stock

Set long term vision and targets

Develop sector specific strategies and engagement

Private building efficiency


Key elements to successfully delivering building energy efficiency in private buildings:



Work with
partners and
stakeholders

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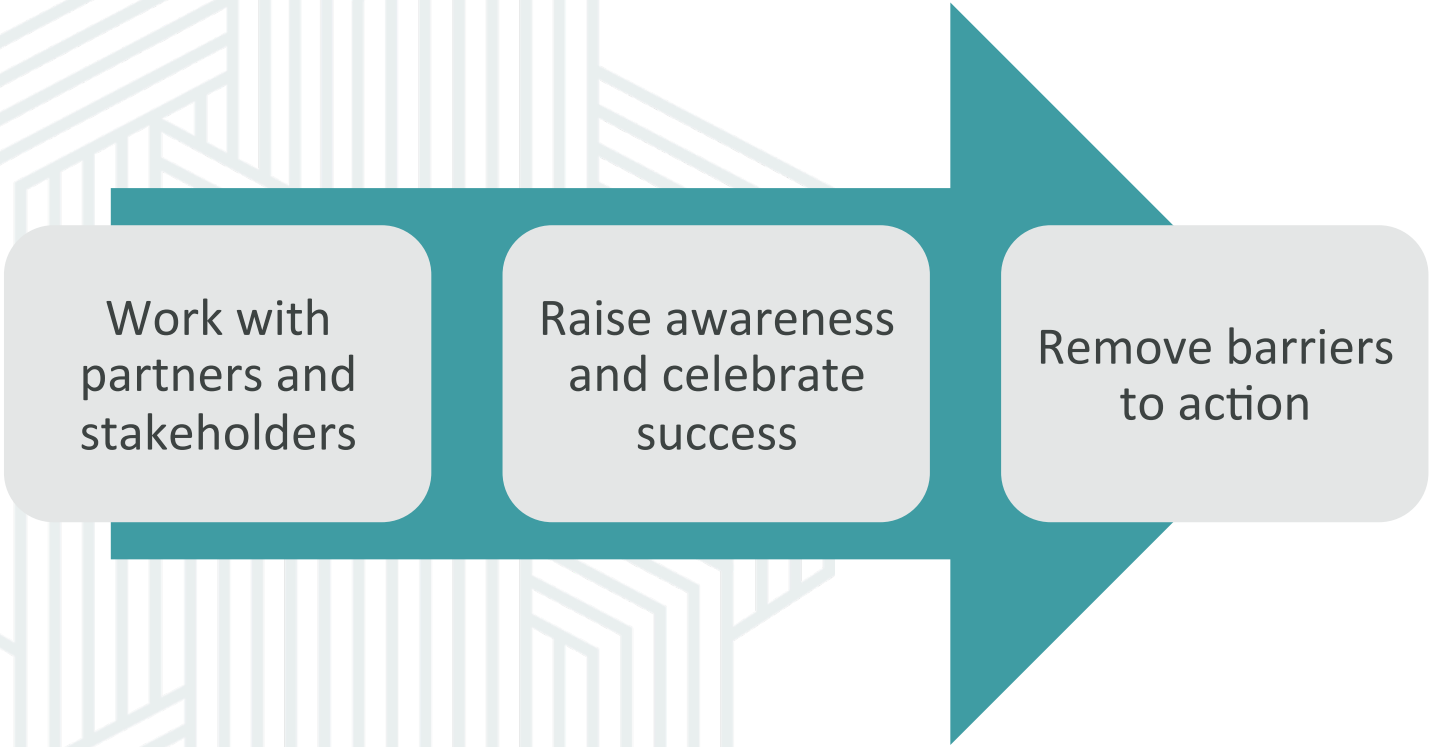


Work with
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Raise awareness
and celebrate
success

Private building efficiency

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partners and
stakeholders

Raise awareness
and celebrate
success

Remove barriers
to action

SECTION:

Municipal Building Efficiency Network

Municipal buildings



- C40 cities have a high degree of control over these buildings, which include:
 - City halls; Government offices; Hospitals; Schools; Museums
- Municipal buildings can be used as a test bed for energy efficiency measures and policies

Municipal buildings network

- The 15 network members span Africa, Asia, Europe, North and South America



- Cape Town is the lead city
- Works alongside the PBE

Municipal building efficiency benefits

Climate change mitigation

- Increasing efficiency reduces and evens out energy demand, reducing GHG emissions

Economic savings

- Reduced fuel purchasing and less vulnerability to fuel price shocks

Job creation

- Municipal building efficiency projects create new green jobs

Municipal building efficiency benefits

Support to disadvantaged households

- More affordable energy for those in residential buildings

Improved health and well-being

- More efficient buildings generally have greater thermal comfort

Governance benefits

- Successful delivery of demonstration projects can help lower perceived risks among investors

Municipal building efficiency challenges

Multiple stakeholders

- Multiple providers often need to come together to deliver building efficiency projects, requiring more management capacity

Market barriers

- The value of energy efficiency may not be realised in low energy tariff areas

Technical and technological challenges

- There may be a lack of affordable energy efficiency technologies, as well as uncertainty regarding the building's projected performance

Municipal building efficiency challenges

Limited access to finance

- Local governments have limited budget for energy efficiency

Limited institutional capacity or experience

- Local governments may have difficulty in obtaining reliable information

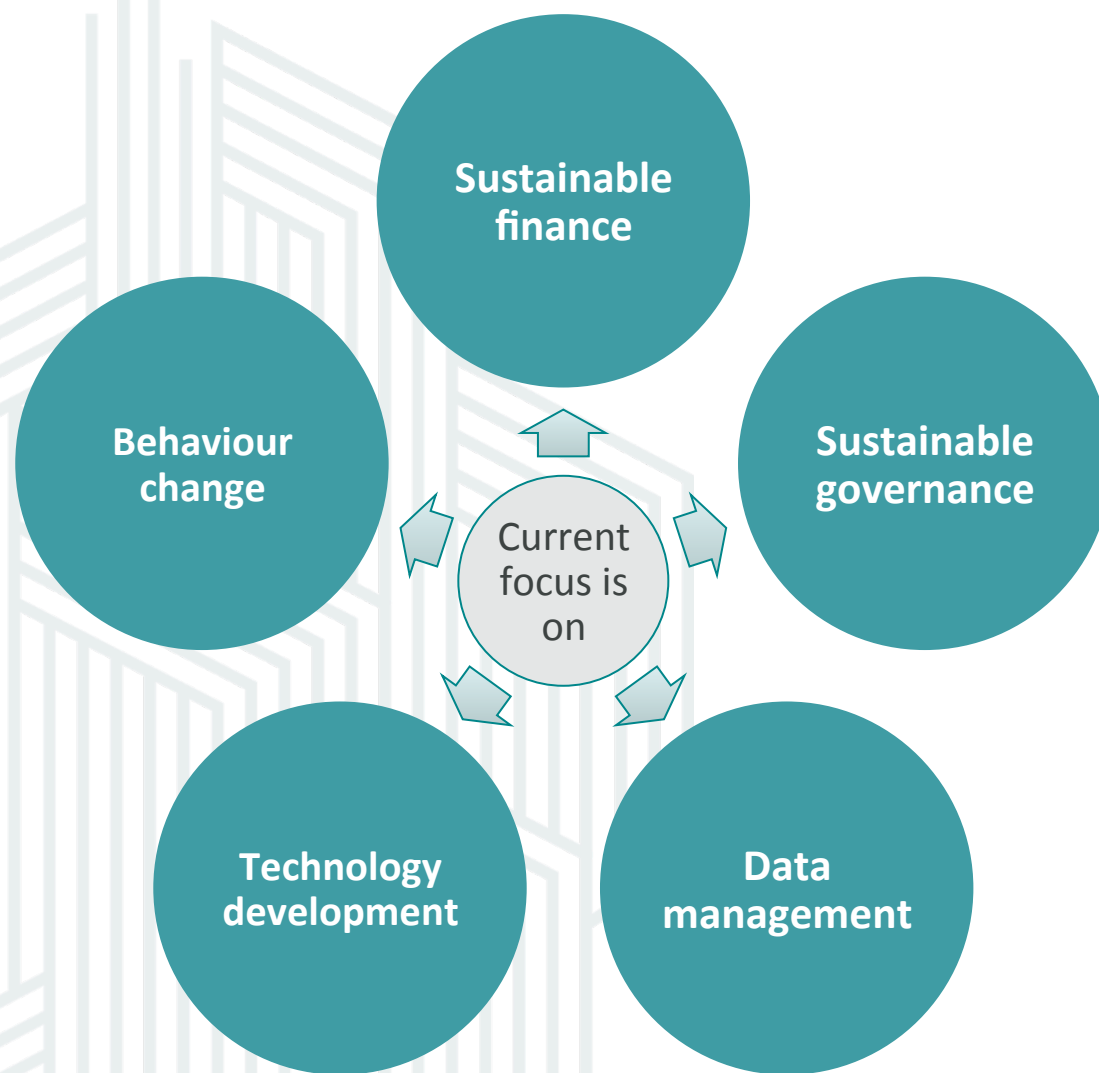
Lack of political support

- Limited support can prevent local governments from developing required regulations

Limited information and awareness

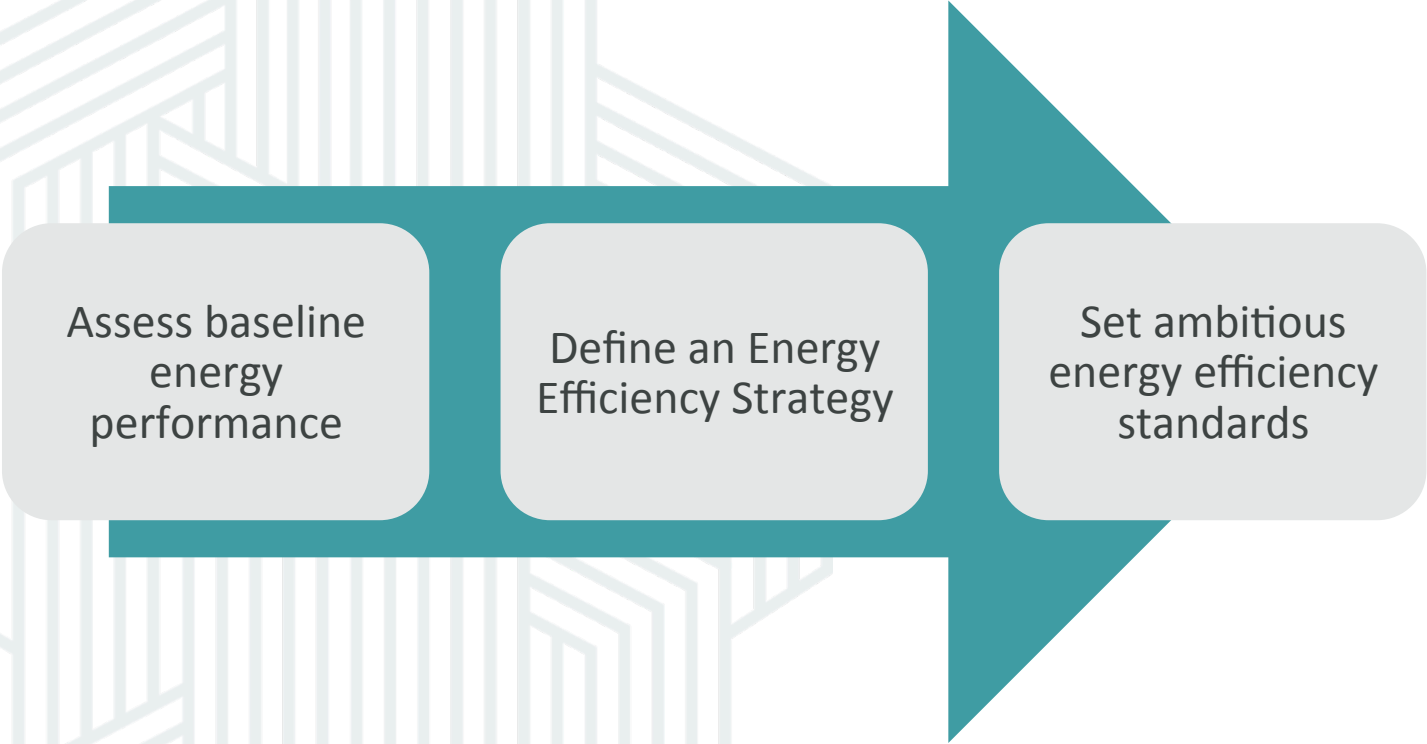
- An awareness of energy efficiency is required from both city employees and the wider public

Municipal building efficiency



Municipal building efficiency

Key elements to successfully delivering building energy efficiency in municipal buildings:



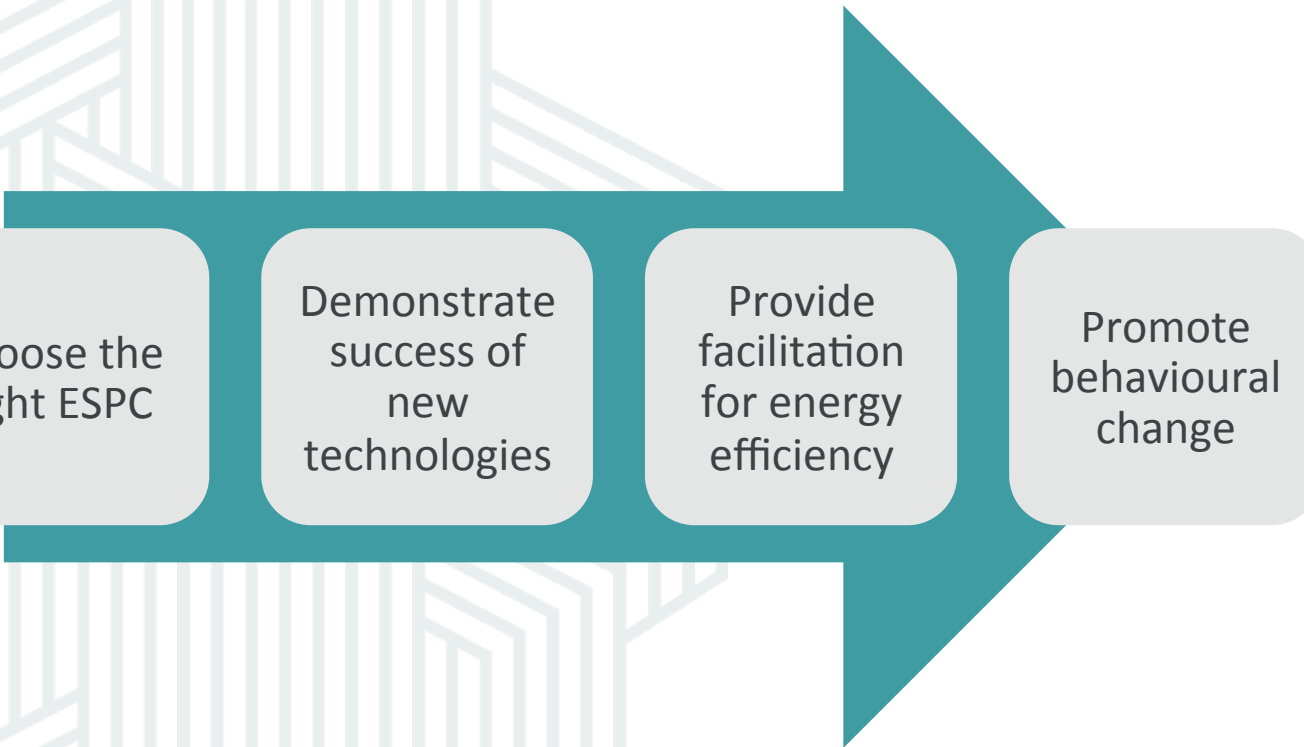
Assess baseline
energy
performance

Define an Energy
Efficiency Strategy

Set ambitious
energy efficiency
standards

Municipal building efficiency

Key elements to successfully delivering building energy efficiency in municipal buildings:



Choose the
right ESPC

Demonstrate
success of
new
technologies

Provide
facilitation
for energy
efficiency

Promote
behavioural
change

MBE Examples



Stockholm – Energy Centre for expert support to energy efficiency measures

Provides support on the implementation of energy efficiency measures in municipal buildings

Collects critical data, including the energy mapping of all city buildings

Stockholm's long-term goal is to be fossil fuel free by 2040

CASE STUDIES

MBE – Retrofitting



London – RE:FIT Programme

10%

of London's CO₂ emissions are from public buildings

30,000 tCO₂

Estimated annual savings from 400 buildings

Over 160 public sector organisations participate across 28 London Boroughs, including the NHS, central government, museums and education organisations.



Thank you for your time

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