



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

Special Session: The GlobalABC Africa Roadmap

Buildings: Maxine Jordan, IEA and Ian Hamilton, UCL Energy Institute

Pretoria, Tuesday 15th October 2019

Buildings energy efficiency sessions in partnership with:

UCL ENERGY
INSTITUTE

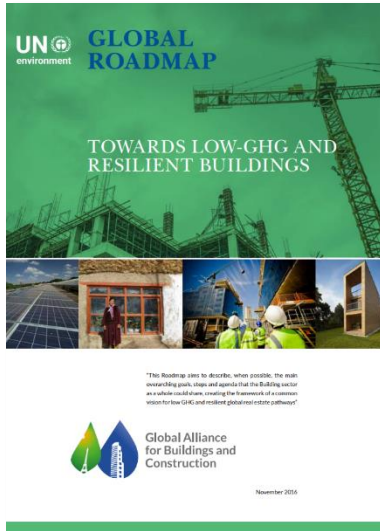


Energy Efficiency Training Week: Buildings programme

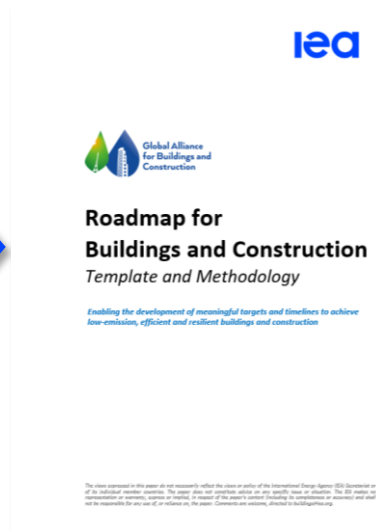
1. Where to start: Energy use in buildings
2. Where to start: Energy efficiency potential in buildings
Special session: GlobalABC Regional Roadmaps
3. Toolkit: Energy efficient building design technologies
4. Toolkit: Energy efficient building system technologies
Special session: Green Building in Africa – *Elizabeth Chege, KGBS*
Special session: The GlobalABC Africa Roadmap for buildings and construction
5. What are the steps? Determining the current status of policies
6. Toolkit: Energy efficiency policies and target setting *with guest speaker: Hlompho Vivian, GBC SA*
7. What are the steps? Implementing codes and standards
8. What are the steps? Building operations and procurement *with guest speaker: Christelle Van Vuuren, Carbon Trust*
Special session: The multiple benefits of energy efficiency
9. Did it work? Evaluation and energy efficiency indicators
Special session: Financing energy efficiency in buildings
10. Buildings quiz

Why regional roadmaps?

Global Roadmap, 2016



Template and methodology, 2018- 2020



3 Regional Roadmaps, 2018-2020



Africa



Asia



**Latin
America**

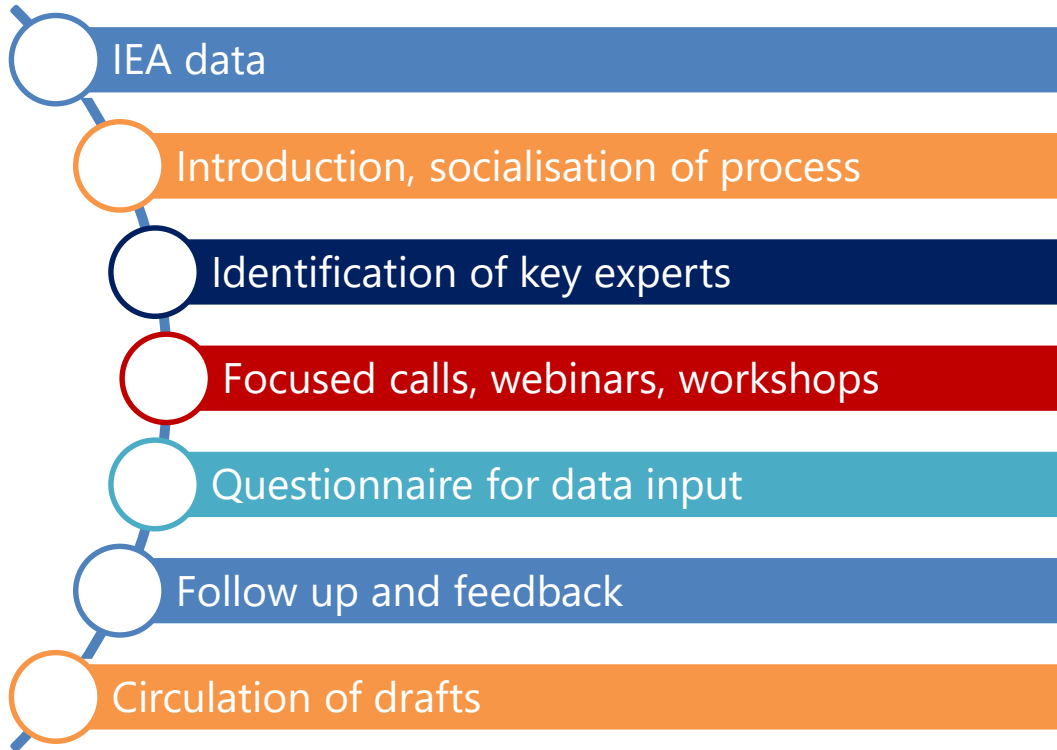
Meaningful targets and timelines to achieve low emission, efficient and resilient buildings in three major regions.

Roadmap outputs include targets for 8 key areas

	Baseline status (2019)	Short-term (2030)	Medium-term (2040)	Long-term (2050)
Urban planning	Minimal sustainable buildings planning	Achieve: 25% sustainability plans Aspire: 50% sustainability plans	Achieve: 50% sustainability plans Aspire: 75% sustainability plans	Achieve: 75% sustainability plans Aspire: 100% sustainability plans
New buildings	<5% net zero ready buildings	Achieve: 50% net zero ready Aspire: 50% net zero buildings	Achieve: 75% net zero ready Aspire: 75% net zero buildings	Achieve: 100% net zero ready Aspire: 100% net zero buildings
Building retrofits	<10% sustainable building renovation	Achieve: 30% renovation Aspire: 50% renovation	Achieve: 50% renovation Aspire: near zero renovation	Achieve: near zero renovation Aspire: net zero renovation
Building operations	Minimal use of energy and sustainability management	Achieve: 20% coverage Aspire: 40% coverage	Achieve: 40% coverage Aspire: 60% coverage	Achieve: 75% coverage Aspire: 100% coverage
Systems	Less-efficient lighting, appliances and equipment	Achieve: 50% MEPS coverage Aspire: >25% of current BAT	Achieve: 75% MEPS coverage Aspire: >50% of current BAT	Achieve: 100% MEPS coverage Aspire: >100% of current BAT
Materials	Significant energy, emissions and global warming potential	Achieve: 10% GHG + GWP decrease Aspire: 50% GHG + GWP decrease	Achieve: 30% GHG + GWP decrease Aspire: 80% GHG + GWP decrease	Achieve: 50% GHG + GWP decrease Aspire: 100% GHG + GWP decrease
Resilience	Minimal adaptation	Achieve: 50% of new buildings Aspire: 50% of all buildings	Achieve: 75% of new buildings Aspire: 75% of all buildings	Achieve: 100% of new buildings Aspire: 100% of all buildings
Clean energy	Significant use of fossil fuels and carbon-based electricity	Achieve: 33% zero on-site emissions Aspire: 33% clean energy	Achieve: 66% zero on-site emissions Aspire: 66% clean energy	Achieve: 100% zero on-site emissions Aspire: 100% clean energy

- Key actions and targets
 - Overall
 - Technologies
 - Policies
 - Capacity Building
 - Finance
 - Multiple benefits
- Achievable & Aspirational targets
- Definition of indicators and metrics

The process: the importance of collective discussion and input



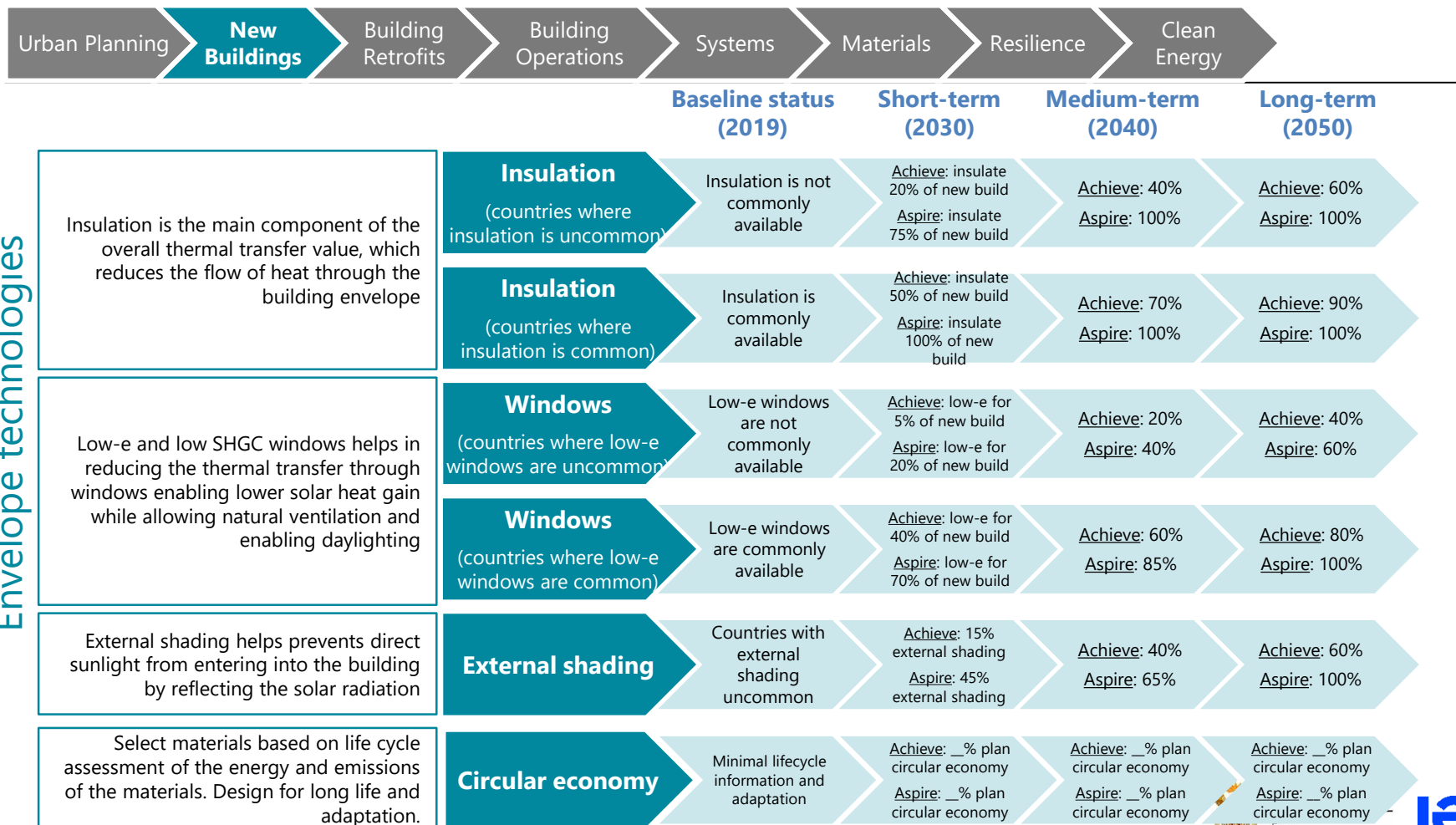
Global Alliance
for Buildings and
Construction



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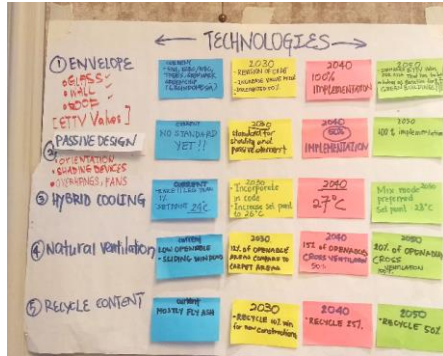
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GREEN
BUILDING
COUNCIL




		Baseline status (2019)	Short-term (2030)	Medium-term (2040)	Long-term (2050)
Use of efficient heating equipment and distribution system to reduce energy use	Space heating	Typical: __ COP Exceptional: > __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP
Use of efficient cooling equipment and distribution system to reduce energy use	Space cooling (room air conditioners)	Typical: 3 to 4 W/W SEER Exceptional: ≥ 6 SEER	<u>Achieve:</u> 4 SEER average <u>Aspire:</u> 6 SEER average	<u>Achieve:</u> 6 SEER <u>Aspire:</u> 8 SEER	<u>Achieve:</u> 8 SEER <u>Aspire:</u> 10 SEER
	Space cooling (centralised cooling systems)	Typical: __ w/w SEER Exceptional: > __ W/W	<u>Achieve:</u> __ SEER average <u>Aspire:</u> __ SEER average	<u>Achieve:</u> __ SEER average <u>Aspire:</u> __ SEER average	<u>Achieve:</u> __ SEER average <u>Aspire:</u> __ SEER average
Incorporate efficient solutions such as hybrid cooling or energy recovery for mechanical ventilation system	Ventilation	Typical: no energy recovery Exceptional: natural	<u>Achieve:</u> 10% recovery <u>Aspire:</u> 50% hybrid or natural	<u>Achieve:</u> 30% recovery <u>Aspire:</u> 75% hybrid or natural	<u>Achieve:</u> 60% energy recovery <u>Aspire:</u> 75% hybrid or natural
High efficiency systems can be implemented by using renewable energy, using waste heat or cogeneration	Water heating	Typical: __ COP Exceptional: > __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP	<u>Achieve:</u> __ COP <u>Aspire:</u> __ COP
More efficient lighting with improved lumens/watt to reduce energy consumption	Lighting	Typical: <100 lumens/watt Exceptional: >200 lumens/watt	<u>Achieve:</u> __ lm/w <u>Aspire:</u> __ lm/w	<u>Achieve:</u> __ lm/w <u>Aspire:</u> __ lm/w	<u>Achieve:</u> __ lm/w <u>Aspire:</u> __ lm/w

A collaborative process

- Workshops, webinars, surveys





Roadmap for Building and Construction 2030-2050 - Africa

* Required

New Buildings

To achieve sustainable (low-emission, efficient and resilient) new buildings, a series of actions for policies, investment and design are key.

10) What proportion of new buildings are insulated?

	None	Few	About half	Most	All	I don't know
Current	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short-term (2030)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medium-term (2040)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Long-term (2050)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please enter details about the type of insulation used:

Your answer

11) What proportion of new buildings use the following types of glazing?

	None	Few	About half	Most	All	I don't know
Single glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Double glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Triple glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low-e glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Solar protective glass (low SHGC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please enter any comments below:

[Access the Google Forms here](#)

Where are these technologies at today

Technologies for:

- New buildings
- Retrofits
- Systems

> Think about the status of the key technologies you identified as they are today, in terms of performance and availability.

	Commonly available	Better	Best
Technology 1 Building design	—	—	—
Technology 2 System	—	—	—



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