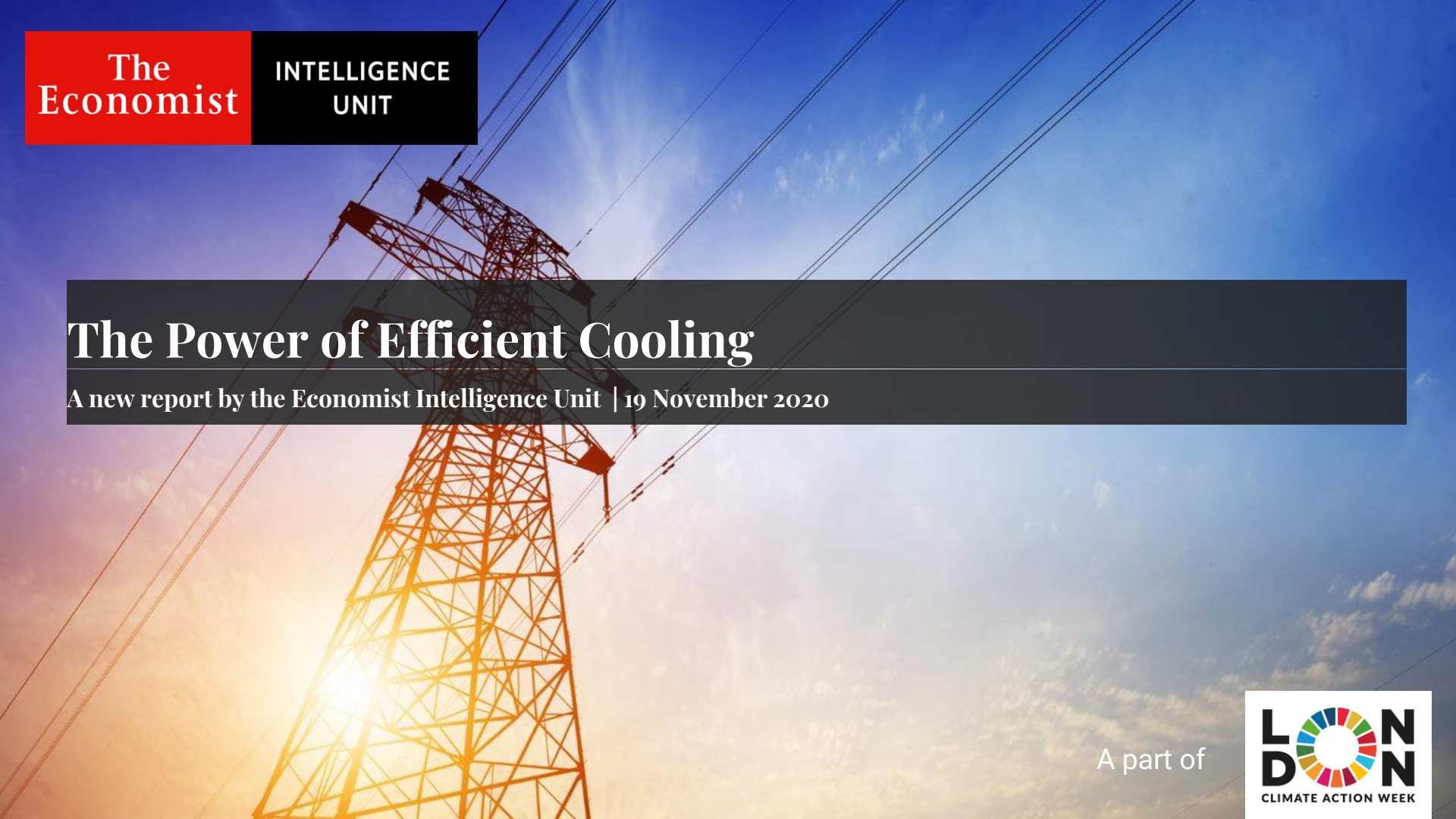




The
Economist

INTELLIGENCE
UNIT

The Power of Efficient Cooling

A new report by the Economist Intelligence Unit | 19 November 2020

A part of

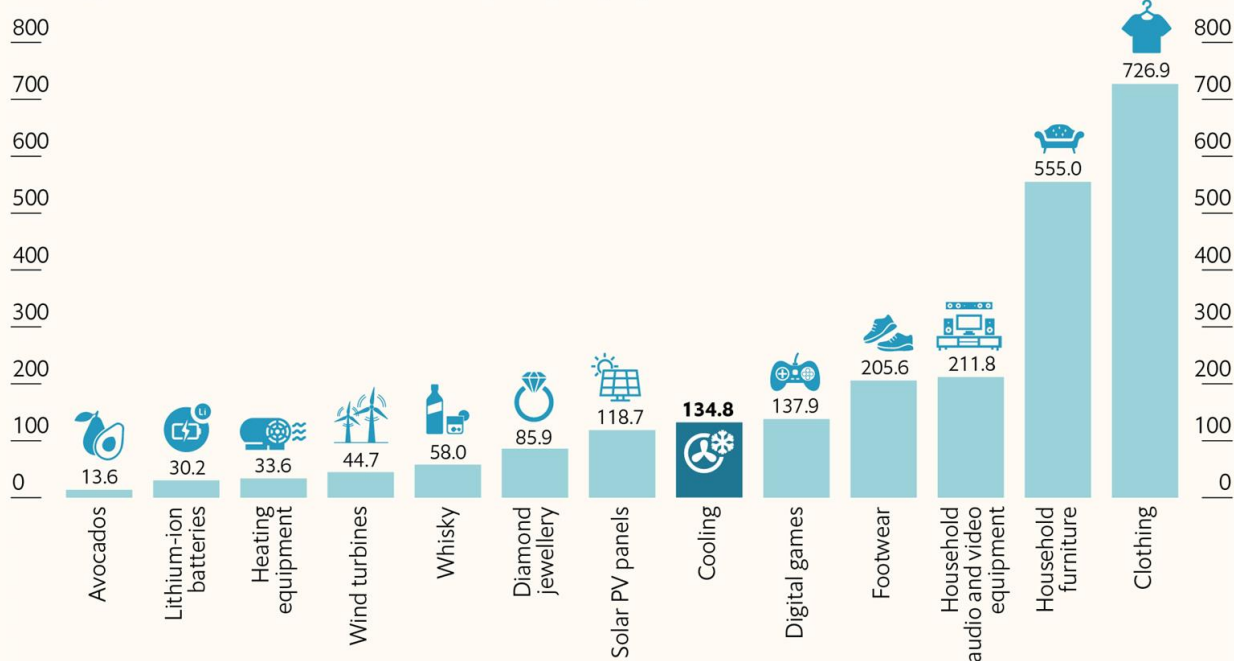


Cooling is critical for a whole host of industries

Air conditioning		Refrigeration	End-users	
	Residential AC		 Consumers and property developers	
	Commercial AC		 Offices and buildings	 Hospitality
	Industrial AC		 Food & beverage	 Electronics
	Mobile AC		 Food & beverage	 Pharmaceutical

Cooling itself is already a big industry. It's going to get a lot bigger

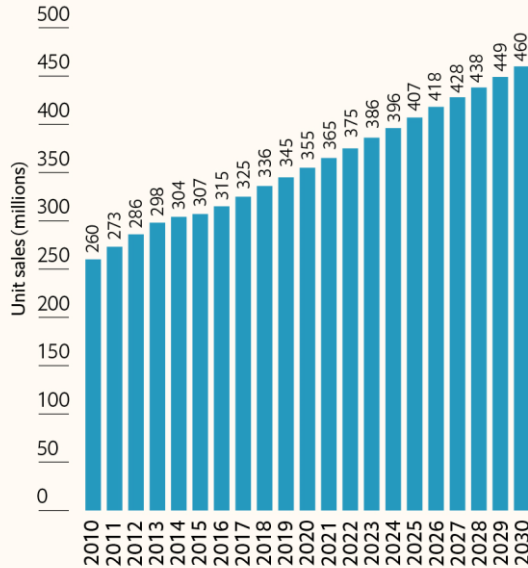
Cooling market value versus other sectors (2018, US\$bn)



Source: EIU; Clean Cooling Landscape Assessment; Transparency Market Research; Grand View Research; Alrosa; Newzoo; Power Technology; Allied Market Research

We forecast that 4.8bn new units of cooling equipment will be sold globally between 2019 and 2030

Global annual cooling sales (2010-2030)



Source: P&S Intelligence, Green Cooling Initiative, EIU analysis.

What is driving the growth in cooling?

Income growth



Urbanisation



Electrification



Climate change



The total market value could reach almost US\$170bn by 2030

Cooling brings many benefits but is also a substantial and growing contributor to climate change



Food security



Health



Education



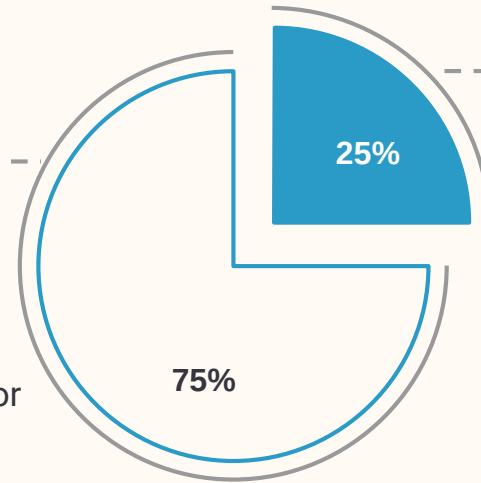
Employee productivity



Societal inequality

Indirect emissions

Power generation for cooling

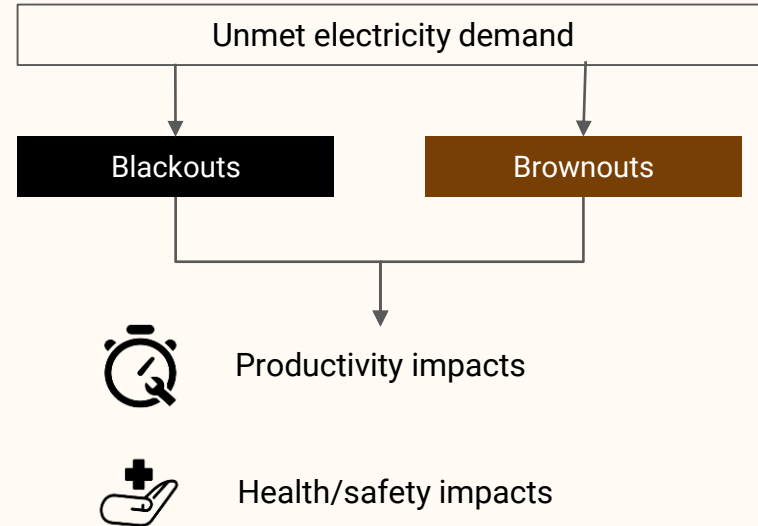
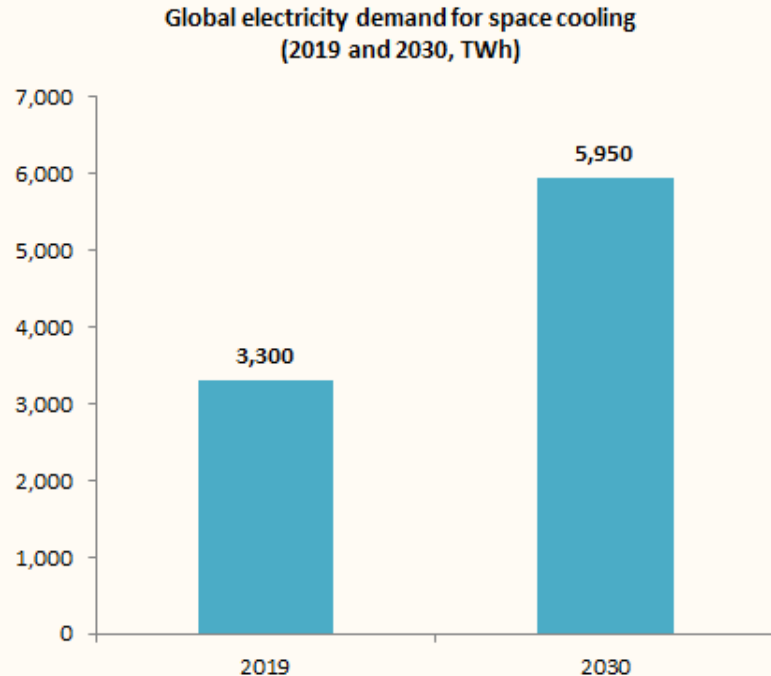


Direct emissions

Refrigerant leakage during manufacturing, installation, and disposal

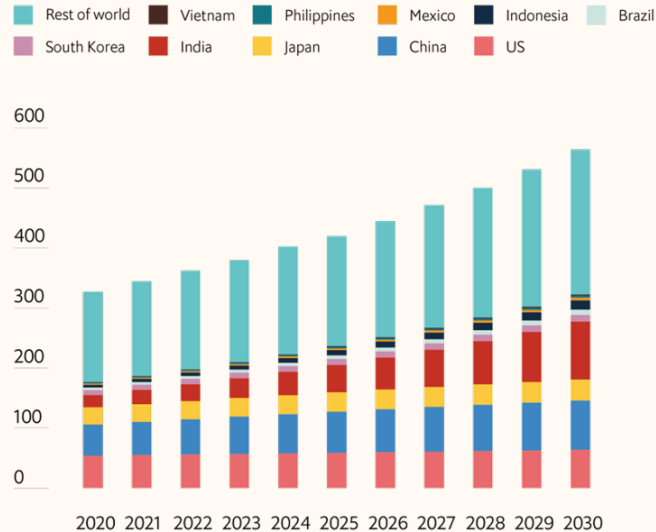
Annual CO2-equivalent emissions from stationary A/C cooling devices

Rising demand for space cooling threatens the power sector's ability to avoid power outages



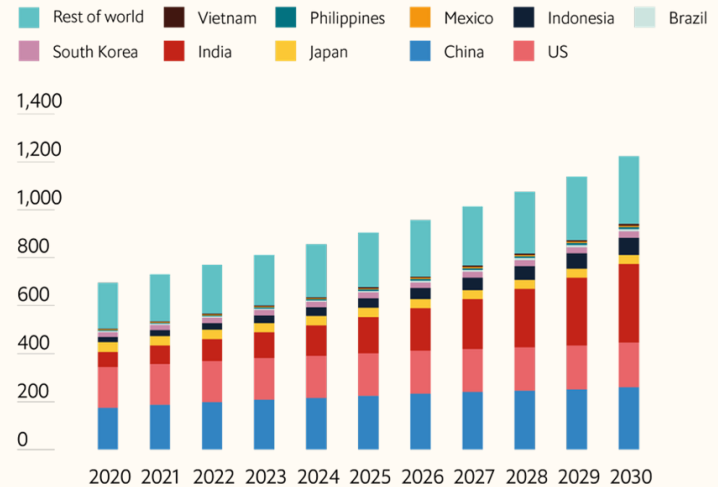
Building new power plants to meet growing demand for cooling will cost \$4.6trn over the next 10 years

Total financial costs to generate electricity for space cooling by country/region, (2010-2030, US\$bn)



Source: EIU analysis based on multiple sources

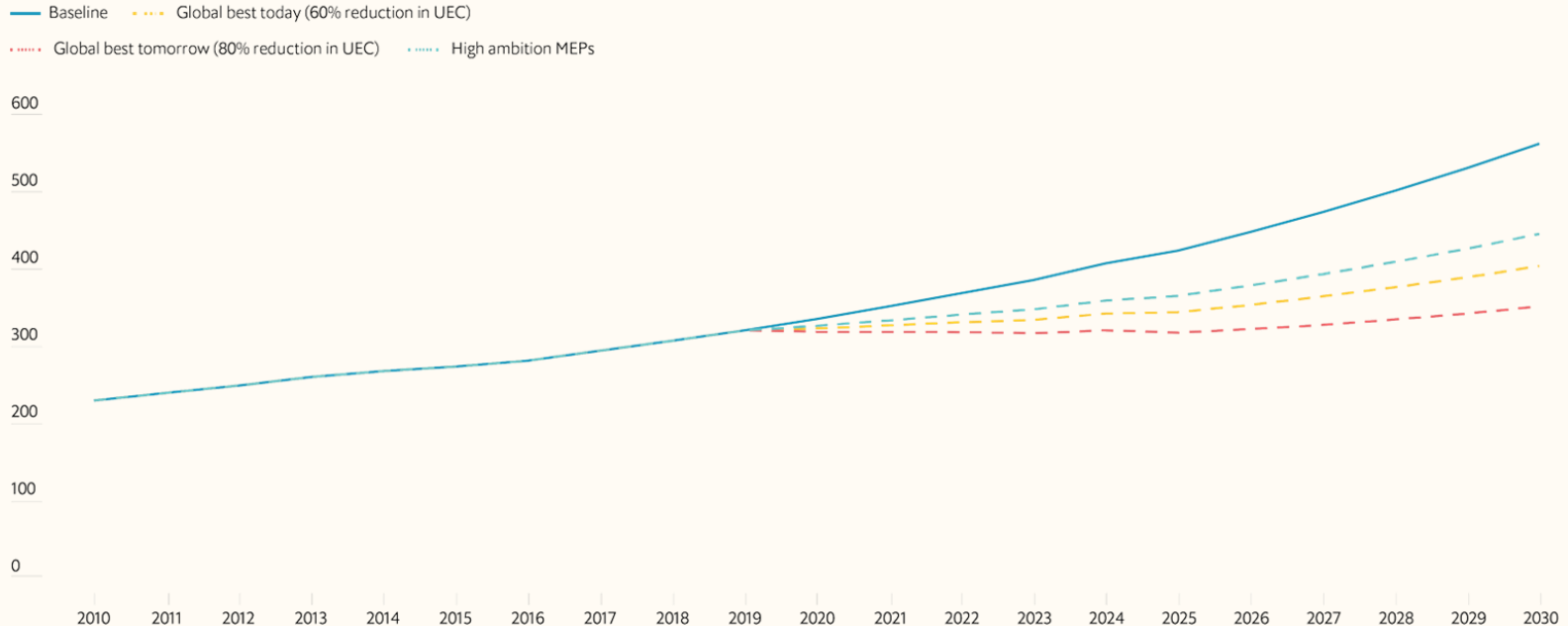
Indirect CO₂ emissions for space cooling by country/region (2010-2030, MtCO₂)



Source: EIU analysis based on multiple sources

Improving the efficiency of air conditioning units could save \$0.9trn and 2.0 GtCO₂ by 2030

Global financial costs of generating electricity for space cooling under alternative scenarios from direct improvements to AC units (US\$bn)



Source: EIU analysis based on multiple sources

Measures to reduce the need for air conditioning units could increase those savings to \$3.5trn and 7.6 GtCO₂

Global financial costs of generating electricity for space cooling under alternative scenarios from implementing measures to reduce electricity consumption (US\$bn)



Source: EIU analysis based on multiple sources



Changing consumer behaviour to adapt to being comfortable in slightly higher temperatures.



Improvements in building design can influence whether occupants need AC.



Using roof materials that can absorb huge amounts of solar energy



Green spaces and urban planning can reduce urban heat island effect

Efficient cooling solutions are necessary to stay on track towards achieving net zero carbon emission goals

Reduction in number of years required to achieve net zero emissions by 2050 by implementing energy-efficient cooling solutions

Maximum reduction

Minimum reduction

Minimum energy performance standards



Best available cooling technologies



Passive measures



Source: EIU analysis based on multiple sources

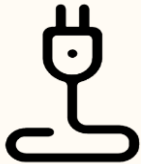
Beyond the overall benefits to society, different stakeholders can gain from efficient cooling



Consumers can save money on their energy bills



Policymakers can create jobs and protect consumers



Power providers can better manage demand to reduce the risk of power outages and also reduce the cost of supplying electricity at peak times

So, what needs to happen next?



● Making efficient AC accessible



● Educating consumers



● Leveraging wider cooling measures



● Incentivising the power sector



● Shifting to system-level thinking

Who needs to take action?

- Policymakers
- The private sector including investors
- The power sector
- Multilateral Development Banks and International Financial Institutions
- Consumers
- NGOs
- The media
- Philanthropic and academic organisations

Upcoming research



- Today: Launch of the EIU 'Power of Efficient Cooling' report
 - Webinar at 4pm GMT
 - Report link [here](#)
- Mid December: Launch of the EIU 'Cooling: Transporting us to Net Zero'
- Contact details:
 - Jonathan Birdwell: Jonathanbirdwell@eiu.com
 - Diana Hindle Fisher [Project manager]: dianahindlefisher@eiu.com



E3G

Cool Development Banks: Rising to the challenge of cooling a warming world

Dileimy Orozco

Senior Policy Advisor, E3G

Project funded by Children's Investment Fund Foundation



Introduction to E3G

- Independent European environmental think-tank working globally
- Offices in Brussels, Berlin, London and Washington DC.
- Focus on analysing & shaping national and international politics of climate change. Expertise on diplomacy, security, finance, clean economy & resilience.
- Mainly grant funded by philanthropy and governments.

E3G's work on cooling

- Political Economy Mapping of cooling geographies
- Providing international cooling diplomacy support
- Support to Secretariat of the Cool Coalition at UN Environment through intelligence gathering and knowledge sharing
- MDBs Cooling work focus on understanding the challenges and opportunities to advance the cooling agenda.

Methodology



- Building on previous political economy analysis and work on PA
- Analyse OECD DAC and relevant IFIs cooling work
- Tested initial findings with: IFI team, cooling experts and political and governance team.
- Engage with key stakeholders within IFIs and CSO, private sector, and Cool Coalition.
- Blogs on health, food, and shareholder interest.
- Briefing paper
- Private Roundtable
- LCAW event



E3G

DFIs studied in this report



Asian Development
Bank



Japan International
Cooperation Agency



Asian Infrastructure
Investment bank



World Bank Group



European Bank for
Reconstruction &
Development



European
Investment Bank



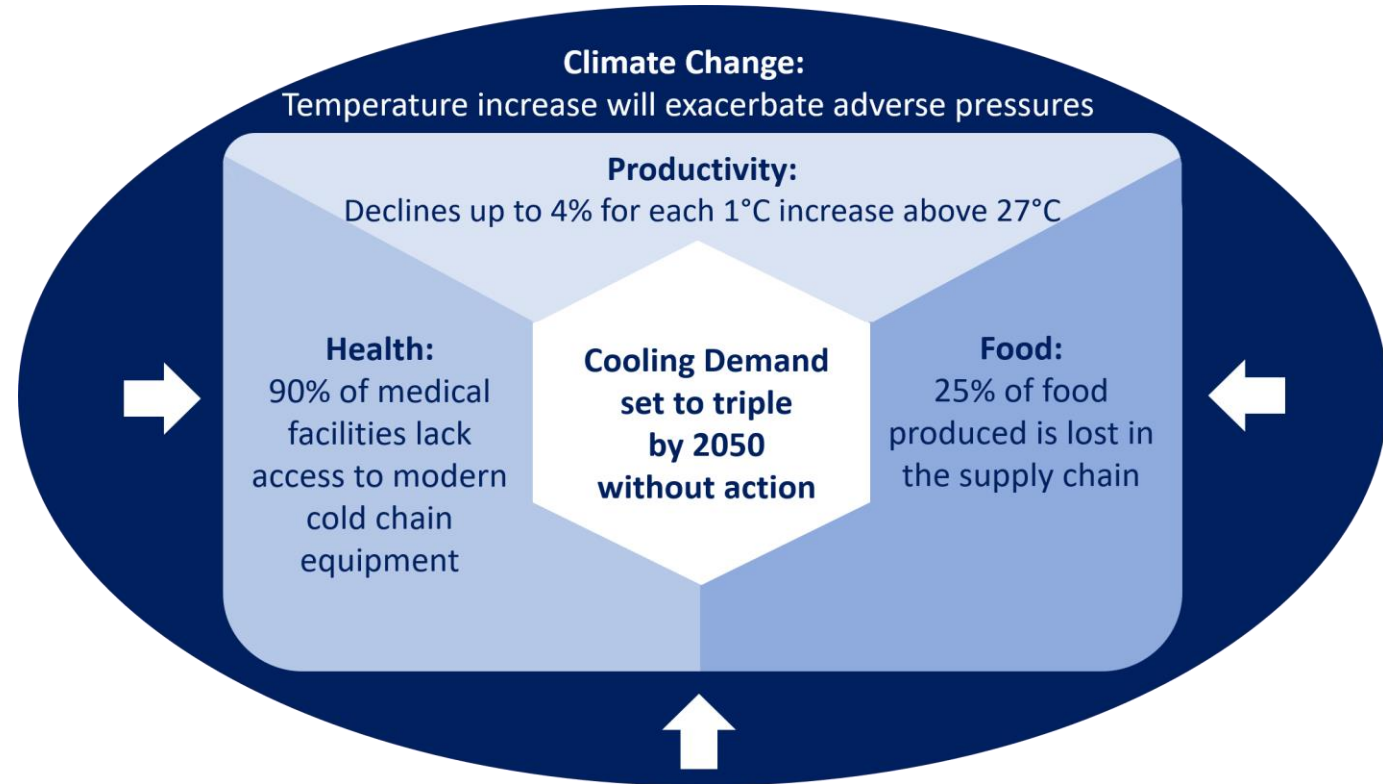
African Development
Bank



E3G

Cooling a cross-cutting issue

- Cooling already accounts for 17% of electricity demand
- Refrigerants used in conventional cooling technologies – F-gases – could account for nearly 20% of total GHGs by 2050
- Global cooling consumption is responsible for 15% of peak electricity demand, rises to 50% (residential) in extremely hot days
- Cooling touches all sector of the economy and affects human well-being.
- Access to cooling is not equitable - 35% of the world's population living in countries where the average daily temperature is above 25°C, only 10% own an AC unit.



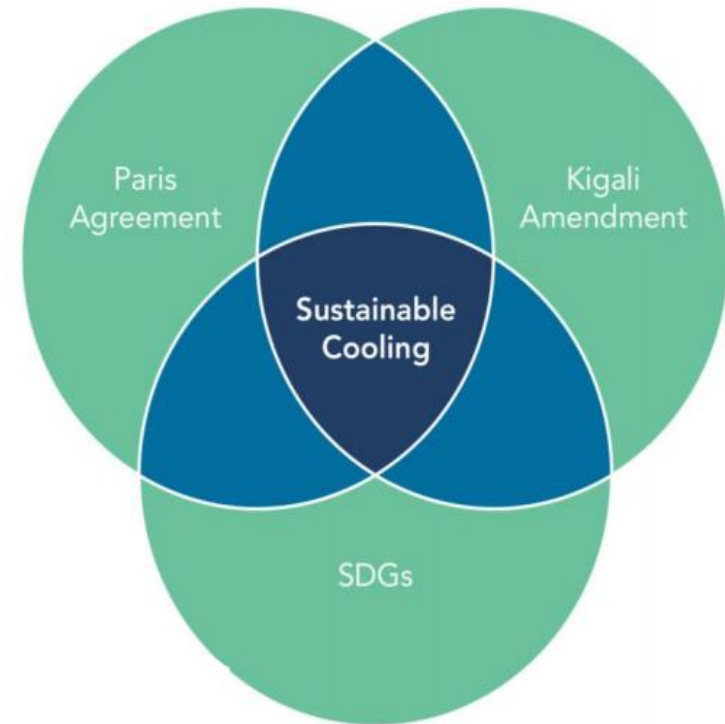
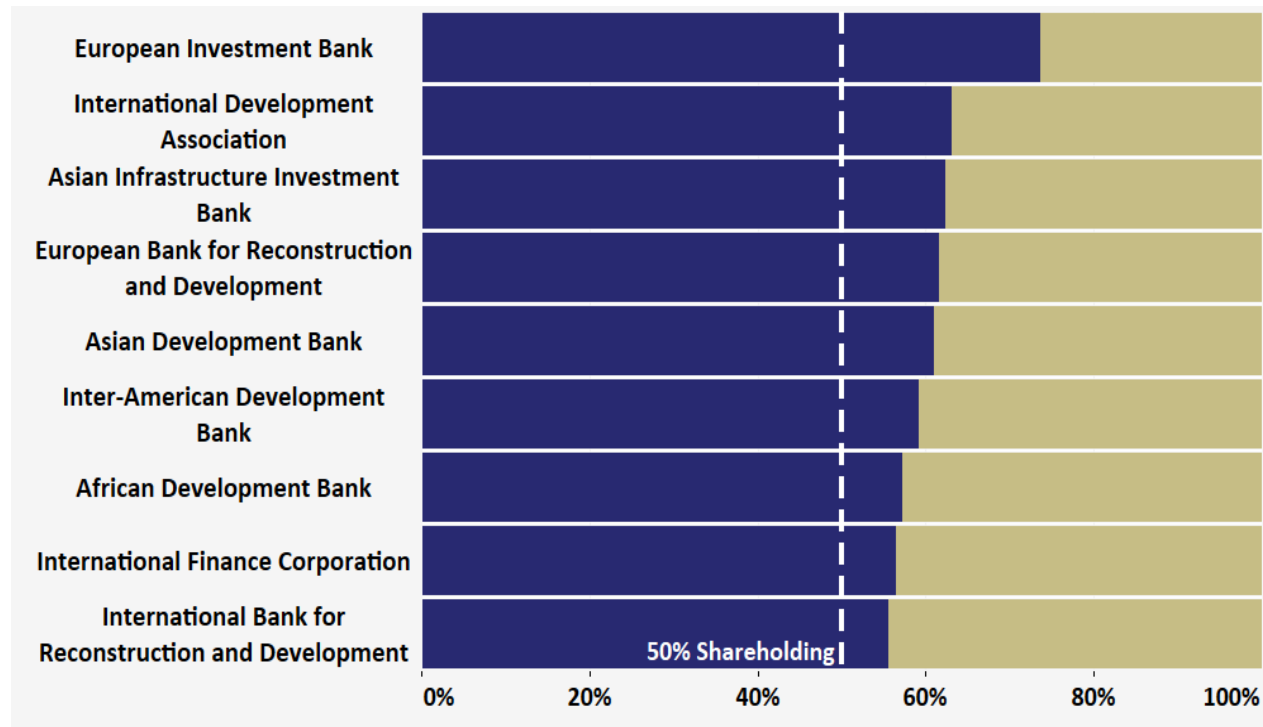


E3G

Why Cooling matters to MDBs

MDBs have a majority shareholding that support greater action on cooling*

Sustainable Cooling provides a rare opportunity to achieve a triple win!





Findings: Challenges

Appetite

- Cooling is perceived as niche and a subset of energy efficiency rather than as a cross-cutting issue
- Impetus for mainstreaming cooling within MDBs is reduced as there is limited strategic support from MDB leadership for improving cooling with the exception of the World Bank Group which has the Efficient and Clean Cooling program

Data gaps

- MDBs at present do not measure or track cooling
- Environmental and social assessments may not pick up cooling as an issue

Project size

- In many cases, separate consideration of cooling may mean the ticket size of projects is not sufficient for MDBs to invest.
- Demand from member countries for MDB support of cooling projects is limited, as countries prioritise larger, more visible projects

Standards

- The lack of rigorous local standards for cooling means that integrating such standards into MDB projects requires significant external assistance and coordination with donor countries and other funders
- Some MDBs have yet to develop their own energy efficiency standards

Recommendations to overcome challenges

Institutional Level

- Reduce sectoral silos by increasing awareness within the institution
- Map and quantify existing activities to understand which sectors are most exposed to cooling and where there are potential areas for improvement.
- Tap into existing external resources and wider networks such as the Cool Coalition
- Consider setting up a temporary joint MDB working group

Financial & Technical Assistance

- Include cooling in country diagnostic and partnership guidelines
- Provide training and support to financial intermediaries
- Project aggregation
- Undertake demonstration projects MDBs to attract other financial and industry players to engagement with sustainable cooling projects

Country Level Engagement

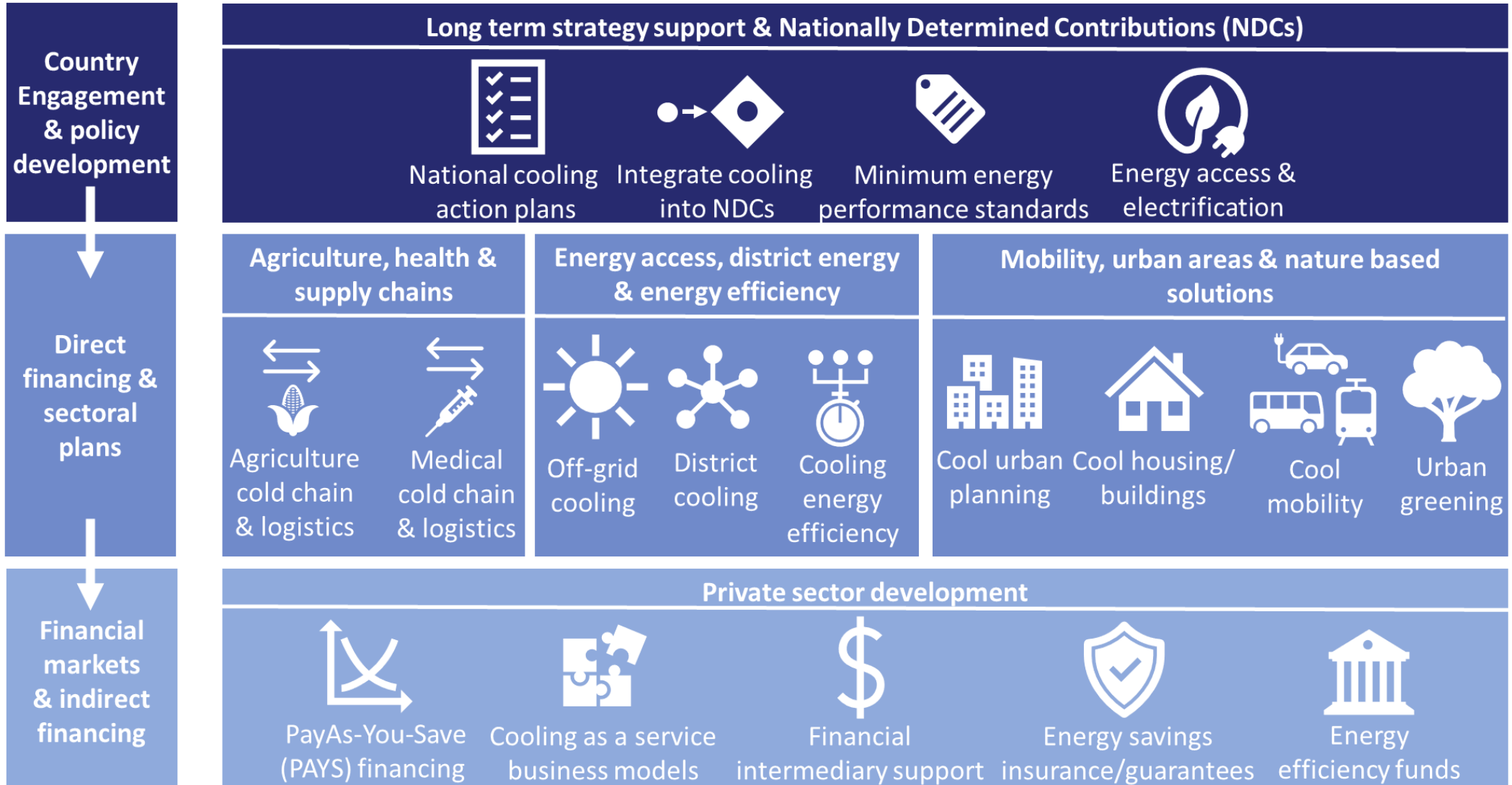
- Engage with member countries across different levels and departments of government to raise awareness and highlight the importance of and opportunities provided by sustainable cooling
- Support countries to embed long term benefits into the short-term responses via the current spending and COVID-19 recovery packages.
- Highlight the interaction between cooling and wider efforts at a national level such as NDCs, but also National Development Plans.

What Mainstreaming looks like



E3G

MDB Activity



E3G's work on International Financial Institutions



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BLOG

Cooling the health sector

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BANKING ON ASIA ALIGNMENT WITH THE PARIS AGREEMENT AT SIX DEVELOPMENT FINANCE INSTITUTIONS IN ASIA

SONIA DUNLOP, JAMES HAWKINS, KATE LEVICK, DILEIMY OROZCO, ISKANDER ERZINI VERNIT AND HELENA WRIGHT



BRIEFING PAPER September 2020

COOL DEVELOPMENT BANKS: RISING TO THE CHALLENGE OF COOLING A WARMING WORLD

DILEIMY OROZCO, JAMES HAWKINS AND SINDRA SHARMA



BLOG — 14 October 2019

A cooling opportunity for Multilateral Development Banks

By James Hawkins



Ahead of the World Bank's Annual Meetings and related events next week, Multilateral Development Banks must begin integrating 'cooling considerations' into investments to match growing shareholder awareness and rising demands for action on cooling energy efficiency.

The importance of cooling

BRIEFING PAPER JUNE 2019

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REPORT MAY 2018

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HELENA WRIGHT, JAMES HAWKINS, DILEIMY OROZCO, NICK MABEY

Published on Development and a Changing Climate

How financing sustainable cooling can buffer our food system

SINDRA SHARMA-KHUSHAL | OCTOBER 29, 2020
This page in: English

Thank you



Detailed materials of E3G Cooling and MDBs work can be found at www.e3g.org

