Cool Coalition Quarterly Coordination Call

16 June 2026

Welcome and Opening Remarks

Lily Riahi
Global Coordinator, UNEP Cool Coalition

15.00 – 15.05 CET

Agenda

15.00 -15.05	Opening Remarks
15.05-15.20	**Strategic Priorities** • Global Cooling Pledge Update and Next Steps
15.20-15.35	**Cross-cutting Policy Updates** • Advancing National Cooling Action Plans in Morocco and Djibouti • Sustainable Cooling Access for Agriculture, Fisheries & Cities in Sub-Saharan Africa
15.35-15.55	**Thematic Updates:** Extreme Heat & Passive Cooling • Roadmap for Extreme Heat Protection through Passive Cooling in ASEAN Region • Climate-Resilient Built Environment: Science-Based Heat Stress Mitigation • Cooling and Climate Resilience: Accelerating Action on Extreme Heat • Beat the Heat: Cool Cities Lab
15.55-16.10	**Scaling Sustainable Cooling** • Demand-Side Flexibility for Sustainable Cooling • CREED and ImpactF • Scaling Sustainable Cooling in Africa: From Planning to Investment • Mobilizing Finance for Sustainable Cooling through Investment Taxonomies
16.10-16.25	**Strategic Engagement** • Making Cooling Matter on the Global Stage • IDEA 2026
15.15 -15.30	**Closing Remarks**

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Cool Coalition

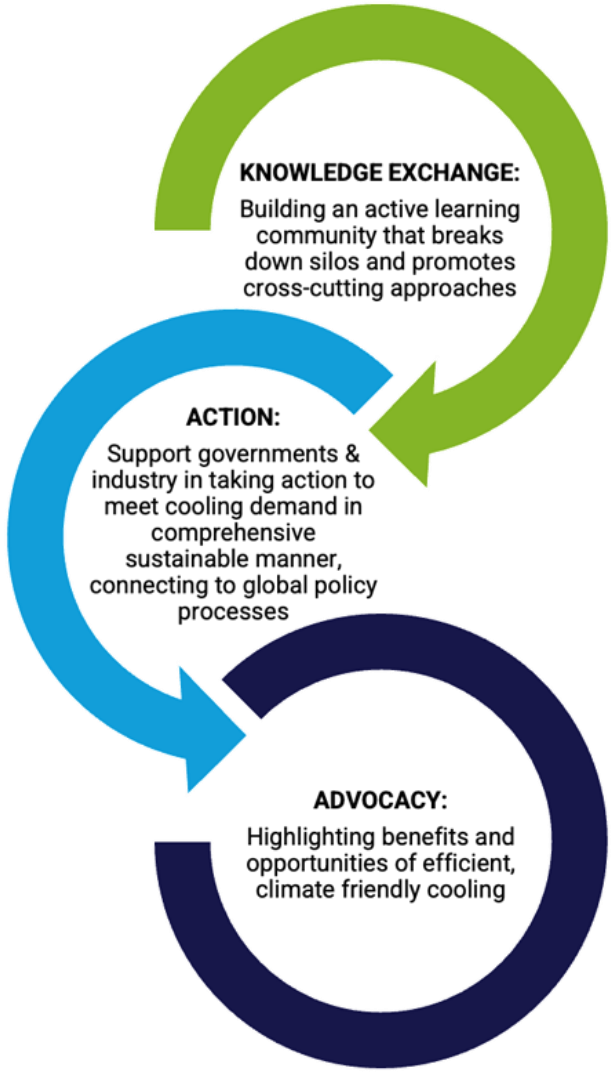
Strategic Priorities

Graeme Maidment
Advisor, UNEP Cool Coalition Secretariat

15.05 – 15.15 CET

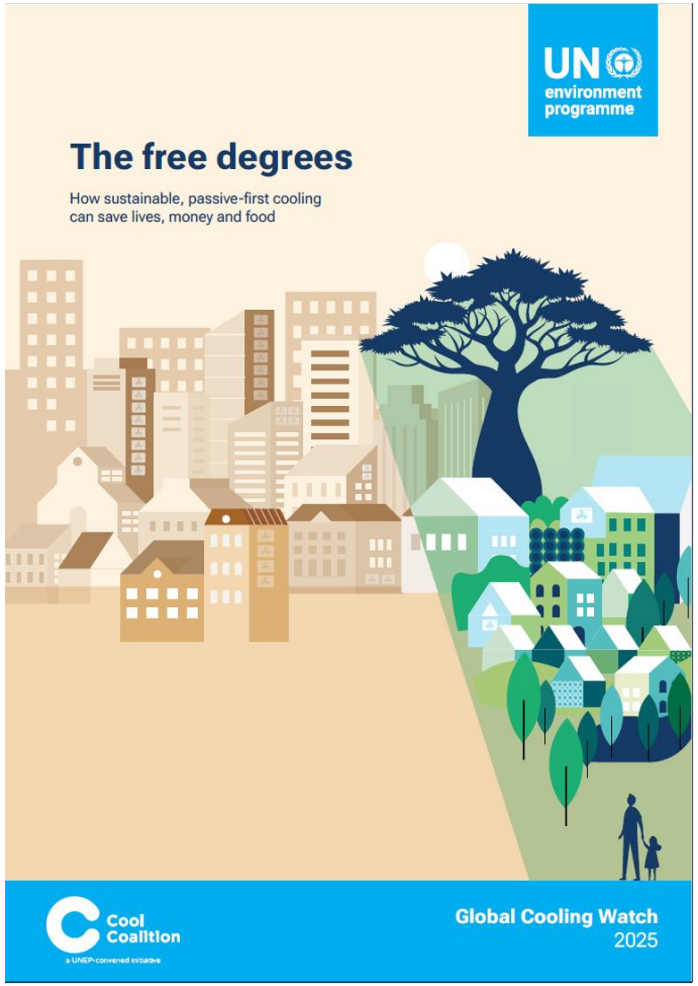
Cool Coalition: A global cooling network

The UNEP- led **Cool Coalition** is a joint effort of over 250 partners: collaborating on 3 pillars: **knowledge exchange on science, data, policy** between countries, finance, private sector and academia; **advocacy, and joint action** to accelerate the transition to **sustainable cooling using a comprehensive approach**

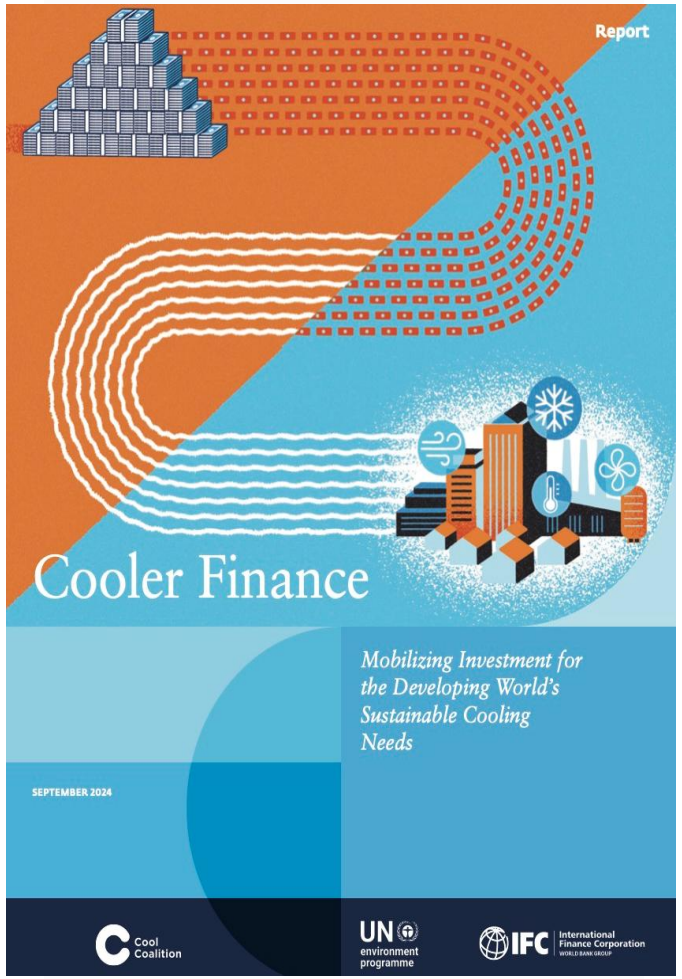


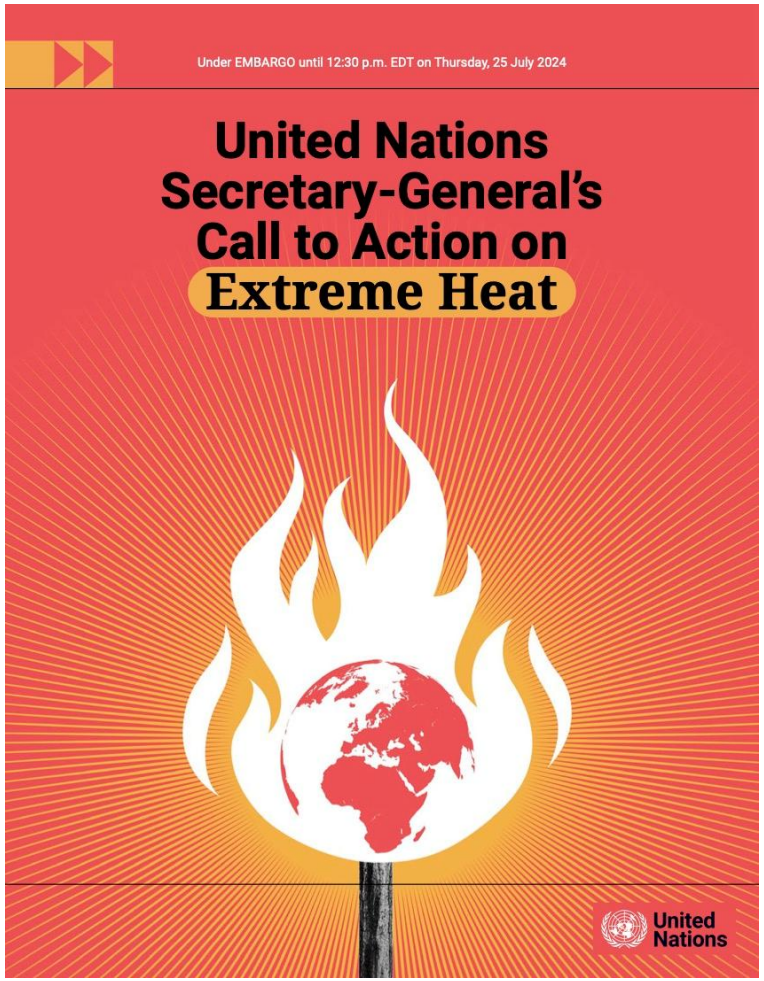
Establishing science and data

Flagship assessments and guidance, including Global Cooling Watch, Cooler Finance and the Urban Heat Handbook



Totality of Cooling Emissions + policy and tech pathway





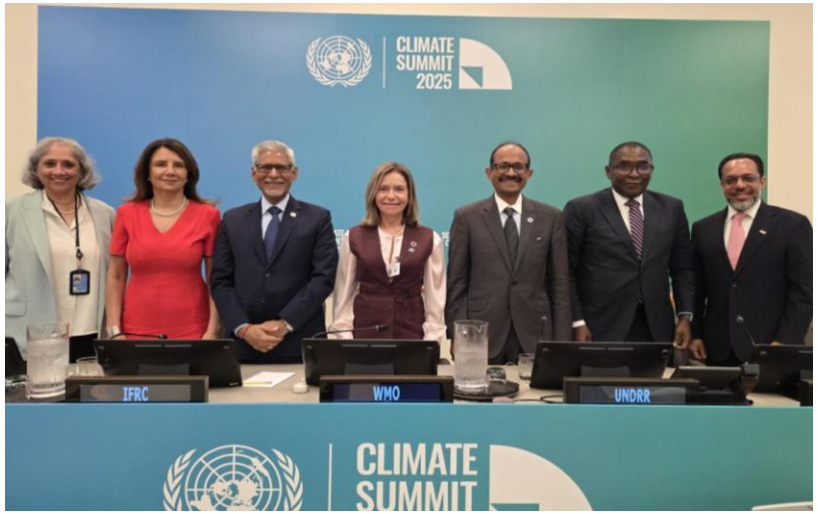
Underpins Global Cooling Pledge, Enabling Environment, International Finance

Mobilizing political will

Global engagement and political advocacy to secure commitments grounded in science

> We commit to maintaining a high level of ambition to systematically implement the **Global Cooling Pledge** and strengthen relevant existing initiatives delivering sustainable cooling in order to achieve both climate mitigation and adaptation.

G7 Ministerial Meeting
Climate, Energy and Environment
Joint Communiqué



> We must respond [to extreme heat] by massively increasing access to low-carbon cooling; expanding **passive cooling** – such as natural solutions and urban design; and **cleaning up cooling technologies** while boosting their efficiency.
> **UNEP** estimates that, together, these measures could protect **3.5 billion people by 2050,** while slashing emissions and saving consumers $1 trillion a year.

António Guterres United Nations Secretary-General
Call to Action on Extreme Heat, July 2024

GLOBAL COOLING PLEDGE

Launched at **COP28** with the support of **60 countries,** committed to **reducing over 60% of GHGs** from cooling and **increasing access** to sustainable cooling.

Cool Coalition
a UNEP-convened initiative

UN environment programme

From commitment to delivery

- **Global Cooling Pledge launched (19 commitments)**
- **Political mandate established** at COP 28

PHASE 1
PLEDGE ESTABLISHMENT

2023

- **Ministerial 2024** convened
- 2030 Pledge Implementation Strategy
- 2024 Annual Pledge Progress Report
- Initial country coordination underway

PHASE 2
Political Momentum

2024

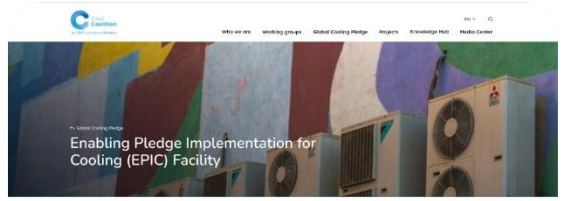
74 Countries | 225 Cities

- **First focal point meeting in Bonn**
- **Ministerial 2025**
  - Extreme Heat Communiqué adopted
  - Intergovernmental Committee on Cooling (IGCC) established
- **Beat The Heat launched**
  - 230+ cities
  - 100+ partners

#BEAT THE HEAT Beat the Heat operationalises the Global Cooling Pledge, turning commitments into scalable cooling action.

PHASE 3
INSTITUTIONALISATION IMPLEMENTATION PHASE

2025



NOW MOVING INTO DELIVERY

Moving political commitment into implementation

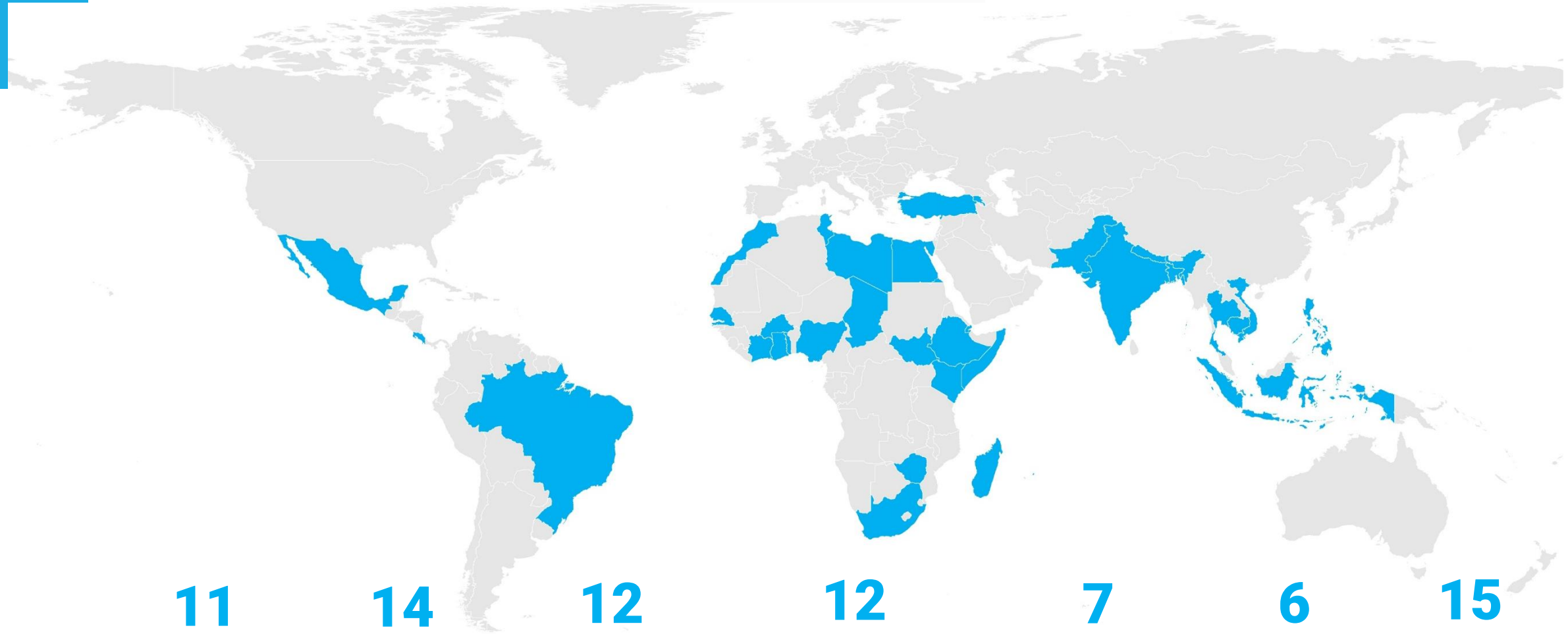
- **IGCC convenes** to set delivery priorities
- **EPIC solutions** scaled through structured request cycles
- **Appliance Manufacturer Platform** established
- **Implementation underway** in priority countries

PHASE 4
PLEDGE DELIVERY

2026+

More Is needed to deliver the pledge

Country-Level Requests to Accelerate Implementation



11
Buildings and PCS

14
MEPS and appliance and public procurement

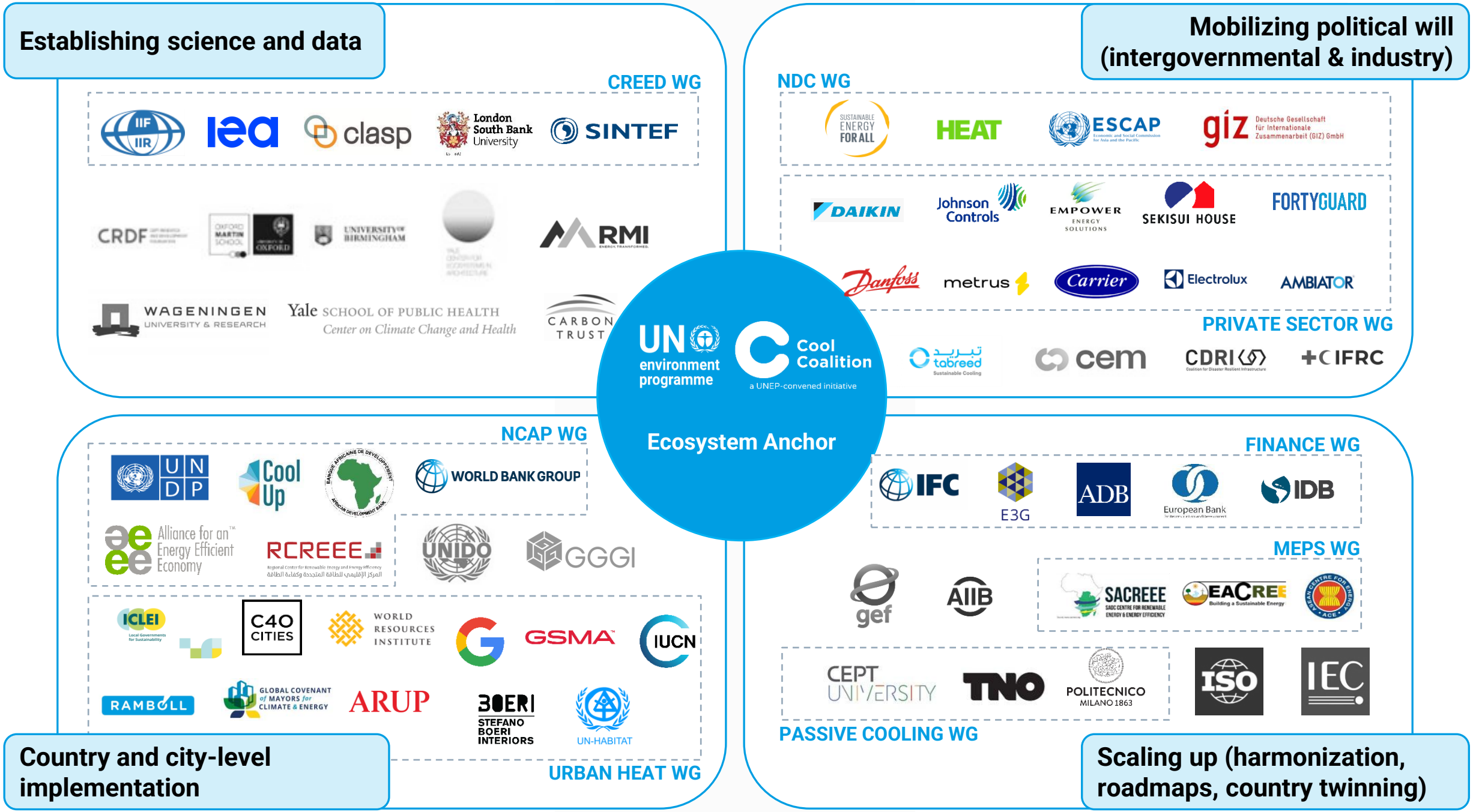
12
NCAPs and NDC investment framework

12
Access/ Reliable or Renewable powered cooling in health, education sector District cooling

7
Finance mechanisms

6
Cold chain

15
Country to City action


Establishing science and data
CREED WG
IIF IIR
iea
clasp
London South Bank University
SINTEF
CRDF
Oxford Martin School
University of Oxford
University of Birmingham
RMI
WAGENINGEN UNIVERSITY & RESEARCH
Yale SCHOOL OF PUBLIC HEALTH
Center on Climate Change and Health
CARBON TRUST
Mobilizing political will (intergovernmental & industry)
NDC WG
SUSTAINABLE ENERGY FOR ALL
HEAT
ESCAP
Economic and Social Commission for Asia and the Pacific
giz
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
DAIKIN
Johnson Controls
EMPOWER ENERGY SOLUTIONS
SEKISUI HOUSE
FORTYGUARD
Danfoss
metrus
Carrier
Electrolux
AMBIATOR
PRIVATE SECTOR WG
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Cool Coalition
a UNEP-convened initiative
Ecosystem Anchor
تبريد tabreed
Sustainable Cooling
cem
CDRI
Coalition for Disaster Resilient Infrastructure
IFRC
NCAP WG
UNDP
Cool Up
Banque Africaine de Développement
African Development Bank
WORLD BANK GROUP
Alliance for an Energy Efficient Economy
RCREEE
Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة
UNIDO
GGGI
FINANCE WG
IFC
E3G
ADB
European Bank
IDB
MEPS WG
gef
AIIB
SACREEE
SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY
EACREE
Building a Sustainable Energy
ASEAN CENTRE FOR ENERGY
ACE
ICLEI
Local Governments for Sustainability
C40 CITIES
WORLD RESOURCES INSTITUTE
GSMA
IUCN
CEPT UNIVERSITY
TNO
POLITECNICO MILANO 1863
ISO
IEC
RAMBOLL
GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY
ARUP
BOERI STEFANO BOERI INTERIORS
UN-HABITAT
PASSIVE COOLING WG
URBAN HEAT WG
Country and city-level implementation
Scaling up (harmonization, roadmaps, country twinning)

Global Cooling Pledge Assembly 2026

Hosted by Singapore Government | 15–18 September 2026* | 75 countries, 30 cities, 150 participants

Day 1 and 2

Site visits and Implementation Round tables

Pledge Governance, country progress and implementation

Day 3 and 4

Intergovernmental Council on Cooling (IGCC)

Implementation roundtables on projects, finance and market creation

Key Outcomes

- Updated 2027 Intergovernmental Committee on Cooling Workplan and Priorities
- Country implementation readiness and partnerships to deploy concrete projects
- Manufacturers Platform engagement countries, cities, industry, finance, partners
- Stronger alignment of national plans and city delivery on extreme heat and cooling
- Enhanced capacity on investment planning, efficient technologies, passive cooling

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Cross-cutting Policy Updates

15.10-15.35 CET

Advancing National Cooling Action Plans in Morocco and Djibouti

Dr. Maged K. Mahmoud, Technical Director, Lead Renewable Energy Advisor, (RCREEE)

Sustainable Cooling Access for Agriculture, Fisheries & Cities in Sub-Saharan Africa

Tilly LENARTOWICZ, Senior Officer, SEforALL

SUSTAINABLE ENERGY FOR ALL

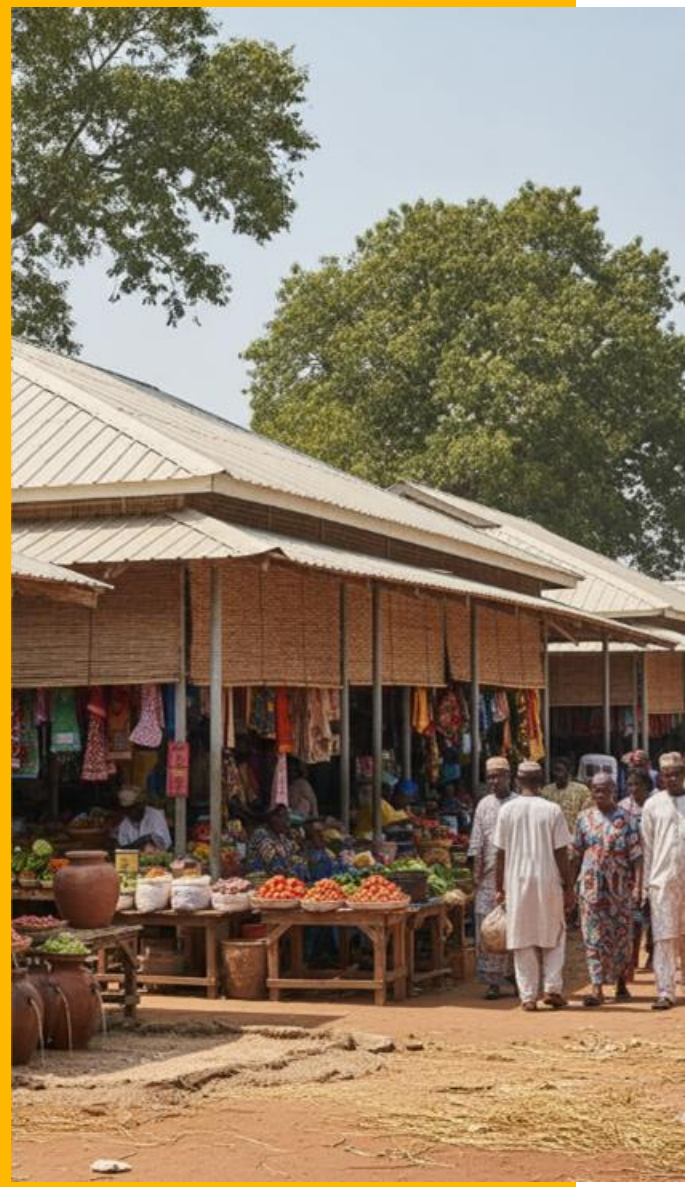
ENERGY. CLIMATE.
DEVELOPMENT.

Cool Coalition Coordination Call (Q1-Q2 2026)

SEforALL Intervention Slides

JUNE 2026

COOL COALITION COORDINATION



Sub Saharan Africa

+ 370 million
people are at high risk due to a lack of access to cooling solutions
(of 77 countries analysed, SEforALL, 2025)

> 16.5
heat-related deaths per 100,000 (2020)
(Lancet, 2025)

40%
post-harvest losses reached across agriculture
(Global Cold Chain Alliance, 2025)

600 million
Lack access to electricity
(IEA, 2025)

40%
increase in peak electricity demand driven by increased demand for cooling
(IEA, 2025)

The Opportunity

80%
reduction in cooling demand achievable at the building level through passive design
(IEA, 2025)

2.5°C+
neighbourhood temperature reduction possible through nature-based solutions
(Wei, et.al., 2025)

$600 billion
the size of the 2050 annual cooling market in developing economies
(UNEP, IFC, 2024)

144 million tonnes
of food could be saved annually in developing countries
(UNEP, IFC, 2022)

64%
reduction in cooling-related emissions possible by 2050 through sustainable cooling
(UNEP, 2023)

See recent article our here: https://www.seforall.org/data-stories/sustainable-cooling-access-for-agriculture-fisheries-in-sub-saharan-africa

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Sustainable Cooling for Small Scale Fisheries in Madagascar

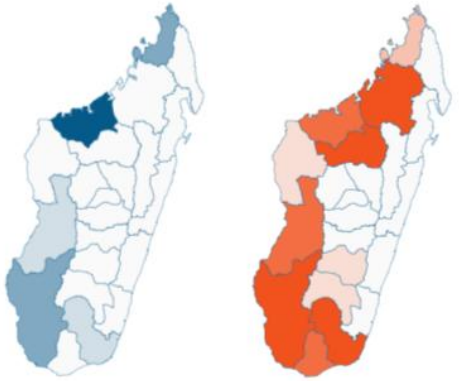
Critical Nutrition: Fish provides 65% of national animal nutrition; 8.8 million people face food insecurity.

80% Loss Rate: An estimated 80% of fish production is lost at the producer level due to rapid spoilage.

Climate & Heat Compounding: High-producing, small-scale fishing regions (e.g., Atsimo Andrefana) face high climate risks, with over 25 days/year above 35°C.

The Solution: Data-Driven Planning

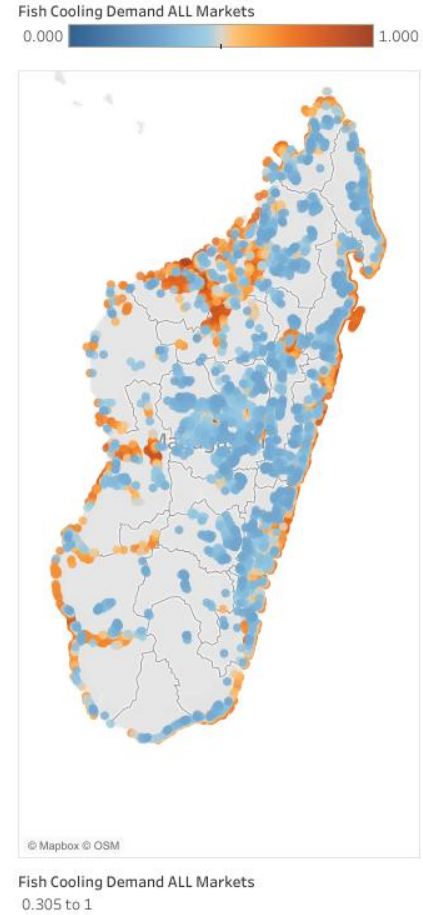
- **The AgCAP Tool:** SEforALL developed the Agricultural Cold Chain Analysis and Prioritization (AgCAP) tool—an open-source, geospatial optimization tool.
- **Strategic Impact:** It helps ministries and investors identify settlements with high potential for productive use cooling energy, de-risking investments and facilitating cross-sector dialogue (energy, agriculture, fisheries).



Main Fishing Production Areas: QTY in Cold Chain (Percentage/Year) vs. No. of Hot Days (> 35°C/Year)

	POTATOES	TOMATOES	FISHING	DAIRY PRODUCTS
Annual **attempted production** (t/year)	402,012	60,539	653,622	171,817
Total **losses post-harvest** (t/year)	150,755	19,675	522,898	68,727
Total **loss** (percent)	38%	33%	80%	40%
Economic **value** ($US/t)	$441	$441	$3 084	$385
Economic **impact loss** ($US/year)	$66,426,467	$8,669,373	$1,612,818,657	$26,437,598
Potential prevention of loss with CCE (100% penetration)	37.50%	32.50%	70.00%	50.00%

Food spillage and return on cooling investment analysis.



Fish Cooling Demand: All Markets

AgCap is also initiated in Mozambique

See recent article our here: https://www.seforall.org/data-stories/chilling-prospects-data-story-heat-vulnerability-assessments-in-low-income-countries

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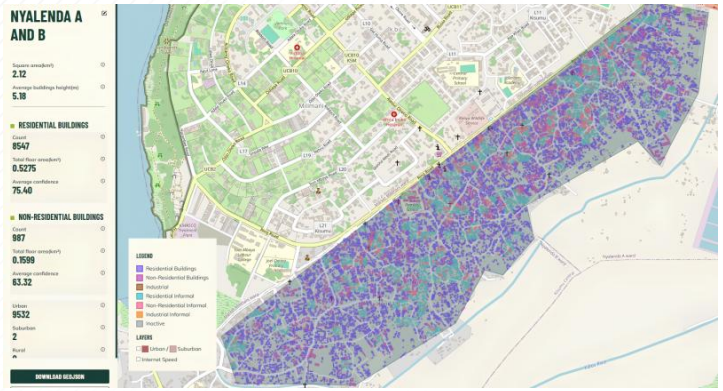
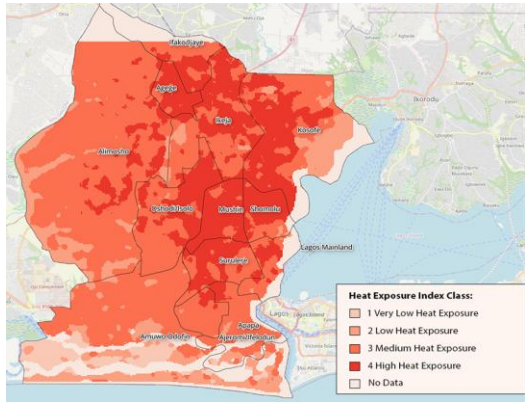
Identifying Heat Vulnerable Populations in Kenya & Nigeria

Identifying vulnerable populations, determining appropriate solutions, and quantifying necessary investment is challenging due to fragmented census, health, and climate surveillance data. To tackle this, SEforALL is developing actionable heat vulnerability frameworks and data through the following initiatives:

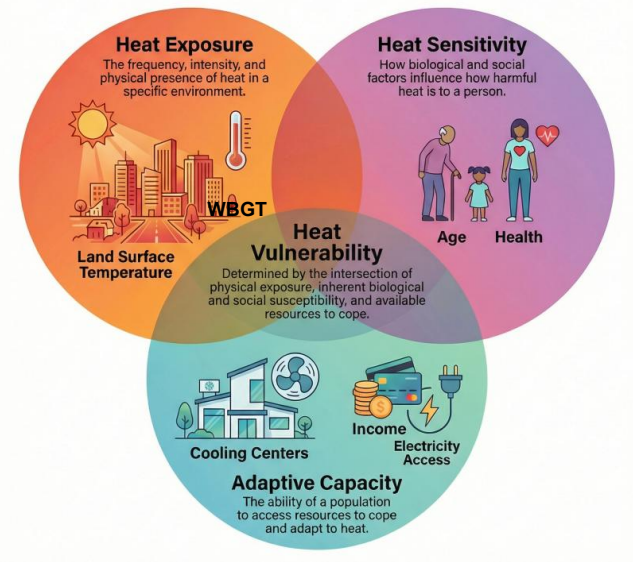
- ➔ Plugging data availability gaps and validating satellite data using partner information (**Open Building Insights Tool**).
- ➔ Providing Kenyan counties with data and analytics to create **investment-ready Heat Action Plans**.
- ➔ Developing urban heat vulnerability maps to raise awareness and generate knowledge, featured in the upcoming **Nigeria (and Indonesia) Sustainable Cooling Country Brief.**
- ➔ Informing methods for evaluating the impact of the **Nature for Cooling Challenge**



Building stock in Nyalenda A and B, Kisumu's most densely settled informal wards. Source: SEforALL Open Building Insights (OBI), 2025.



Lagos Heat Exposure Mapping



Heat Vulnerability Frameworks

Heat Vulnerability Assessment work also initiated in Indonesia & India

Thematic Updates: Extreme Heat & Passive Cooling

15.35-15.55 CET

Roadmap for Extreme Heat Protection through Passive Cooling in ASEAN Region

Rio Jon Piter Silitonga, Senior Officer, ASEAN Center for Energy Efficiency

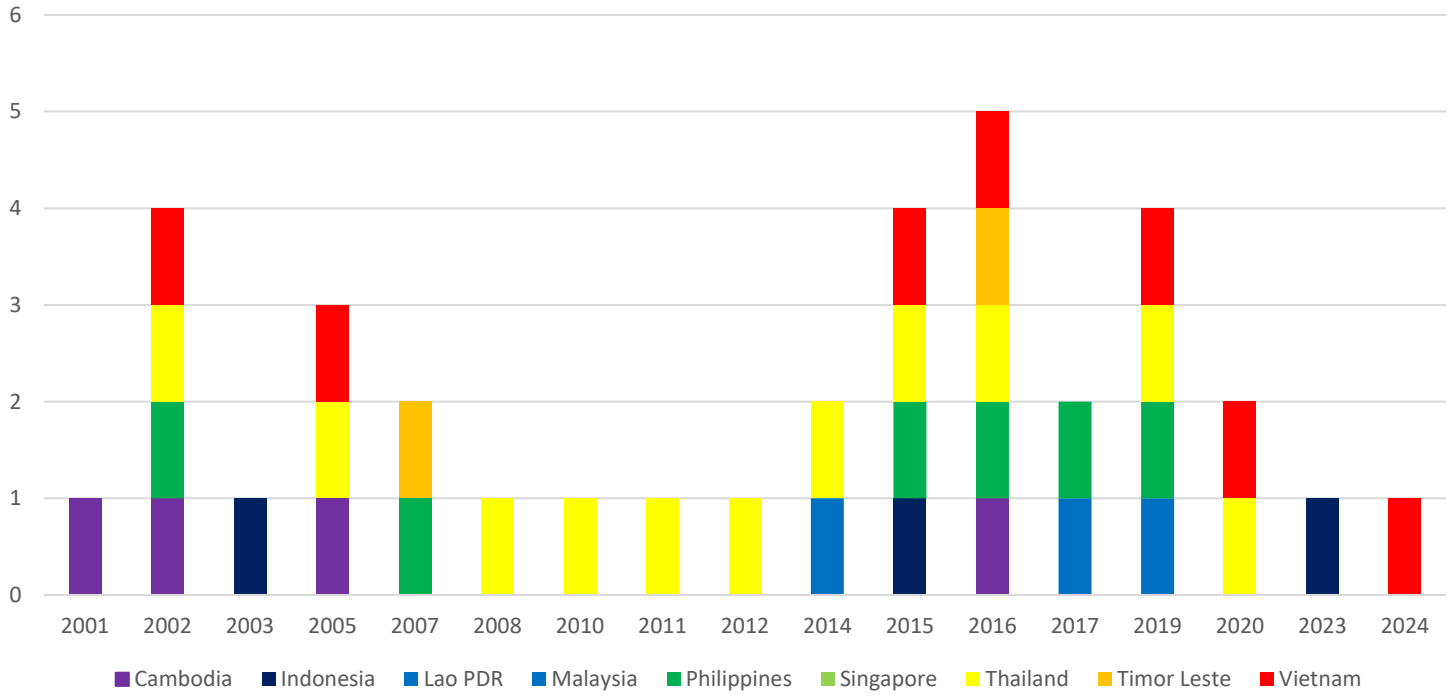
ASEAN Centre for Energy
One Community for Sustainable Energy

UN environment programme

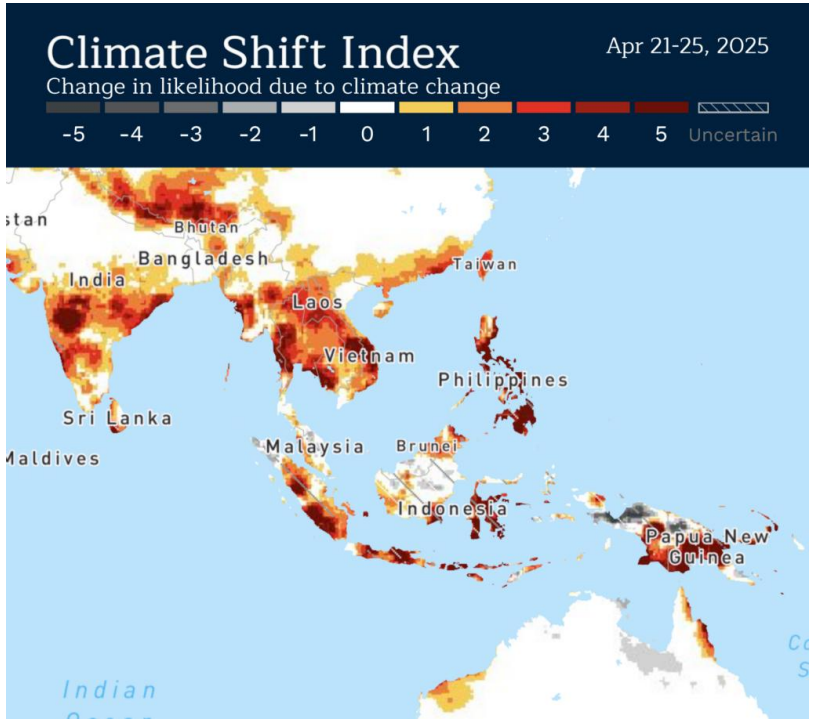
Regional Roadmap for Passive Cooling Strategies in ASEAN

Irma Ramadan & Rio Jon Piter Silitonga
Senior Officer
Energy Efficiency & Conservation Department

Impact of Extreme Heat in ASEAN



Trend of Drought Events in ASEAN
Source: CRED EM-DAT

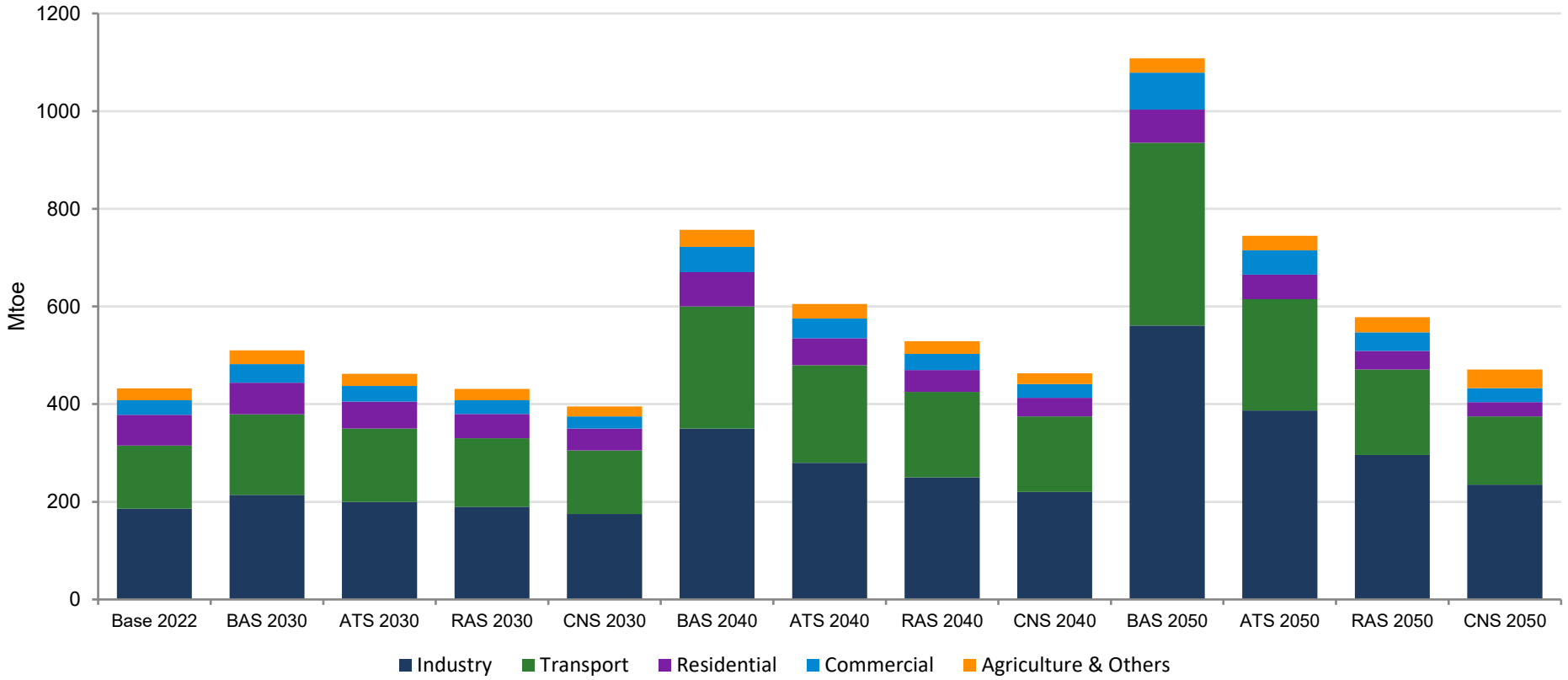


Climate Shift Index in ASEAN
Source: Climate Central

ASEAN region is experiencing unprecedented warming trends with increasingly severe extreme heat events. This aligns with the global warming trend, with 2024 confirmed as the warmest year on record, exceeding 1.5°C above pre-industrial levels. Cities are warming at twice the global average, driven by rapid urbanisation, dense infrastructure, heat-retaining materials, and the loss of green spaces. By 2080 up to 1.1 billion urban residents in Southeast Asia could experience extreme heat for over 30 days annually.

ASEAN Energy Consumption in Building Sectors

Total Final Energy Consumption (TFEC) in Mtoe

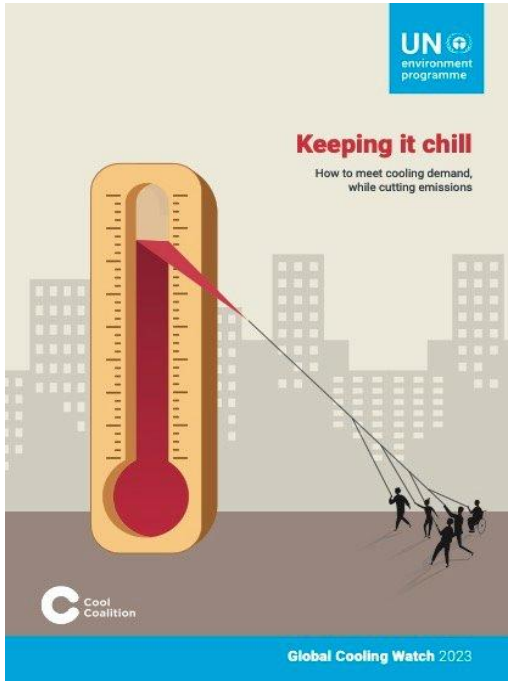


- Energy demand in 2050 is 2.6 times higher than 2022 (BAS)
- Building sectors (Residential + Commercial) account for ~22% of TFEC in 2022. Under BAS, this grows to ~144 Mtoe by 2050.

Source: 8th ASEAN Energy Outlook (AEO8), ASEAN Centre for Energy, 2024

The Importance of Passive Cooling in ASEAN

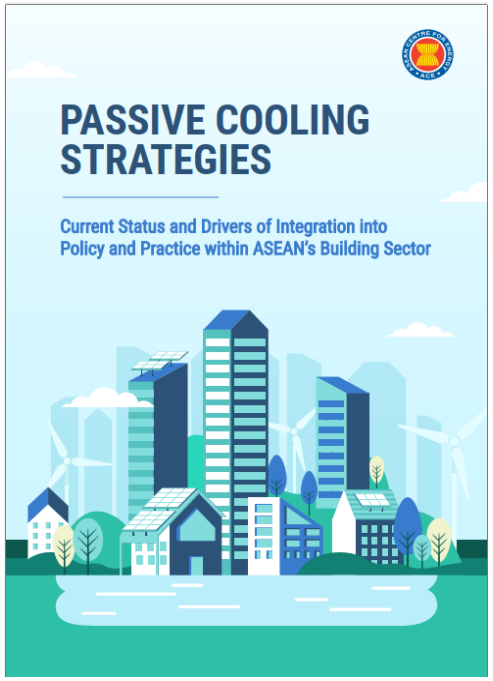
- **Everyone is at risk, but not equally.** Vulnerable groups, including women, children, the elderly, and those living in poverty, are disproportionately affected with gender deepening existing inequalities. As extreme heat intensifies, rising demand for cooling drives up electricity use and greenhouse gas emissions and creating a vicious cycle.
- **Cooling is no longer a luxury — it is a necessity.** Passive cooling is one of the key strategies to provide thermal comfort without increasing energy consumption and carbon emission.



UNEP Global Cooling Watch Report finds that the '**triple strategy**' can **cut 2050 cooling demand by 24% and its emissions by over 60%**

1. **passive cooling strategies** (nature, climate sensitive urban design, reflective surfaces and smart buildings),
2. **energy efficiency**
3. **phasedown of climate-warming gases**

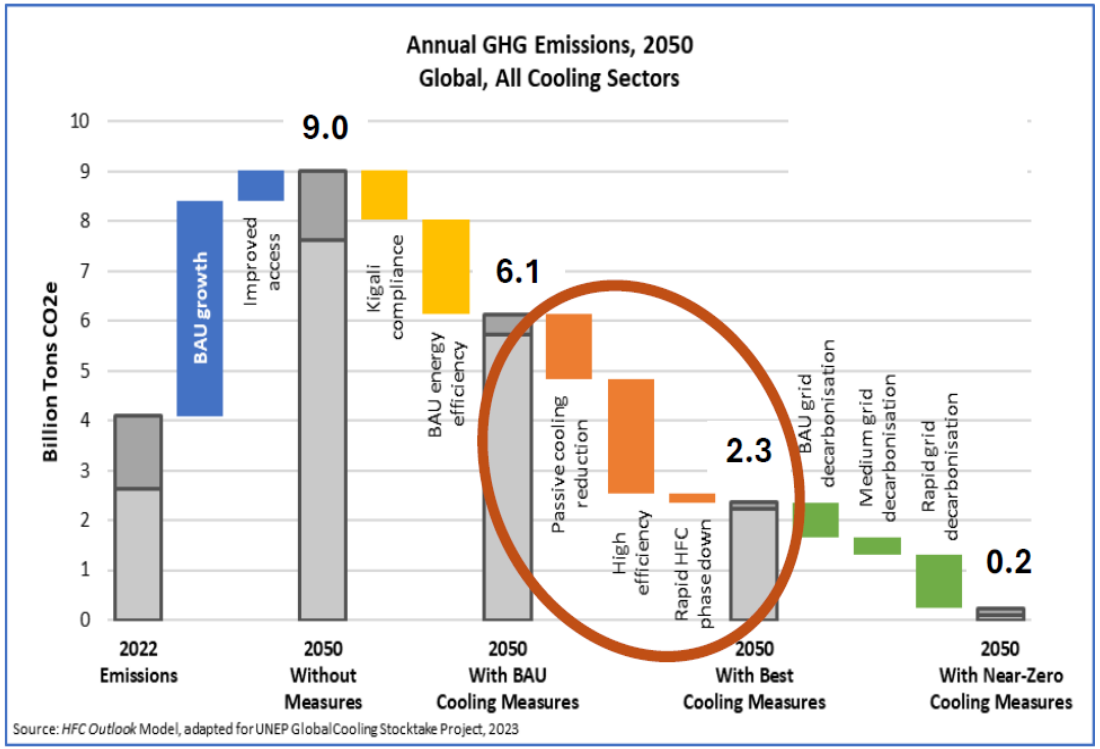
saving 3.8 billion tons of CO2e and USD 1.5 trillion of capital savings, while ultimately providing universal access to cooling.



The regional roadmap is built upon the previous research on Passive Cooling Strategies (PCS) in ASEAN, which found that **PCS are underutilised despite their significant potential to reduce energy consumption** and greenhouse gas emissions from cooling appliances such as ACs.

Potential Impact of Passive Cooling Strategies

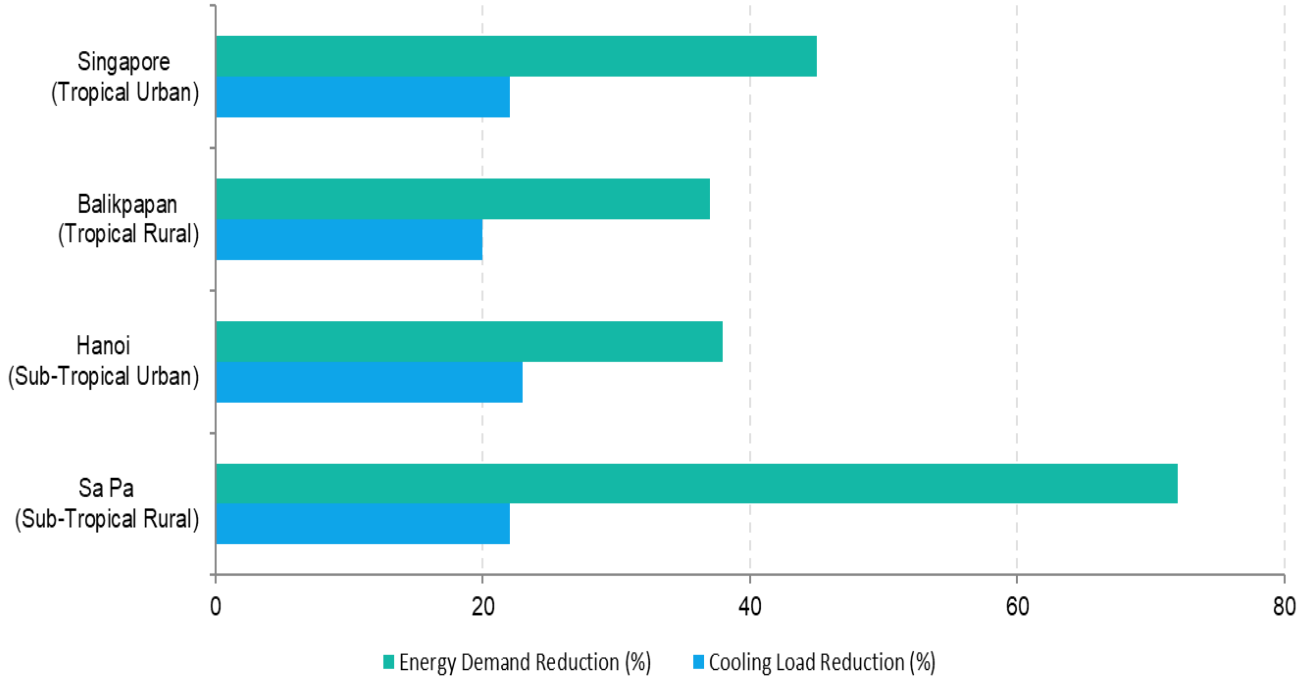
Global Potential



Source: UNEP, Global Cooling Watch 2023

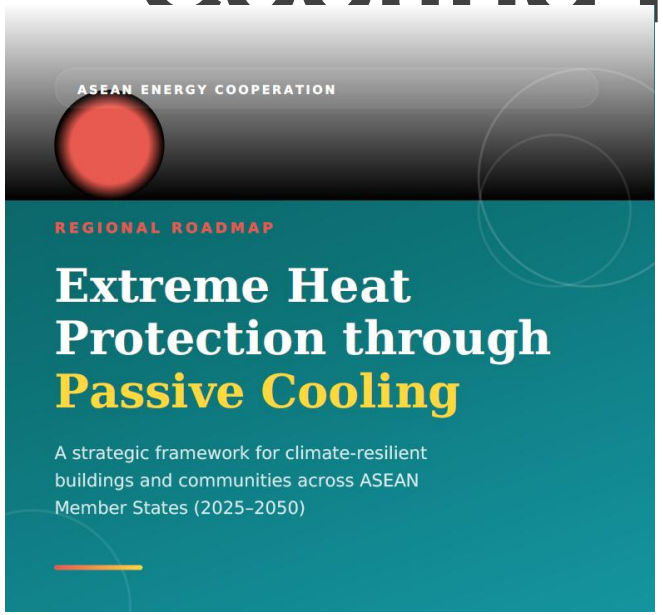
Regional Potential

Cooling energy demand reduction (%) with passive cooling strategies



Sources: ACE Building Thermal Simulation Results — Data from ACE Passive Cooling Strategies Report (September 2024)Simulations conducted using Design Builder across 4 climate zones in ASEAN

Overview of ASEAN Passive Cooling Roadmap



ASEAN's common strategic vision positions passive cooling as a key pathway to achieve:

- Energy efficiency targets through 20-30% reduction in cooling consumption by 2030
- Climate resilience by adapting buildings to rising temperatures and extreme weather events
- NDC commitments by reducing building sector emissions aligned with Paris Agreement goals
- Regional cooperation through harmonised standards, shared and mutual certification re

2025-2027

Foundation Building

Regional standards, certification facilities, professional training, pilot projects in each AMS

2028-2035

Market Acceleration

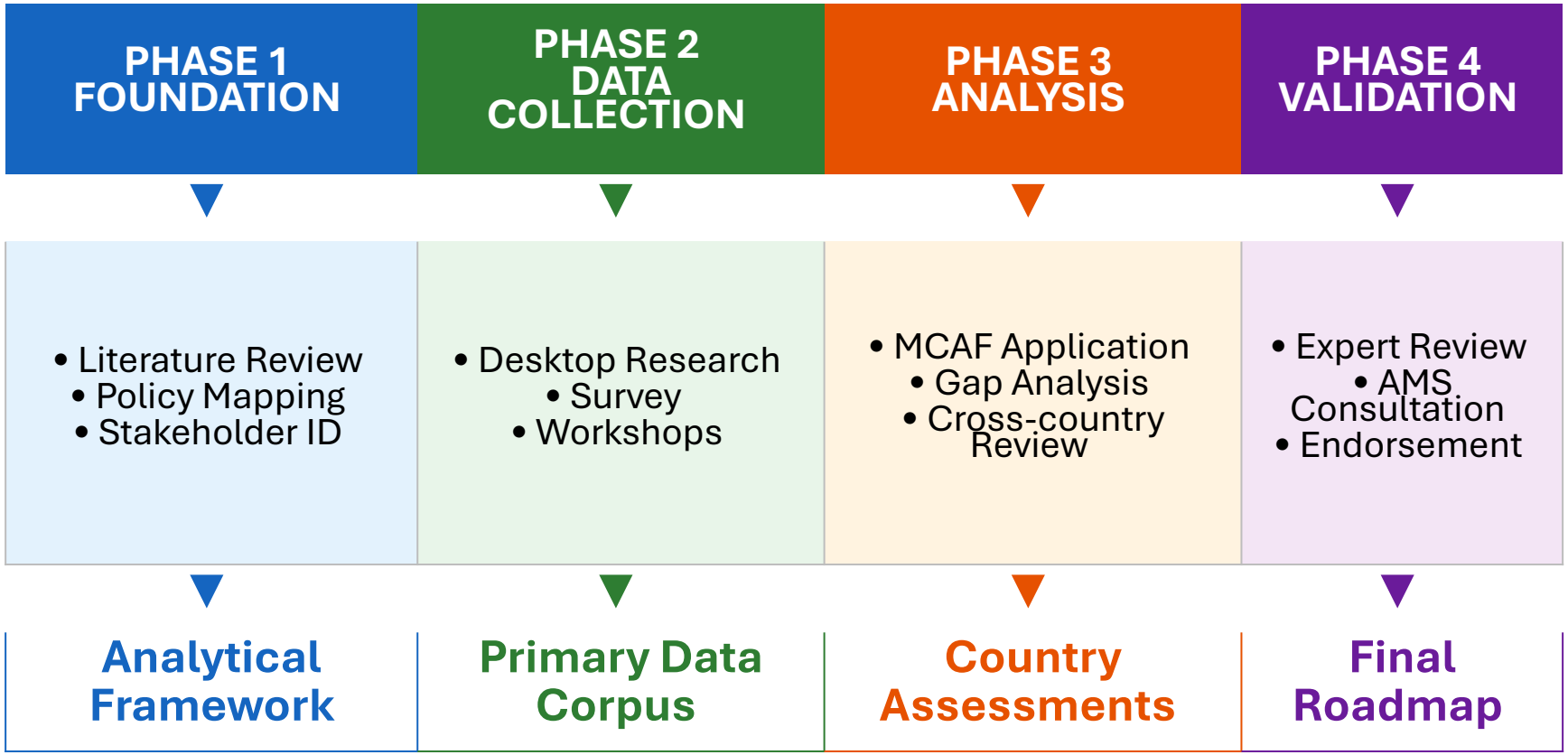
Mandatory standards, large-scale financing, supply chain development, retrofit programmes, 15% market penetration

2036-2050

Mainstream Adoption

Full code integration, 40% penetration, Regional Centre of Excellence

Roadmap Development Methodology



- *Four-Phase Methodological Framework*
- *168+ survey respondents across 10 AMS*
- *Stakeholder groups: occupants, designers, developers,*
- *Multi-Criteria Assessment Framework (MCAF)*
- *Advisory Group & EE&C Working Group inputs*
- *AMS consultation & endorsement*

Passive Cooling Technologies in the Roadmap

Six technology categories assessed in the Roadmap — selected for ASEAN's hot-humid tropics, where minimising heat gain takes priority over storing it.

1 Building Envelope

Cool roofs & reflective coatings, insulation systems, Low-E glazing

Most scalable · excellent hot-humid fit

2 Natural Ventilation

Cross ventilation, stack effect, windcatchers, courtyards

High scalability · harnesses monsoon airflow

3 Shading & Solar Control

Overhangs, louvres, external screens, vertical greening

Low cost · strong local expertise

4 Thermal Mass

Concrete-based systems with night-flush; PCMs (niche)

Scalable for concrete · needs night ventilation

5 Green Roofs & Vegetation

Green roofs / walls, urban greening, transpiration cooling

Medium scalability · cost & maintenance

6 Evaporative & Hybrid

Direct / indirect evaporative; paired with low-energy systems

Limited in humid zones · use selectively

Priority for ASEAN: cool roofs, insulation, cross ventilation and concrete-based thermal mass are the most scalable measures — and the greatest benefit comes from integrating strategies (up to 41.95% cooling-demand reduction in ACE DesignBuilder simulations).

Source: ACE, Roadmap for Extreme Heat Protection through Passive Cooling in the ASEAN Region (2026); Technology Scalability Assessment (Table 21).

Policy and Regulatory Landscape in ASEAN

Significant gaps remain between leaders and emerging markets

ADVANCED

Singapore
Mandatory Green Mark, Cool Roadmap 2.0, strong enforcement

Malaysia
Green Building Index, MS 2680:2017, tax incentives

Thailand
TREES certification, Building Energy Code for commercial, public fund

Regulatory Gap: Most building codes do not specifically mandate passive cooling

DEVELOPING

Indonesia
Greenship, PR 16/2021, growing market

Philippines
Green Building Code, BERDE certification

Vietnam
QCVN 09:2017 OTTV, Energy Efficiency Law

Finance Gap: $10-15B annual shortfall; limited green finance access for vulnerable groups

EMERGING

Brunei Darussalam
Voluntary guidance emerging

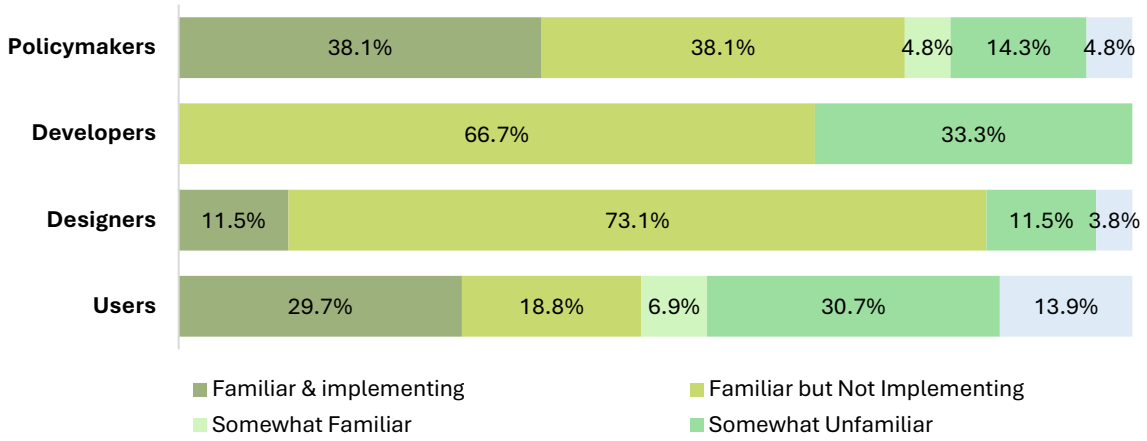
Cambodia, Lao PDR, Myanmar
Limited frameworks, weak enforcement, nascent markets

Priority need: Institutional strengthening & capacity building

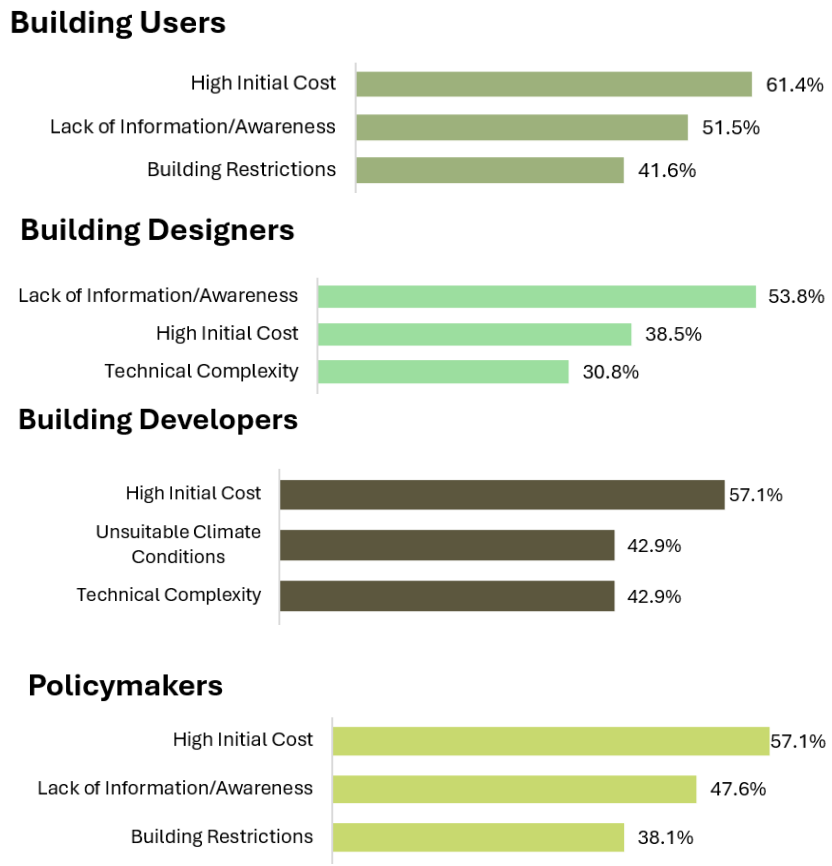
Capacity Gap: Skills shortage in climate-responsive design across the region

Survey Result

Familiarity about Passive Cooling Strategies by Roles



Key Barriers to Passive Cooling Adoption across Different Roles



Key Survey Statistics

- 83.3% would adopt with incentives
- 100% developers interested
- 53.8% cite budget as barrier

Recommendation for Key Stakeholders

POLICYMAKERS

- **Integrate** passive cooling into building codes & green certifications
- **Incentivise** retrofits through tax breaks & streamlined permits
- **Lead** by example in government procurement

TARGET IMPACT

Policy harmonisation across 10 AMS

DEVELOPERS

- **View** passive cooling as long-term property value enhancer
- **Partner** with consultants to reduce technical & financial risks
- **Market** sustainability as competitive differentiation

ROI POTENTIAL

20-50% energy savings

FINANCE

- **Create** green loans tailored for passive cooling projects
- **Develop** risk frameworks that improve lending decisions
- **Collaborate** on concessional funding & risk-sharing

FINANCING GAP

USD 3T opportunity by 2050

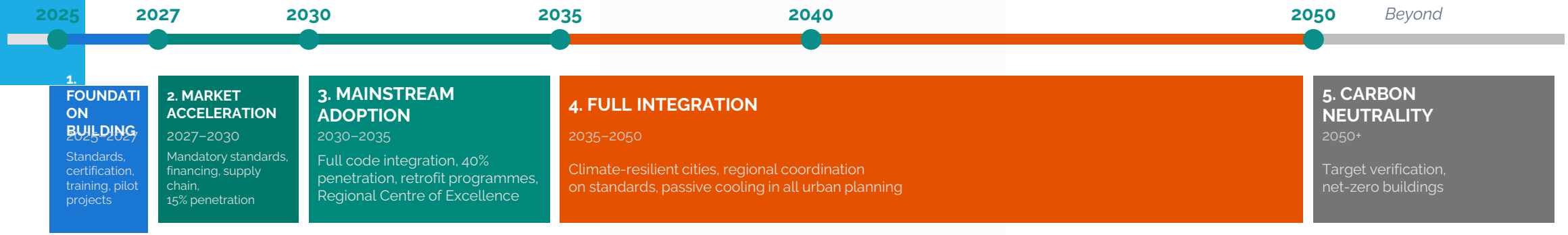
DESIGNERS

- **Innovate** with high-performance materials & RE integration
- **Upskill** through professional development programmes
- **Collaborate** across disciplines throughout design process

DESIGN IMPACT

35-70% cooling load reduction

Implementation Timeline & Carbon Neutrality Pathway



DETAILED NEAR-TERM PHASES (2025–2030)

2025	2026	2027	2028	2029	2030
Baseline	**Foundation**	**Pilots**	**Scale-Up**	**Acceleration**	**Achievement**
Status assessment, gap analysis, stakeholder mapping	Roadmap launch, policy frameworks, capacity building	Demo projects in 5+ AMS, knowledge platforms	Building code integration, green certification	Market transformation, financing instruments	Target verification, best practices compendium

PASSIVE COOLING CONTRIBUTION TO CARBON NEUTRALITY

PEAK DEMAND REDUCTION

Reduce AC electricity consumption by 20–40%, lowering grid stress during peak hours

UHI MITIGATION

Bio-climatic design and cool surfaces reduce urban temperatures, creating positive feedback loops

CLIMATE ADAPTATION

Enhance building resilience to rising temperatures and extreme weather events

EMBODIED CARBON

LCA frameworks promote low-carbon materials, reducing upfront construction emissions

RE INTEGRATION

Lower cooling loads enable more than 60% renewable energy supply for buildings

Thank You

Stay up to date with our latest news

@aseanenergy ASEAN Centre for Energy

Download all of our publications at ***go.aseanenergy.org/ACEReport***

For further information and inquiries, please contact
secretariat@aseanenergy.org

Climate-Resilient Built Environment: Science-Based Heat Stress Mitigation

Rajan Rawal, Professor, CEPT University

Cool Coalition Membership Coordination Call (Online)

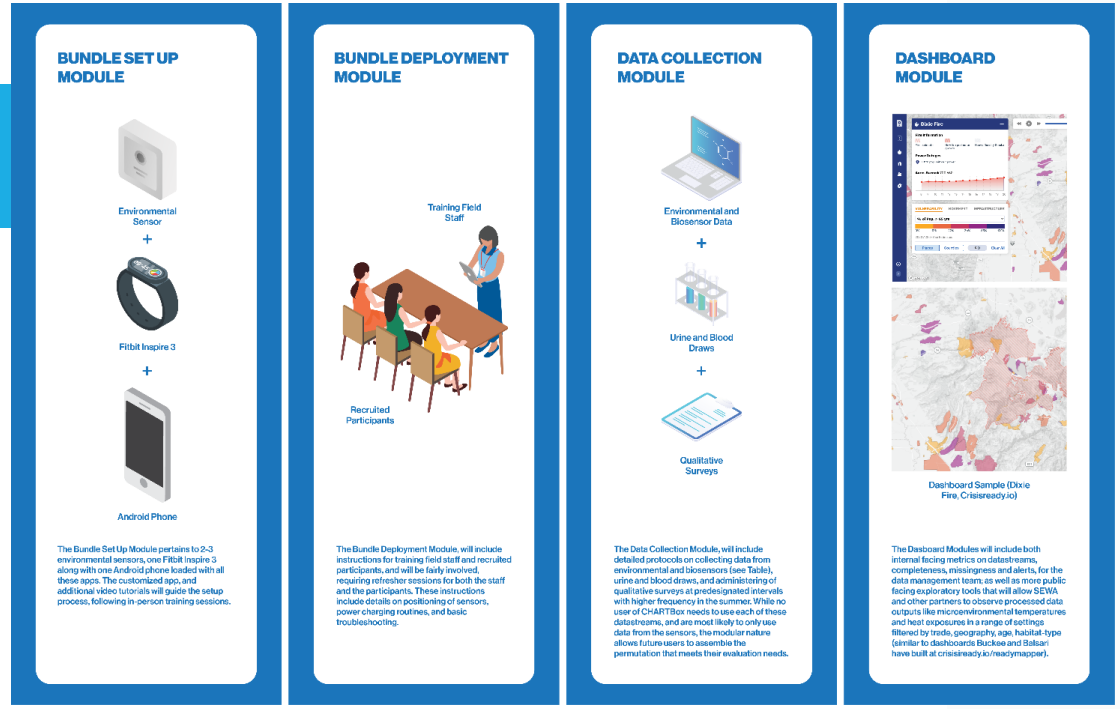
Monday, June 15, 2026

Rajan Rawal,
Centre for Advanced Research in Building Science and Energy

CEPT UNIVERSITY

- Heat Stress and Health
- Physiology and Personal Environmental Control System
- Urban Heat Island Effect and Urban Scale Energy

Heat Stress and Health



PHYSIOLOGY & MOVEMENT

- Heart rate
- Sleep
- Steps
- Mobility
- Oral temperature
- Blood pressure

PARTICIPANT CHARACTERISTICS

- Age
- Height and weight
- Comorbidities
- Work experience
- Time with SEWA

PERCEPTUAL SCALES

- Thermal comfort
- Air movement comfort
- Overall feeling
- Sleep quality and energy
- Daily earnings, revenue/costs
- Reproductive information
- Urination, itching, infection, etc.
- Mental health (PSQ9)

CLINICAL BIOMARKERS

- Kidney function (creatinine, BUN)
- Hydration (serum osm, Na+)
- Blood sugar (glu, HbA1c)

HOUSING INFORMATION

- House floor plan (drawing)
- Building topology
- Roof and wall materials
- Plaster and tarpaulin
- Number and age of occupants
- Doors, windows, vents
- Strategies for heat (fans, evaporative coolers)

ENVIRONMENTAL CONDITIONS

- Air temperature
- Relative humidity
- Radiant temperature (10%)

9,500,000
Person-hours of environmental and physiological data

Upto 28,000
Discrete measurements of body temperature, blood pressure, perceived thermal comfort and reproductive health, work productivity, and wages

1000
Informal sector workers

8000
Laboratory tests to ascertain kidney function and hydration status

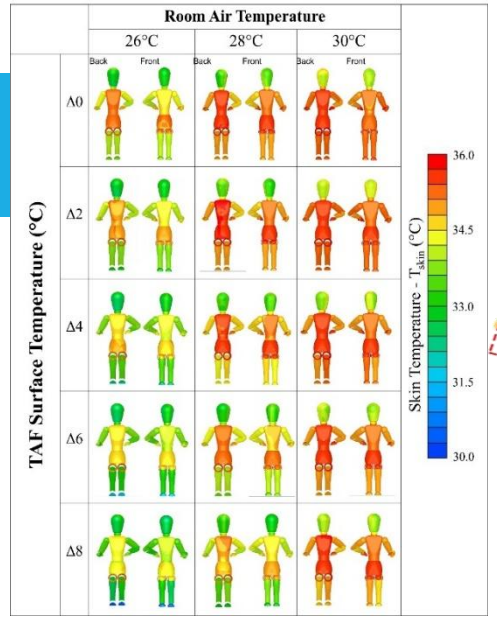
13
Months of follow up

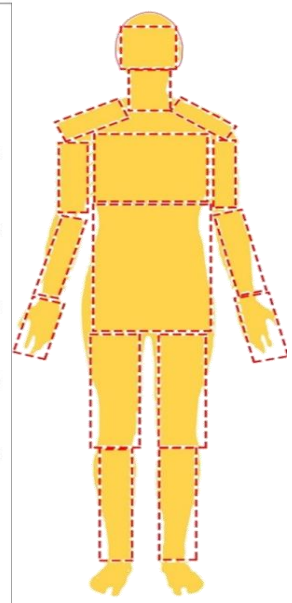
SEWA
SELF EMPLOYED WOMEN'S ASSOCIATION

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

The Lakshmi Mittal and Family SOUTH ASIA INSTITUTE HARVARD UNIVERSITY

Physiology and Personal Environmental Control System





body

skin

core

skin

muscle

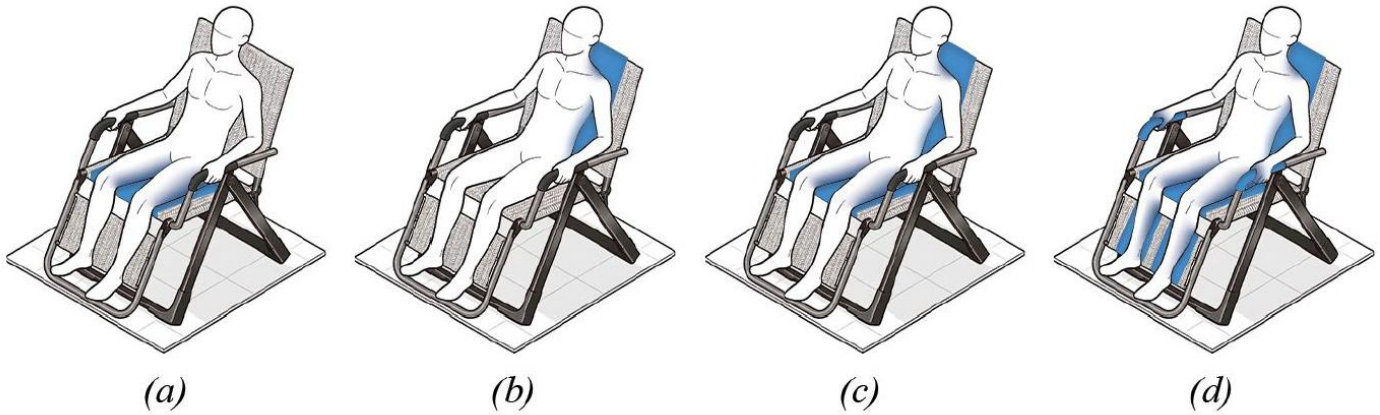
core

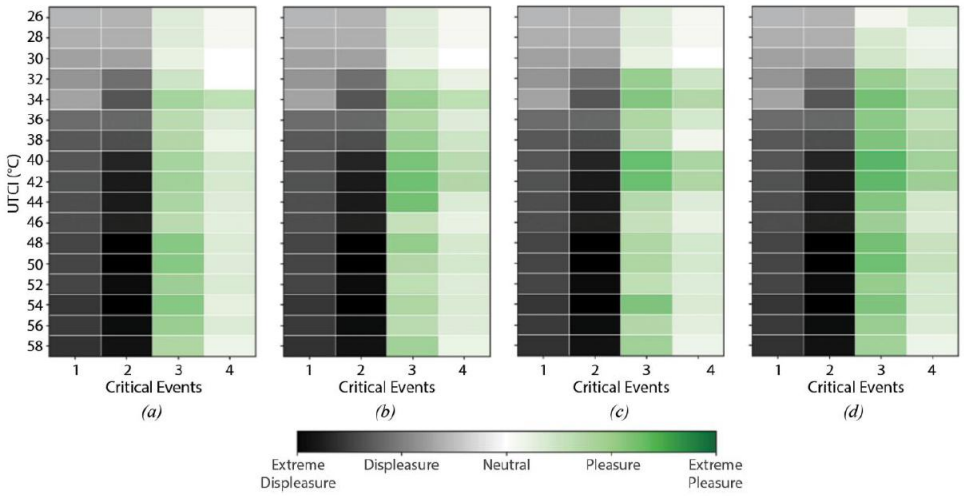
skin

fat

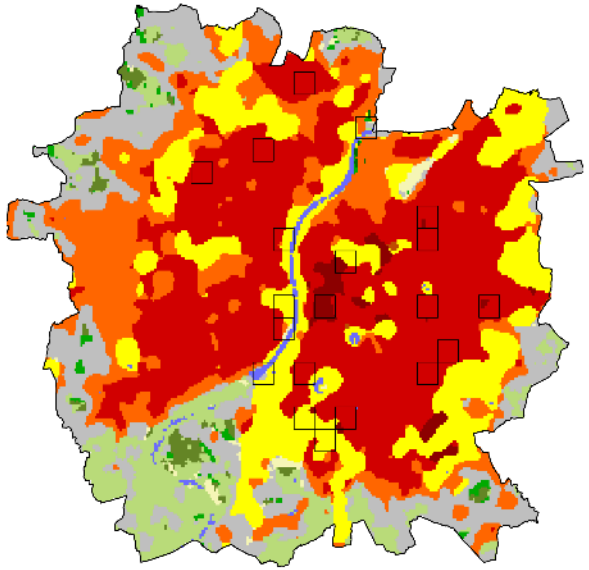
core

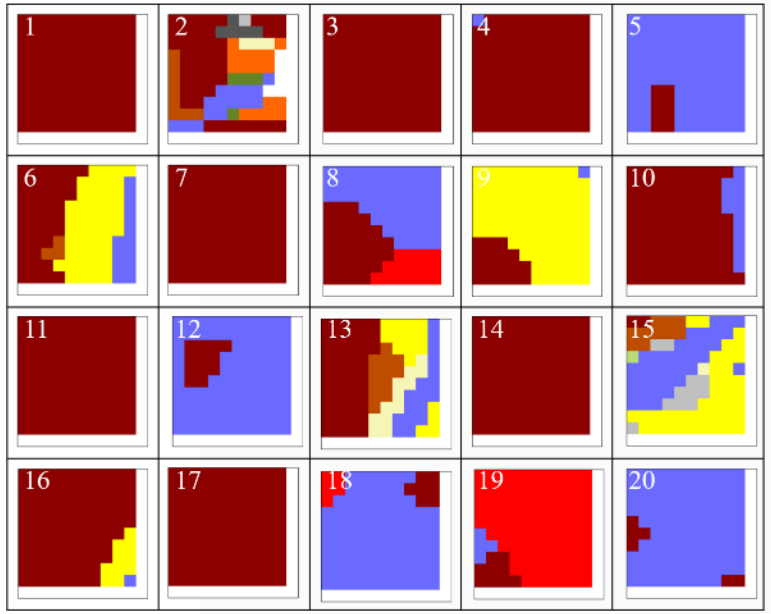
muscle

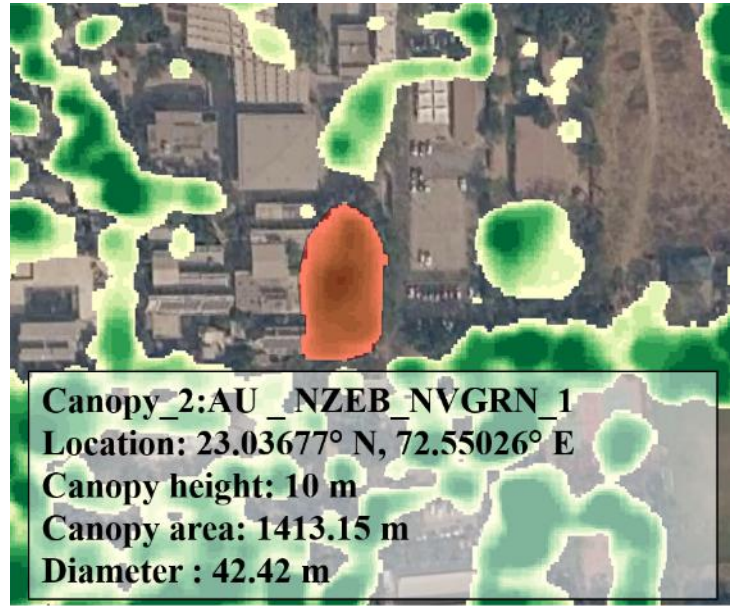


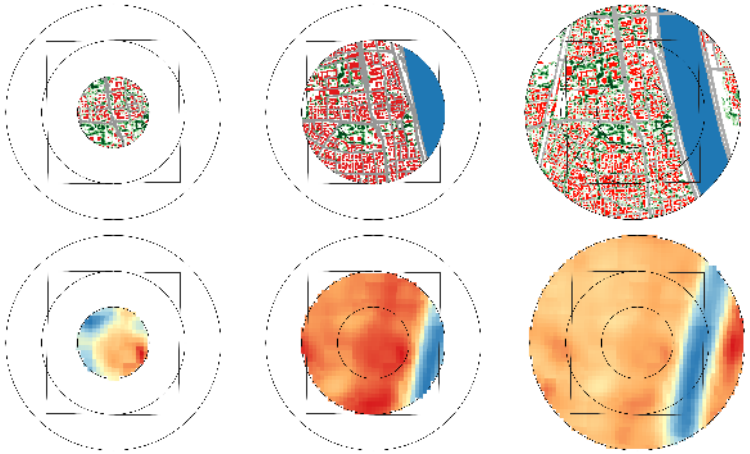


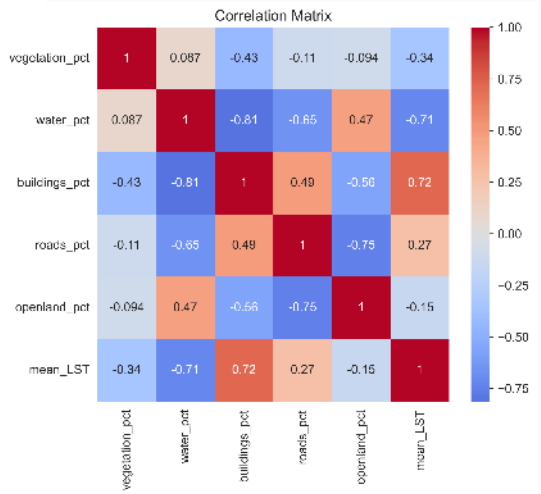
Urban Heat Island Effect and Urban Scale Energy

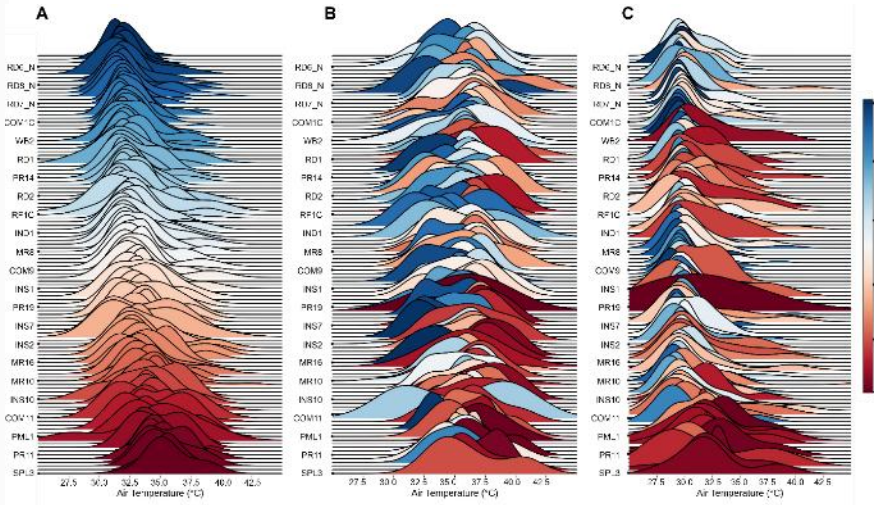












Thank you

rajanrawal@cept.ac.in

Cooling and Climate Resilience: Accelerating Action on Extreme Heat

Abhiyant Tiwari, Lead – Health & Climate Resilience, NRDC

Beat the Heat: Cool Cities Lab

Eric Mackres, Senior Manager, Urban Analytics and Data Innovation, WRI

UN environment programme

Cool Coalition

Scaling Sustainable Cooling

15.45-16.15 CET

Demand-Side Flexibility for Sustainable Cooling

Simon Benmarraze, Senior Manager and Head of Unit, IRENA

CREED and ImpactF

Catarina Marques, Senior Research Fellow, London South Bank University

Cooling and Refrigeration Emissions and Energy Data (CREED) & IMPACT-F

Catarina Marques

London South Bank University

CREED WG aim and work packages

To work together to identify and evaluate gaps, existing resources, assumptions to enable countries to evaluate their cooling/ refrigeration emissions and energy consumption

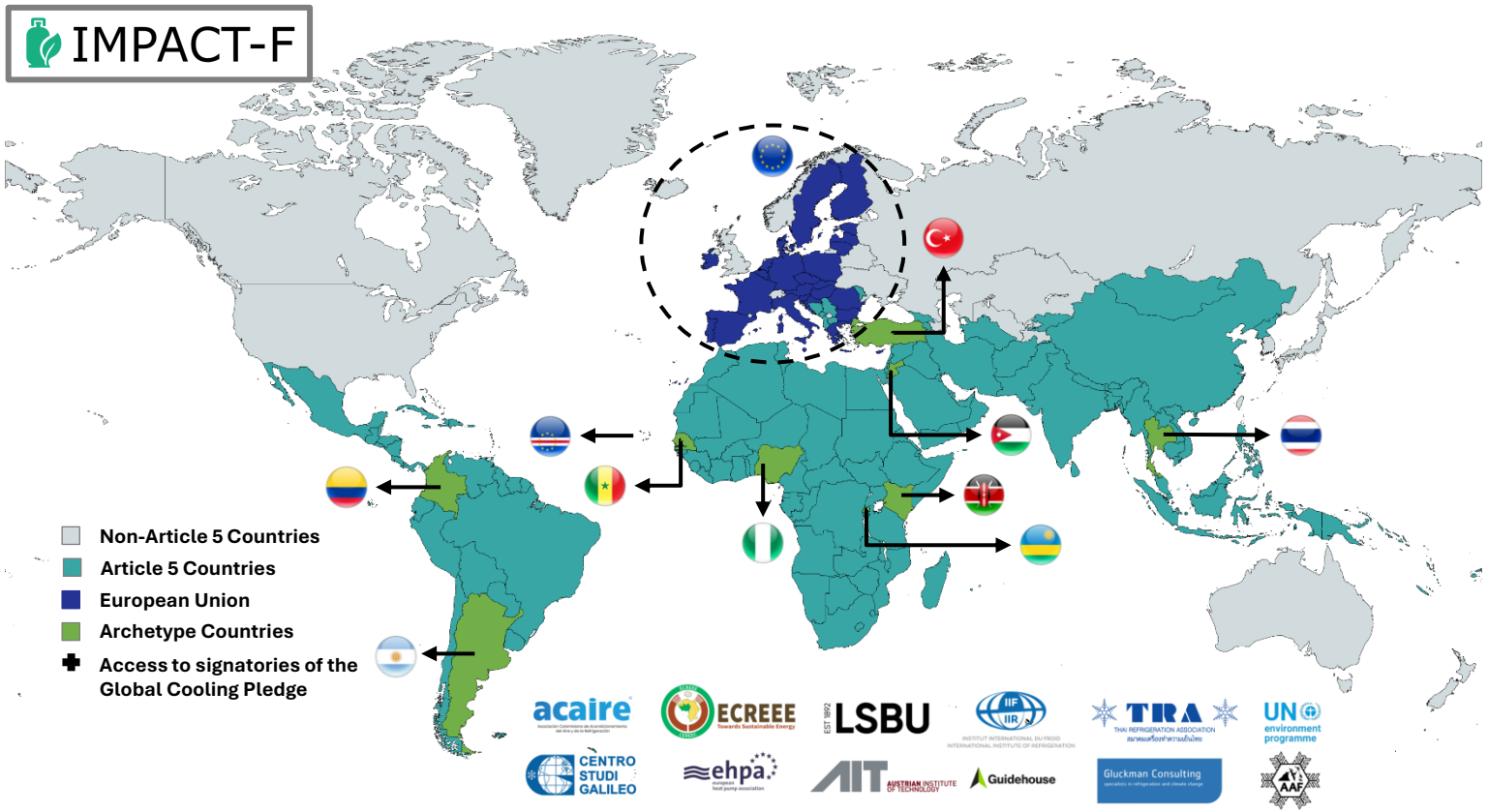
Work Package no.	What	Who leads
WP1	To support the Global Cooling Pledge	Ray Gluckman (Gluckman Consulting)
WP2	To develop harmonised approach to categorise cooling data	Catarina Marques (LSBU) & Mustafa Abunofal (Guidehouse)
WP3	To develop proxies for estimation	Omar Abdelaziz
WP4	To create a forum and communicate activities that disseminate findings	Souhir Hammami (IIR)
WP5	To update the Life Cycle Climate Performance guidelines	Yunho Hwang

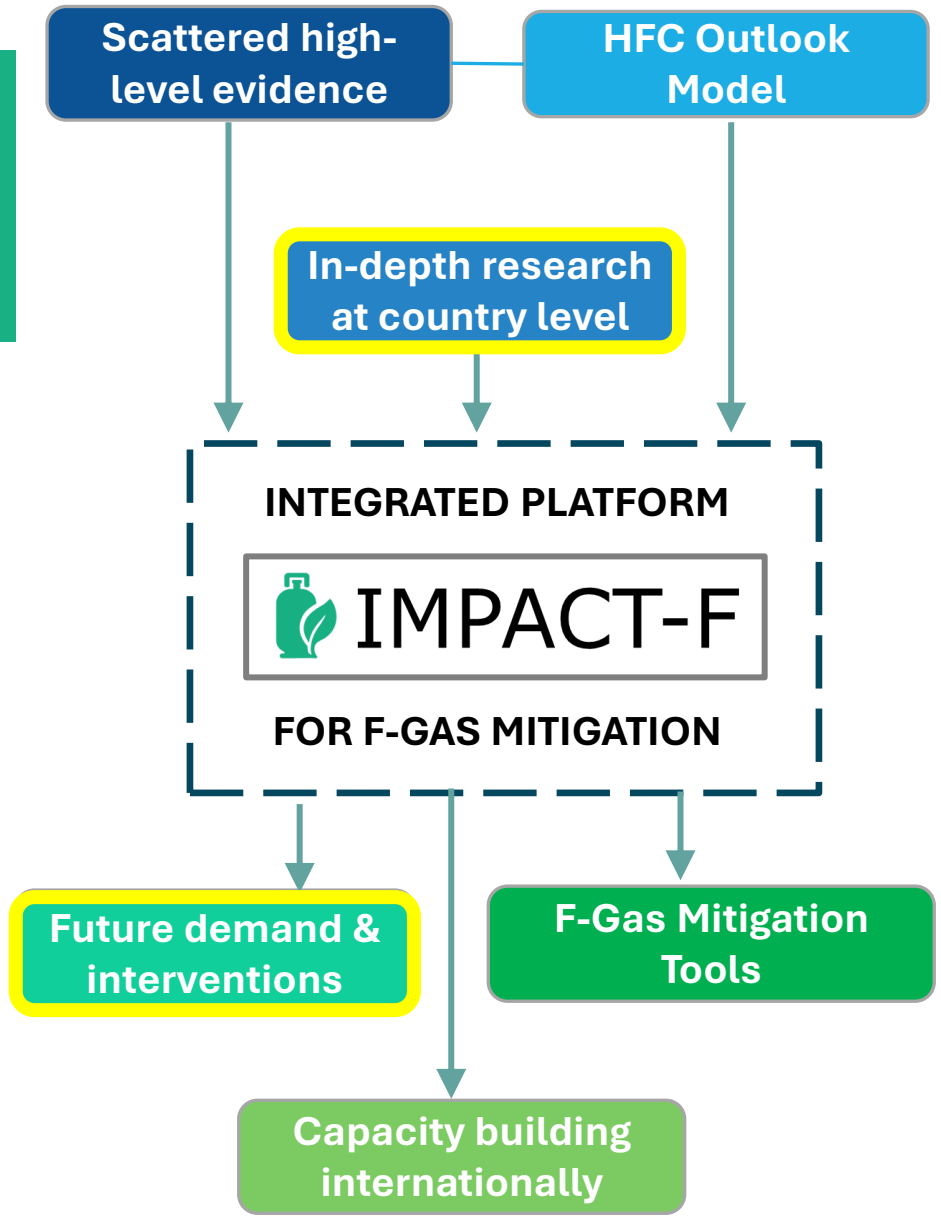
Support the delivery of:

1. **Global Cooling Pledge** Assembly & COP31
2. **Global Cooling Watch report** due in 2027
3. **Monitoring system** for the Global Cooling Pledge
4. **Data and proxy indicators** for evidence of sustainable cooling

IMPACT-F

To develop an **integrated web platform for visualising & projecting F-Gas use** and its implications to decarbonisation, **promoting coordinated action between F-Gas phase-down targets and other relevant policies.**





HFC Outlook → IMPACT-F

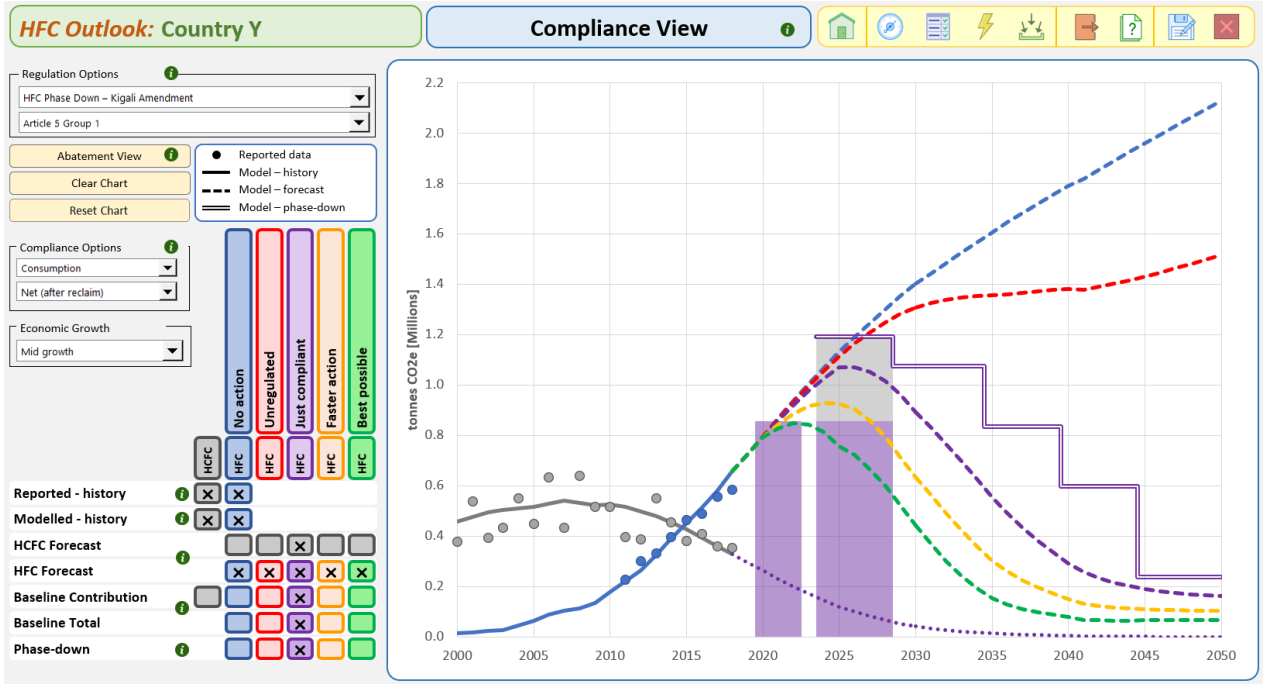
- Our starting point is the existing ***HFC Outlook*** **model**
  - 2012: EU model developed, for EPEE
  - 2017: A5 country models, for UNEP
  - 2020: Energy module added
  - 2022: Global model, for UNEP and Cooling Pledge

- 2026: **IMPACT-F**

  Improve the platform, user-interface and data-gathering

  Provide policy-focused "tools", for direct & indirect emissions

  Become the "go-to" modelling application for the Montreal Protocol community



Variants of the IMPACT-F Platform

There are two variants of the platform:

Country Models

- Each for a single country
- Based on detailed country research for stock levels and gas-choice pathways
- Calibrated against reported data

Global Model

- Aggregate for 197 different countries
- 18 regions, based on geography, climate, MP grouping
- Based on macro-economic data
- Using algorithms to estimate the stock
- Using regional gas-choice pathways

Key message: 1 platform, 2 variants

Scaling Sustainable Cooling in Africa: From Planning to Investment

Luc Kevo Tossou, Principal Energy Efficiency Specialist and Investment Officer at African Development Bank Group

Mobilizing Finance for Sustainable Cooling through Investment Taxonomies

Rusmir Musić, Global Cooling Lead and Finance Expert, World Bank Group

UN environment programme

Cool Coalition

Strategic Engagement

16.10-16.20 CET

Making Cooling Matter on the Global Stage

Marisofi Giannouli
Communications Lead, UNEP Cool Coalition

WORLD ENVIRONMENT DAY | BAKU, 5 JUNE

Extreme heat action on the global agenda

Too hot to ignore

The moment World Environment Day 2026 focused on climate action under #NowForClimate, centring the day on climate for the first time in years. The Cool Coalition used the moment to launch the 50@50 activation, mobilising cities on extreme heat.

Communications objective Establish extreme heat as an urgent, shared climate priority and sustainable cooling as the response cities can act on now.

WHAT WE DELIVERED

- Launched 50@50, with 50+ cities stepping up on heat preparedness, planning and sustainable cooling
- Interactive Beat the Heat feature and live campaign feed driving public engagement
- Amplified through UNEP's first global Climate Dance Challenge, the Climate Limbo, with Goodwill Ambassador Alok and chess champion Viswanathan Anand
- Campaign momentum carried into the Bonn and London heat narrative

UNFCCC JUNE CLIMATE MEETINGS | BONN, 8-18 JUNE

Cooling enters the COP31 implementation story

From argument to agenda on the demand side

The moment The COP31 Türkiye Presidency made electrification its headline ambition, targeting 35% of final energy by 2035 and a 25% cut in building energy intensity, and commissioned the IEA to chart the path. Cooling is now central to the COP31 agenda.

Communications objective Position sustainable cooling and demand-side flexibility as essential to delivering the COP31 electrification and resilience targets.

WHAT WE DELIVERED · 12 ENGAGEMENTS

- Moderated the flagship demand-side event with IRENA and Australia's Minister for Climate Change and Energy, Chris Bowen
- Tied cooling to the new COP31 targets across leadership channels and the Cool Coalition platform
- Connected sustainable cooling to NDCs, NAPs, public health and city action
- Carried the Bonn mandate into the London narrative

LONDON CLIMATE ACTION WEEK | LONDON 20-28 JUNE

From political mandate to market and investment

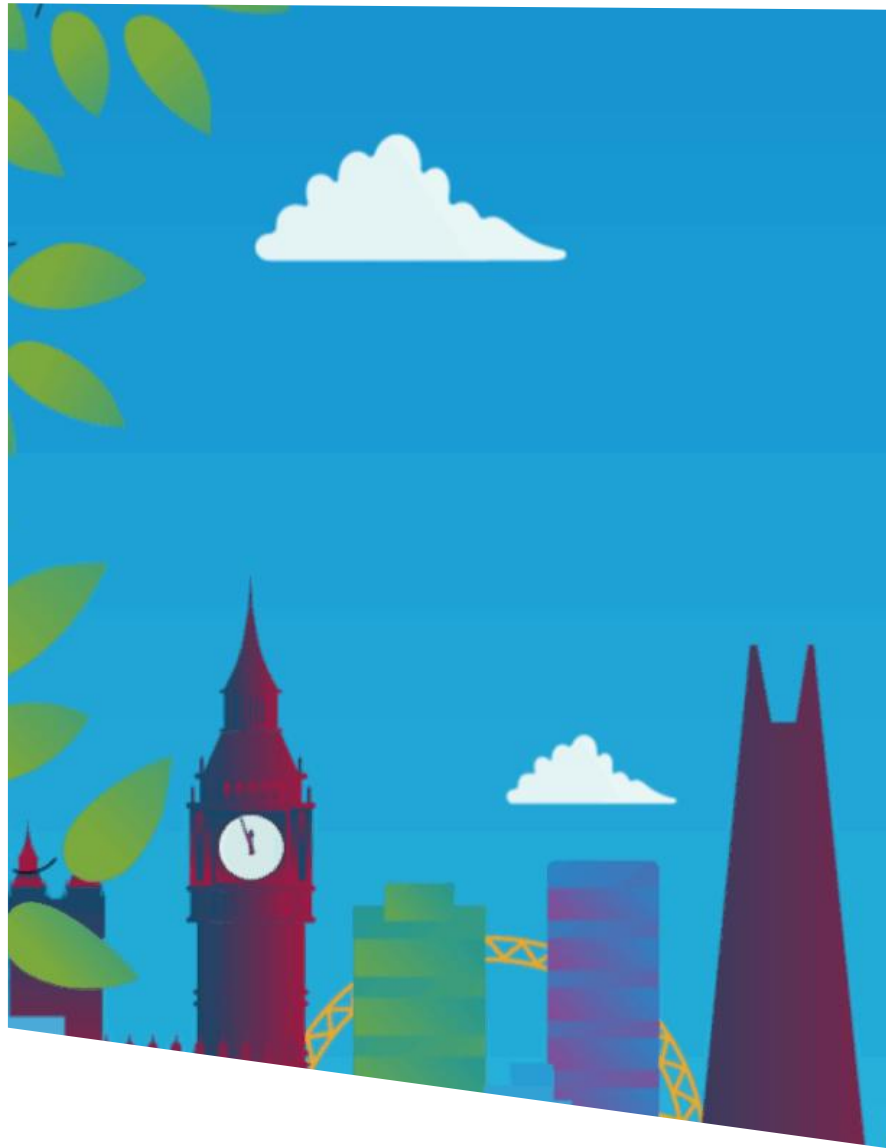
Where the demand-side case becomes an offer to investors

The moment With cooling now in the COP31 agenda, London is where the case becomes an offer to investors, financiers and cities, anchored by the launch of a new demand-flexibility programme on 23 June.

Communications objective Present sustainable cooling and flexible demand as investable solutions for energy security and heat resilience.

WHAT WE ARE DELIVERING · 10 ENGAGEMENTS

- One digital hub connecting the Cool Coalition's LCAW programme
- Coordinated launch communications for the new demand-flexibility programme
- Visibility around heat adaptation, urban cooling and resilient cities
- Executive posts, event assets, live social coverage, partner amplification and newsletter follow-up



GLOBAL COOLING PLEDGE ASSEMBLY | SINGAPORE, 15–18 SEPT

Convert the Pledge into a coordinated global ecosystem

From commitment to delivery

The moment Four days in Singapore where the Pledge moves from commitment to delivery, convening signatory governments, cities, industry, finance and development partners into one coordinated cooling ecosystem.

Communications objective Position the Assembly as the moment sustainable cooling moves from political commitment to coordinated global delivery.

WHAT WE WILL DELIVER

- A single global narrative on the Pledge's shift from commitment to delivery
- The IGCC, EPIC Facility and Beat the Heat elevated as the delivery architecture
- Full coverage across the IGCC plenary, implementation roundtables, trainings, site visits and reception
- A dedicated photo and video package capturing the Assembly for media and partner use
- Singapore outcomes carried into COP31 as the next phase of global cooling action

IDEA2026: Connecting Networks

Marisofi Giannouli, Communications Lead, UNEP Cool Coalition

Robert Thornton
President & CEO
International District Energy Association

IDEA Update

"Connecting Networks"

Cool Coalition Partners Meeting
June 15, 2026


DISTRICT ENERGY
IDEA2026
Connecting Networks
June 23 – 26, 2026 | Ottawa, ON, Canada

IDEA

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

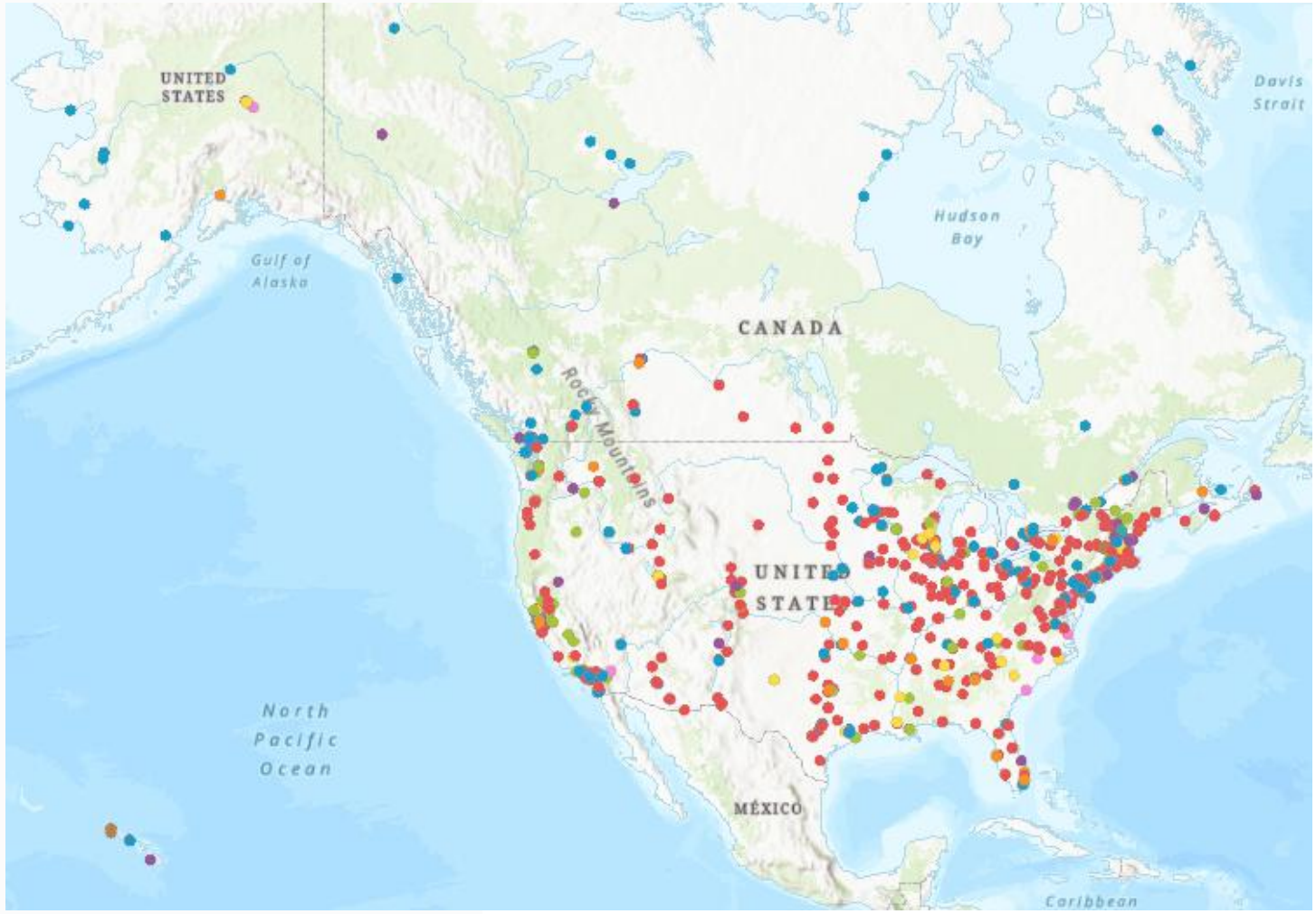
- **Founded in 1909** with headquarters near Boston, MA, USA
- A nonprofit industry association representing **over 3,000 members from 28 countries**.
- Advancing best practices/advocating for community-scale thermal energy systems for **over 117 years**.
- Members include: District energy systems in cities, communities, campuses, clusters, and airports, as well as equipment, technology, and service providers, investors and policy makers.

www.districtenergy.org

State of District Energy in North America

600+ operating systems across U.S. and Canada

- Serving **cities, higher ed campuses, healthcare, airports, industry, communities, clusters.**
- Billions in private and public capital investment
- Industry growth factors include **economics, state/provincial policies, increased awareness.**



INTERNATIONAL DISTRICT ENERGY ASSOCIATION

Why District Energy?

District energy is purpose-built for dense, urban environments delivering efficient, resilient low-carbon energy services at scale.

Customer Scale Enables Smarter Systems
Aggregating the heating/cooling needs of dozens of buildings creates economies of scale to invest in local resources.

Integration-Ready Infrastructure
Seamlessly connects to storage, renewables, and power generation.

Energy That Works Harder
Thermal systems boost efficiency, reduce costs, and cut emissions.

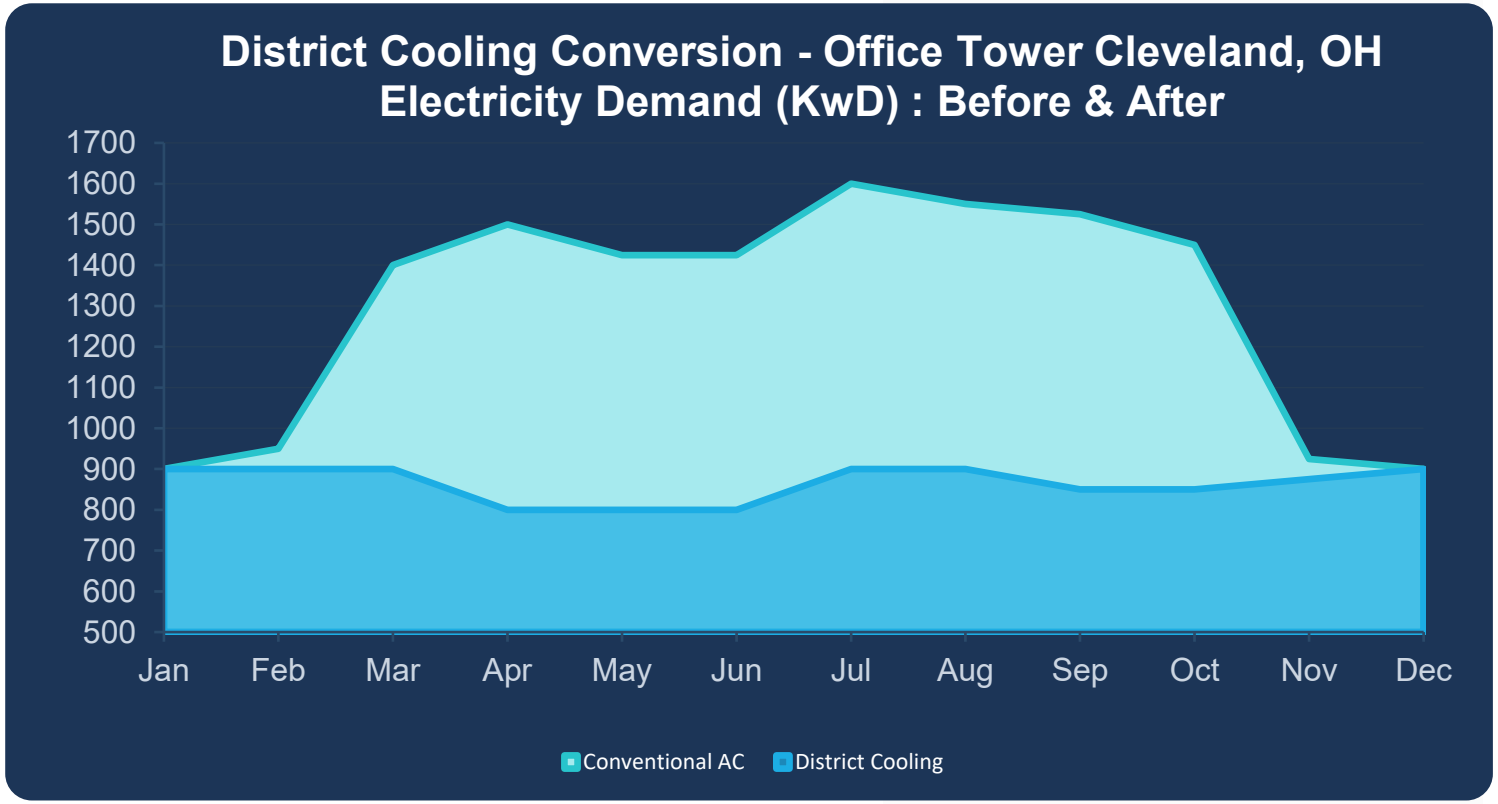
Sourcing That Adapts in Real-Time
Use, make, or buy energy based on cost or carbon intensity.

Built-In Resilience
Industrial-grade equipment, largely underground, supports critical loads, enables islanding, and withstands extreme events.

Peak Shaving Delivers Cost Savings
Reduce total energy consumption and avoid costly fuel and demand spikes.

District Cooling: The Value Proposition

District cooling delivers comfort while cutting peak power demand—essential infrastructure for cities in a ing world.



Source: IDEA member data—Commercial building, Cleveland OH

Peak Shaving

Removing on-site electric chillers from the building flattens electricity demand—avoiding peak power usage during extreme pricing and grid events

Community Scale Solution

Central plant scale enables thermal storage; renewables integration; industrial heat pumps; heat recovery/reuse; geo-exchange and lake/ocean/river water for condenser/seasonal.

Grid Resilience

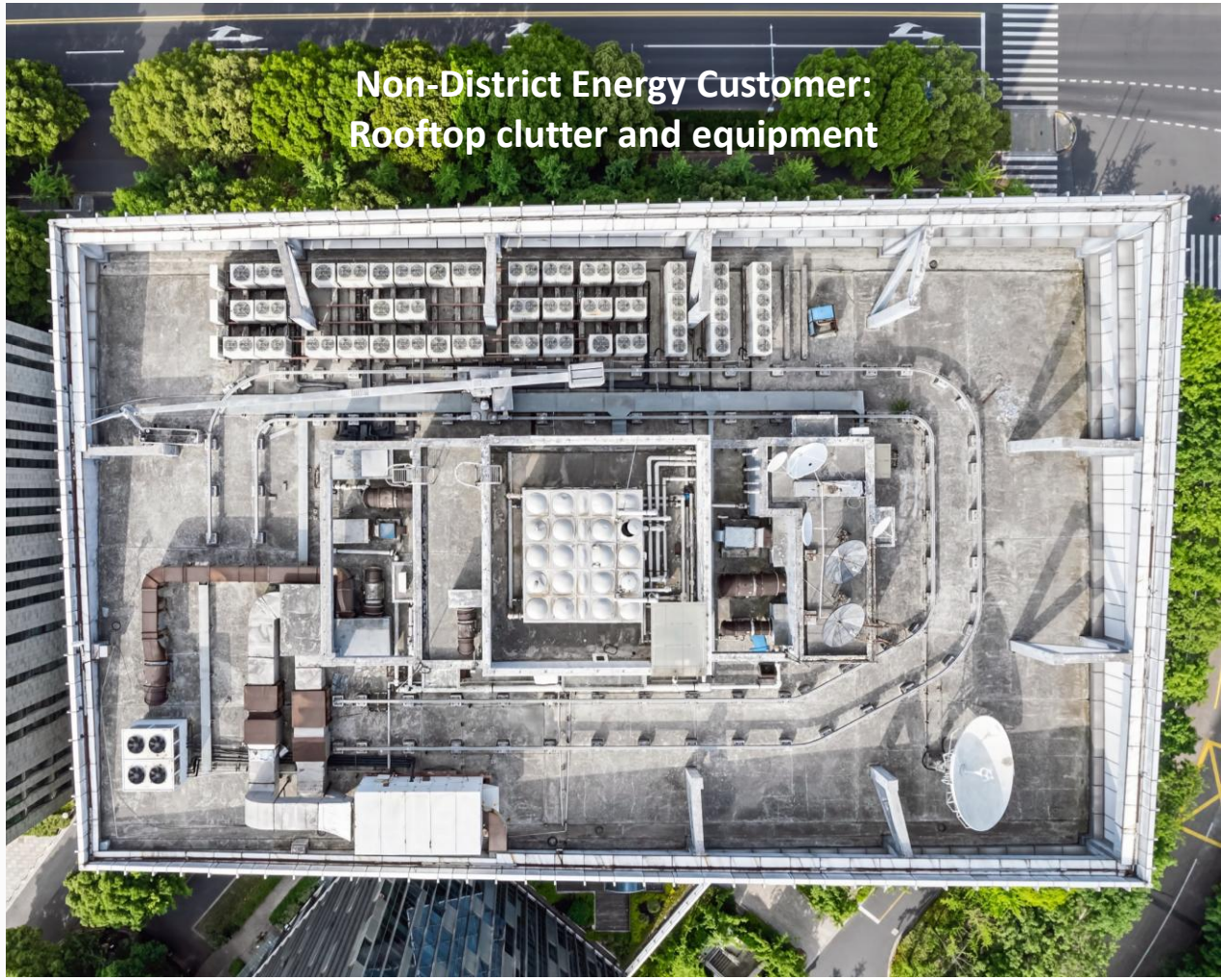
Industrial-grade centralized systems support critical loads and support demand response in constrained grid locations

Building electricity demand reduced ~50%

Variance <2% year-round with district cooling

Generating Value for Customers

District energy unlocks real estate value by eliminating bulky rooftop and basement equipment—freeing space for tenant amenities, leasable square footage, and higher property value.



District Cooling Scaling Up: From Dubai to the World

What 20 years of strategic investment looks like—and what new markets can replicate.

Best Practice Case:

District Cooling Development in Dubai

1.7M RT (installed) 2.0M RT (contracted)

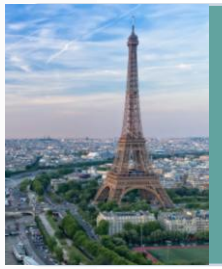
Over 20 years, Empower Energy Solutions used an innovative risk/revenue business model with anchor-load contracts to support planned, incremental growth for mixed-use developments, government buildings, and airports, providing revenue certainty aligned with successive plant investments.

The result: Empower is the world's largest district cooling service provider, and Dubai's electricity grid carries significantly less peak cooling load than comparable cities—and the infrastructure is positioned to further decarbonize as the UAE's grid evolves.

Other Proven Systems

Singapore: Marina Bay

District cooling built into the urban design of a new CBD from day one—demonstrating replicability in high-density Asian markets.



Paris: Fraîcheur de Paris

The City of Paris intends to double capacity of district cooling infrastructure to meet growing urban cooling demand, address public health & safety and preserve landmark architecture.

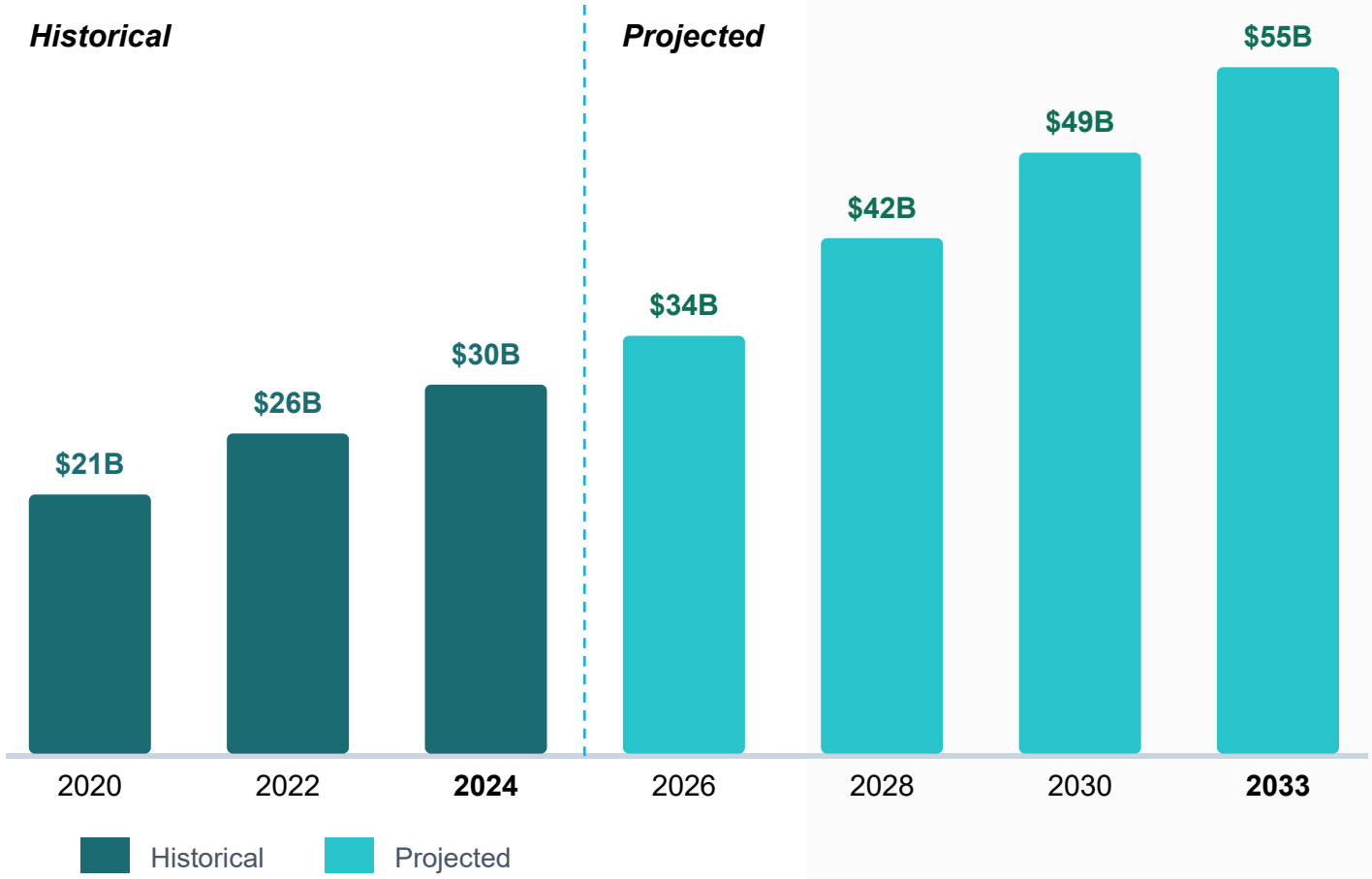
Stockholm: Fortum

Integrated district heating and cooling in a Nordic climate—showing that sector coupling extends district energy well beyond hot-climate markets.

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

Global Market Momentum

The global district cooling market is projected to double over the next decade.



Analysis based on market forecasts from Straits Research, Fortune Business Insights, and Data Bridge Market Research

Cities Are Advancing Cooling Plans

National cooling action plans in Southeast Asia, the Middle East, and South Asia are embedding district cooling as a primary demand-side management pathway.

Middle East Sets the Scale Template

Dubai's Empower system—the world's largest district cooling provider at 1.64M RT—demonstrates what strategic investment over 20 years achieves.

Policy + Finance Are Aligning

IFC, World Bank, and development banks are actively structuring district cooling projects in new markets, lowering first-mover risk for cities and developers.

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

Opportunities Ahead: Adaptable Systems Built to Evolve

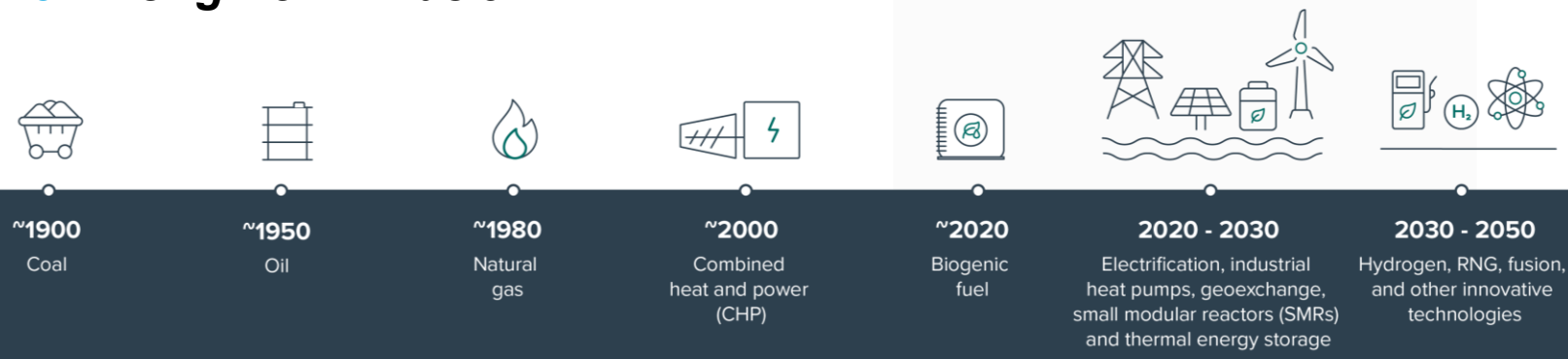
For more than 140 years, district energy systems have evolved—shifting to cleaner fuels and delivering technologies to lower emissions—maximizing flexibility, resilience, and ROI over time.

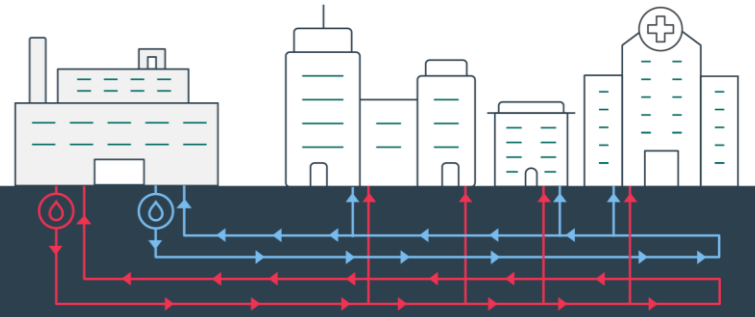
*Many systems are built to **"plug and play"** emerging solutions without full system overhauls; supporting customers at*

- ***Today:** Energy recovery, energy from waste, thermal storage, industrial heat pumps, electric boilers, geo-exchange; combined heat & power (CHP); seasonal storage; renewable thermal*
- ***Mid-Term:** Bio-fuels; Small Modular Reactors (SMRs);?*
- ***Long-Term:** Fusion?*

Strategic advice

Act now to meet today's decarbonization goals by planning thermal infrastructure with a 50–100-year horizon.





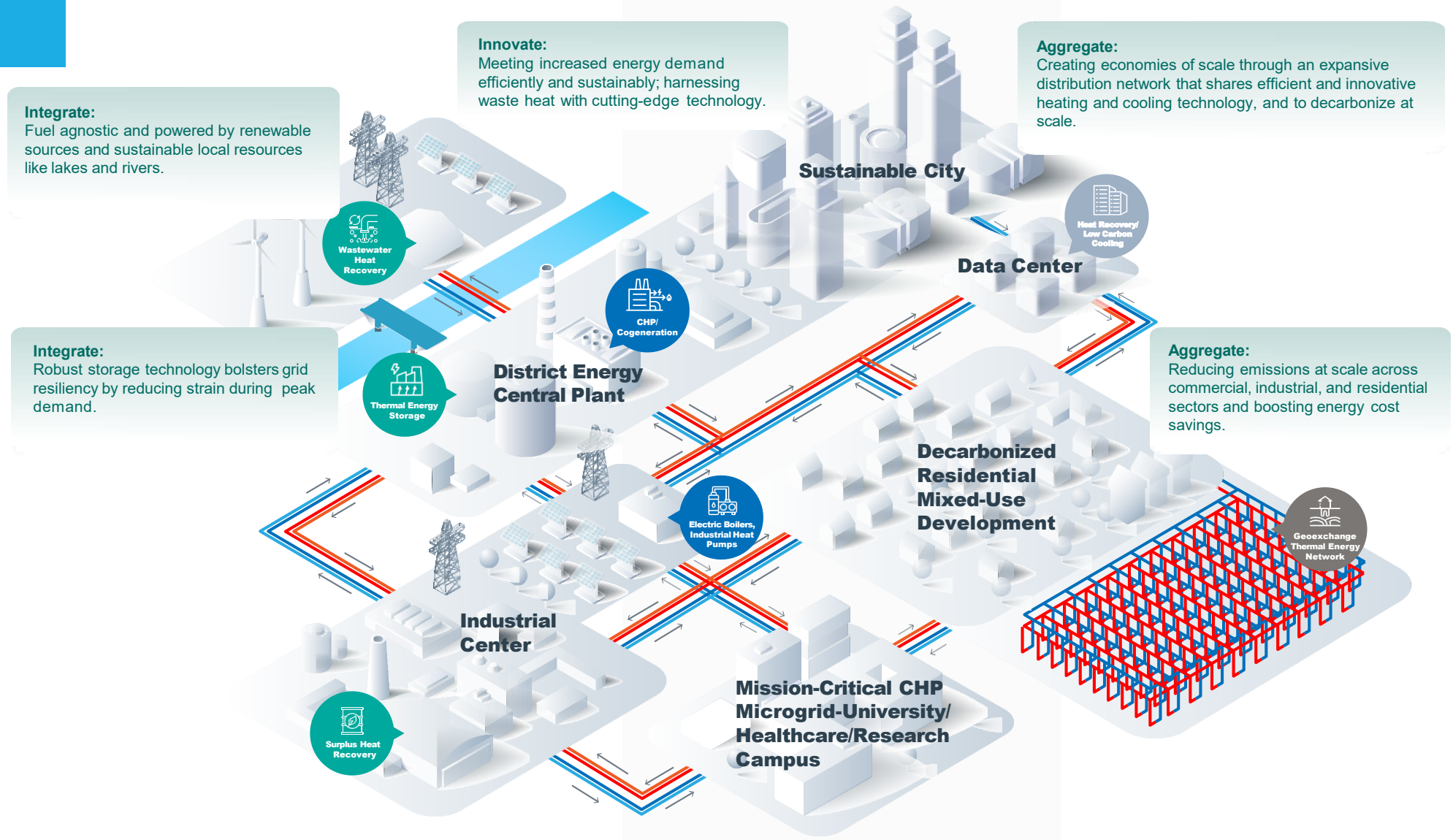
District Energy Networks (DENs): Aggregate, Integrate, Innovate

A Blueprint for Efficient, Resilient and Sustainable Cities, Communities and Campuses

Integrate:
Fuel agnostic and powered by renewable sources and sustainable local resources like lakes and rivers.

Innovate:
Meeting increased energy demand efficiently and sustainably; harnessing waste heat with cutting-edge technology.

Aggregate:
Creating economies of scale through an expansive distribution network that shares efficient and innovative heating and cooling technology, and to decarbonize at scale.



Integrate:
Robust storage technology bolsters grid resiliency by reducing strain during peak demand.

Aggregate:
Reducing emissions at scale across commercial, industrial, and residential sectors and boosting energy cost savings.

600

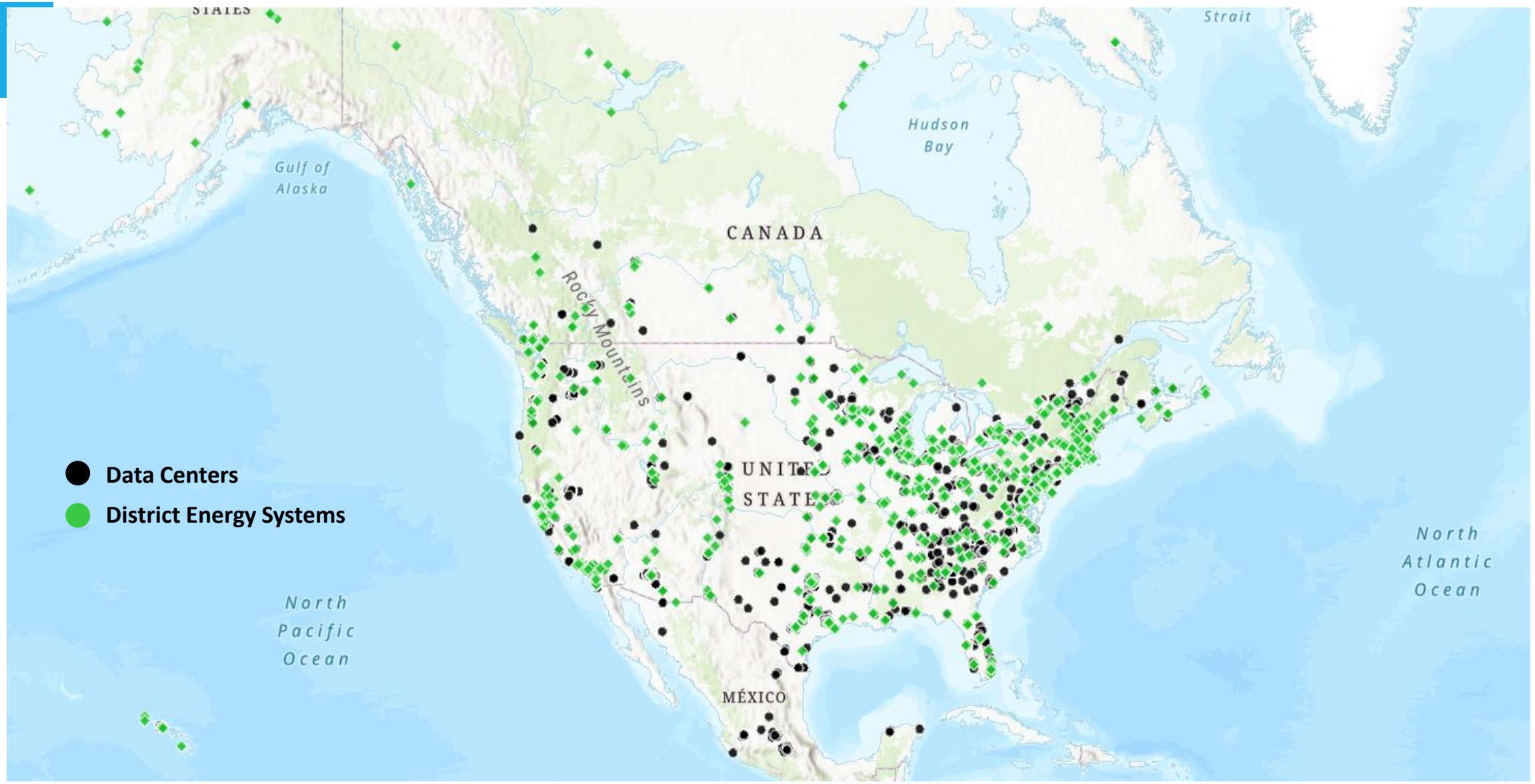
District Energy systems are operating in US cities, on college and university campuses, and at healthcare facilities, military bases, airports, and corporate headquarters, including Meta, Apple, and Google.

District energy networks distribute **steam, hot water, or chilled water through underground piping systems** to multiple connected buildings, creating economies of scale to enable investment in **lower-carbon solutions**.

The scale creates opportunities to integrate a range of technologies to optimize **energy efficiency, leverage local resources, strengthen the regional grid , and enhance economic resilience.**

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

Emerging Opportunity: Convergence of Data Centers & District Energy



Data Center Waste Heat

Operator: Telehouse Canada & Enwave Energy

Location: Downtown Toronto, ON—metro data center campus

Scale: Up to 120 kW/rack; direct liquid cooling removes 80% of heat

Key Points

- Canada's first direct liquid-to-chip cooling deployment inside an interconnection hub
- Heat transferred to Enwave's district energy system — repurposed to heat Toronto's municipal drinking water
- Removes up to 80% of heat directly from server components; eliminates chiller reliance during normal operations
- Supports AI inference at up to 120 kW per rack, purpose-built for next-generation workloads
- Reduces evaporative cooling and water consumption, improving PUE and WUE
- Engaged ~80 skilled professionals in construction and engineering across the project lifecycle

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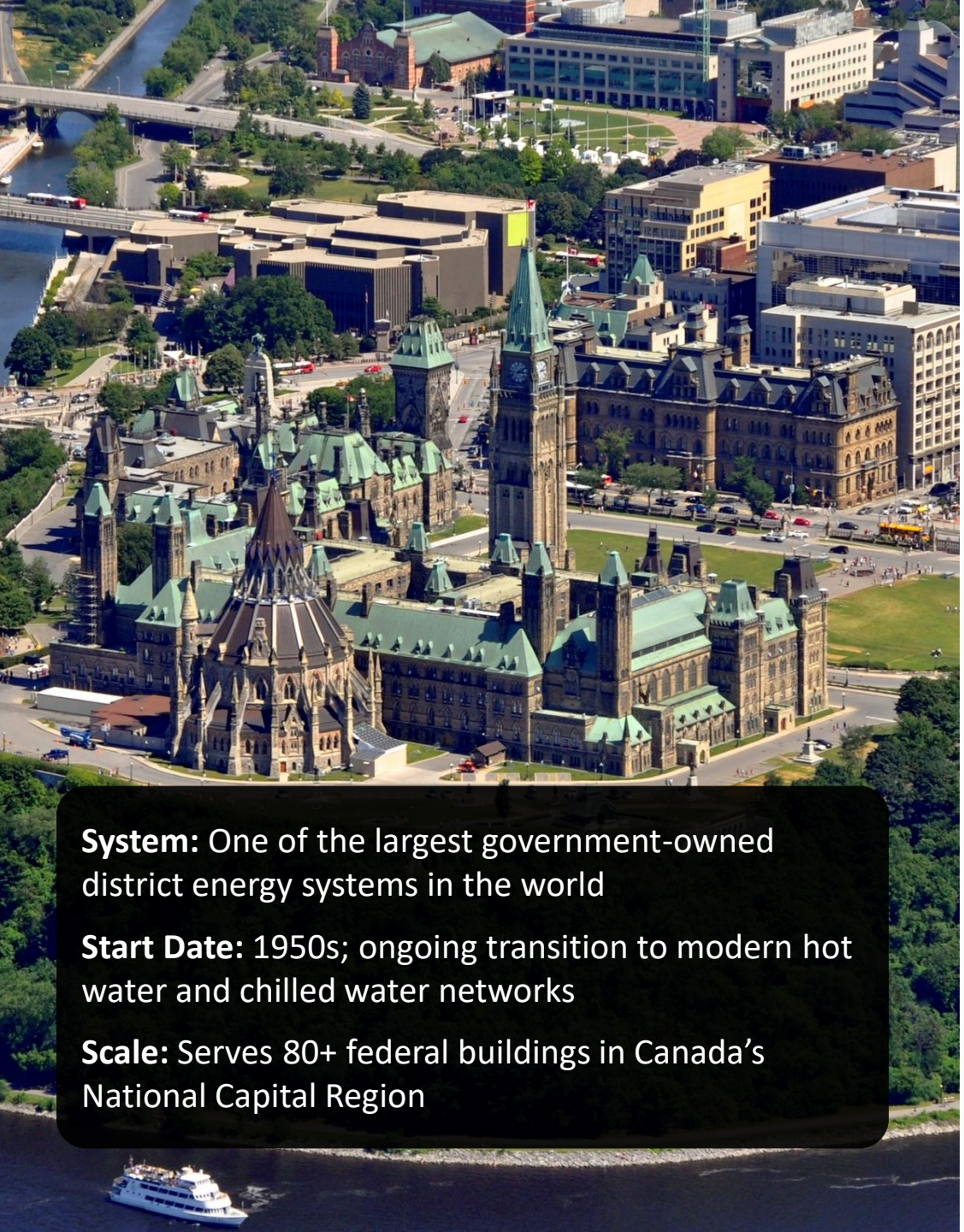

System: One of the largest government-owned district energy systems in the world

Start Date: 1950s; ongoing transition to modern hot water and chilled water networks

Scale: Serves 80+ federal buildings in Canada's National Capital Region

Ottawa: Federal Government Leads on District Energy Transformation

Key Points

- $3.4B capital investment to modernize and decarbonize
- Designed for renewables, industrial heat pumps, and sewer heat recovery
- Smart digital controls for system optimization & resilience
- Removes rooftop mechanicals, freeing valuable real estate
- Cuts 60,000+ tons of emissions annually—equal to 14,000 cars off the road
- Generates significant local economic value

INTERNATIONAL DISTRICT ENERGY ASSOCIATION

June 24, 2026 | Ottawa, Canada

Global MOU Cooperation Agreement Signing Ceremony

At **IDEA's 117th Annual Conference,** IDEA2026, representatives from over 20 countries will come together to sign a historic agreement advancing global cooperation on district energy.

This landmark agreement unites global leaders to:

Advocate

for policies that accelerate clean, efficient urban energy systems.

Exchange

knowledge and best practices across borders.

Collaborate

on technical standards and innovation to advance the global energy transition.

Countries to Attend IDEA2026 and Sign Global MOU

Represented Countries:

Austria
Belgium
Canada
China
Colombia
Denmark
Estonia
Finland
France
Germany
Hungary
Ireland
Italy
Japan
Mongolia
Poland
The Netherlands
Norway
South Korea
Sweden
Switzerland
United Arab Emirates
United Kingdom
United States Of America

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IDEA is Proud to Collaborate with

IEA DHC

Euroheat & Power

DISTRICT ENERGY IN CITIES INITIATIVE

UN environment

ACEEE
American Council for an Energy-Efficient Economy

AGFW

ASHRAE

Svensk Fjärrvärme

QUEST
Quality Urban Energy Systems of Tomorrow

APUEA
Asia Pacific Urban Energy Association

DBDH

U.S. GREEN BUILDING COUNCIL USGBC

区域能源
DISTRICT ENERGY

Natural Resources Canada
Ressources naturelles Canada

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Make Plans to Present and Participate at Future IDEA Events

DISTRICT ENERGY IDEA2026 Connecting Networks
June 23 – 26, 2026 | Ottawa, ON, Canada

June 23–26, 2026

Ottawa, ON | Rogers Centre Ottawa

- 800+ international attendees
- Global MOU signing—20+ countries
- Pre-conference: Data Centers & TENs workshops
- 3 Plenary Panels, 150+ speakers, 100 sessions, 80+ exhibitors, and technical tours

IDEA PACIFIC NORTHWEST District Energy Summit
Washington Athletic Club • Seattle • Sept. 22, 2026

Sept. 22, 2026

Seattle, WA | Washington Athletic Club

- Emerging market opportunities and innovative projects
- Thermal energy networks and data center integration
- Regulatory developments and decarbonization strategies

IDEA NORTHEAST District Energy Summit
Con Edison Corporate Headquarters I NY, NY
DECEMBER 4, 2026

Dec. 4, 2026

New York, NY | Con Edison Headquarters

- Regulatory developments and decarbonization strategies
- Thermal energy networks and data center integration
- District energy's role in resilient, efficient communities

CampusEnergy2027
Feb. 16-19, 2027 | Town & Country Resort | San Diego, CA

Feb 16–19, 2027

San Diego, CA | Town & Country Resort

- 1,500 expected attendees
- **Call for abstracts: Aug 6, 2026 deadline**
- Campus energy, decarbonization & resilience
- Young Professionals & Patti Wilson programming

DISTRICT ENERGY IDEA2027
June 22-25, 2027 | Raleigh Convention Center | Raleigh, NC

June 22-25, 2027

Raleigh, NC | Raleigh Convention Center

- **Call for proposals to be announced**
- Downtown, data centers, sector-coupling & decarbonization focus
- Pre-conference workshops
- System of the Year Award

GDECA Awards – Mid-2027

Hosted by APUEA | Details coming soon

Collaborative industry recognition program co-organized with Euroheat & Power and the Asia Pacific Urban Energy Association. IDEA a founding partner.

IDEA Data Center Working Group

Ongoing | Multi-jurisdiction initiative

Sector-coupling workshops, DATA HEAT market development guide, NY TENs pilot commentary, and Virginia HB323 waste heat reuse policy engagement. 2027 NYC regional event under consideration.

Resources

www.learn.districtenergy.org

www.districtenergy.org/doebestpractices/home

www.districtenergy.org/districtcooling/home

www.districtenergy.org/districtcooling/best-practice-guide

www.districtenergy.org/viewdocument/governance-models-and-strategic-decision-making

www.districtenergy.org/resources/idea-video-series

www.districtenergy.org/resources/productsservices

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“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has.”

– Margaret Mead

Thank You

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UN environment programme

Cool Coalition

Closing Remarks

Eleni Myrivili (Lenio), Global Heat Advisor,
UNEP Cool Coalition

16:20 – 16:30 CET