IEA EBC Annex 80 - Resilient Cooling

Webinar 3: Examples of Resilient Cooling Solutions

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Webinar 2: Future weather data and heatwaves

Philipp Stern

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IEA EBC Annex 80

EBC
Energy in Buildings and Communities Programme

Series of webinars in cooperation with AIVC & venticool

1. Indicators to assess resilience of cooling in buildings [May 10, 15:00-16:15 CEST]
2. Future weather data and heatwaves [May 31, 16:00-17:15 CEST]
3. **Examples of resilient cooling solutions [September 13, 15:00-16:15 CEST]**
4. Case studies and policy recommendations [September 20, 15:00-16:15 CEST]

https://annex80.iea-ebc.org/

AIVC venticool the platform for resilient ventilative cooling INIVE

Today's Programme

Programme (Brussels time)

15:00	**Introduction to Annex 80, AIVC & venticool** Philipp Stern for Operating Agent EBC Annex 80 Institute of Building Research & Innovation, AT	**15:40**	**Adsorption Chiller and its Applications** Gamze Gediz Ilis, Gebze Technical University, TR
15:05	**Overview of resilient cooling technologies** Ongun Berk Kazanci, ICIEE/DTU, DK	**15:55**	Questions and answers
15:25	**Recent progress on building products for heat mitigation** Mat Santamouris, UNSW, AU	**16:15**	End of the webinar

IEA EBC Annex 80

- **Members**

  36 institutions from 16 countries (Americas, Europe, Asia, Australia)

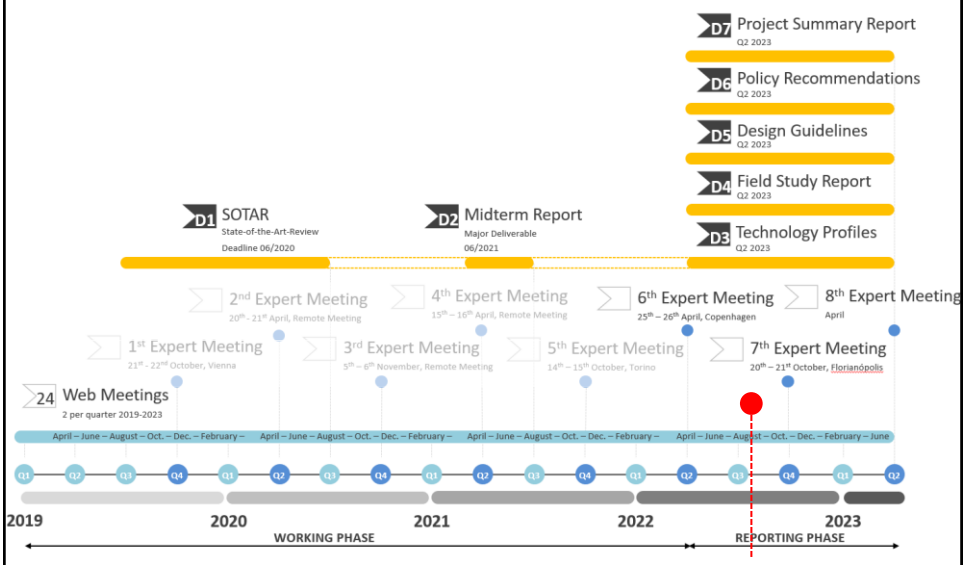
- **Guests** (not part of EBC yet)

  Mexico, **José Roberto Garcia Chavez**, Metropolitan Autonomous University Mexico City

  India, **Rajan Rawal**, CEPT University, CARBSE

1. Preparation Phase (1 year)
   June 2018 – June 2019
2. Working Phase (3 years)
   June 2019 – June 2022
3. Reporting Phase (1 year)
   June 2022 – June 2023

Annex 80 Roadmap



Annex 80 Objectives

*"Support a transition to an environment where **affordable low energy** and **low carbon** cooling systems are the mainstream and preferred solutions for cooling and overheating issues in buildings."*

A Assess benefits, potentials and performance indicators. Provide guidance on design, performance calculation and system integration.

B Research towards implementation of emerging technologies. Extend boundaries of existing solutions.

C Evaluate the real performance of resilient cooling solutions.

D Develop recommendations for policy actions.

Definition of Resilient Cooling

"Affordable low energy and low carbon cooling solutions, strengthening the ability of individuals and communities to withstand and prevent the thermal - and other - **impacts of changes in global and local climates."**

Groups of Technologies

a. **Reduce heat loads to people and indoor environments**

b. **Remove sensible heat from indoor environments**

c. **Enhance personal comfort apart from space cooling**

d. **Remove latent heat from indoor environments**

Annex 80 Deliverables

D1	State-of-the-Art-Report	▪ Research community and associates ▪ Real Estate developers ▪ Urban planning experts ▪ Policy makers	OA, STA, STB, STC, STD
D2	Midterm Report	▪ Research community and associates ▪ IEA and EBC Programme	OA, STA, STB, STC, STD
D3	**Technology Profiles**	▪ Building component developers and manufacturers ▪ Architects and design agencies ▪ Engineering offices and consultants	STB
D4	**Field Studies**	▪ Building component developers and manufacturers ▪ Architects and design agencies ▪ Engineering offices and consultants ▪ Real Estate developers	STC
D5	**Design and Operation Guidelines**	▪ Architects and design agencies ▪ Engineering offices and consultants ▪ Real Estate developers	STA, STB, STC
D6	**Recommendations for policy actions, legislation and standards**	▪ Policy makers ▪ Legal interest groups ▪ Experts involved in building energy performance standards and regulation	STD
D7	**Project Summary Report**	▪ Research community and associates ▪ IEA and EBC Programme ▪ Real Estate developers ▪ Policy makers	OA, STA, STB, STC, STD

Annex 80 Publications

1. "**Developing an understanding of resilient cooling**: a socio-technical approach City and Environment Interactions" (Wendy Miller et al; published in Elsevier City and Environment 2021) https://doi.org/10.1016/j.cacint.2021.100065
2. "**Resilient cooling of buildings to protect against heat waves and power outages**: key concepts and definition" (Shady Attia et al; published in Energy and Buildings 2021) https://doi.org/10.1016/j.enbuild.2021.110869
3. "**Resilient cooling strategies - a critical review and qualitative assessment**" (Chen Zhang et al; published in Energy and Buildings 2021) https://doi.org/10.1016/j.enbuild.2021.111312
4. Report of Thermal Conditions Task Group "**Framework to evaluate the resilience of different cooling technologies**" (Shady Attia et al; published) http://dx.doi.org/10.13140/RG.2.2.33998.59208

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Next:

Dr. Ongun Berk Kazanci
Technical University of Denmark
Department of Environmental and Resource Engineering
Indoor Environment

DTU

iea Energy Technology Network

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Thank you for joining

see you again on September 20th!

Please fill in the survey after the meeting.
Your feedback is very important for us.

AVC venticool the platform for resilient ventilative cooling INIVE Institute of Building Research & Innovation ZT-GmbH iea Energy Technology Network