

Welcome to the first newsletter for IC7: Affordable Heating and Cooling of Buildings

We met some of you a year ago in Abu Dhabi, where we pulled together a number of ideas/ initiatives for research and development to support “Affordable Heating and Cooling of Buildings”. A year on and we are delighted to report many initiatives taking place in accelerating the deployment of low-carbon energy technologies for heating and cooling. We are pleased to share these with you with this, our first, newsletter. We plan to communicate news with you via these newsletters every quarter, which we hope will stimulate discussion, interactions and joint collaborations. We welcome any news items, announcements, etc for future inclusion.

Best wishes,

Your IC7 Co-Leads



Amal Hamadeh



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Horizon 2020 Research Opportunities

We are delighted to announce that Horizon 2020, the European Union programme for research and innovation, has made available two new funding opportunities to support MI IC7. Non-EU MI Countries participants are invited to present joint proposals with EU Member States on *thermal energy storage* topics funded under Horizon 2020. The two research topics address:

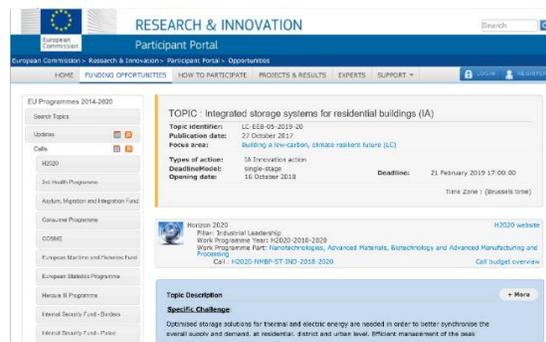
The development of compact thermal energy storage for electricity load shifting (LC-SC3-ES-6-2019 - *Opening date*: 05 September 2018-*Deadline*: 05 February 2019) (for this topic, the participation of at least one non-EU MI Country is mandatory).

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-es-6-2019.html>

The demonstration of high density, integrated thermal storage based on thermochemical materials (LC-EEB-05-2019-20 - *Opening date*: 16 October 2018 - *Deadline*: 21 February 2019) (participation of non-EU MI Countries is encouraged, for this topic).

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-eeb-05-2019-20.html>

These are great opportunities and we need to demonstrate interest to encourage further calls of this nature - please consider how you can get involved.



The screenshot shows the 'RESEARCH & INNOVATION Participant Portal' with a search filter for 'EU Programmes 2014-2020'. The main content area displays a topic titled 'TOPIC: Integrated storage systems for residential buildings (IA)'. Key details include:

- Topic identifier: LC-EEB-05-2019-20
- Publication date: 27 October 2017
- Phase level: Building 0-to-carbon, climate resilient future (LC)
- Type of action: 1A Transverse action
- Deadline/Modal: single-stage
- Opening date: 16 October 2018
- Deadline: 21 February 2019 17:00:00
- Topic Description: Optimised storage solutions for thermal and electric energy are needed in order to better synchronise the overall supply and demand at residential, district and urban level, efficient management of the heat.

The Global Cooling Innovation Summit and Prize Launch

The *Global Cooling Innovation Summit and Prize* was launched on the 12 November in Delhi in the presence of Indian Authorities, the Rocky Mountain Institute and Mission Innovation Representatives, Dr Sanjay Bajpai (IC7 lead for India), Iain Campbell (Rocky Mountain Institute) and Professor John Loughhead (Vice Chair of the MI Steering

Committee). Prof Loughhead joined with the Indian Minister Harsh Vardhan to launch the Prize as part of the Mission Innovation Heating & Cooling Challenge. The \$3M #GlobalCoolingPrize aims to spur the development of technologies with 5x less climate impact than air conditioners being sold today, a vital innovation needed to help limit global CO2 emissions. The prize competition is designed to develop solutions for non-air-conditioned buildings that do not use highly potent refrigerants and consume dramatically less energy yet provide consumers with the cooling that they need.



To learn more about how to take part, visit the competition website at: <https://globalcoolingprize.org/>

The Comfort and Climate Box

The CCB was conceived during the IC7 Workshop in Abu Dhabi, following deep and thorough discussions among experts. The aim of CCB is to improve system integration and prosumer networks through an integrated heating and/or cooling unit incorporating energy transformation, storage and control.

The Comfort and Climate Box is now being developed by the IEA in a new Annex (or work stream) agreed between the IEA Energy Storage and Heat Pumps Technology Collaboration programmes. The Annex duration is 2.5 years and deliverables include prototypes and a roadmap for further industrialization.



The IEA Heat Pump TCP and the IEA Energy Storage TCP have organized a workshop to finalize the objectives, scope and activities of the new Annex. If you are interested in joining this new Annex, you are invited to participate in this workshop which takes place in Utrecht 17-18 January 2019. The objective of the workshop is to finalize the working programme, to define the national contributions and to establish the core group, including subtask leaders of this new joint Annex.

To find out more about participating in the workshop and the new Annex visit <https://iea-eceres.org/events/expert-workshop-preparation-annex-climate-box/>

How is IC7 doing?

The progress of the 8 Innovation Challenges was reviewed by the Analysis and Joint Research (AJR) Sub-group of Mission Innovation in July 2018. This was conducted to gain a better understanding of IC progress-to-date and to identify any challenges,

opportunities, and gaps where AJR, the Secretariat, or others within MI could better support ICs.

IC7 was given a very positive review and explicitly commended for IC7's excellent track record. It was encouraged to further mobilize its resources and engagement across the IC7 countries.



In follow up to this assessment the co-leads of the ICs met in Brussels in October to share best practice and explore ways to accelerate progress. One outcome from the meeting for IC7 was the opportunity to work with IC6 to develop new materials for thermal energy storage. More information to follow.

Gas Heat Pumps – The state of the art

A MI IC7 meeting on gas heat pumps took place from 16-18 July 2018 in Pisa, Italy. It had been initiated and organized by CNR (Italy), Politecnico di Milano (Italy), Fraunhofer ISE (Germany) and the University of Warwick (UK). With 57 participants from 12 countries the meeting covered background from academia (16 universities, 9 research institutions) and industry (6 SME, 3 large companies, 3 industry associations/consultants).



The main objective of the workshop was to produce a technology assessment identifying research opportunities with the aim of establishing a multi-national collaborative research project with like-minded IC7 nations.

A number of keynote presentations and flashlight presentations were given, and are available at the website: <https://www.sorptionfriends.org/>

After these presentations, facilitated workshops identified the status of existing technologies. A number of "hot" topics were identified, including gas heat pumps (both ad- and absorption, especially for UK and Italy), waste heat driven cooling (both ad- and absorption, especially in combination/hybridization with compression cooling), open systems for dehumidification and cooling, and, with lower priority, thermal energy storage applications (mainly adsorption) in industrial processes.

One of the specific measures to enhance cooperation and create funding possibilities was the compilation of the 1st phase report towards the MI Heating & Cooling Innovation Challenge: Sorption Heat Pumps, which gives an "Initial detailed assessment of current technologies and their future potential". The follow-up of the workshop is ongoing and we hope to be able to report the start of successful MI collaborations in future newsletters.

How to get more involved with IC7 and find out more?

We welcome any news items, announcements, etc for inclusion in future newsletters.

Graeme Maidment has been seconded into UK Government to support Mission Innovation Challenge 7. If you would like to get more involved and find out more about IC7 activities please contact Graeme.... Graeme.Maidment@beis.gov.uk

