

## How can we estimate actual energy performance of heat pump systems in buildings for better design?

A webinar organized by  
IEA Technology Collaboration Programme on Energy in Buildings and Communities  
(IEA EBC TCP)  
and  
**Annex 88 'Evaluation and Demonstration of Actual Energy efficiency of Heat Pump Systems in Buildings'**

**Part 1: Thursday 24<sup>th</sup> October 2024**  
**Part 2: Friday 8<sup>th</sup> November 2024**  
**12:00 - 13:30 UTC/GMT of each day**

Washington DC, USA: Part 1/8:00-9:30, Part 2/7:00-8:30  
Brasilia, Brazil: 9:00-10:30  
London, UK: Part 1/13:00-14:30, Part 2/12:00-13:30  
Berlin, Germany: Part 1/14:00-15:30, Part 2/13:00-14:30  
Beijing, China: 20:00-21:30  
Tokyo, Japan: 21:00-22:30  
Sydney, Australia: 23:00-00:30

**Registration is required:** A link to join the webinar will be included in the email confirmation

**PART 1 - REGISTER**

**PART 2 - REGISTER**

**FREE** - Participation  
in the Webinar is free

### Why this webinar is important and useful?

Many experts and policy makers may agree that heat pump is one of the most promising technologies for decarbonizing buildings. However, it seems that those engaged in the design and relevant standards of the heat pump systems have not obtained enough information on actual behaviour of the systems in order that we can certainly succeed in reducing energy consumption. For example, do we know how much energy efficiency (EER and COP) of the systems may be reduced under low part load ratio and how low the partial load ratio can be for heat sources? This webinar is to share such existing technical problems and the way to solve by Annex 88, an international collaborative R&D project.

### About IEA EBC Annex 88

**Home page:** <https://iea-ebc.org/projects/project?AnnexID=88>

#### Overview with its objectives:

It is a 5-year project, which deals with state-of-the-art (Subtask A), testing methods for heat pumps (Subtask B1), monitoring methods and database (Subtask B2), energy use calculation methods especially for regulations (Subtask C) and design guidelines for practitioners (Subtask D). The state-of-the-art report is to be published in September 2024 and it includes current status and research plan of Annex 88. By using this opportunity, we hope to share the contents of the report.

#### Duration:

July 2022 - June 2027

#### Member countries:

Australia, Brazil, Canada, China, Germany, Italy, Japan, The Netherlands, Philippines

**Collaboration with other IEA TCP:** IEA HPT TCP (<https://heatpumpingtechnologies.org/>):

#### How to join:

Please contact national representatives for IEA EBC TCP (<https://iea-ebc.org/contacts>)

## Programme (UTC/GMT time)

### Part 1 | Thursday 24<sup>th</sup> October 2024

‘Testing methods in laboratories and actual energy performance of heat pumps in buildings’

Coordinator: **Prof Alberto Hernandez Neto** (Subtask A Leader, Annex 88, Univ. of São Paulo, Brazil)

- ✚ 12:00-12:05 | Welcome and short introduction of IEA EBC TCP  
by **Mr Meli Stylianou** (Chair, IEA EBC TCP, Natural Resources Canada)
- ✚ 12:05-12:10 | Welcome and short introduction of IEA HPT TCP  
by **Dr. Caroline Haglund Stignor** (Heat Pump Center, Secretariat, IEA HPT TCP, RISE, Sweden)
- ✚ 12:10-12:15 | Short introduction of IEA EBC Annex 88  
by **Dr Takao Sawachi** (Operating Agent, Annex 88, Building Research Inst, Japan)
- ✚ 12:15-12:25 | Overview of the report ‘State-of-the-Art’ published in September 2024  
by **Prof Alberto Hernandez Neto** (Subtask A Leader, Annex 88, Univ. of São Paulo, Brazil)
- ✚ 12:25-12:30 | Q&A
- ✚ 12:30-12:55 | Current and future testing methods of heat pump, problems and solutions to approach actual energy performance  
by **Prof Niccolo Giannetti** (Subtask B1 Leader, Annex 88, The University of Electro-Communications, Japan)
- ✚ 12:55-13:00 | Q&A
- ✚ 13:00 - 13:25 | Monitoring methods and data on actual energy performance of heat pumps in buildings  
by **Prof Baolong Wang** (Subtask B2 Leader, Annex 88, Tsinghua University, China)
- ✚ 13:25- 13:30 | Q&A
- ✚ End of Part1

### Part 2 | Friday 8<sup>th</sup> November 2024

‘Building energy calculation methods for heat pumps and developing design guideline’

Coordinator: **Prof Lu Aye** (Subtask A Co-Leader, Annex 88, Univ. of Melbourne, Australia)

- ✚ 12:00-12:05 | Review of Part 1 on 24<sup>th</sup> October  
by **Dr Takao Sawachi** (Operating Agent, Annex 88, Building Research Inst, Japan)
- ✚ 12:05-12:30 | Current and future energy calculation standards for heat pumps  
by **Mr Laurent Socal** (Subtask C Leader, Annex 88, Consultant, Italy)
- ✚ 12:30-12:40 | Q&A
- ✚ 12:40-13:05 | Current design guidelines of heat pumps in buildings and problems  
by **Prof Lu Aye** (Subtask D Leader, Annex 88, Univ. of Melbourne, Australia)
- ✚ 13:05-13:15 | Q&A
- ✚ 13:15-13:30 | Overall discussion
- ✚ End of Part 2 & Seminar

## Speakers



Prof. Alberto Hernandez Neto  
Subtask A Leader, Annex 88, Professor at  
Univ. of São Paulo, Brazil



Mr. Meli Stylianou  
Chair, IEA EBC TCP, Natural Resources  
Canada



Dr. Caroline Haglund Stignor  
Heat Pump Centre, Secretariat, IEA HPT  
TCP, RISE, Sweden



Dr. Takao Sawachi  
President, Building Research Institute,  
Japan



Prof. Niccolò Giannetti  
Subtask B1 Leader, Annex 88, Associate  
Professor at The University of Electro-  
Communications, Japan



Prof. Baolong Wang  
Subtask B2 Leader, Annex 88, Associate  
Professor at Tsinghua University, China



Prof. Lu Aye  
Subtask D Leader/Subtask A Co-leader,  
Annex 88, Professor at Univ. of Melbourne,  
Australia



Mr. Laurent Socal  
Subtask C Leader, Annex 88, Consultant,  
Italy

### **Cost and registration**

Participation to the webinar is free but requires you to register for the event. The webinar will be limited to a maximum of 1000 persons. To register, please click on the “Register” button above.

### **What is a webinar?**

A webinar is a conference broadcasted on internet. To follow a webinar you must have a computer with a sound card and speakers or headphones. Once logged in the "webinar room", you will be able to see the slides of the presentation and to hear the panelists' comments. You will also be able to ask written questions to the speakers, and to answer on-line surveys.

### **Hardware, software**

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### **About IEA EBC**

In recognition of the significance of energy use in buildings, in 1977 the International Energy Agency (IEA) has established a Technology Collaboration Programme on Energy in Buildings and Communities (EBC). The function of EBC is to undertake research and provide an international focus for building energy efficiency. Tasks are undertaken through a series of 'Annexes', so called because they are legally established as annexes to the EBC 'Implementing Agreement'.

The largest benefits arising from participation in EBC are those gained by national programmes, such as leverage of R&D resources, technology transfer, training and capacity-building. Countries lacking knowledge can benefit from the experiences of those with more expertise, thereby avoiding duplicated research efforts. In particular, countries can most easily realise the benefits of participation if their own experts have taken part in projects and have assisted in producing deliverables taking into account their national requirements and priorities.

At an individual level, the EBC Programme allows researchers and experts funded by national programmes and industry to pool their collective expertise to produce high quality project outputs. By taking part in the projects, they create and reinforce their own technical networks, the benefits of which remain long after the particular project has formally ended. This does not happen quickly, but over the course of three to five years, these networks of expertise become established as excellent international channels of communication.

EBC has currently 26 member countries. All member countries have the right to propose new projects, and each country then decides whether or not to participate on a case by case basis. Most EBC projects are carried out on a 'task shared' basis, in which participating organisations arrange for their own experts to take part. Certain projects are 'cost shared' in which participants contribute funding to achieve common objectives.

The webinar is facilitated by INIVE ([www.inive.org](http://www.inive.org)).