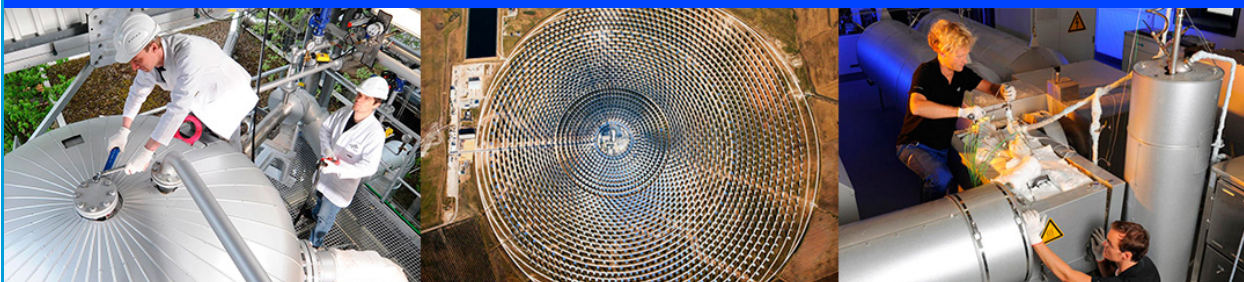


Technology Collaboration Programme
by IEA



IEA Technology Collaboration Programme

Introduction

New newsletter, new times.

In case we were forgotten, the corona virus showed us again that our health is by far the most important thing in the world. We hope that you and your family are all in good health.

But it is not because we have to work more from home, that the world stops turning or that the energy transition stops. On the contrary. A lot is happening so we are pleased to send you a new edition of our IEA Energy Storage TCP newsletter.

Best regards and enjoy reading,
Teun Bokhoven, *Chair IEA Energy Storage TCP ExCo*
Hanne Karrer, *Secretary*

News on Energy Storage TCP Planned Annexes

At the moment four new Annex ideas are discussed and task definition workshops are organized.

Large Thermal Energy Storages for District Heating

Invitation to the 2nd Annex Definition Meeting on Large Thermal Energy Storages for District Heating

After a very successful first Annex Definition meeting in October last year in Vienna with 17 participants from 7 countries, a second definition meeting for 14th and 15th of April is planned. Due to the effects of COVID-19 the physical meeting is canceled and will be held as web meeting. The program will start on the 14th at noon and will end on the 15th at about 17:00 h CEST.

Tentative goal of the Annex is to determine the aspects that are important in planning, deciding on and realising very large thermal energy storages for integration into district heating systems. The aspects included are materials and component choices, storage designs and design methods, legal, non-technical and operational aspects, business models and costs. Additionally, the Annex will work on a round robin of different numerical system simulations validated with sets of real system measurements and on actively disseminating the outcomes within the target groups of energy companies, utilities and decision makers (e.g. within municipalities).

Thermal energy storages of the tank or pit type, with volumes of at least 50.000 m³, with water as storage medium and possibly slightly over pressurised is the proposed scope of the Annex.

The goal of the meeting is to further detail the work plan for the Annex, to determine the possible Subtask leads and to identify the readiness of experts to contribute to the different activities.

If you are interested in actively collaborating in the definition of the Annex, and in participating in the Annex work, please save the date and send a short e-mail to [Wim van Helden](#).

Smart Design and Control of Energy Storage Systems

Invitation to participate the newly proposed Annex Smart Design and Control of Energy Storage Systems

In this Annex, smart design and control strategy of energy storage systems will be investigated and developed for both demand side and supply side. In order to make the most use of energy storage system, optimum design and control are very important as well as development of energy storage devices. Smart technologies such as artificial intelligence developed recently can be expected to make a significant contribution to the optimizations. The research results will be organized as design materials and operational guidelines.

If you are interested in actively collaborating in the Annex, and in participating in the Annex work, please send a short e-mail to [Ryozo Ooka](#).

Ground Source De-icing of Transport Infrastructure

Invitation to the 2nd Annex Definition Meeting on Ground Source De-icing of Transport

Infrastructure

We would like to cordially invite you to the second Annex definition meeting on Ground Source De-icing of Transport Infrastructure at 7th of April. The meeting is planned in form of a web-conference. The overall objective of this Annex is to contribute to the replacement of electrical resistance heater systems and expanding the utilization of direct geothermal heating systems or ground source heat pumps. All applications should be addressed that can either be supplied directly by a ground source or in combination with a heat pump. It also takes into account the storage of heat energy in the soil, to cool the surface in summer, to prevent its deterioration, and to use the stored heat in winter.

Main content of the annex will be:

1. Market potential and state of the art
2. Development of geothermal systems for snow and / or ice maintenance
3. Development of load and simulation models
4. Planning, construction and monitoring

Regardless of this, the annex is open to further contributions. The goal of the second Annex definition meeting is to further detail the work plan, to determine the possible Subtask leads and to identify the readiness of experts to contribute to the different activities. If you want to contribute on the definition of the Annex and later be part of it, please save the date 7th of April and send a short email to [Lars Staudacher](#).

Material and Component Development for Thermal Energy Storage (continuation of a finalized Annex activity)

At the last experts meeting in October 2019 the participants identified several points, which strongly justify a continuation of the Annex activities:

- Since there are worldwide ongoing R&D activities on new materials for thermal energy storage, these materials shall furthermore be characterized.
- For the characterization and the quantification of relevant material properties measuring procedures shall be available, which were agreed upon by the participants, due to their unique experience from the first phases of the Annex.
- The material Database is a very valuable outcome of the past Annex phases. It shall be maintained and expanded continuously.
- Over the past Annexes – 24, 29 and 33 – a very experienced group of international experts from different areas, like chemists, physicists and engineers, has been formed. This community is able to cover all R&D aspects from material development until the final system integration of thermal energy storages. Without the IEA technology network the further existence of the community would be uncertain.

At the same time it was decided to add some topics, which should be in the focus of any following future activities:

- What means Digitalization for material development? Material data are crucial for modelling of TES systems (“Digital Twin”) and for future smart and intelligent operation within the energy system. e.g. state of charge information from the material.

- The aspect of Sustainability and Life Cycle Analysis should be addressed as it is the case for electrical energy storage systems today. This is extremely important with regards to the materials developed for TES applications.

The next phase of this activity should also aim to strengthen collaborations with other institutions and organizations as Mission Innovation / TESMAP. It should establish a collaboration with ECES new Annex on modelling and at the same time keep the collaboration with Solar Heating & Cooling TCP.

The first Task-Definition Meeting for this shall be May 6-8, most probably as an online meeting. If you are interested in participating in the Annex, please send a short e-mail to [Andreas Hauer](#).

ES TCP Input for Energy Technology Perspectives 2020

A key characteristic of the transformation from fossil fuels to renewable energy sources is the fact that time of production doesn't automatically and easily will match the load/demand profiles. For that, storage is and will be a crucial part of the carbon-free energy system of the future.

The main messages ES TCP gave as input for the ETP 2020 were:

- **Storage is part of the system.** There are different types of storage (broadly there are three groups of energy storage):
 - Thermal Energy Storage (TES)
 - Electrical Energy Storage (EES)
 - Chemical Energy Storage (CES, including Power to X)

Which technology is best suited, depends **on the application** which is a combination of energy source, distribution, possible transformation, storage and demand/application-profile.

Each application will have its own technical and economic viability of energy storage.

- Energy storage technologies are crucial components of what is referred to as “**sector coupling**” (how to integrate the electricity sector with the heating sector and the transportation sector).
- **Innovation is key.** There are multiple storage solutions available on the market (TRL 9) e.g. Aquifer thermal energy systems, Borehole thermal energy systems, hot water storage, different types of batteries, ...
But we are still facing a lot of challenges related to compactness, sustainable (new) materials, control strategies (including AI), cost reductions, safety aspects, new concepts, hybrid systems, ...
- **Flexibility has a value.** Creating flexibility will be key but it is not reflected in the current energy market model. New market models are necessary to optimize our future energy system.

The importance of energy storage cannot be underestimated. Bringing this under the

attention of everyone is the main task of our ICP, so we were happy that we could give input for this ETP.

ISEC 2020 - 2nd International Sustainable Energy Conference

ISEC 2nd INTERNATIONAL SUSTAINABLE ENERGY CONFERENCE 2020

The 2nd International Sustainable Energy Conference will take place on 14-16 October, 2020 at Congress Graz in Austria.

ISEC 2020 is a conference focusing on Renewable Heating and Cooling in Integrated Urban and Industrial Energy Systems. After the success of ISEC 2018 with almost 400 participants from 51 countries AEE INTEC, in cooperation with the United Nations Industrial Development Organization – UNIDO and European Technology and Innovation Platform - RHC, is organizing ISEC 2020 - a forum for research, business and energy policy.

Due to the effects of COVID-19, the submission of abstracts for ISEC 2020 will be extended until 20 April 2020. Please have a look at the ISEC 2020 homepage for abstract submission instructions and conference topics: www.aee-intec-events.at.

Full papers are provided with a DOI number by Crossref.

Abstract Submission Deadline: 20 April 2020

Confirmation of acceptance: 10 June 2020

Submission of full papers: 24 July 2020

For more information like registration, travel information please visit the website: www.aee-intec-events.at.

ENERGY STORAGE EUROPE 2020





Messe Düsseldorf postpones ESE 2020 - New date set

ENERGY STORAGE EUROPE 2020 will now take place from 16 to 18 March 2021 due to the effects of coronavirus/Covid-19.

With this announcement of the new dates, Messe Düsseldorf is reacting promptly to the postponement of the leading trade fair for the global energy storage industry. This was agreed in consultation with the trade fair advisory board and all partners involved in order to counteract the increasingly dynamic developments regarding the possible spread of the corona virus.

As ENERGY STORAGE EUROPE's partner, BVES - Bundesverband Energiespeicher Systeme e.V. - fully supports the decision. "We expressly welcome the fact that Messe Düsseldorf had the courage to take this step and that we are now collectively providing a clear perspective for 2021. Planning security is entirely in the interests of the energy storage industry. In our opinion, ENERGY STORAGE EUROPE has reacted cautiously, sensibly and correctly, taking all advantages and disadvantages into consideration," says Urban Windelen, CEO of BVES.

Bernhard Rill, Vice President Gustav Klein GmbH & Co KG and Chairman of the Exhibition Advisory Board underlines: "In the current situation, the decision to move ENERGY STORAGE EUROPE to March 2021 was resolute and correct. We are now concentrating our efforts on the design and implementation of the next enhanced edition of ENERGY STORAGE EUROPE". Here the system concept is emphasized as a platform for everything concerning energy storage. Complete systems, grid connection, production, development, testing and service can be found at ESE. Thus, a comprehensive and well-rounded spectrum of information and innovations is presented to all the visitors.

Existing contracts with Messe Düsseldorf remain valid for the new date. The same applies to visitor tickets already purchased. If visitors have any queries, they can send an e-mail to ticket@messe-duesseldorf.de.

The changeover of the exhibitor database and ticket shop will take place one step at a time. In the meantime, everyone involved is working on a solution as quickly as possible. You will also find the answers to other relevant questions with the current status on the website www.esexpo.com.

Annex Agendas

Due to the effects of Covid-19, all Annex meetings will be web meetings instead of physical meetings.

Annex 22: "Modelling of Energy Storage for Simulation/Optimization of Energy Systems"

Annex 32: Modeling of Energy Storage for Simulation/Optimization of Energy Systems – Open Sesame”

Kick-off meeting on 6th of May 2020.

Please contact [Christian Doetsch](#) for further information or if you are interested in participating.

Annex 34: “Comfort & Climate Box” (a joint Annex with HPT TCP Annex 55 in corporation with Mission Innovation)

Next Experts Meeting on 25th and 26th of June 2020.

Please contact [Peter Wagener](#) for further information or if you are interested in participating.

Annex 35: “Flexible Sector Coupling”

First Experts Meeting in two sessions on 2nd of April 2020 (10 a.m. to noon and 2 p.m. to 4 p.m.). Here you can find the [detailed agenda](#).

Please contact [Andreas Hauer](#) for further information or if you are interested in participating.

Annex 36: “Carnot Batteries”

Kick-off meeting was held on 26th of March 2020.

Please contact [Dan Bauer](#) for further information or if you are interested in participating.

Task Definition Workshops for New Annexes

Large Thermal Energy Storages for District Heating

14th and 15th of April 2020 as web meeting (see above for further details).

Smart Design and Control of Energy Storage Systems

Date (and Location) will be fixed soon (see above for further details).

Ground Source De-icing of Transport Infrastructure

7th of April 2020 as web meeting (see above for further details).

Material and Component Development for Thermal Energy Storage

May 6-8 2020, most probably as web meeting on 7th of May (see above for further details).

If you are interested in these new proposals do not hesitate to contact the [secretariat](#).

Events

- October 14-16, 2020: [ISEC 2020, Graz \(Austria\)](#)
- September 07-08, 2020: [17th International Symposium on District Heating and Cooling, Nottingham \(UK\)](#)

- **September 21-24, 2020:** [Heat Pump Conference 2020, Jeju \(Korea\)](#)
- **March 16-18, 2021:** [Energy Storage Europe 2020, Düsseldorf \(Germany\)](#)
- **June 9-11, 2021:** [Enerstock, Ljubljana \(Slovenia\)](#)

Find all upcoming events [here](#).