



# CNESS

Climate Neutral  
Energy Systems  
and Society

February 2022

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## TOPICS

CNESS call October 2021: the projects

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CNESS Summer  
School 2022

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Emerging and  
young scholar  
meeting

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Plans for 2022:  
simulation game,  
stakeholder  
meeting, etc.

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Recently published  
papers

## NEWSLETTER

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### CNESS call October 2021: the projects

In October 2021, CNESS issued [a call](#) for early-phase projects and data acquisition projects in research areas similar to the platform's focus. The call was kept open to invite a wide range of different projects. As a result, the board of CNESS decided to fund five projects:

*Towards a global network for black carbon governance  
(Anna Claydon et al.)*

The spin-off of the Black Carbon Footprint project (BCFp), this study seeks to explore i) on a global level the prospects of a global network for BC governance based on shared problem definitions and proposed solutions and ii) on a regional level, the governance of BC in the Arctic region. The study will highlight the potential contribution of multilateral and multi-sector governance to address some of the key bottlenecks in BC mitigation, as well as a need for an epistemic community based on shared knowledge to support those governance mechanisms.

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*COVID-19 and individual home energy-use and travel habits:  
understanding long-term environmental implications  
(Raul Castano De la Rosa et al.)*

This interdisciplinary study from ASUTUT (Sustainable Housing Design) and VERNE research group aims to understand better the potential long-term impacts of COVID-19 on individual energy use and related to mobility behaviour, including the potential impact on carbon-neutral goals and air quality. The research will focus on the Uusima region allowing the survey findings to be linked to high-quality data about air quality, transport emissions, and health collected by Prof Topi Rönkkö in a previous study.

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### *Meso-scale analysis of low carbon concretes (Reijo Kouhia)*

Concrete is the most used construction material, but manufacturing cement is energy-intensive and produces large amounts of carbon dioxide. To lower the carbon footprint of concrete, alternative fuels and materials have been used, such as Alkali-Activated Materials (AAM), a Portland-cement-free binder. However, AAM concrete (AAMC) is more brittle than Portland cement concrete. This pilot study will develop a mesoscale model to computationally analyze which are the relevant failure modes of AAMC and how they differ from PCC to understand the mechanical behaviour of AAMC.

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### *Nordic system platform – full-scale and push-out tests (Aku Aspila)*

This research explores the possibilities of industrialized wood constructions in slim-floor steel-timber composite beams to replace conventionally used concrete slabs. This so-called Nordic system could be suitable for the current construction practices in Nordic countries. However, generally accepted design rules or standards for slim-floor steel-timber composite beams are still missing. This study aims to provide experimental evidence for validating the theory presented by METKE for analyzing and designing composite beams.

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### *Energy research data repository (Saku Mäkinen et al.)*

The Procem projects 1 and 2 have created and operated a data collection system to monitor the Campus Arena building of TAU, including detailed information about energy consumption and production. The CityIoT project has collected data about the streetlight system of the City of Tampere, both the old and new low-energy systems. The data from these projects could support multidisciplinary research at TAU but was collected in different technical environments and thus is difficult to utilize without technical help from the original research teams. The research aims to systemize the energy research data to increase accessibility for CNESS and other research activities.

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All funded projects are required to inform the CNESS board about the current process of the study. This meeting will be held online and in public for all interested researchers, students, and others. The date and link to the meeting will be announced on the CNESS website and via the email list. If you want to sign up for the CNESS email list, please click [HERE](#).





## CNESS Summer School 2022

In collaboration with Tampere University, CNESS will host a summer school in Tampere from August 8th – 13th, 2022. The one-week intensive academic program covers the most prominent energy-related topics, including theoretical elements, practical training, and discussions. The free-of-charge course will also include onsite visits to energy facilities, guest lectures from professionals, a poster session and a social program to introduce the participants to Nordic life and culture.

CNESS aims to support the development of the students' competencies in topics related to energy and climate neutrality. After the summer school, the participants will gain an understanding of the energy systems in their full complexity and across disciplines. In addition, we offer students access to a platform and network of researchers from different fields and backgrounds that will support their future careers in the area of energy research and beyond.



We are looking for highly motivated postgraduate students (masters or PhD) and early-stage researchers from all energy-related disciplines. In addition, we invite young professionals from governmental institutions, companies, think tanks and NGOs to apply too. Around 20 students will be admitted to the summer school to ensure interactive courses and discussions. The selected students are expected to participate fully in the program by attending all classes, lectures and site visits.

Visit our [website](#) for more information about the summer school and application process.

## Emerging and young scholar meeting

At the end of 2021, CNESS hosted an "emerging and young scholars" meeting to discuss future actions to support and engage early-stage researchers in the work of the platform. A preference for more in-person meetings such as PhD workshops was expressed to connect the research groups at CNESS and beyond. Depending on the number of participants, these workshops could consist of two or three different panels based on the overall topic of the presentations and also be open to scholars from other universities in and outside Finland. Bigger F2F events will be planned once the Covid19 situation improves.

The emerging scholars also discussed the need for an event and funding calendar. While it is difficult to screen all funding opportunities given the multidisciplinary character of the platform, a calendar that includes funding calls provided by CNESS and other relevant event dates represents a useful communication tool. In the following weeks, CNESS will test the feasibility of such a calendar on the website, including the option to propose to add dates.

## Plans for 2022 – simulation game, stakeholder meeting, etc.

Building on the ideas collected from the emerging and young scholar meeting, CNESS plans to develop further in 2022. Our platform strives to become a hub for high-quality energy transition research and to be recognized as a valuable partner by academic and industrial organizations. Starting with a stakeholder meeting, CNESS will both strengthen the existing ties and develop new connections with various industries. At the same time, with the help of a multidisciplinary energy simulation game and other courses, we intend to integrate further into the university's curriculum and establish contact with students. Nurturing new researcher generations in the energy field will also be one of our targets in 2022. Given the high-quality research proposals from the October call, CNESS plans another seed funding opportunity for this year. An additional call for funding to support incoming and outgoing researchers is planned for summer/autumn, but more detailed information will be available in the near future. Our website and newsletter remain the best place to learn about our upcoming events, calls and other developments.

## Recently published papers

Valta J., Mäkinen S.J., Kirjavainen J., 2021. Dialectic tensions driving niche creation – A case study of a local energy system. *Environmental Innovation and Societal Transitions*, 42, 99-111.

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