

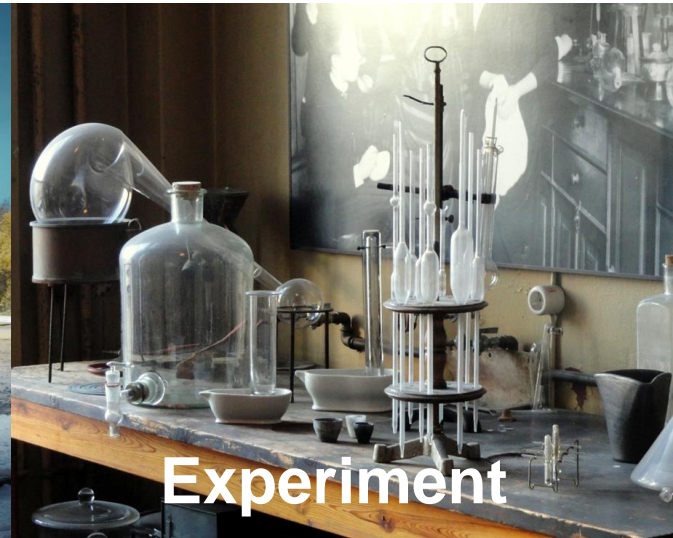
# Living labs in a zero emission neighbourhood context

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# What is a ZEN living lab?



# Why do we need living labs?

*To gain experience, demonstrate and test ideas – Marvin et al. 2018.*

*Experiments are: a means of making sense of the present whilst also providing a vision of the future - Bulkeley et al. 2018.*

## Campus Evenstad: The faculty of applied ecology, agricultural sciences and biotechnology



# The experiment: a low-tech action

Built in 1987, 3 floors and 4 ventilation systems.  
Heating and ventilation was shut down from  
1st July – 1st August 2018.

## Energy was saved

12 000 kWt (or 12 MWt) were saved, during the  
four-week period. There was approximately  
12,000 kWt greater energy consumption in the  
building in August compared with July. This is  
due in part to the shutdown of the ventilation  
system, but it is also due to higher activity in the  
building in August.



**The old administration building**

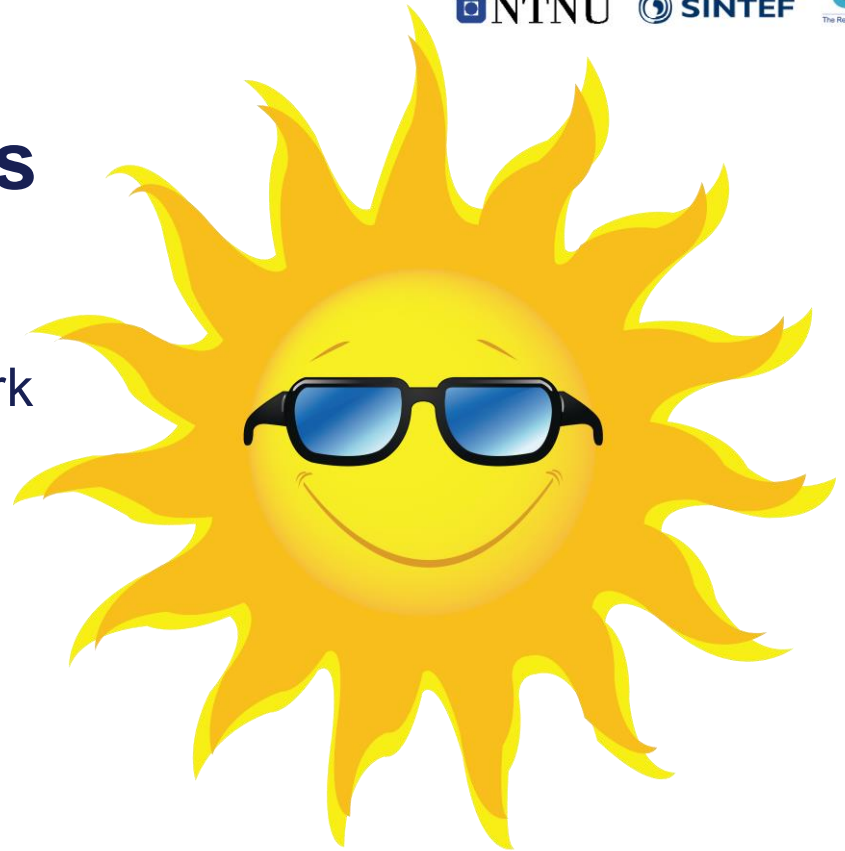
# Limitations and potentials associated with the experimental format

Overview of ethnographic activities, time-frame and roles associated with the experiment in the old administration building

Action	Role	Number of participants
ZEN partner workshop	ZEN partners, technical management Evenstad, Campus administration, ZEN researchers	Ca. 50 people
Living lab week 05.03-08.03.2018 Lectures, workshops and four interviews	Campus administration, scientific personnel, students, technical management, ZEN researchers	Ca. 27 people
Questionnaire	Campus administration, scientific personnel, students, technical management, ZEN researchers	17 people
Meeting 22.05.2018	Campus administration, technical management, Statsbygg, ZEN researchers	12 people
Workshop with site visit in the old administration building 23.05.2018	Campus administration, scientific personnel, technical management, ZEN researchers	10 people
Experiment in the old administration building 01.07 - 01.08.2018	Technical management, scientific personnel and others with offices in the building	Ca. 20 people
Interviews: skype and face to face November 2018	Scientific personnel with offices in the building	9 people (Offices 1-7 and Librarian 1-2)
Participant observation 12.-16.11. 2018	Office in the old administration building	Informal meetings, coffee breaks, lunch, 2-5 participants

# The impact on users

- Temporary offices
- Summer holidays & fieldwork
- The hottest summer on record



# The old administration building

*“There is a great difference between summer and winter. I can regulate the temperature myself in the winter. In the summer I can regulate early in the morning until the sun starts burning through the window. I had a thermometer in the office (August) and around lunch time it’s about 30 degrees. The solution during the summer is to go home, but it is often not possible to go home. We have tried to create an air-flow by opening doors. I often leave the window open when I go home, in the morning I close it and lower the sun screening. Birds have come into the office twice.”*





## ZEN's relevance

*“The two things complement each other. Here on campus we could produce food and deal with waste products for a zero-emission neighbourhood..... I have never been involved in any brainstorming. It is very technical and outside our field, but ecosystem services are within it. There ought to be some kind of collaboration.”*

**A missed opportunity**

# Intangible results

## «What's in it for us?»

- Limited interest outside the ZEN stakeholders involved in developing zero emission technology.
- Primarily a top-down process.
- Results should be relevant for the neighbourhood's users.
- A broader interdisciplinary focus is required.

**Thank you!!**  
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