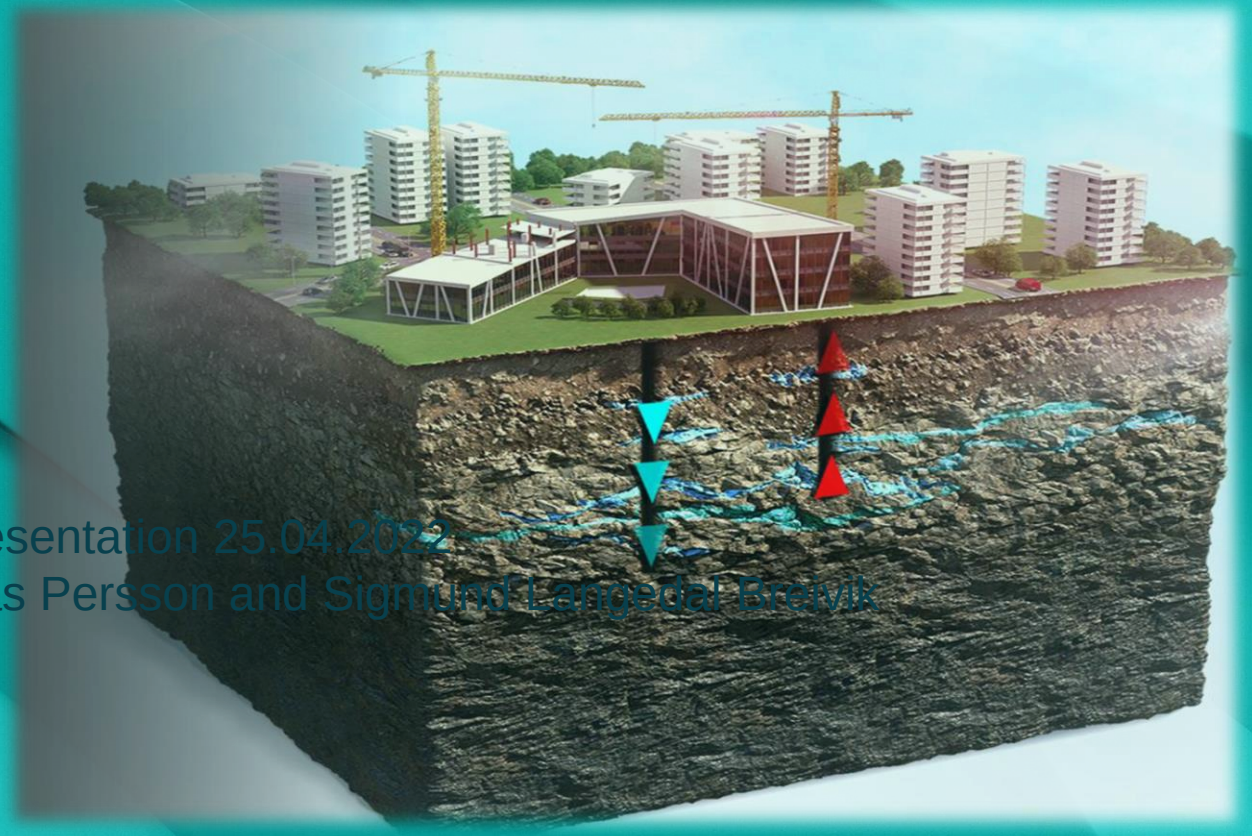


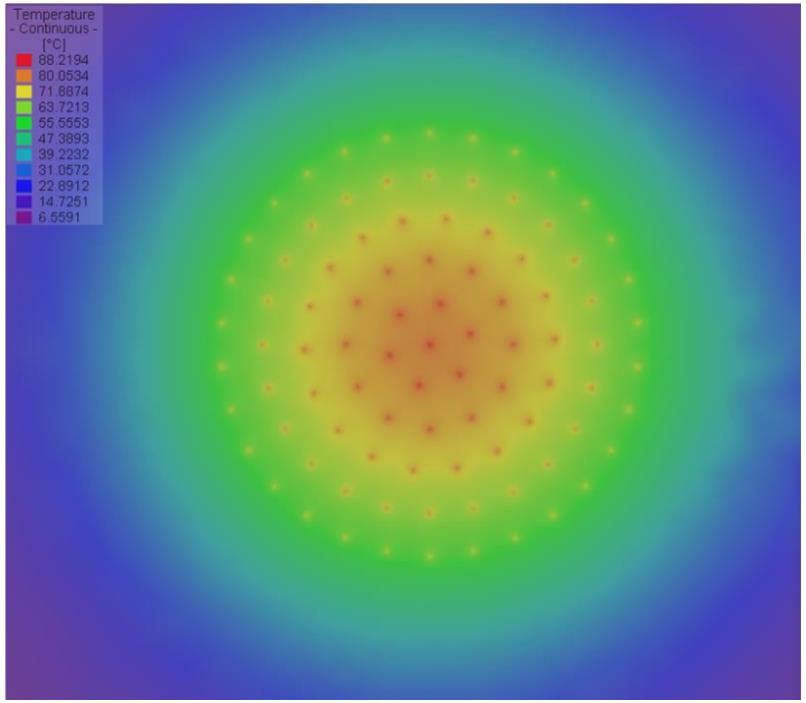
Presentation 25.04.2022
Clas Persson and Sigmund Langedal Breivik

Furuset
Seasonal Heat Storage

Presentation 25.04.2022
Clas Persson and Sigmund Langedal Breivik

Agenda

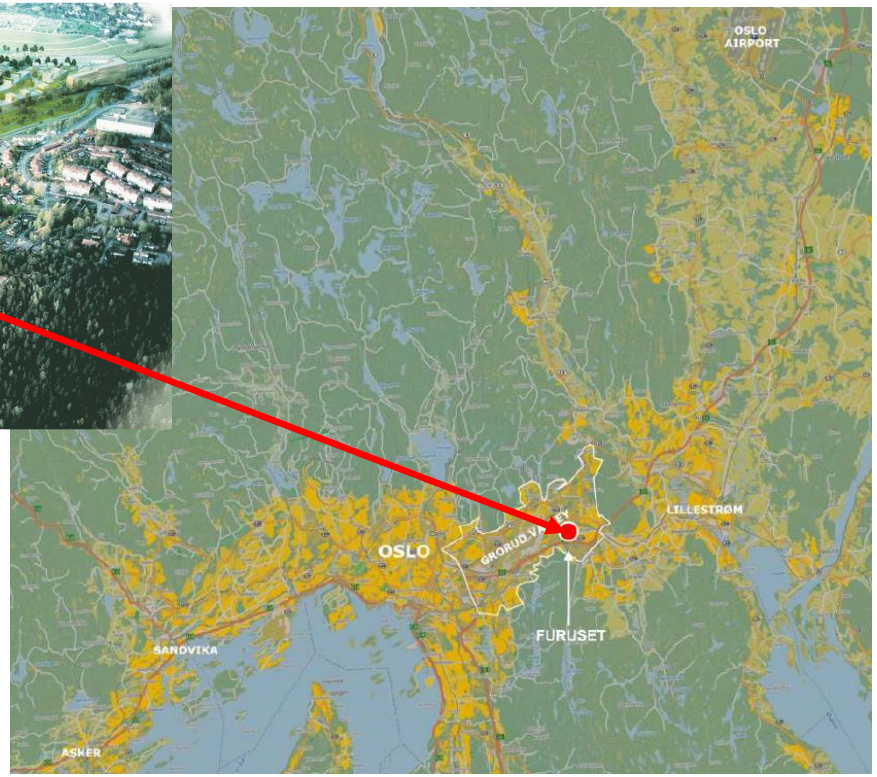
1. Background and history
2. Seasonal storage - how does it work?
3. Placement/Location
4. On going works
5. Milestones/ time plan



History

- **Location**
  - Upgrade the suburb of Furuset as part of the Groruddalen Investment.

- **Area of priority for Oslo municipality**
  - 1700-2300 new residential flats and commercial buildings
  - 2000-3400 new work possibilities in the area.
  - Celsio has worked with the municipality and others for a long time.



2010
Oslo municipality initiates a transformation project of the suburb Furuset

2014
HV is invited by Oslo municipalities to discuss Furuset thermal energy system

2015
Internal FOV project to identify thermal energy solution at Furuset

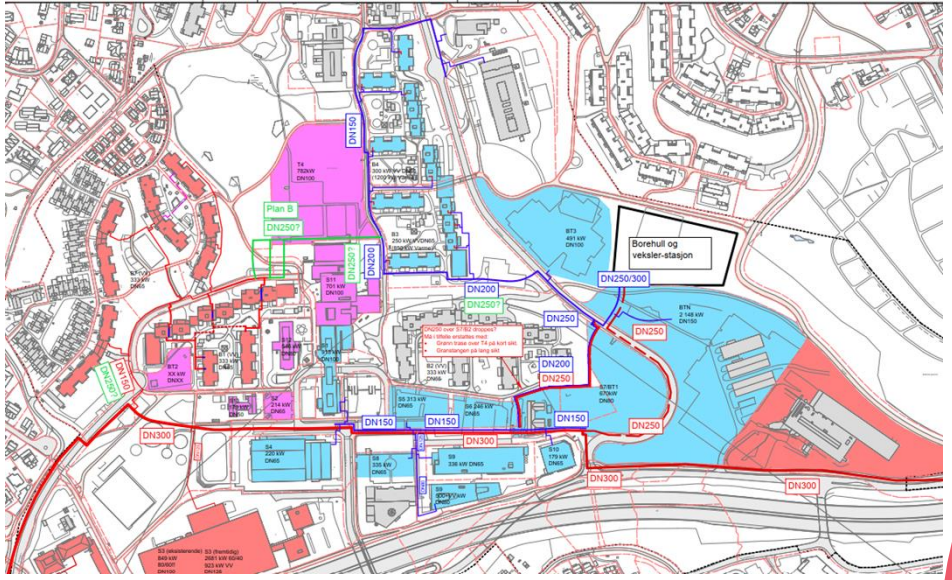
2016
Oslo, Toulouse and Seville initiate a consortium to apply for H2020 funding. Furuset represent the main case in the project

2017
H2020 application is rejected

2017
Furuset micro energy system project is initiated by Klimaetaten. New dedicated project manager

2018
The Furuset project decides to apply for a new ENOVA support scheme focused on large scale demo projects

2019
The project is granted 37 MNOK ENOVA support



DH network

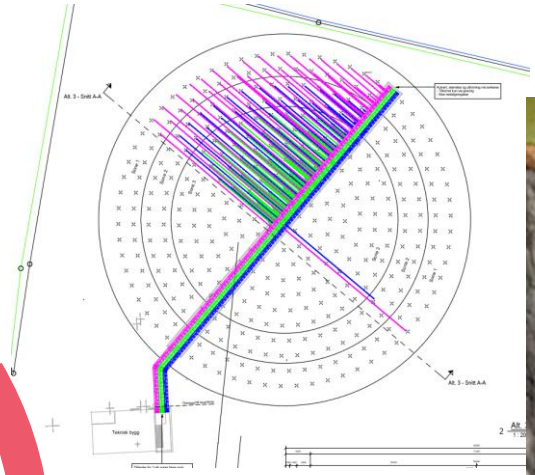
400 Energy wells

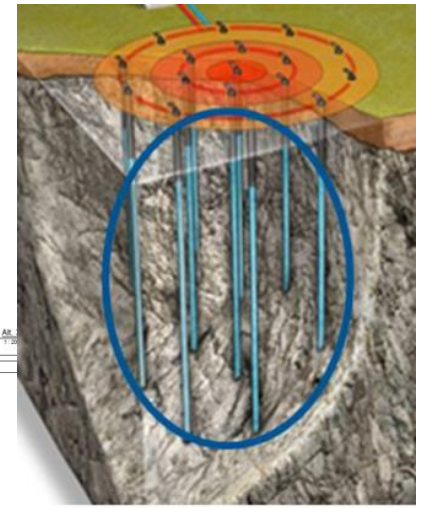
Seasonal storage, how does it work?

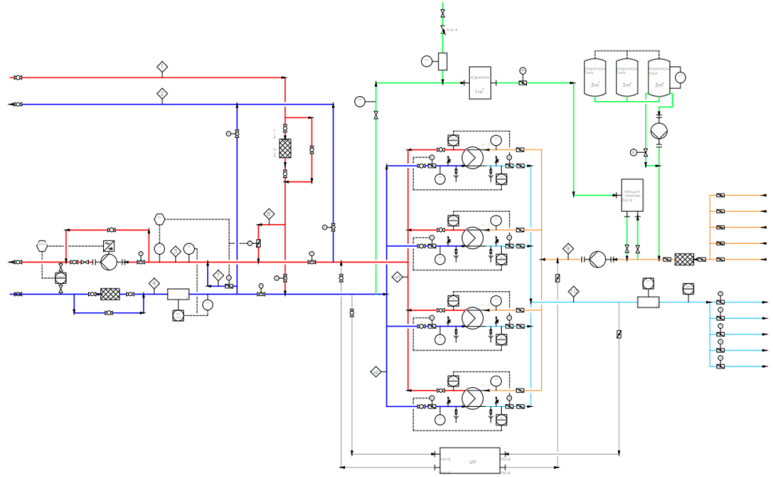
Re-used heat

Heating costumers

Surpluss heat

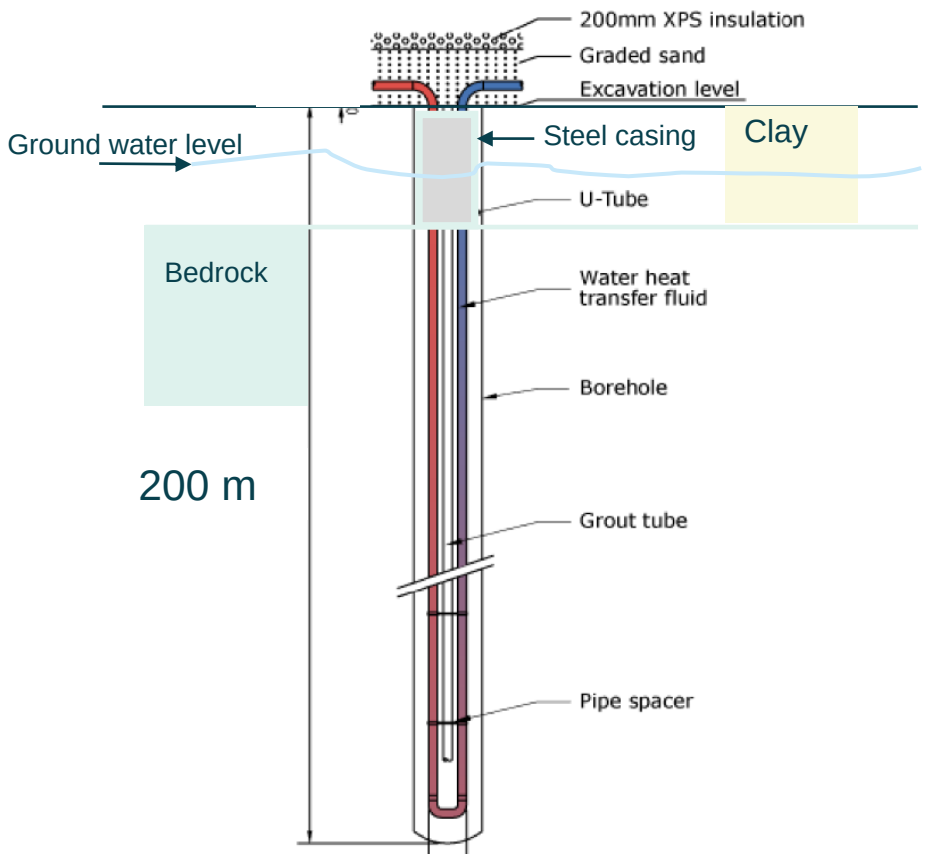




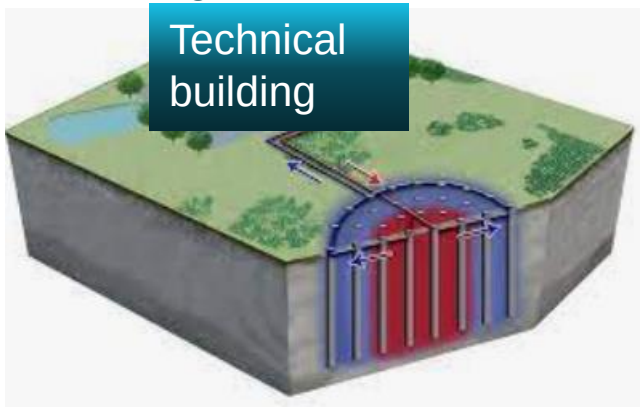


Closed loop system

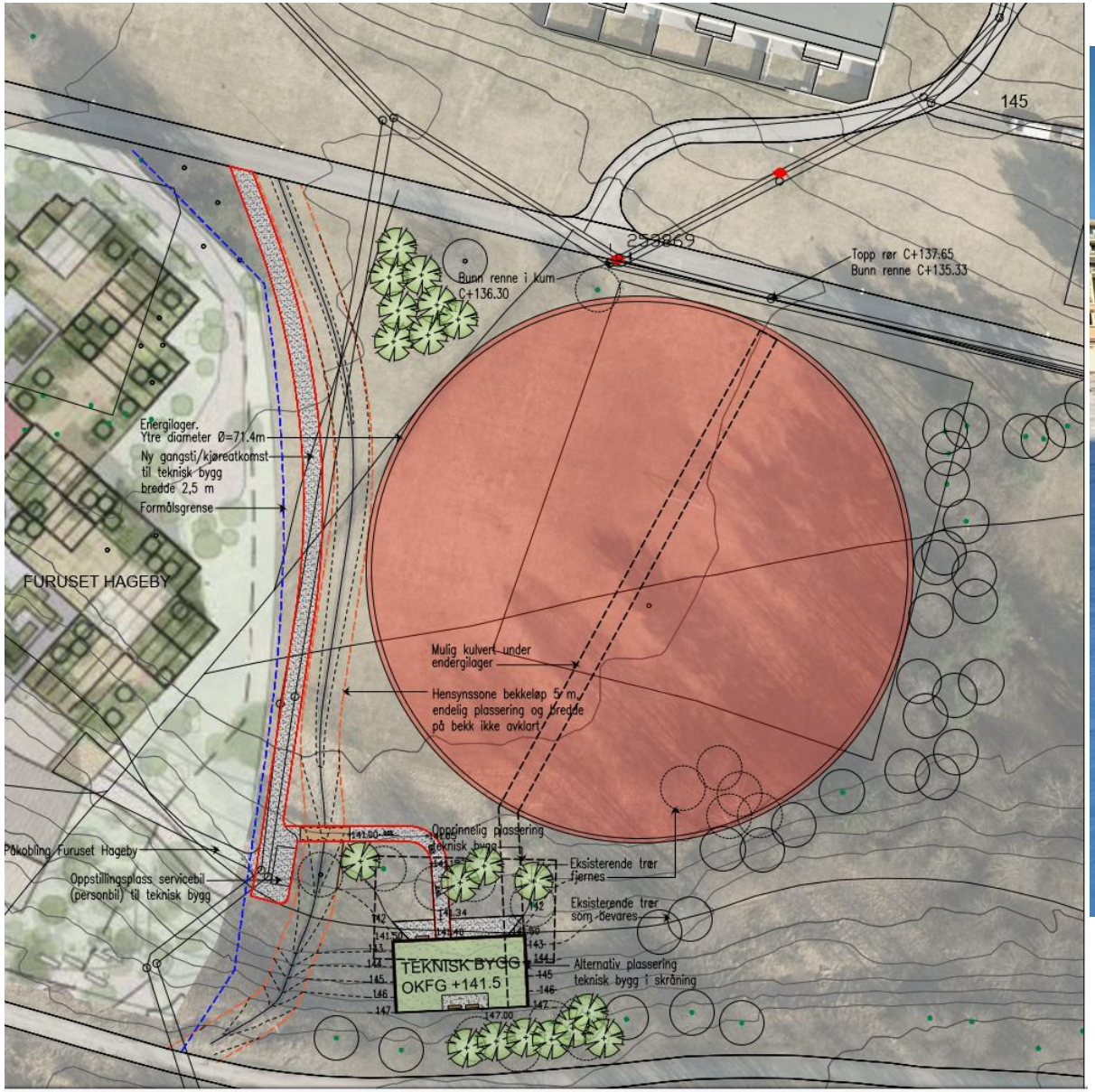
Energy well



Energy wells in three zones with three manifolds connected to a technical building



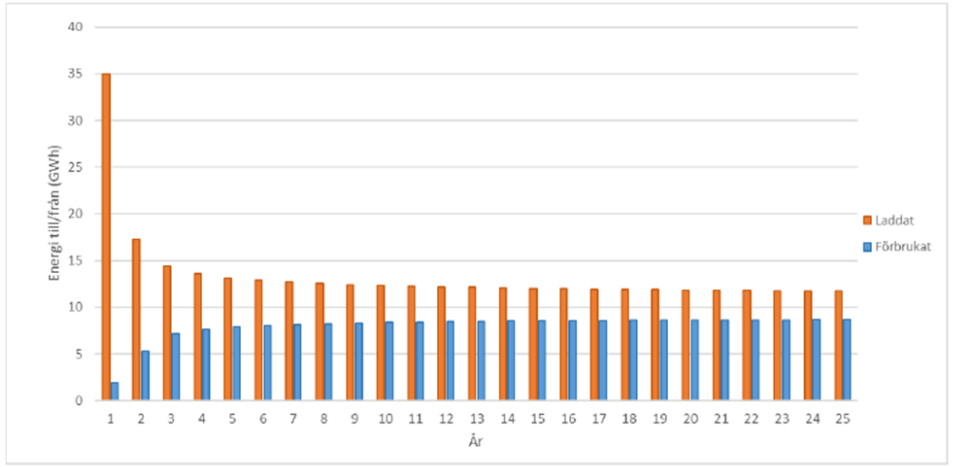
Placement energy storage



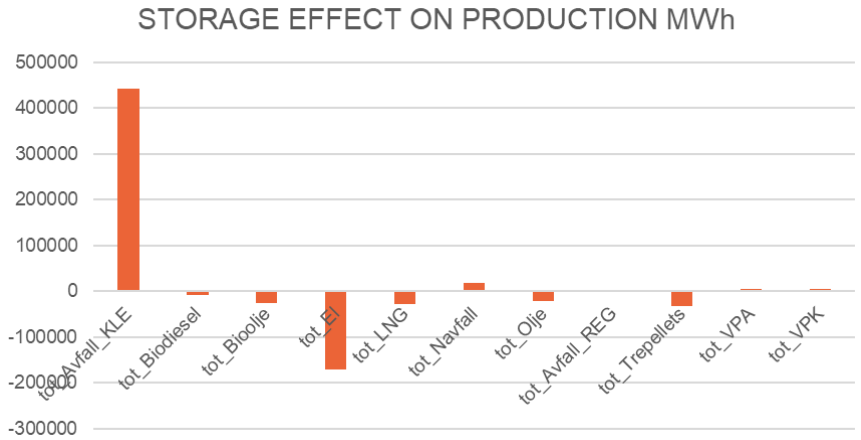
Placement technical building

Simulation results – potential

Old

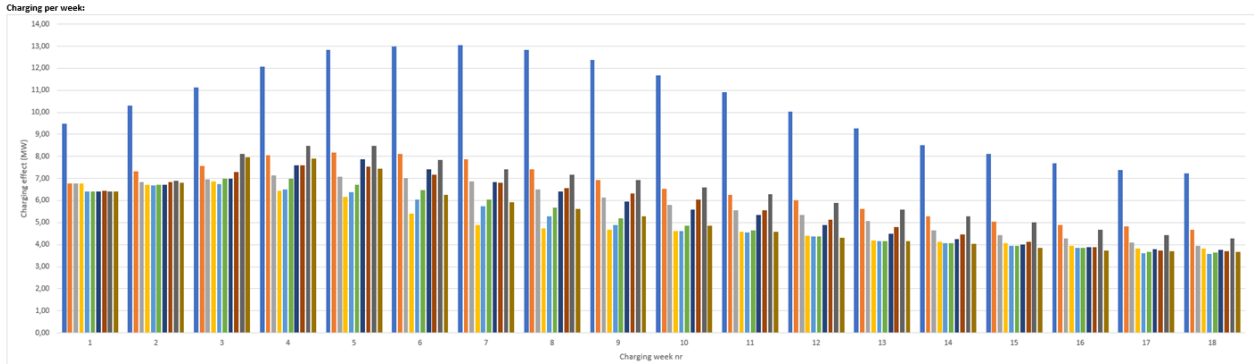


Transys charging and discharging

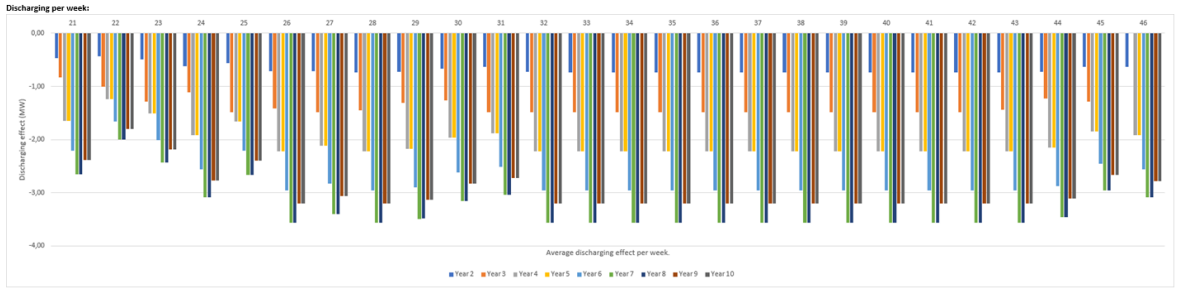


Mona simulations 30 years

New



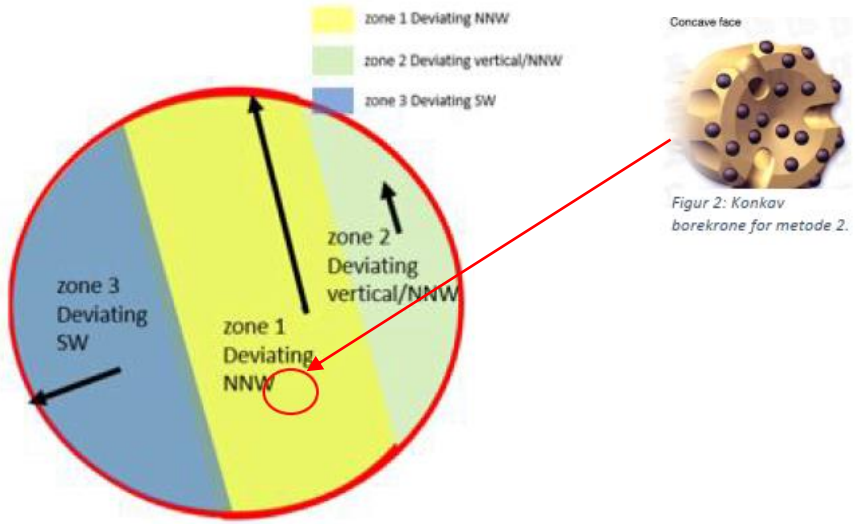
Feflow charging



Feflow discharging

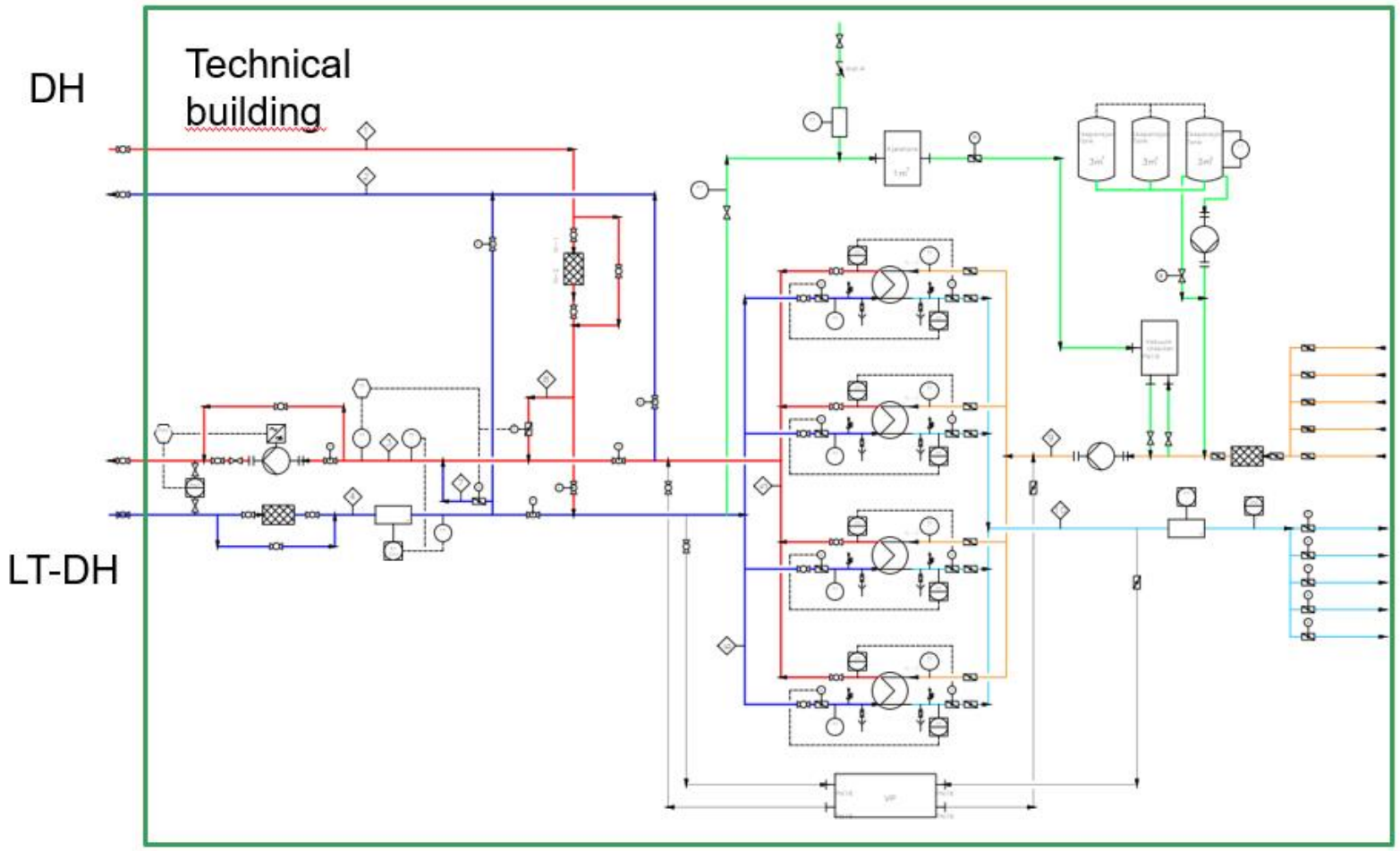
Clarifications

1. Drilling technology
2. Collector type and quality
3. Grouting for reducing cracks in bedrock
4. Measuring research or normal operational
5. Manifold solution and flow and returns

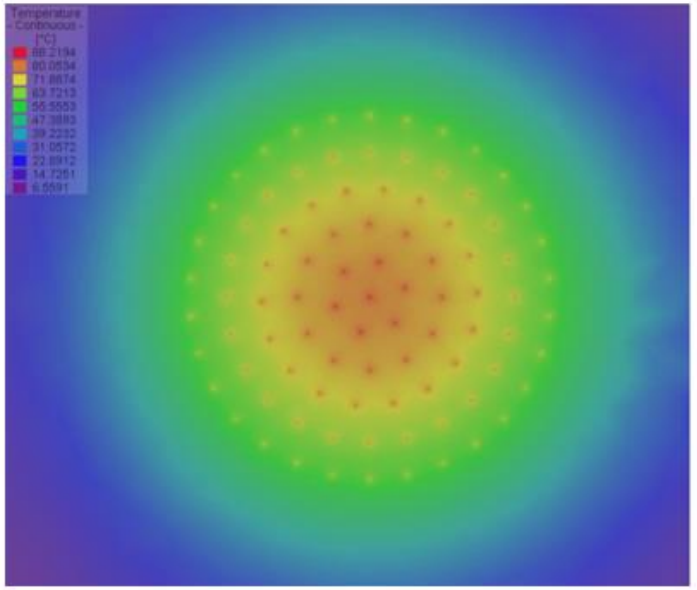


Figur 2: Konkav borekrone for metode 2.

Energy flows inn and out of storage

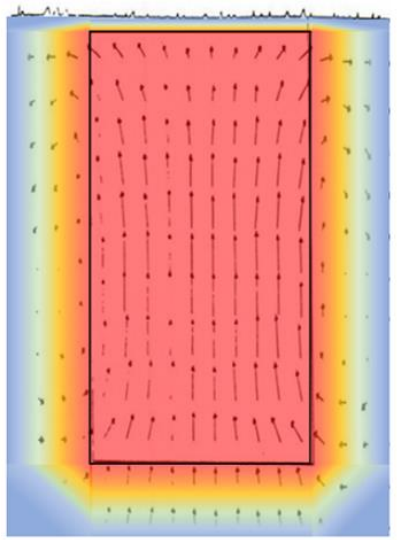


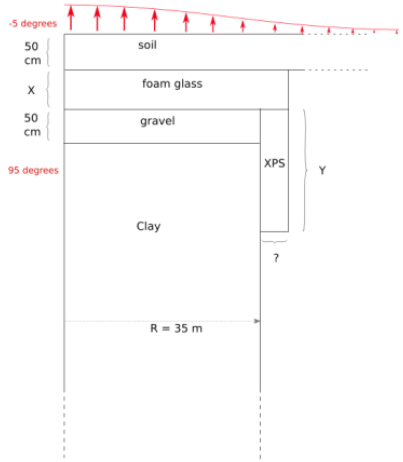
Storage

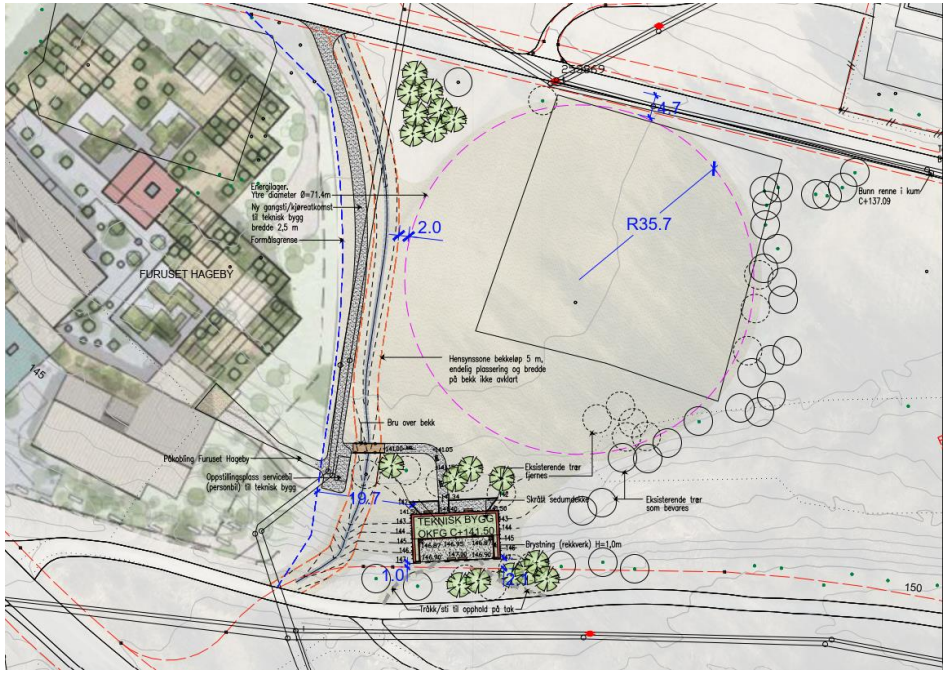


Challenges new technology

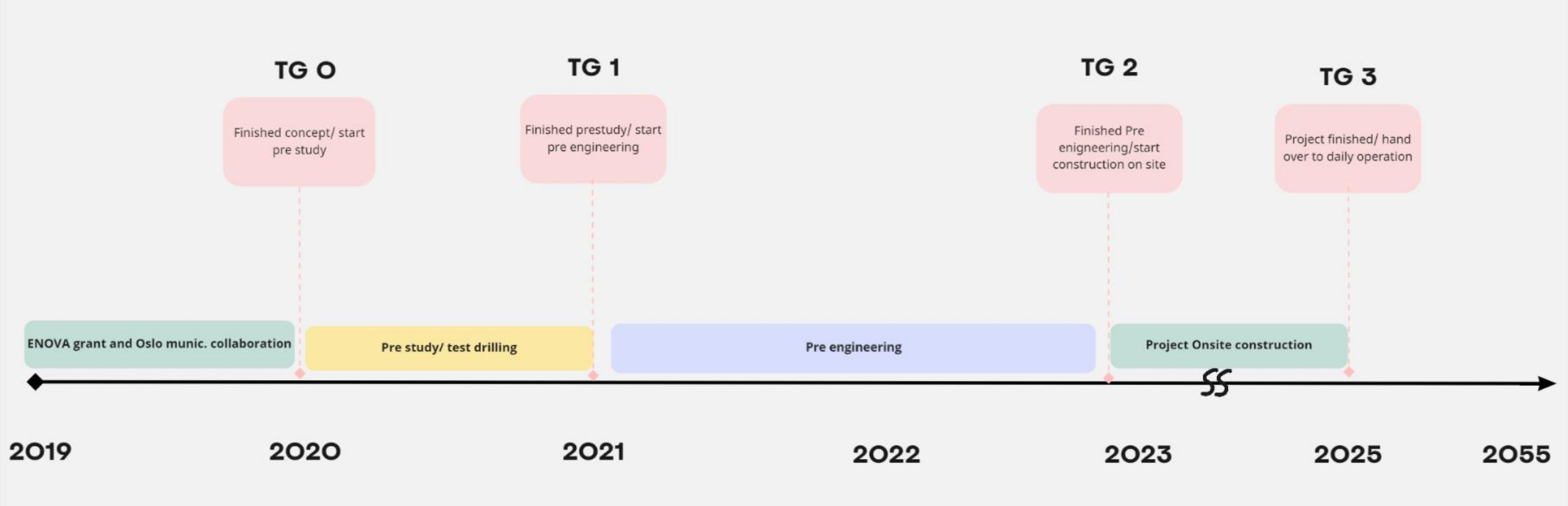
- Heat transfer to surroundings
- Clay ground when heated
- Snow melt
- Isolation
- Conservation of trees
- Oslo municipality
- Bidders and tenderers







Milestones


TG 0
Finished concept/ start pre study
TG 1
Finished prestudy/ start pre engineering
TG 2
Finished Pre enigneering/start construction on site
TG 3
Project finished/ hand over to daily operation
ENOVA grant and Oslo munic. collaboration
Pre study/ test drilling
Pre engineering
Project Onsite construction
2019
2020
2021
2022
2023
2025
2055

Conculsion

- Developing a new solution
  - Takes time
  - Difficult to price/ and assess the risk
  - You don’t know what you don’t know
    - (challenges show up late in the project)

- But a successful project will put Oslo in the forefront of geo energy storage and is a great possibility to build larger seasonal storages in the future with bigger impact.