

Two Approaches of Seasonal Heat Storing:

Pit Heat Storage and Borehole Thermal Energy Storage

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Agenda

- Borehole thermal energy storage in Braedstrup
 - Design and implementation
 - Preliminary measuring results
- Pit heat storage in Marstal
 - Design and implementation
 - Preliminary measuring results
- Key figures and conclusions



Borehole thermal energy storage in Braedstrup

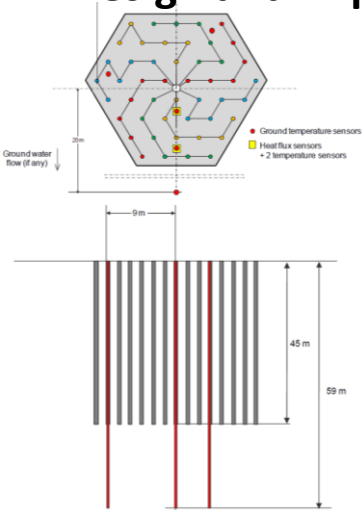


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Design and implementation, Braedstrup



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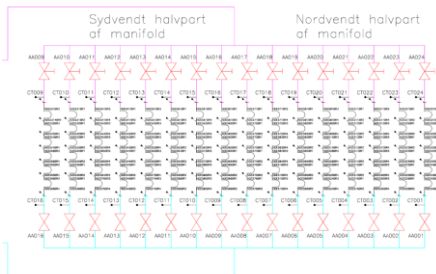
Design and implementation, Braedstrup



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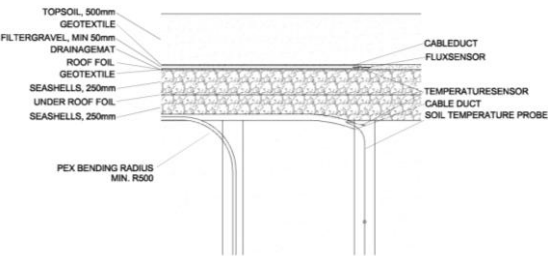
Design and implementation, Braedstrup



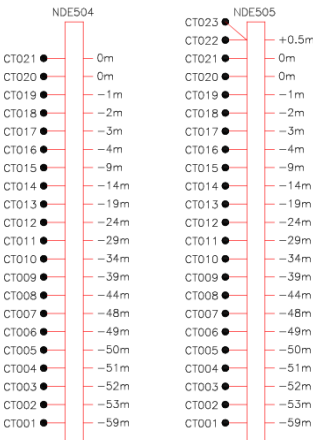
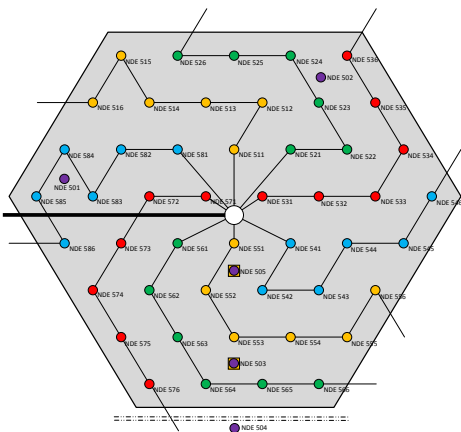
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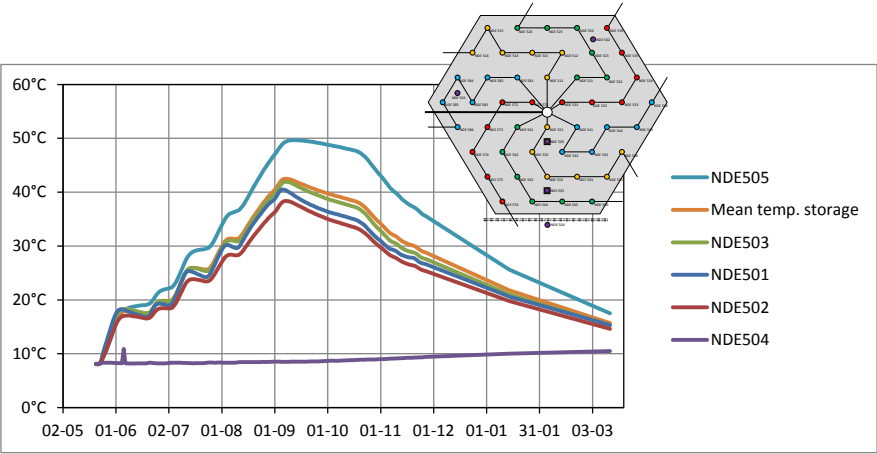
Design and implementation, Braedstrup



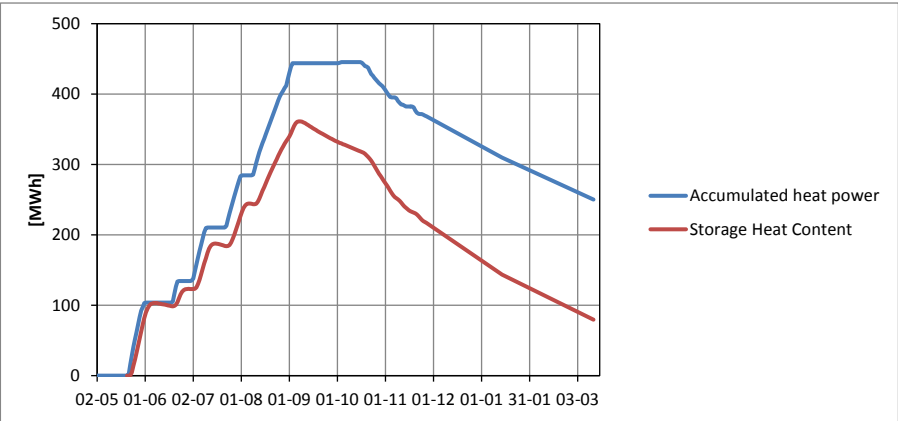
Preliminary measuring results, Braedstrup



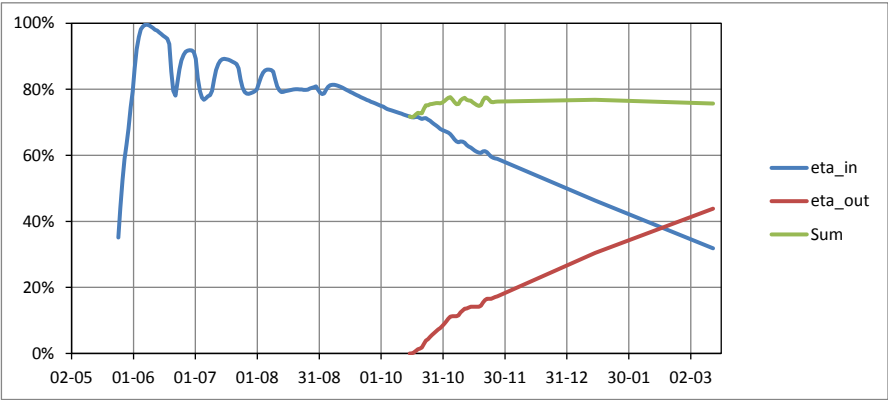
Preliminary measuring results, Braedstrup



Preliminary measuring results, Braedstrup



Preliminary measuring results, Braedstrup



Pit heat storage in Marstal



Design and implementation, Marstal



Design and implementation, Marstal



Design and implementation, Marstal



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Design and implementation, Marstal



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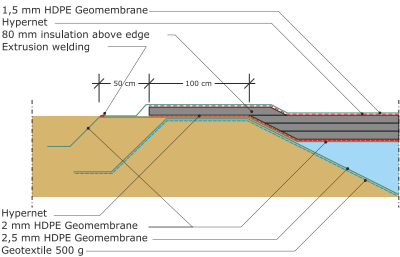
Design and implementation, Marstal



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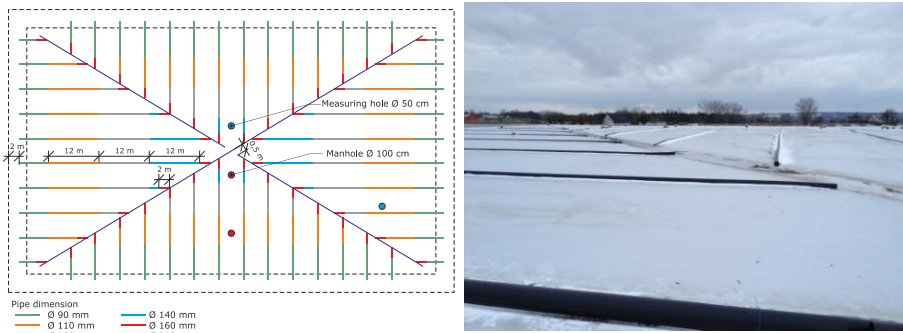
Design and implementation, Marstal



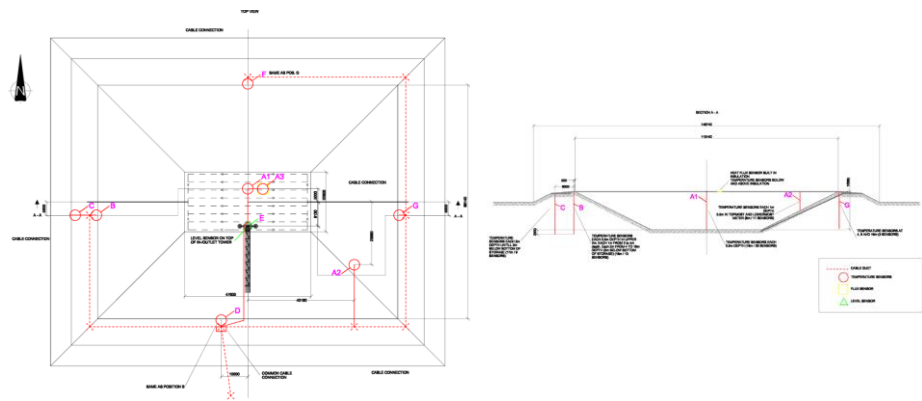
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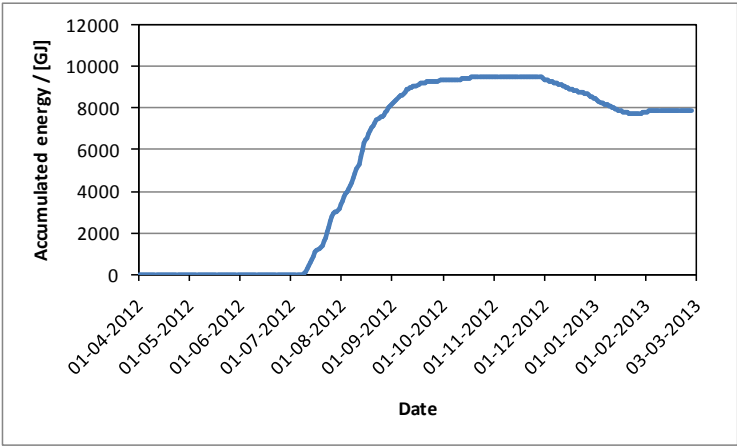
Design and implementation, Marstal



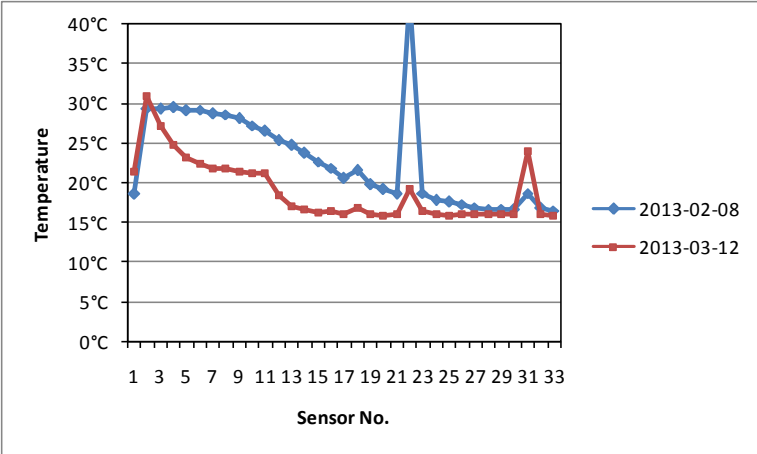
Preliminary measuring results, Marstal



Preliminary measuring results, Marstal



Preliminary measuring results, Marstal





Key Figures and conclusions

	Borehole Storage, Braedstrup	Pit Heat Storage, Marstal
Size:	19 000 m³ soil / 5 000 – 10 000 m³ water eq.	75 000 m³ water
Prize:	240 000 € (13 €/m³ soil) (24 - 48 €/m³ w _{eq})	2.4 M€ (32 €/m³)
Heat supplied to the storage during first part season:	445 MWh	2 640 MWh
Heat recovered from storage during first part season:	195 MWh (44%)	472 MWh (18%)
Biggest implementation challenges experienced:	Precise soil conditions unpredictable	Very weather dependent
Sponsors:	Energinet.dk and EUDP	EC 7 th framework



Thank you for your attention

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