

Integrating SDH in urban planning

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HORSENS KOMMUNE

What's it all about

- Integrating SDH in Urban planning
 - The overall strategic energy planning in the municipality of Horsens (short version)
 - Background - Brædstrup District Heating (BDH) and their solar profile
 - The environmental assessment and planning process
 - Questions





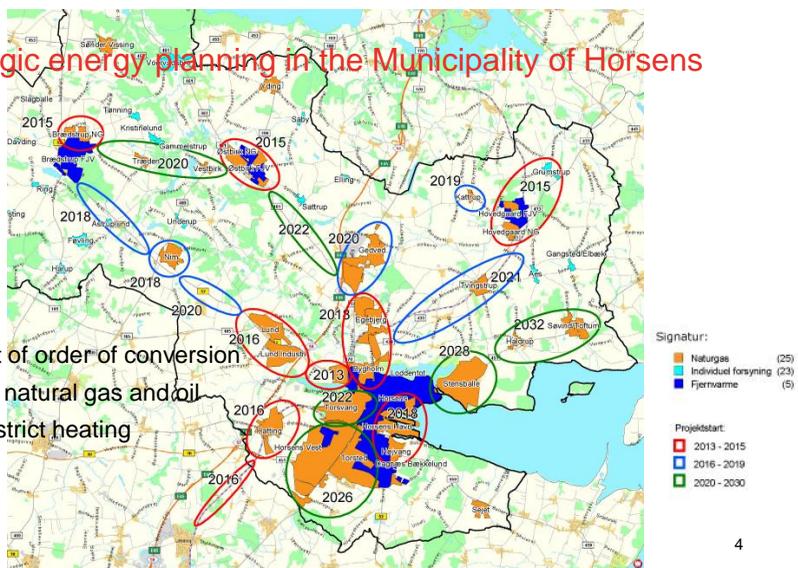
Strategic energy planning in the Municipality of Horsens

- In the process of making a strategic energy plan
- The framework for the strategic energy plan is the National Danish energy- and climate goals (excerpts)
 - 30 % renewable energy in total by 2020 (will be 35 %)
 - 100 % renewable energy in electricity and **heat** by 2035
 - 100 % renewable energy in total by 2050
- And the fact, that
 - no new areas can use gas as collective heat supply by 1st januar 2013



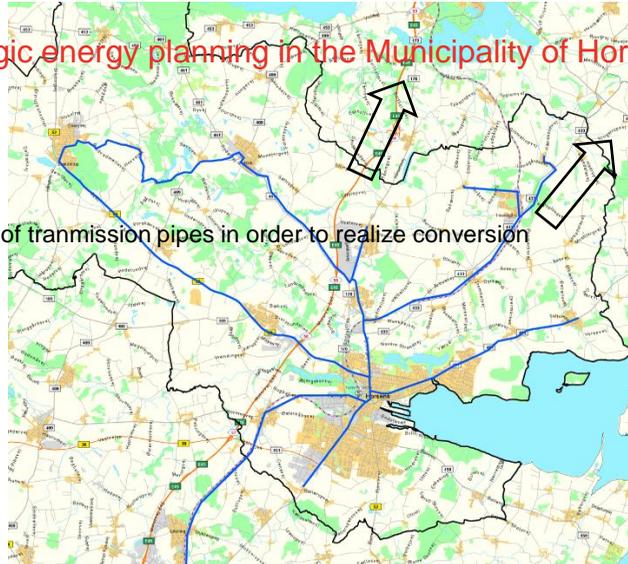
Strategic energy planning in the Municipality of Horsens

- Draft of order of conversion from natural gas and oil to district heating





Strategic energy planning in the Municipality of Horsens

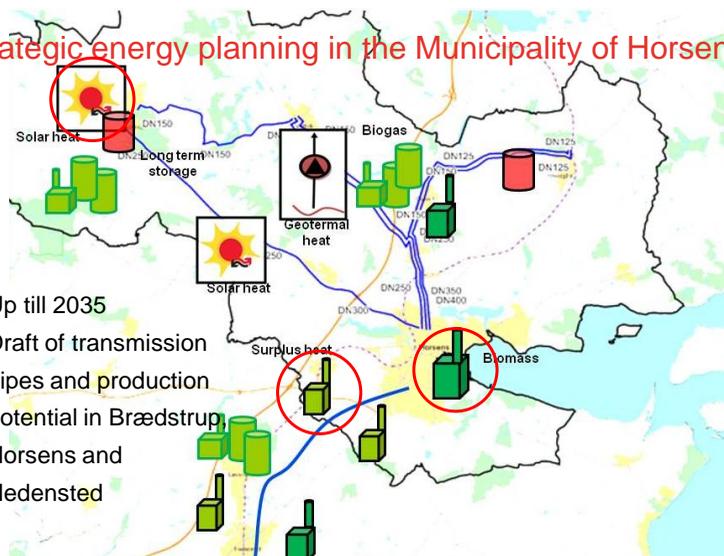


- Draft of transmission pipes in order to realize conversion

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Strategic energy planning in the Municipality of Horsens

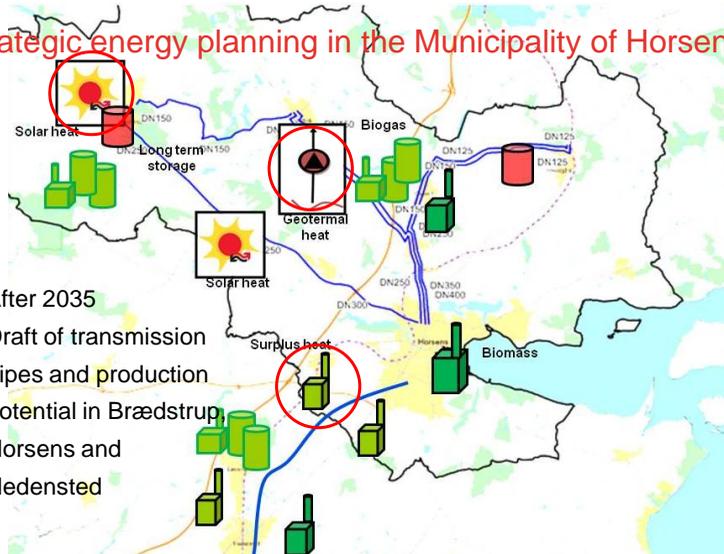


- Up till 2035
- Draft of transmission pipes and production potential in Brædstrup, Horsens and Hedensted

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Strategic energy planning in the Municipality of Horsens



- After 2035
- Draft of transmission pipes and production potential in Brædstrup, Horsens and Hedensted



Brædstrup District Heating

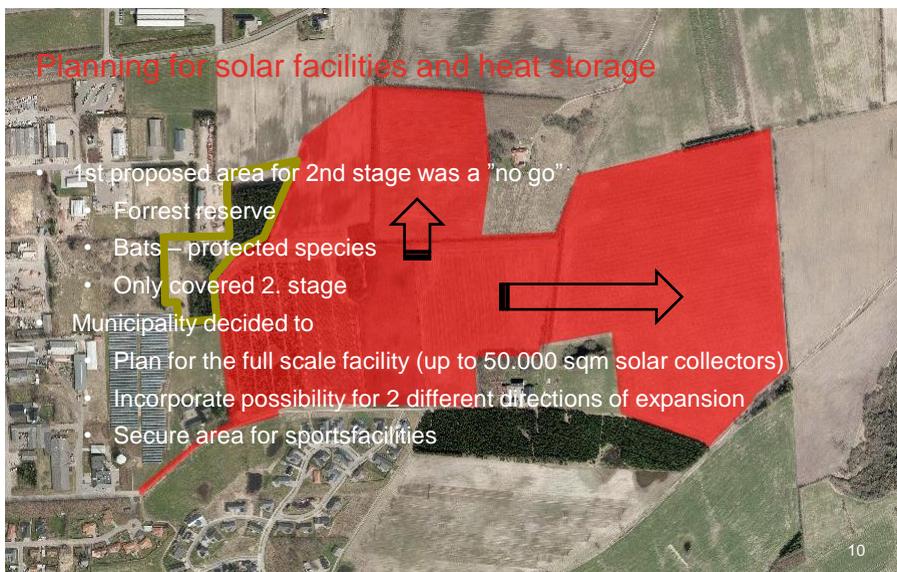
The aerial view shows the Brædstrup district heating facility, a large industrial building complex circled in green. The surrounding area includes residential streets like ØSTERVANG, ØSTERLEED, and ØSTERVANG, and agricultural fields.

- Located in Brædstrup (3.500 inhab.) in the west of the municipality
- 1.450 costumers – 96 % coverage with DH.
- 1st stage of solar adventure established 2007
 - 8.000 sqm of solar collectors
 - Covering approx. 10 % of heating demand i Brædstrup
 - 1st. major facility i DK and at the time the worlds largest facility of it's kind!
 - Vision and foresight!



Brædstrup District Heating - Onwards

- In march 2010 - request for an expansion including
 - 2nd stage of additional 10.600 sqm of solar collectors
 - A borehole for seasonal heat storage (summer production - winter use)
 - Vision for a 3. stage with a total solar collector facility of up to 50.000 sqm...
 - 2015?





Planning for solar facilities and heat storage

- New 2. stage project area: groundwater interests and a small nature reserve. Part of area for leisure and recreation – sportsfacilities
- 3. stage project area: groundwater interests (only partly), a protected stone- and earth dike and two plowed over burial mounds

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Planning for solar facilities and heat storage

- EU directive 85/337 implemented in Danish law
- VM (EIA – Law on Environmental Impact Assessment)
- EIA – thorough (detailed) assessment of specific plants/facilities
- Involve public and provide good basis for political decision
- Assessment not mandatory in this case - Project screened
- Screening result: Environmental impact not significant – no environmental assessment needed

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Planning for solar facilities and heat storage

- However.....
- EIA not the only environmental assessment
- Law of Environmental Assessment of Plans and programs (EAP)
- EAP was mandatory

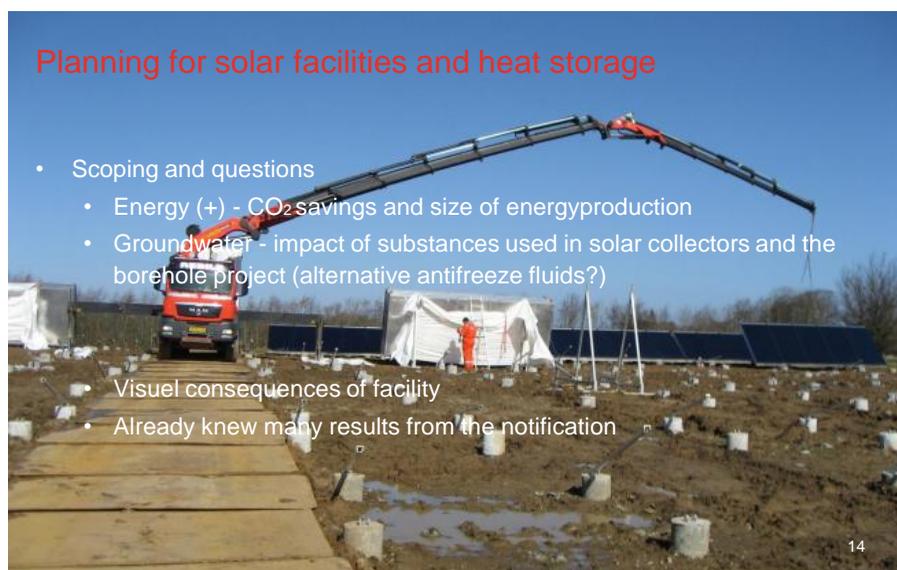


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Planning for solar facilities and heat storage

- Scoping and questions
 - Energy (+) - CO₂ savings and size of energyproduction
 - Groundwater - impact of substances used in solar collectors and the borehole project (alternative antifreeze fluids?)
- Visual consequences of facility
- Already knew many results from the notification



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Planning for solar facilities and heat storage

- Conclusions from the environmental assessment (EAP):
 - Displace 9.000 ton CO₂ and produce 20.000 MWh (approx.)
 - 20-40 times the amount of energy pr. hectare compared to energy crop
 - Antifreeze considered environmentally harmless
 - Only decalcified water and bentonite (clay) used in seasonal heat storage
 - No significant visuel impact





Planning for solar facilities and heat storage

- "Local plan" parallel to EAP
- The Local plan is a local "law" that
 - Defines the future use of the area
 - Defines provisions in relation to
 - Facilities - extends, heights, appearance etc.
 - Access - roads, paths etc.
 - Plantings - trees, hedge plantings etc.
 - Terrain modulation
 - Etc...



Planning for solar facilities and heat storage

- Primary focuspoints for the plan for Brædstrup Sunpark
 - Secure planting of hedges
 - Reduce visibility of the facility
 - Determine species for heights, fauna and autumn colours
 - From terraced landscape to point-foundation following landscape topology
 - Preserving protected nature, stone- and earth dike and burial mounds
 - Securing public access and area for sportsfacilities
 - Anti reflex glass - lower visibility



Planning for solar facilities and heat storage



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Planning for solar facilities and heat storage



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Planning for solar facilities and heat storage

- In the hearing procedure the municipality received 3 responses
 - New hedges
 - Optional hedges
 - Precision of access
- Finally the facility got
 - A permission to use the antifreeze on basis of EAP
 - Monitoring
 - Building permit
- Conclusion: Is it difficult to plan for solar facilities?

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Thank You!

Yesterday

today

Tomorrow?

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