



**1st WaterMan & ERB Water Core Group Dialogue Forum
Potentials & challenges of Water Reuse in the Baltic Sea Region**

November 8, 2023

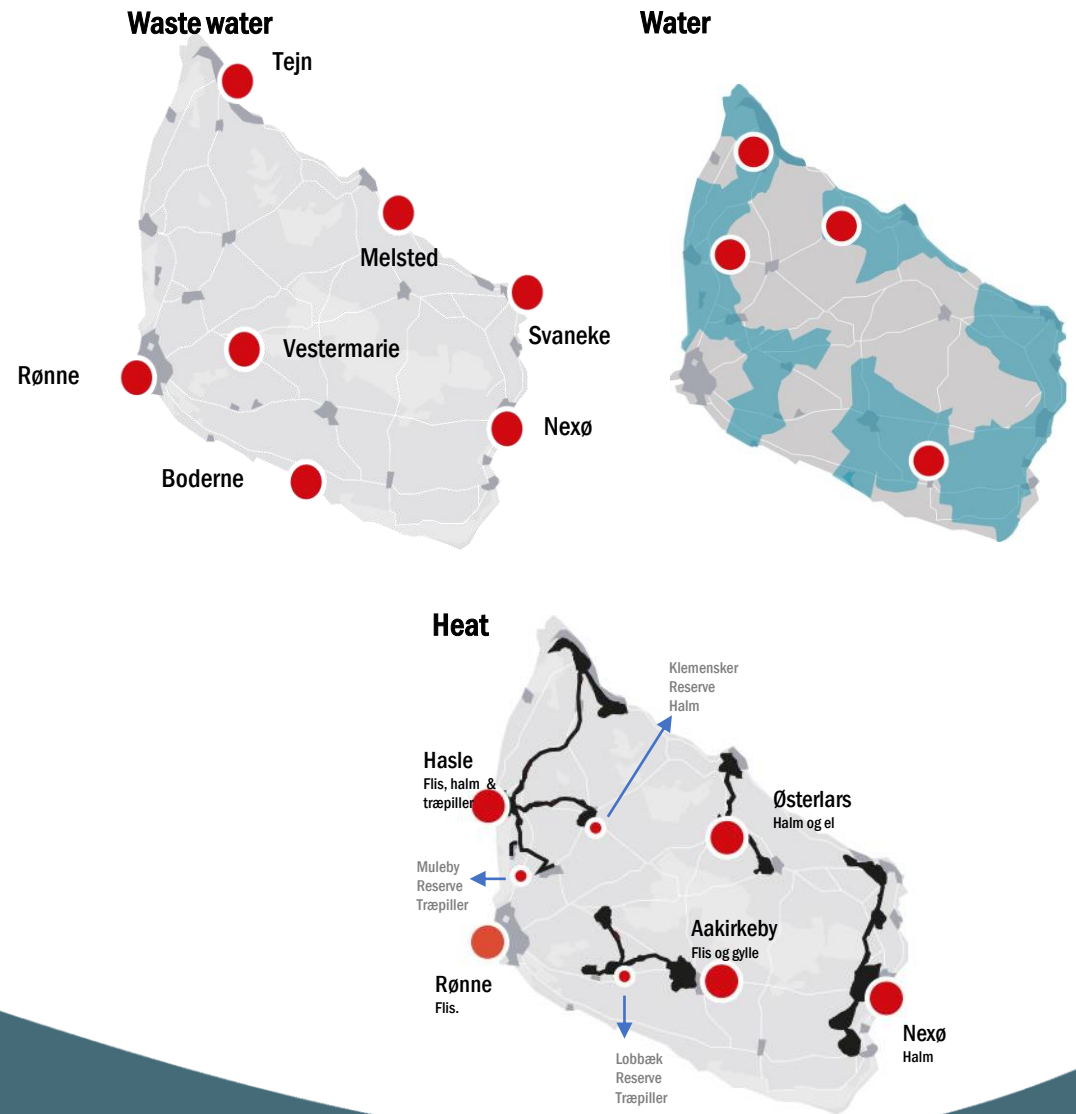
Agenda

- Welcome to Bornholm's Energy & Utility Co.
- Water ReUse in a local context





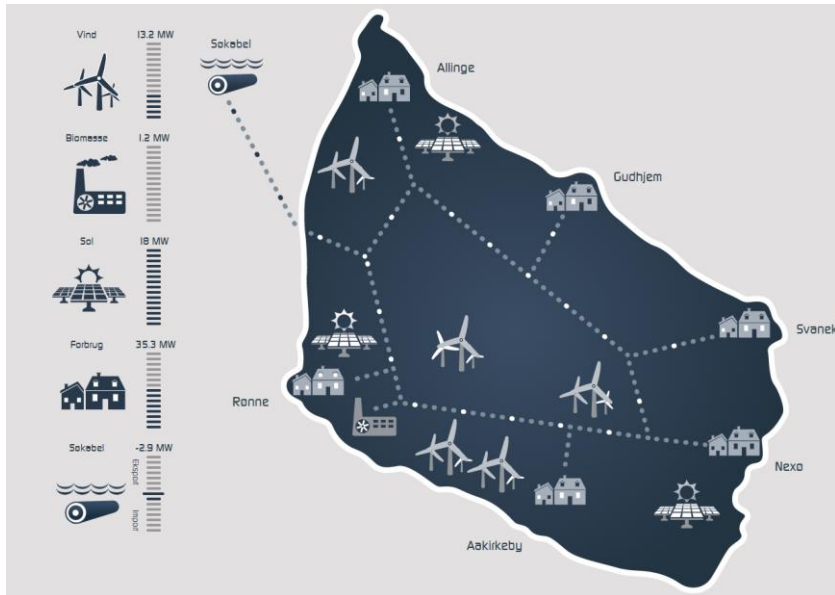
- Bornholms Vand A/S
- Bornholms Varme A/S
- Bornholms Energi A/S
- Bornholms Elproduktion A/S
- Bornholms Spildevand A/S
- Bornholms Energi & Forsyning A/S



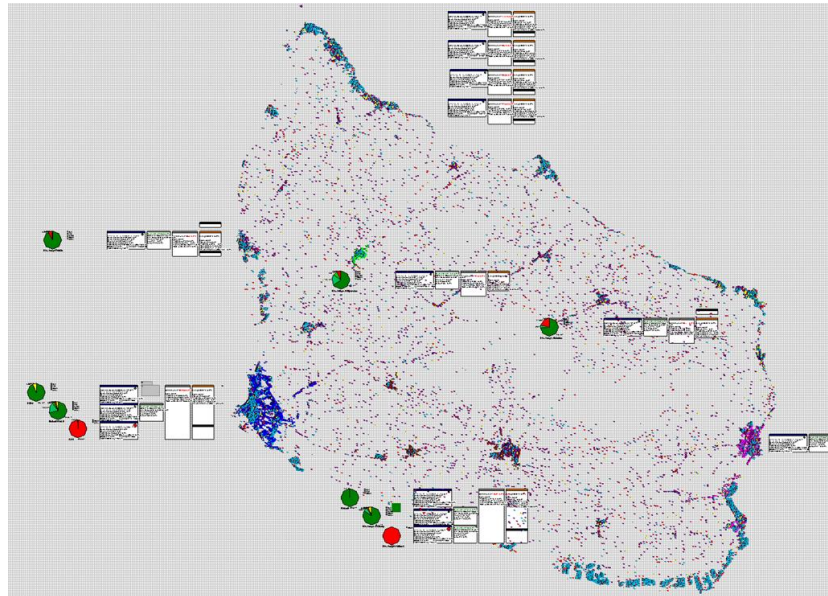
TEST ISLAND BORNHOLM

A UNIQUE VALUE PROPOSITION

Powerlab.dk



Simulation model of Bornholm



Bornholm as model and living lab for 10+ years

Valued partner in a large project portfolio with a total budget of app. €160 million euro.

Unique data driven platform

2016: EU Sustainable Energy Awards.

2019: Most responsible Island Prize (European Commission)

2023: "Flexibility Heat Grid Bornholm" won Energy Cluster Denmark's innovation prize

OUR STRATEGIC GOAL: CLEAN WATER FOR FUTURE GENERATIONS





AREAS OF SPECIAL INTEREST (GROUND WATER)

Water production
~3.5 M m²/year

Sewage water treatment
~6 M m²/year

Storm water spillover
~0.5 M m²/year

Water ReUse in a local context

(two examples)



ENERGY ISLAND BORNHOLM

THE BIG PICTURE

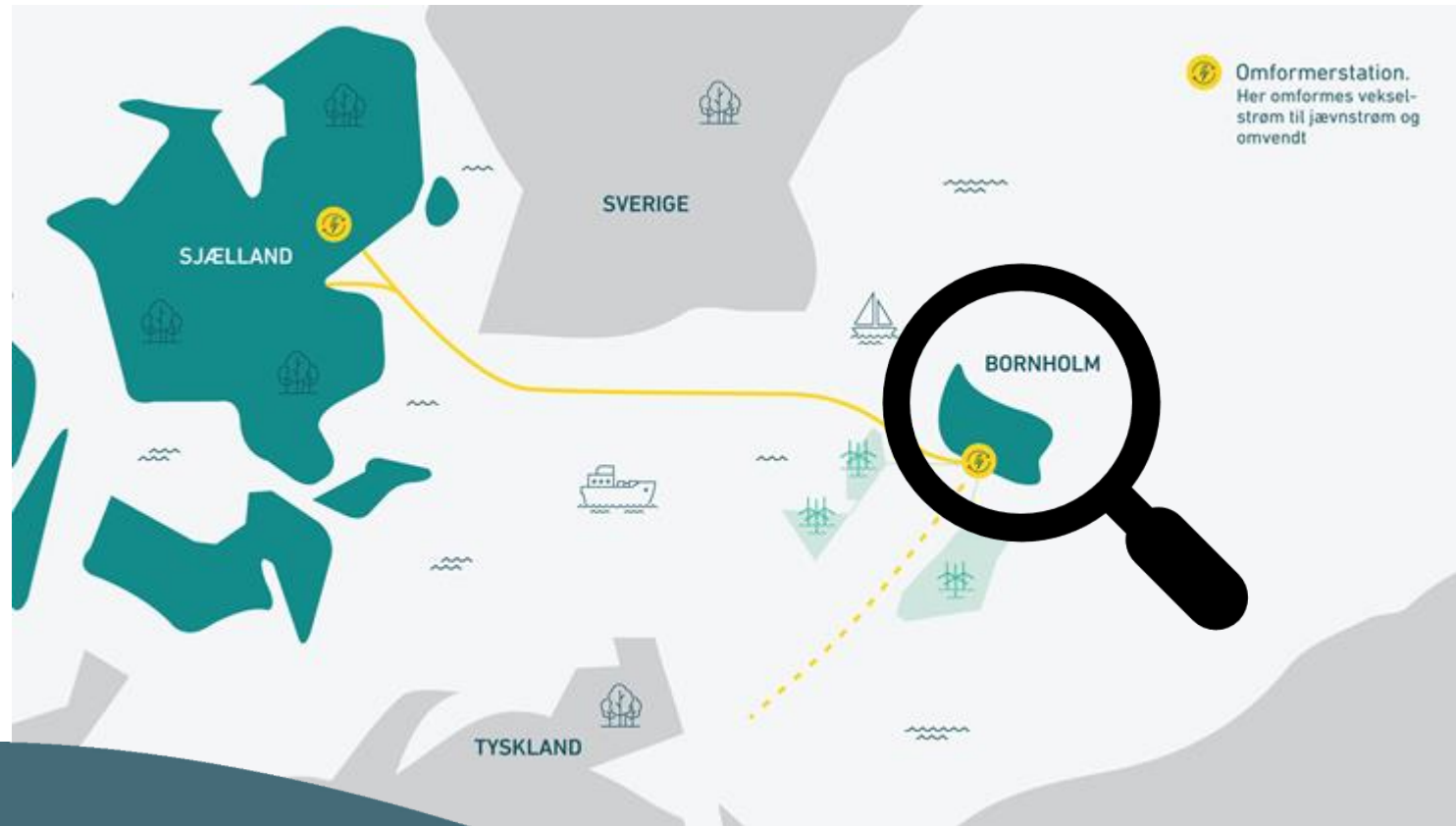
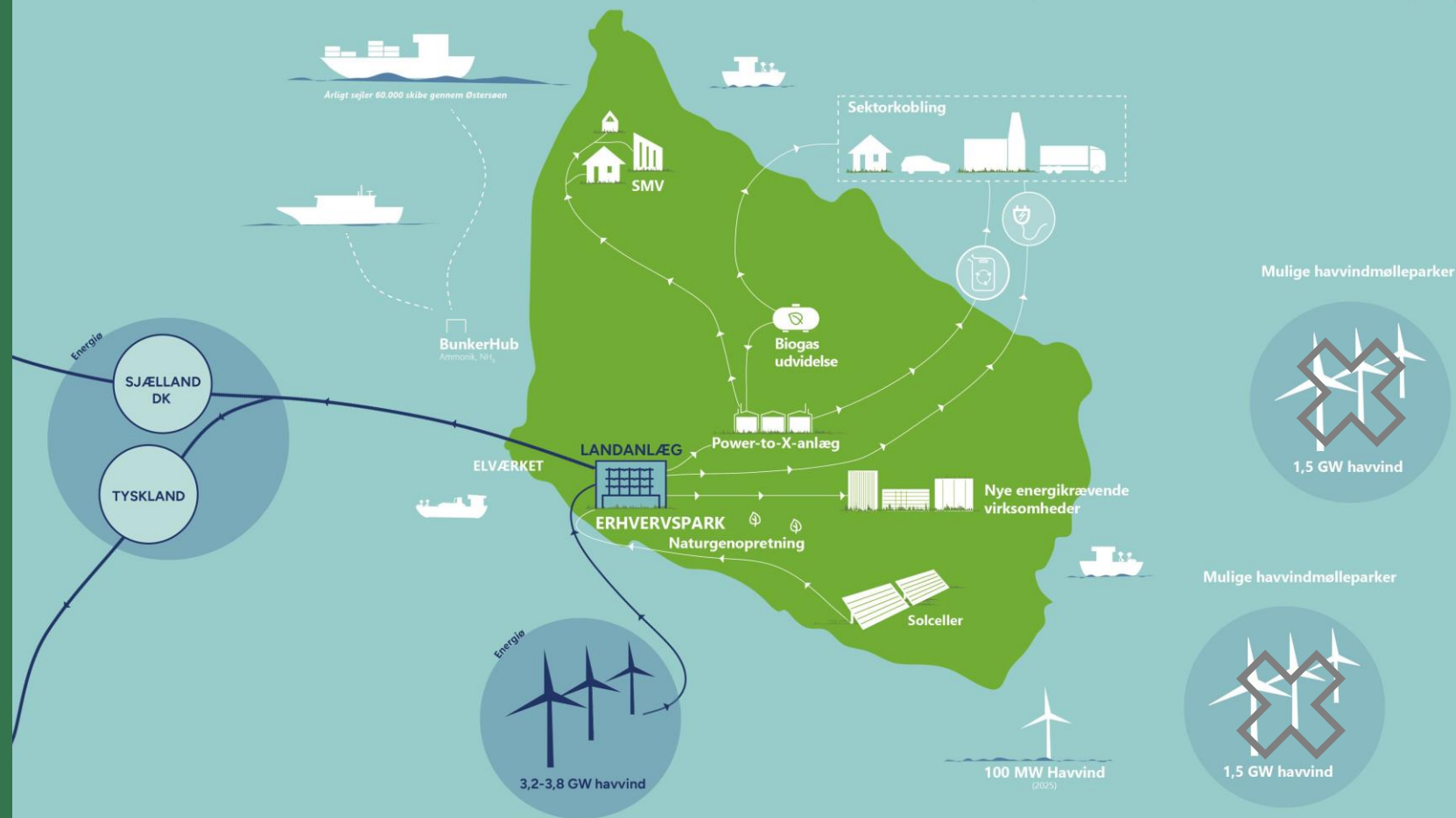


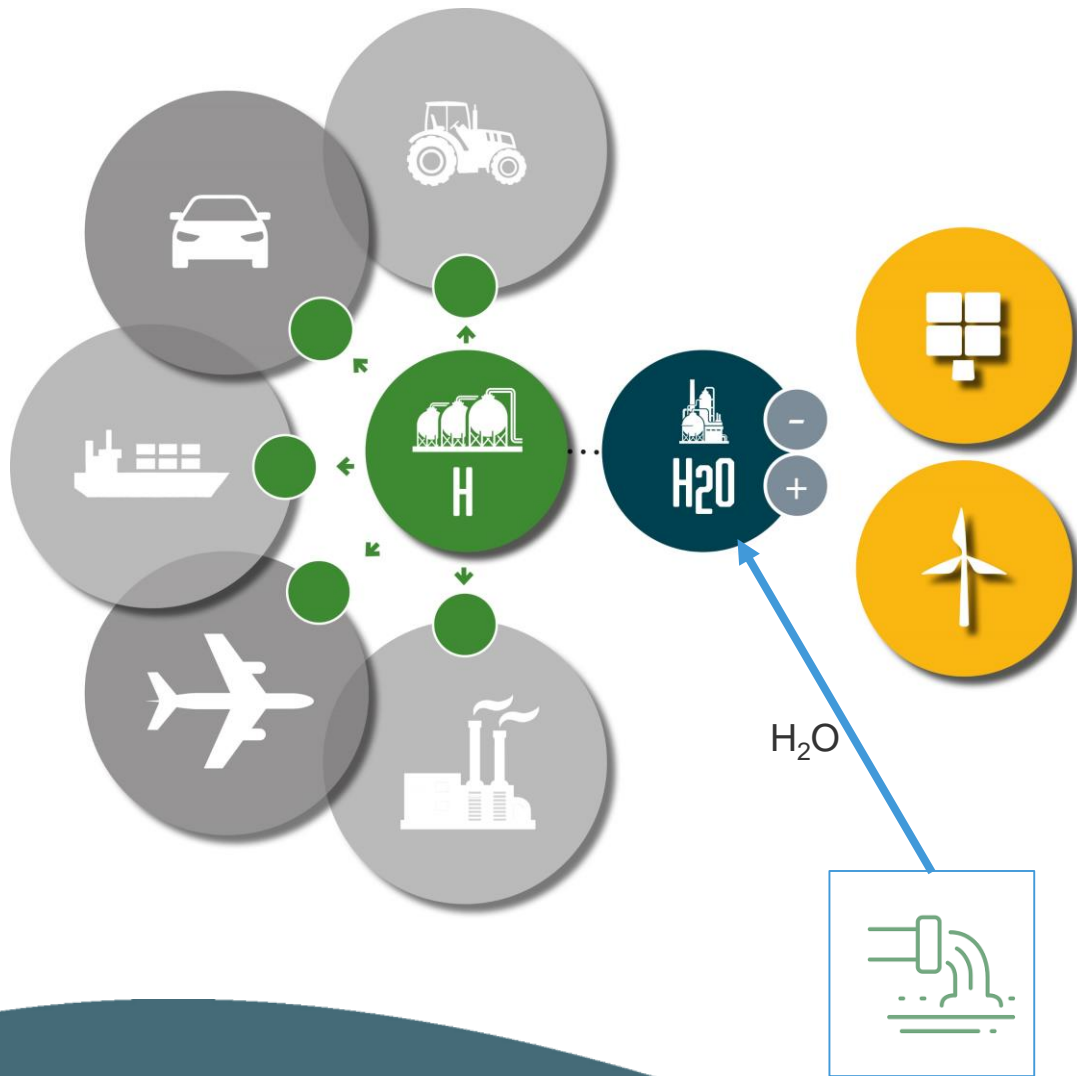
Illustration: Energinet

Energy Island Bornholm – other possibilities

PtX production
Data Centres
New business possibilities

- 1) Politisk vedtagne projekter
- 2) Potentialer for kommende projekter





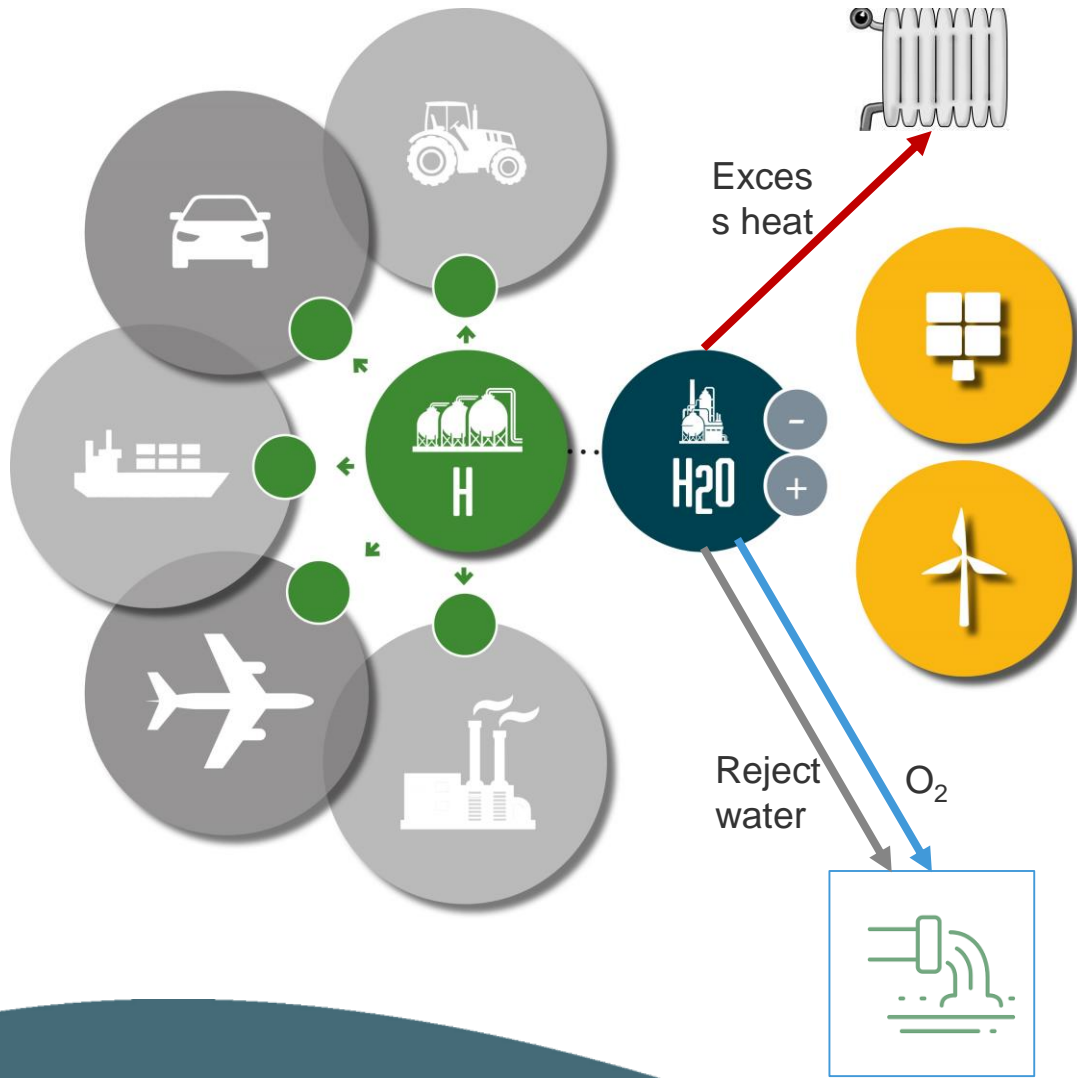
POWER-TO-X

PERSPECTIVES

A key driver for the green transition of industry, transport etc.

Large amounts of excess heat

Supply of water – what is the optimal source?



POWER-TO-X

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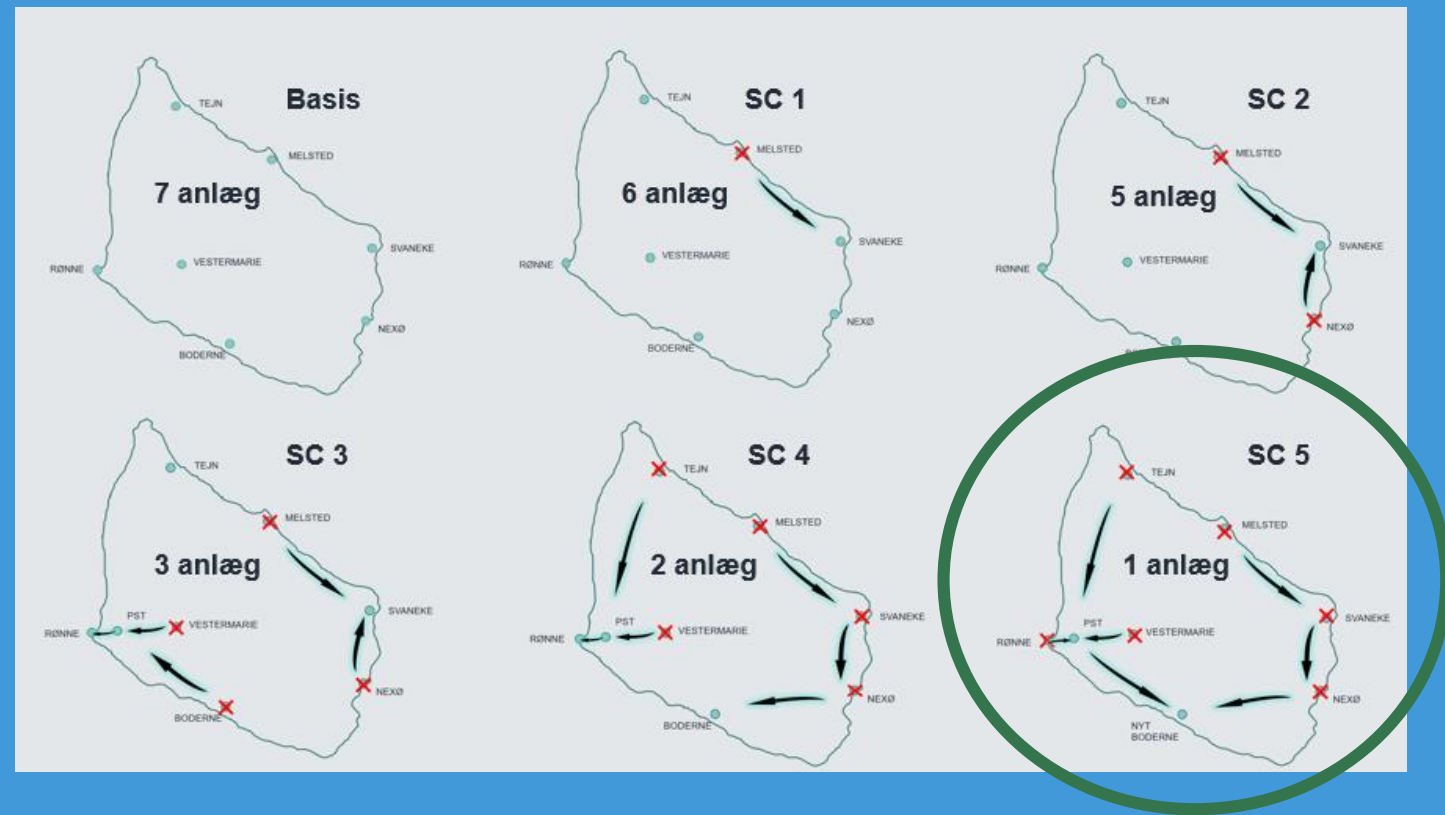
Large amounts of excess heat

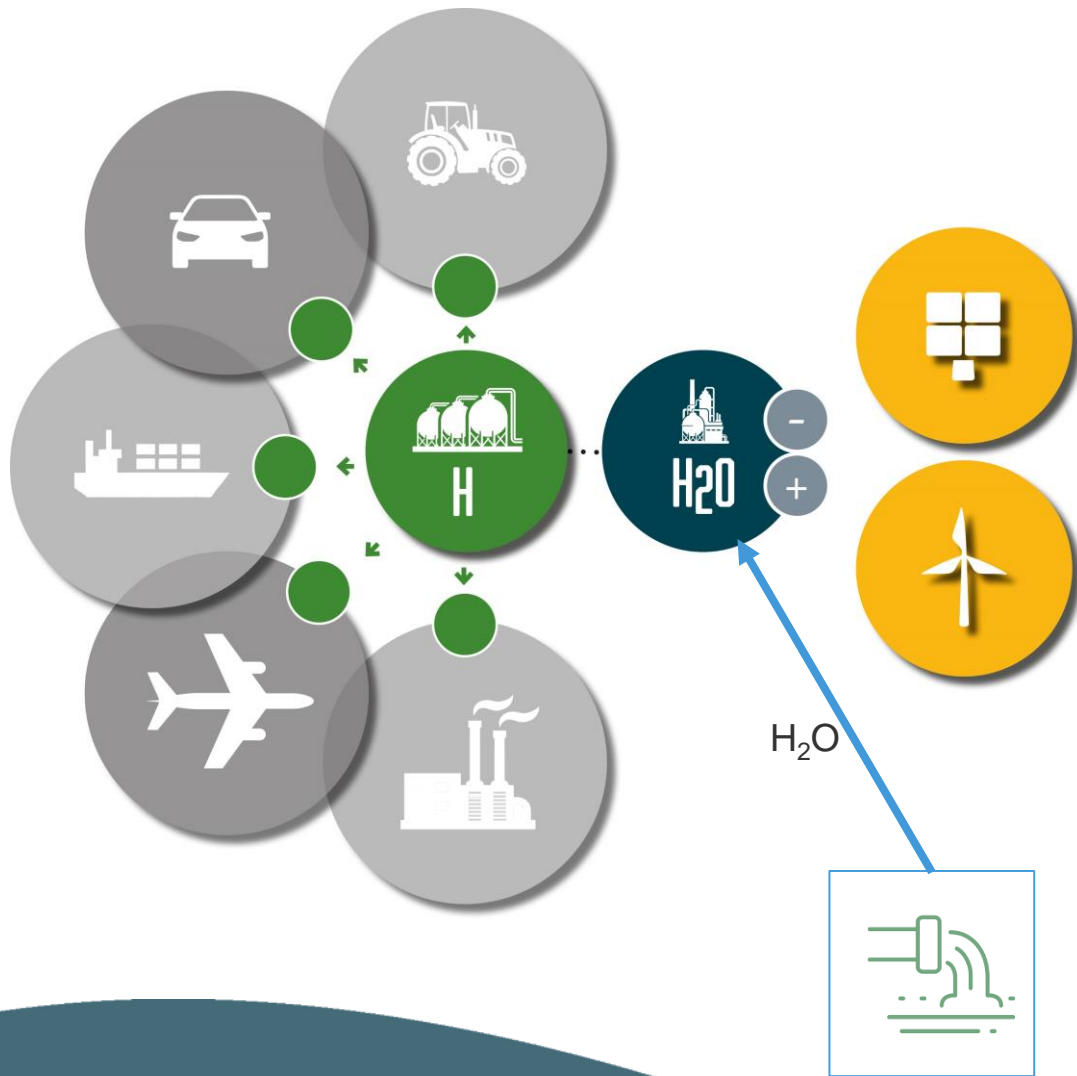
Supply of water – what is the optimal source?



Examined scenarios for future sewage water treatment on Bornholm

TOTEX analysis of future sewage water treatment





POWER-TO-X

PERSPECTIVES

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Large amounts of excess heat

Supply of water – what is the optimal source?

Our sewage water treatment plant (6 mio. m³ / year) is suitable for a 1 GW PtX plant

+ The further synergies with reject water, excess heat, oxygen etc.

Regulatory barriers are massive (up-concentration, commercial activities, consumer protection)

POWER-TO-X

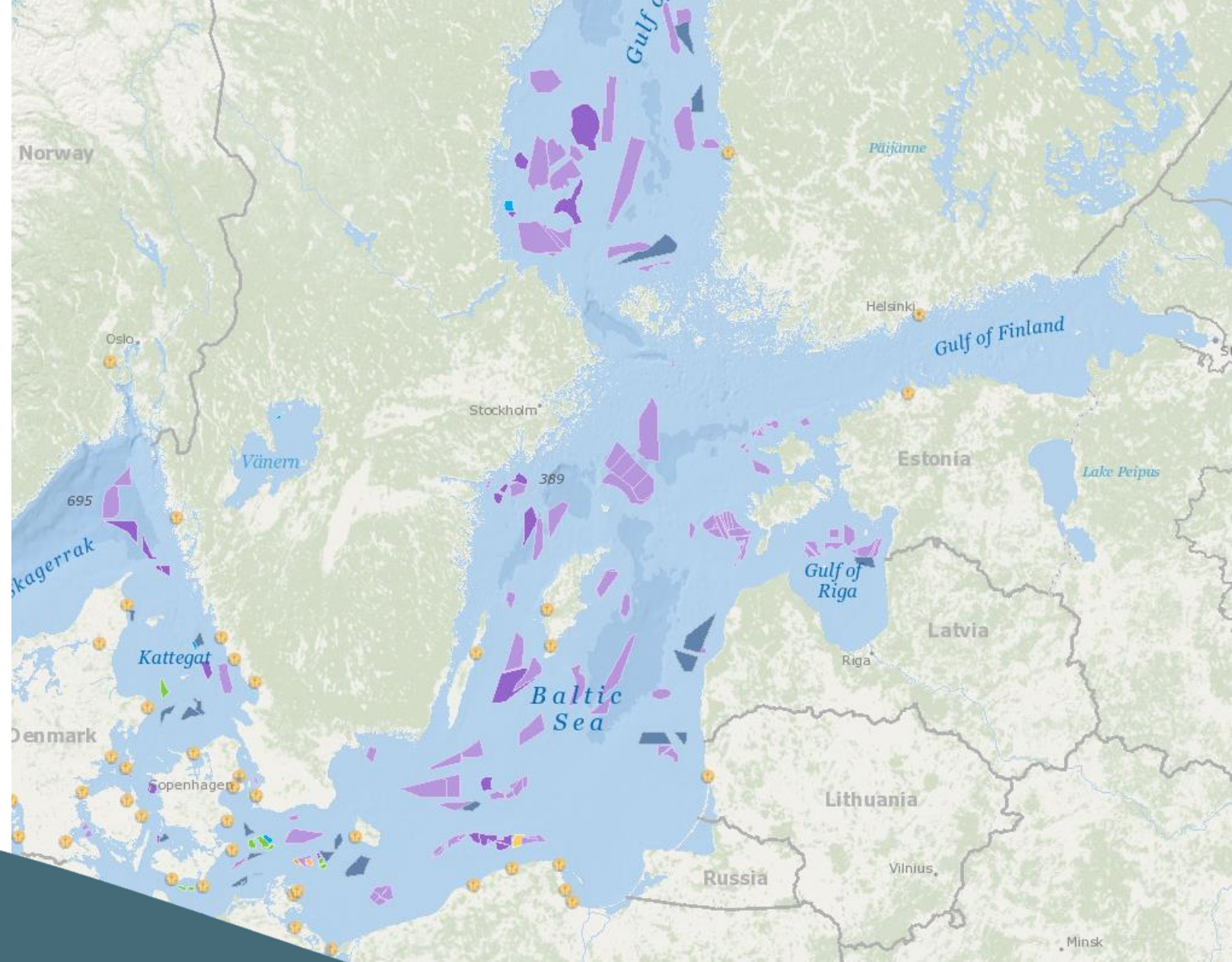
PERSPECTIVES

93 GW of offshore wind planned in the Baltic Sea

Several projects also planning for PtX production

Similar energy islands in Gotland and Åland (at least)

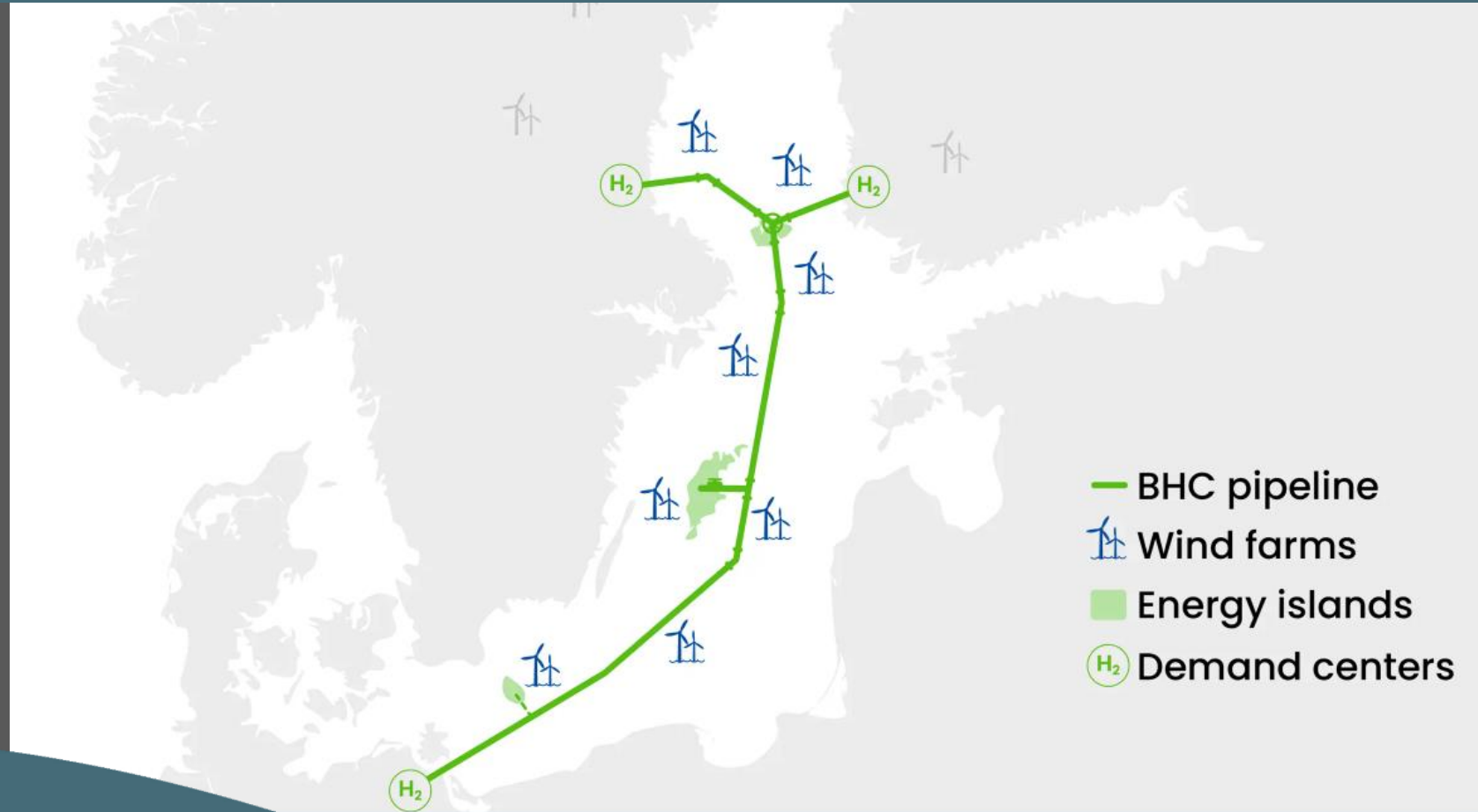
Further expansion around Bornholm?



THE BALTIC SEA HYDROGEN COLLECTOR

Current planned PtX capacity in DK: 6 GW++

Demand for industrial purposes is way more than this = huge need for very pure water



Another use case

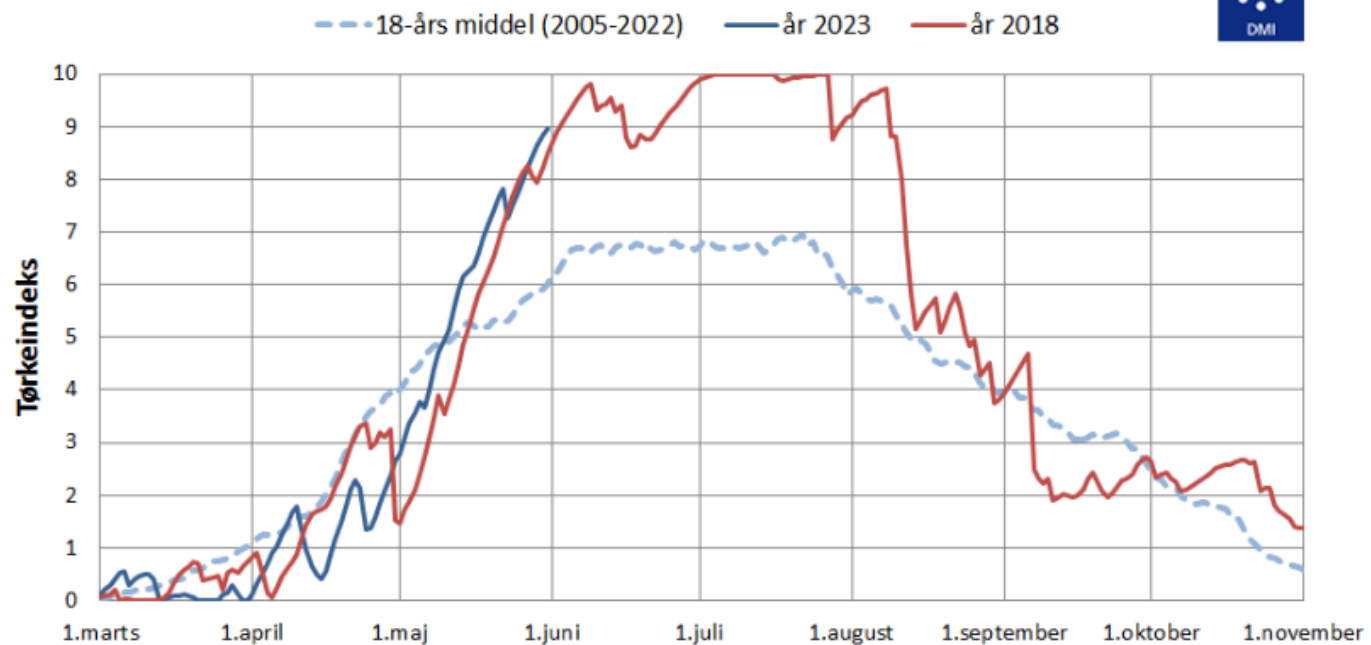


DROUGHTS ARE BECOMING AN INCREASING CONCERN

Drought is also an increasing concern on Bornholm where agriculture and tourism are the two main sources of income

We have very wet periods over the winter time – but usually also quite dry springs where droughts set in earlier than in the rest of the country

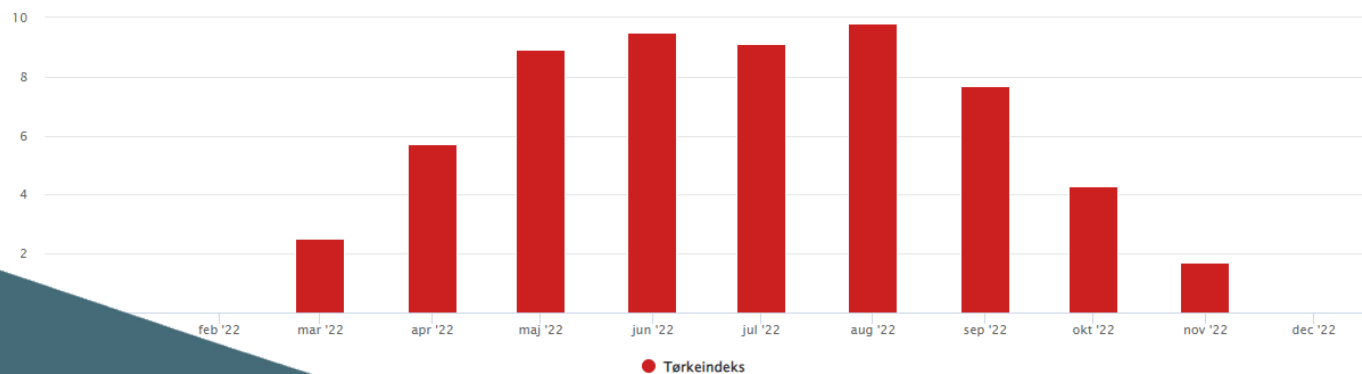
Tørkeindeks (landstal)



Tørkeindeks ▼

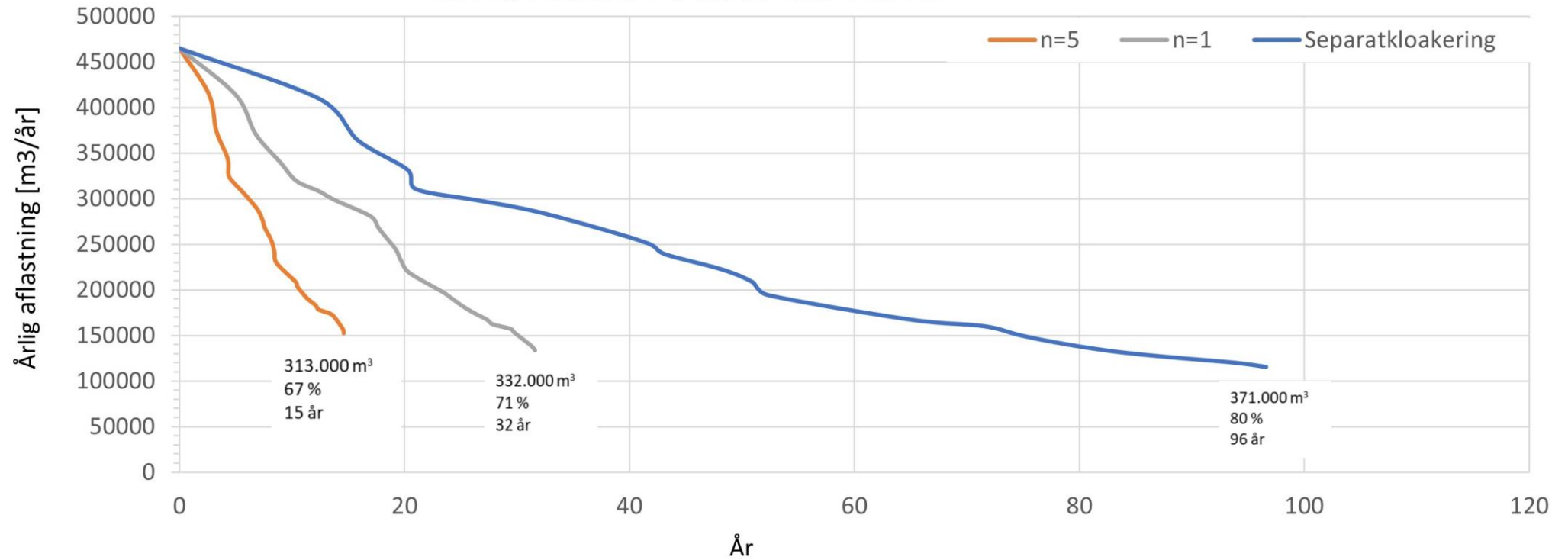
Bornholm kommune 2022

Tørkeindeks



Storm water overflows

OVERLØBSREDUKTION FOR DE 20 MEST AFLASTENDE BYGVÆRKER
VED HHV. N=1, N=5 ELLER SEPARATKLOAKERING
INVESTERING 10 MIO. KR. PR. ÅR



LOOKING FOR WIN-WINS

Looking for win-wins together with local farmers – bassins that reduce overflows and possibly may be used for irrigation purposes

Focus on regulation – may the collected surface water be used for irrigation

Outcome:

- Protection of the Baltic Sea
- Season storage of surface water for irrigation
- Greatly reduced cost for the consumers





Thank You

