NAT Netwerk Aqua Thermie

Rijkswaterstaat

stowa

Aquathermal energy

sustainable heat source for the energy transition in the Netherlands

Marco van Schaik

STOWA

Stichting Toegepast Onderzoek Waterbeheer

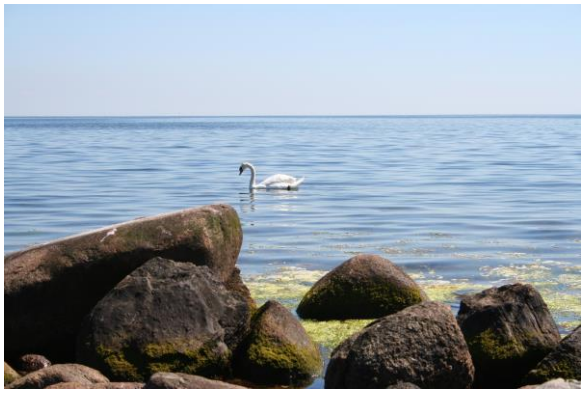
Henk Looijen

Rijkswaterstaat

Netwerk Aquathermie

What is aquathermal energy?

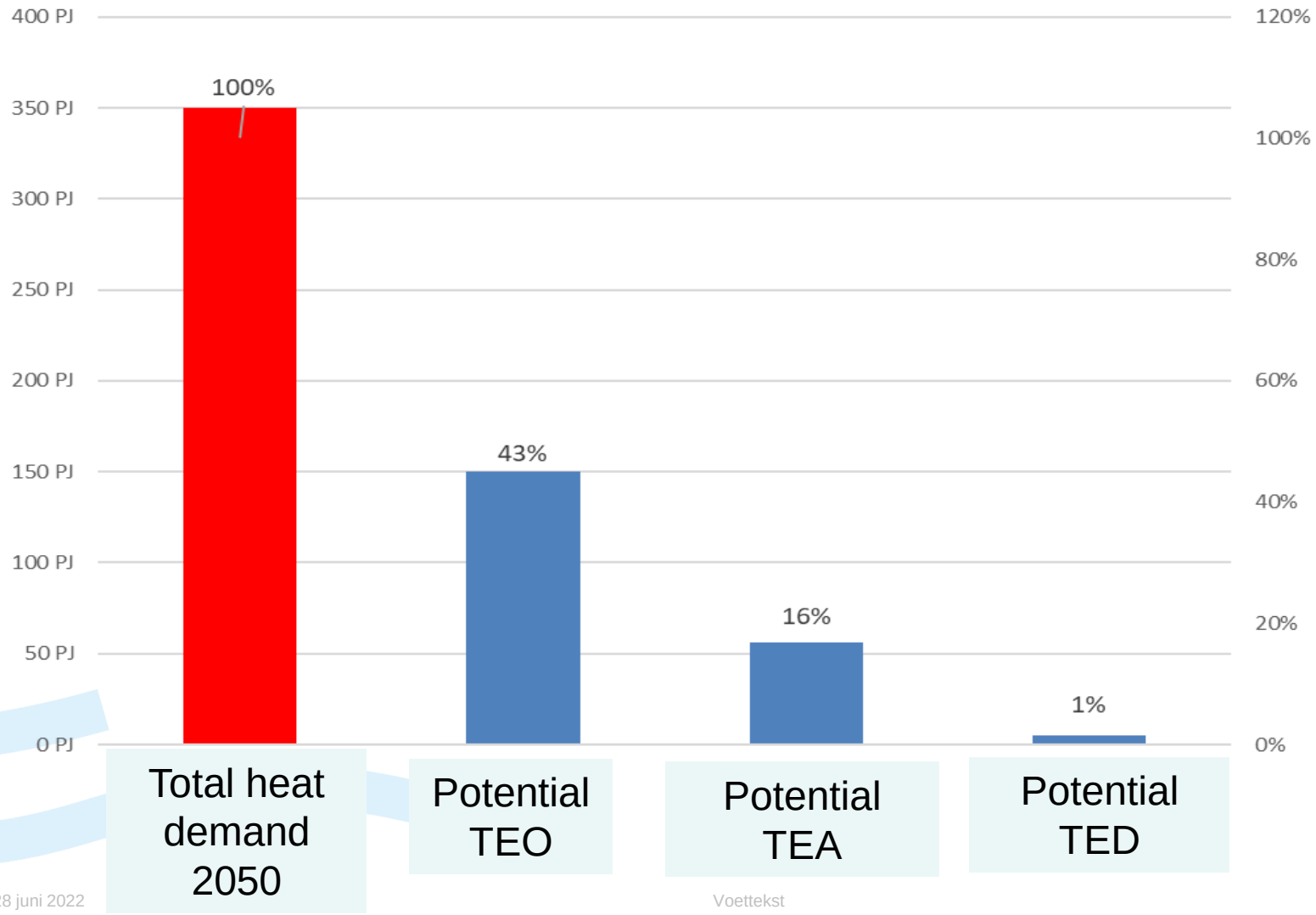
Thermal Energy from Surface Water (TEO)



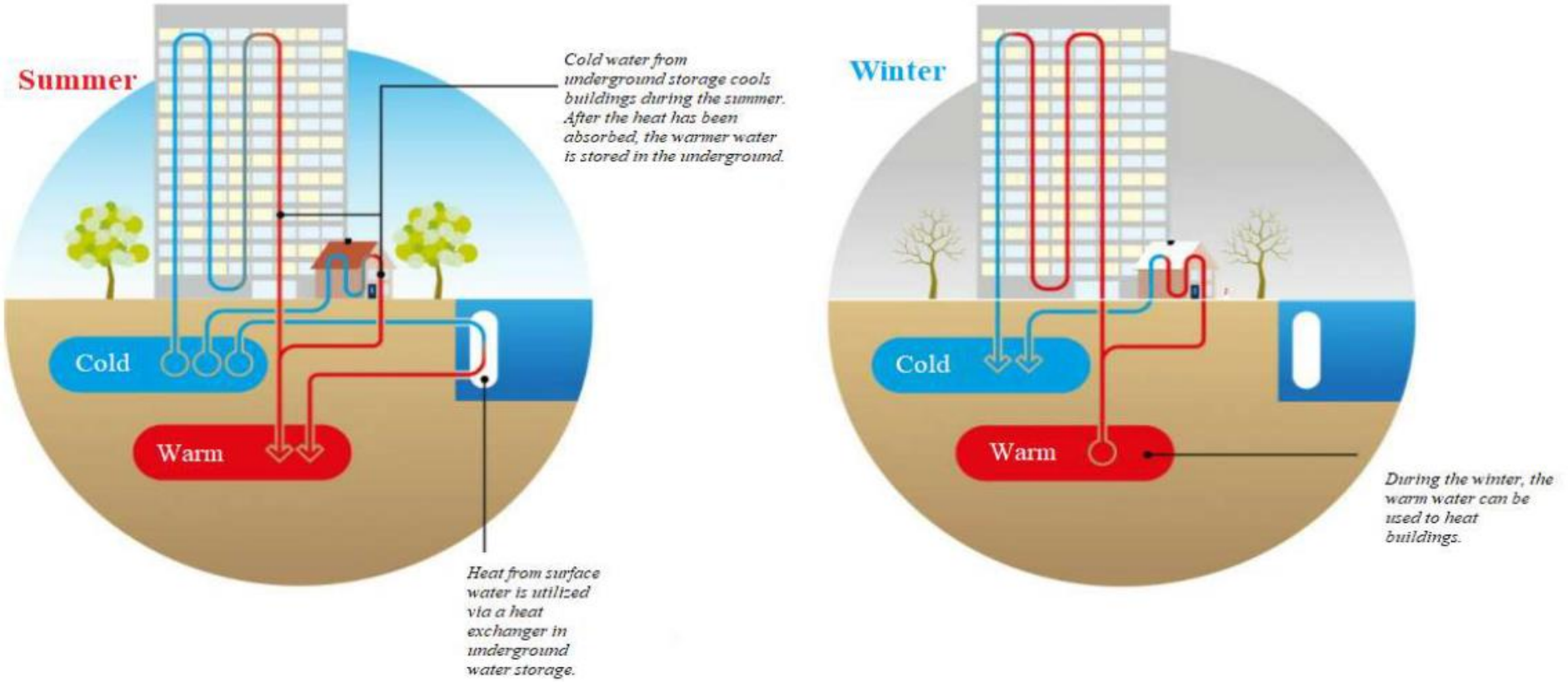
Thermal Energy from Wastewater (TEA)

Thermal Energy from Drinking Water (TED)

National potential of aquathermal energy

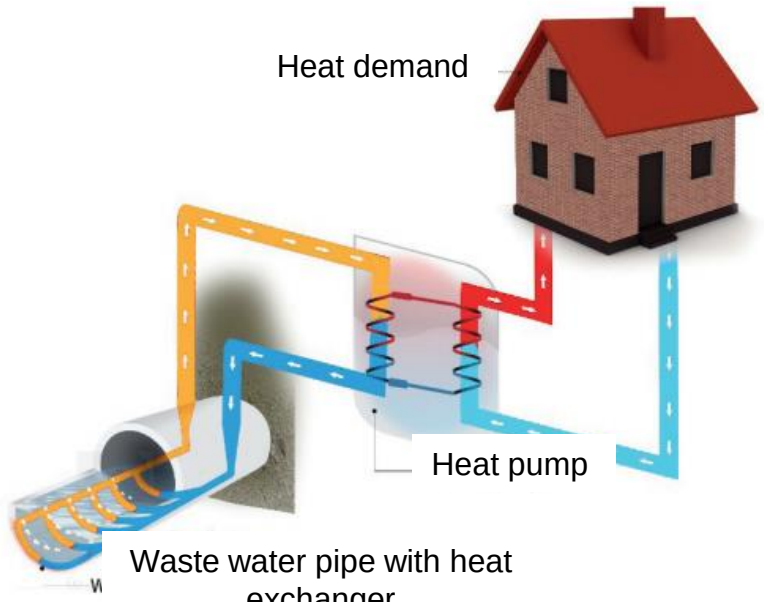


TEO



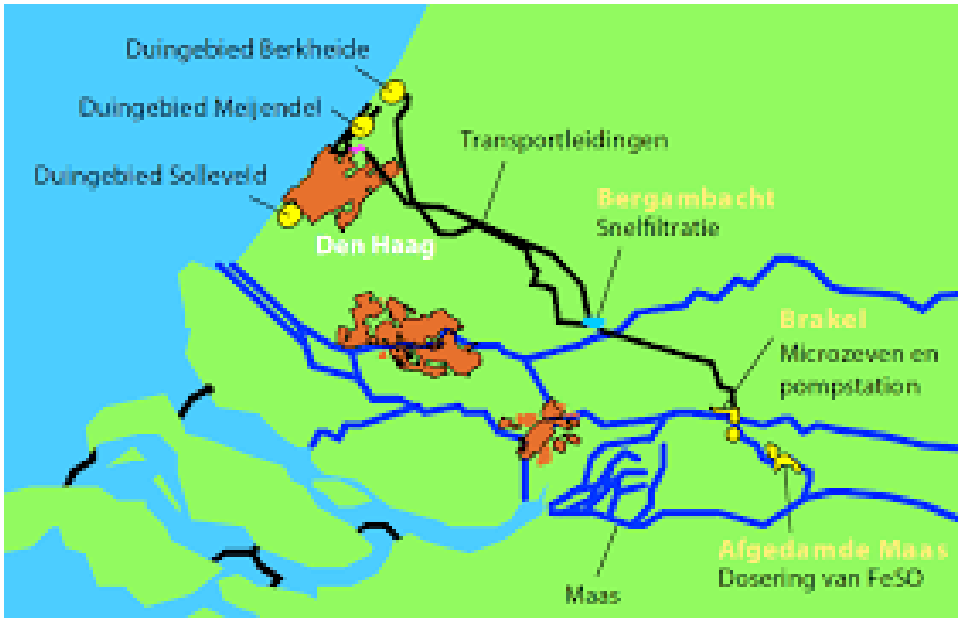
TEO is usually combined with Aquifer Thermal Energy Storage (ATES) in the subsoil

TEA



In sewer pipes, pressure pipes, effluent pipes

TED



In raw water and drinking water transport pipelines

Development of aquathermal energy in the Netherlands 1/3

± 85 projects in operation:

- newly built neighborhoods
- Schools, swimming pools, premises
- Several houseboats

- www.aquathermie.nl/praktijk

Development of aquathermal energy in the Netherlands 2/3

± 109 projects in preparation (April):

- Mostly new heat networks for existing residential areas
- Making existing heat networks fossil-free or with gas for peak load
- Adding up to over 200.000 households

Development of aquathermal energy in the Netherlands 3/3

National level:

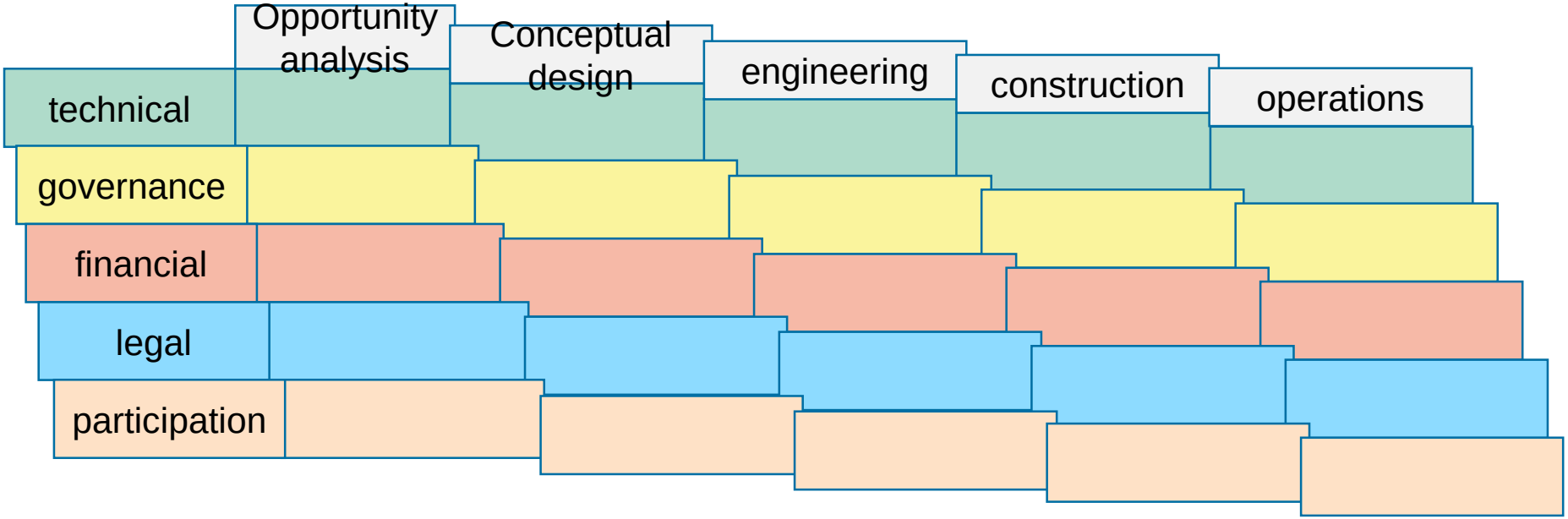
- Green Deal Aquathermie 2019-2022

Cooperation of all layers of government, knowledge institutes and companies to accelerate the heat transition →

Locally in projects:

Cooperation of municipalities, water authorities, local energy cooperatives, energy companies and network operators

Challenges for the near future 1/4



Technical and financial:

- How to optimise the performance of aquathermal energy systems?
- How to finance the steps towards a conceptual design?
- Aquathermal energy requires major long-term investments. What do banks or funds need to gain trust in these projects?

Challenges for the nearfuture 2/4

Governance:

Many parties are pioneering in aquathermal energy projects. For instance municipalities and water authorities are looking for their role.

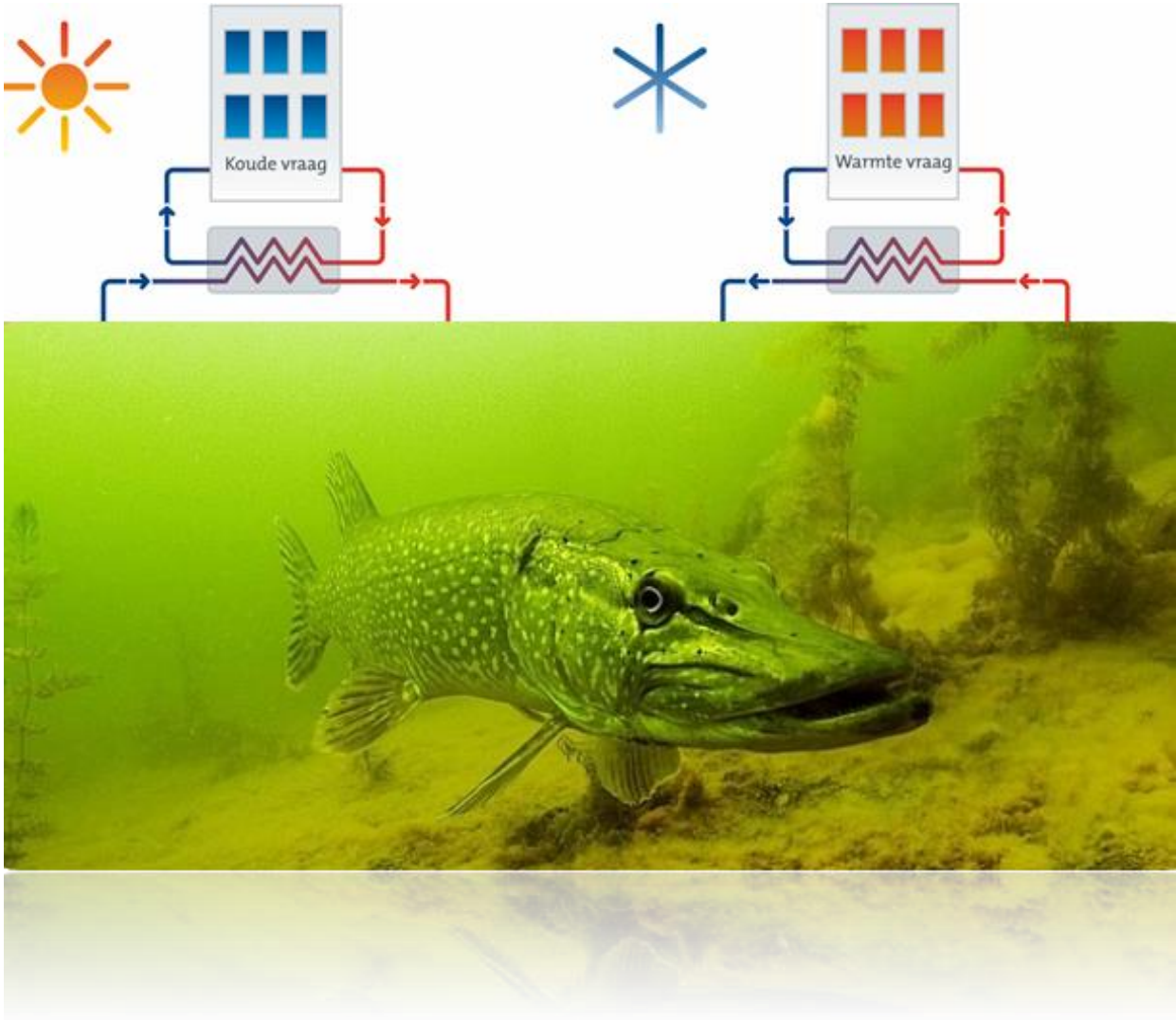
How can they steer towards sustainable development and affordable heat for inhabitants?

Challenges for the near future 3/4

Ecological:

Little is known about the local ecological effects of cooling surface water.

Though a little cooling will mitigate the temperature rising of +/- 3 degrees Celsius in the last 100 years.



Challenges for the near future 4/4

Sufficient technical staff

There are not enough people with sufficient technical skills to realise the transition in time.

Conclusions

Aquathermal energy has the potential to make a major contribution to reducing greenhouse gas emissions in the Netherlands.

There are still big challenges in the near future to accelerate the heat transition and upscale the use of aquathermal energy.

Questions?

Mail to:
vanschaik@stowa.nl
or
hlooijen@aquathermie.nl