

AquaCOM Webinar September 2025

Policies and Permits: Identifying Barriers and Opportunities
in Aquathermal Energy Projects

University of Oldenburg



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Oldenburg**

Agenda

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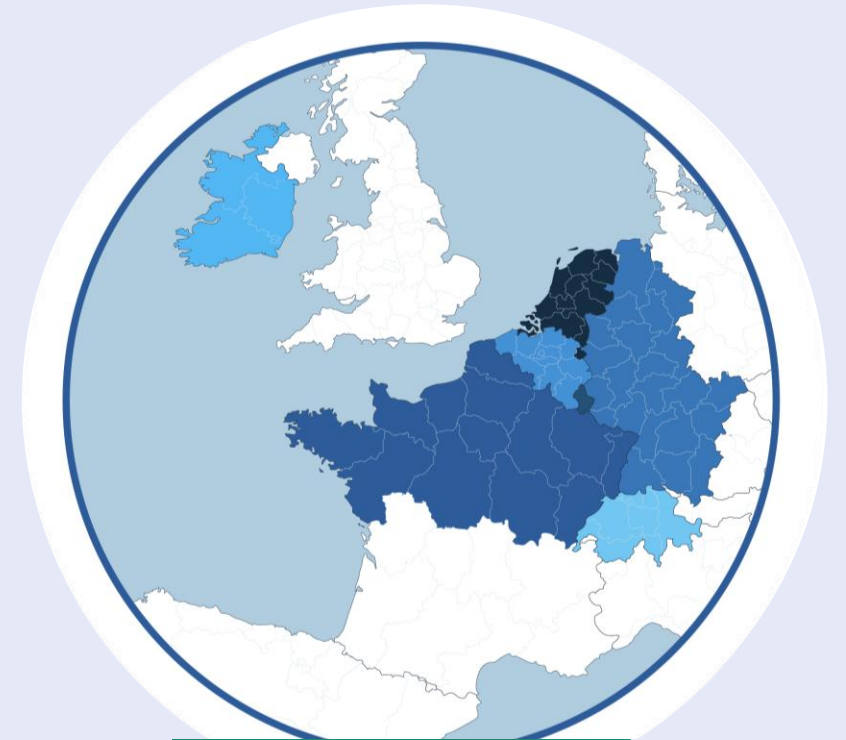
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1. Our Role in AquaCOM
 2. Data Collection and Evaluation Process
 3. Introduction of the AQE-Tracker
 4. Best Practice Examples
 5. Future Involvement
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AquaCOM in a nutshell

We empower energy communities in North-West Europe to use aquathermal energy to sustainably and efficiently heat their community.

AquaCOM is developing replicable governance and technical models for aquathermal energy and providing training for energy communities.



<https://aquacom.nweurope.eu/>

AquaCOM in a nutshell

AquaCOM supports three pilot sites to implement this innovative technology, driven by and for the community.



Rotselaar
Belgium



Lorient
France



Vlieland
The Netherlands

AquaCOM in a nutshell

The **Aquathermal Energy Knowledge Community** connects citizens, experts and academics to explore aquathermal solutions for a green, just and inclusive energy transition.



Sign up for our newsletter!



UOL at AquaCOM

We are a German **research institution**,
the Institute for Transformation and
Sustainable Futures (TRUST), based at the
University of Oldenburg.

→ Lead partner for the **data
collection** of governance, permits, policies

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TRUST@UOL
CENTER FOR TRANSFORMATIONS
AND SUSTAINABLE FUTURES

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What does the data tell us about the status quo of AQE country-readiness?

DATA COLLECTION AND EVALUATION

Process of the Data Collection

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What?

Collection of country-specific data for the deployment of AQE technologies.

Where?

Interreg North-West Europe:
Ireland, France, the Netherlands, Belgium, and Germany.

Who?

One responsible person from our AquaCOM partners for each country and region.

How?

Sources used include published legislative texts, policy strategies, official government documents, as well as input from public authorities, research institutions and other stakeholder consultations.



Update

Continuation to collect data and update the information.

Categories of Stakeholder Surveys

Policies

Directives and regulations
Contradictions and gaps
(Financial) support structures
Existing and planned AQE systems

Stakeholders

Type
Category
Responsibility

Permits

Requirements
Criteria for validation
Issuing authority
Processing time
Costs
Challenges

Barriers & Gaps

Structural
Financial
Political
Local
Infrastructural
Environmental
Other

Outlook

Projections for the upcoming 5/10/20 years
Recommendations to politicians, decision makers, authorities, NGOs, other stakeholders.

SWOT Profile

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Strengths

Clarity and Support of Policies
Financial Support Structures
Existing Projects and Systems
Stakeholder Engagement

Weaknesses

W

Policy Contradictions or Gaps
Barriers to AQE Development
Permit Challenges
Procedural Clarity

O

Opportunities

Growth Projections
Policy Recommendations
Expansion Potential
Environmental Benefits

Policy Risks
Barriers to AQE Development
Permit Delays and Challenges
Public Perception and Resistance

Threats

T

Strengths

S

Clarity and Support of Policies

Missy Wetterwaarmte: regional programme for project development support (NL)

Provincial Spatial Structure Plan: contains targets for AQE development (Flanders, BE)

S

Financial Support Structures

Call for Green Heat: investment support program for green- or residual heat, or energy-efficient district heating (Flanders, BE)

Fonds Chaleur: grant for renewable heat projects (FR)

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Existing Projects and Systems

Several large heat pump projects for reference (GER)
A number of AQE projects established. (NL)

S

Stakeholder Engagement

Local community support for energy and sustainability projects (IRE)
Integrated water policy organised by the Flemish Waterways, which organisations such as the Environmental Agency and the provinces are part of (Flanders, BE)

Weaknesses

Undefined discharges and extractions of surface water, and waterbody temperatures.
Policies and frameworks **only relate to renewable energy, heating and cooling**, rather than AQE.

High **upfront infrastructure costs**, coupled with political hesitation due to overestimated risks.
Unfavourable **gas–electricity price ratio**.

Unknown time and cost factors due to **unclear responsibilities** (e.g., amongst water authorities)

Lack of standard procedures leads to case-by-case environmental impact assessment (EIA)

Policy Contradictions or Gaps

W

Barriers to AQE Development

W

Permit Challenges

W

Procedural Clarity

W

SWOT Profile

0

Growth Projections

A study to map the **AQE potential** across Flanders and it is integrated in heat zoning plans. (Flanders, BE)

Heat Planning Act sets specific targets for district heating networks and heating plans have to be drawn up in each state (GER)

Higher attention on AQE in renewable energy regulations with a **focus on small scale and local district heating**.

Effective communication to decrease scepticism and increase political will to provide support structures and standardization.

High potential for growth in collective systems, if AQE specific regulations (e.g. tariff structures), financial support and awareness increase backed by best-practice examples and studies

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Environmental Benefits

With an adapted regulatory structure, AQE can contribute significantly to **achieving national and European sustainability goals** regarding CO2 reduction and climate change resilience.

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Policy Recommendations

SWOT Profile

If legislation regarding discharges and extractions from surface water for thermal use, clear standards and guidelines **are too slow or remain unclear**, the development of AQE is hindered.

Policy Risks

T

Risk of **unfavourable political developments** (limited political support). Need for further **assessment and standards on environmental impacts** (e.g., filtration systems).

Barriers to AQE Development

T

Long validation periods, unclear information and requirements. Interdependencies represent a risk due to **lack of consistency and homogeneity** between different authorities

Permit Delays and Challenges

T

Need for **more information** to raise the awareness in the public and decrease skepticism and ignorance

Public Perception and Resistance

T

How does it work and how can you use the data?

INTRODUCTION TO THE AQE TRACKER

Introduction of the AQE Tracker

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The AQE Tracker is a qualitative assessment of national progress in supporting and integrating AQE into its national energy systems and policies.



Check it out yourself!

Traffic-light Rating System:

2,5 – 5

0 – 2,5

-2,5 – 0

-5 – -2,5

AQE-Tracker Categories

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Policy and Regulatory Framework

Consider both the clarity and support of policies as well as any contradictions or gaps in regulations that may hinder AQE implementation.

Clarity and Support of Policies

Policy Contradictions or Gaps

Policy Risks

Barriers - Political

Financial Support and Investment Readiness

Assess the availability of grants, subsidies, or incentives, and explore the potential for expansion through financial structures.

Financial Support Structures

Barriers - Financial

Permitting and Procedural Challenges

Examine the complexity, cost, and delays in obtaining permits, as well as the lack of procedural clarity that may create obstacles.

Permitting Challenges

Procedural Clarity

Permit Delays and Challenges

Barriers - Structural

Public and Stakeholder Engagement

Analyse the role of stakeholders in AQE development and the risks of opposition due to public perception and resistance.

Stakeholder Engagement

Public Perception and Resistance

Barriers - Public

Future Growth and Sustainability Potential

Examine growth projections, expansion potential, and the environmental benefits of AQE for sustainable energy goals.

Growth Projections

Policy Recommendations

Expansion Potential

Environmental Benefits

Barriers to AQE Development

Current AQE Deployment and Infrastructure

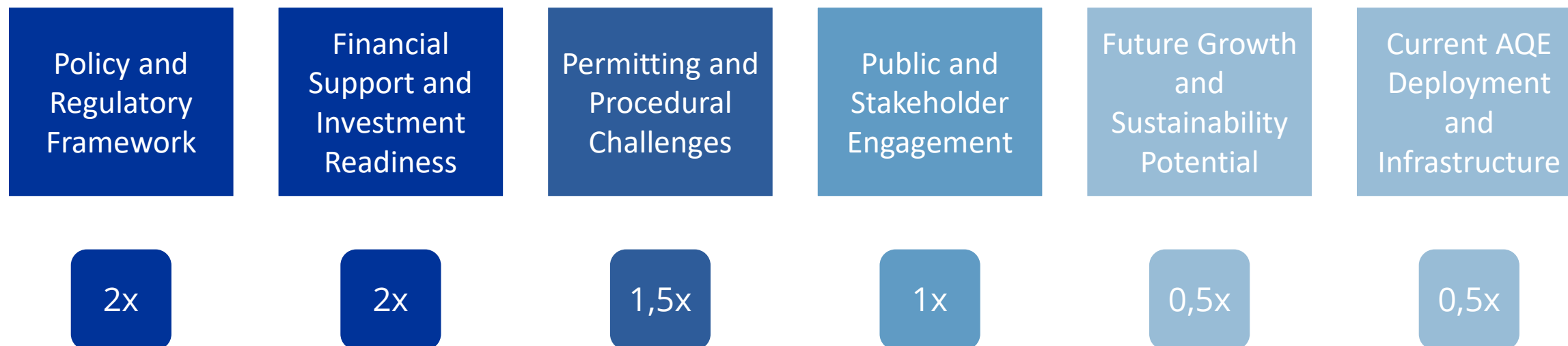
Look at the number and types of existing AQE projects, their transparency, and how infrastructure gaps impact further development.

Existing Projects and Systems

Barriers - Environmental

Barriers - Infrastructural

Weighting System



AQE Tracker

Screenshot von einem Land mit Leiste und
den verschiedenen Kategorien/ text etc

Screenshot von einem Land mit Leiste und
den verschiedenen Kategorien/ text etc

Update the data

Currently, we are collecting new country-specific data to
update the AQE Tracker in Spring 2026

What can we learn from each other? With working concepts from Switzerland.

BEST PRACTICE EXAMPLES

AQE in Switzerland

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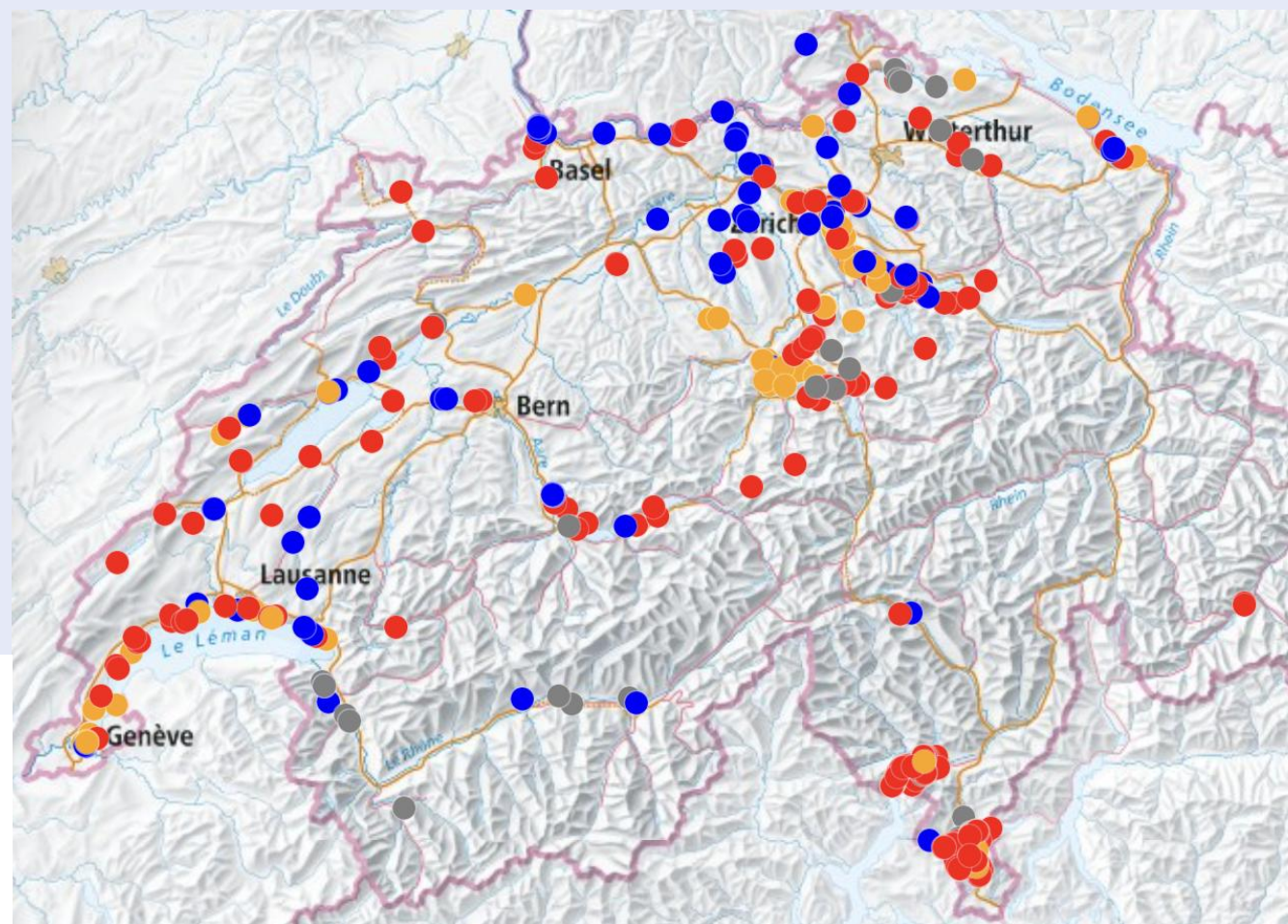
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Early adaption

- ~ 500 existing AQE projects (2024)
- First projects reach back to the early 1900s

Primeo Energy is a Swiss **cooperative** and energy supplier running over 250 heating systems, many of them with renewable energy sources



Permits & Regulations

Best Practice

Guidelines and support structures on cantonal level for AQE
permission process

One lead department for coordination of concessions and licensing (depending on the projects size)

Gewässerschutzverordnung (Water Protection Ordinance) provides **clear regulation** since 1999, e.g. max. delta of 3°C (1.5°C in trout regions)



clear processing times for projects between 3 to ~5 month

Financial Best Practice

Cantonal financial support structures

1. **connection to a heating network** from renewable energy greater than 70 kW
2. **Heat Pumps** greater than 70 kW that use geothermal or **aquathermal energy**

Market incentives/ Economic mechanisms

KliK Foundation: Swiss organization set up by petroleum industry to comply with the CO₂ Act by financing projects that reduce GHG emissions in Switzerland and abroad.

Reduction of financial barriers for AQE projects

Stakeholder Engagement Best Practice

Research Project Eawag

Research project on aquathermal use and potential in Switzerland founded by the Federal Office for Environment (ended in 2019) provides information online

Cantonal **Consulting** Services

Provision of information about the technology and requirements, guidance for planning and acquiring necessary licenses, process time of responsible authorities

Easy access to public **information**

Advocacy Actions & Stakeholder Involvement

FUTURE INVOLVEMENT

External Stakeholder Involvement

We are planning to develop **advocacy actions** based on the SWOT analysis and best practice examples for a national and EU context → **How would you like to be involved?**



Give us your
recommendations 😊



Get in contact
with us!

aquacom@uol.de



Take part in our
survey.



Short Coffee Break



5 mins

Take part in our
survey



 <https://aquacom.nweurope.eu/>



Questions & Discussion

Do you have any questions?

What AQE challenges are you currently working on?

What can we learn from each other?

Are there any key findings to adapt in your country?



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Thank you



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