

# AquaCOM Webinar 13 February 2026

Success Stories: Aquathermal Energy Projects in Action

University of Oldenburg



# Agenda

## 1. Project AquaCOM

## 2. Insights from our Pilot Sites

Targeted Benefits, Success Factors, Factors for Implementation  
and Barriers

## 3. Experiences from our Early Adopter

Eigen Warmte Balk (NL)

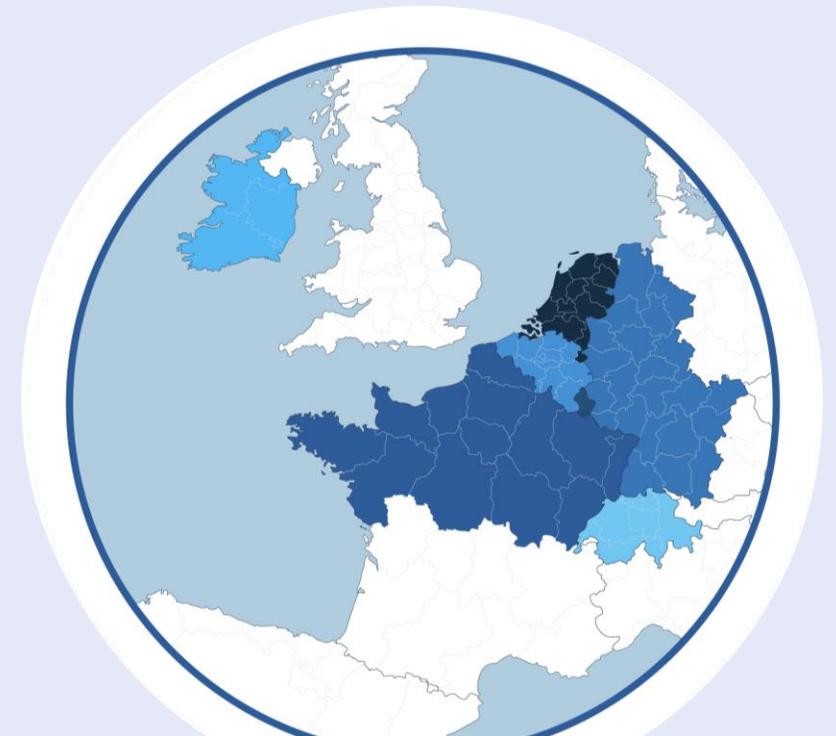
Glenstal Abbey Sustainable Energy Community (IRL)

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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 **16 Early Adopters**, across the 5 partner countries, to **learn and develop** community lead aquathermal energy projects.



# AquaCOM in a nutshell

AquaCOM supports **information dissemination** and **knowledge exchange**, inspiring sectorial **growth**.



# 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!



# 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

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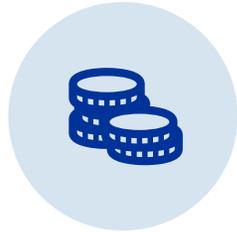
Targeted Benefits, Success Factors and Barriers

# **INSIGHTS FROM OUR PILOT SITES**

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# Targeted Benefits of AQE

Renewable energy distribution → reduction of CO<sub>2</sub>



Affordable  
energy: Cost  
reduction



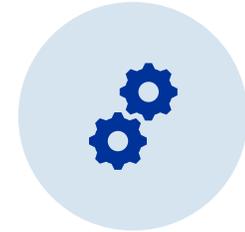
Energy  
independence  
and resilience



Promotion of  
innovative  
technology



Involve local  
citizens and  
stakeholders



Create a replicable  
model of AQE  
implementation

# Key Enabling Factors of AQE

## Stakeholder and community engagement

Collaboration public, private and civic sectors

Transparency and Participation

Relationship between EC and municipalities

Knowledge sharing

## Framework and financial structures

Clear support from regulations and local policies

Financial support suited to community-scale projects

Obtaining permits

Limited profit structure: for the benefit of end customers

## Technical issues

Technical expertise and reliable infrastructure

Scalable and flexible system design for future growth

# Practical Factors for Successful Implementation



## Stakeholder engagement

- Good communication
  - Regular physical meetings
  - Involvement at early stage
  - Open discussion for feedback
  - Explain technical aspects
  - Highlight benefits

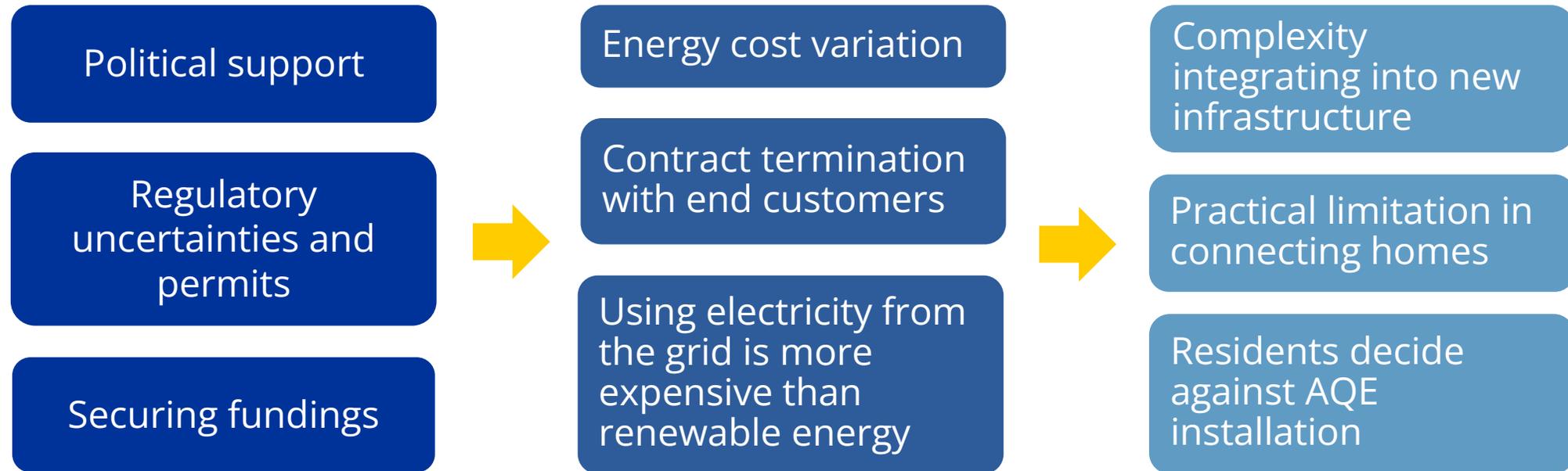
## Policy framework

- Collaboration with local politics (“charm the politics”)
- Secure money, ask many people, institutions

## Technical issues

- Energy storage and electric back-up with renewable energies
- Retrofitting of buildings

# Barriers and Risks



**Barriers: Long term funding, political support, and technical issues**

Experiences from our Early Adopter

# OUR GUEST SPEAKER

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# Our Guest Speaker

## Eigen Warmte Balk

Initiative of Energie Coöperatie Gaasterland

Friesland, the Netherlands

Multiple energy production projects in place



→ Village Balk  
could become  
natural gas-free  
using their river

## Glenstal Abbey Sustainable Energy Community

Abbey and a school

Limerick, Ireland

Parkland includes a number of artificial lakes



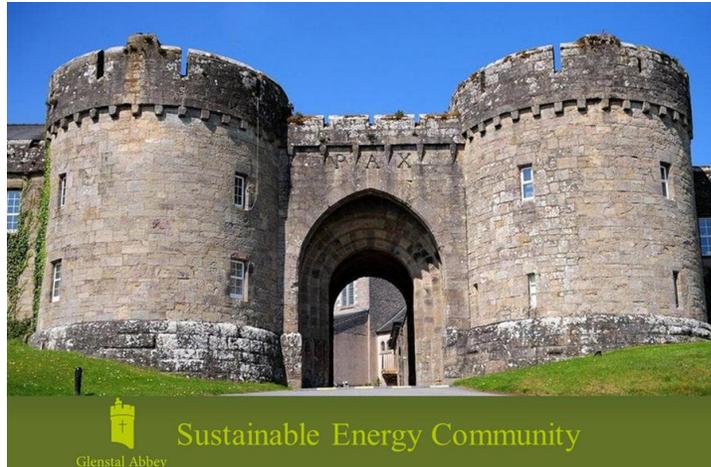
→ First heat pump  
was installed in 2005  
and upgraded in 2016  
and provides 25 % of  
heating needs



# Eigen Warmte Balk

Goffe Venema

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# Glenstal Abbey Sustainable Energy Community

Luke Macnamara

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**Interreg**



Co-funded by  
the European Union

North-West Europe

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AquaCOM

# Questions?

# Insights?

# Thoughts?



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



**Interreg**



Co-funded by  
the European Union

**North-West Europe**

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**AquaCOM**

**Thank you**



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



# Project partners



Energie  
Coöperatie  
**Gaasterland**

**Dynhus**  
Thuis voor jou



DE FRYSKE MARREN



AquaCOM

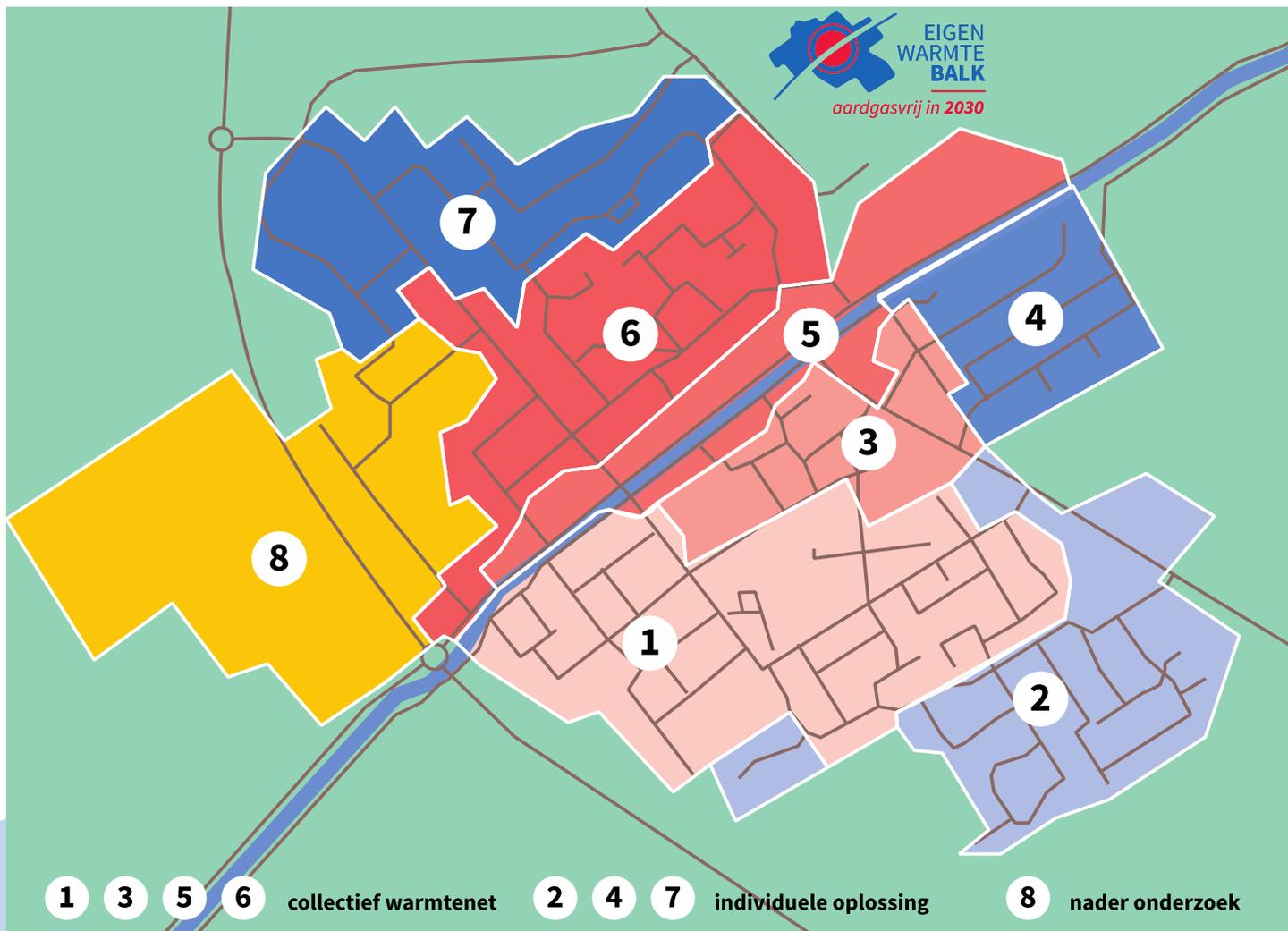
February 13th 2026

# The village of Balk

- 1,900 houses
- 1 nursing home, 4 schools + 200 other utility



# Abandonment natural gas



District heating 70° C: waterwarmth + industrial residual heat:

- 600 privately owned
- 600 housing corp.
- 75 utility.
- 48 GJ, 12 MWh



Mainly terraced semi-detached, build before 1987

80% participation.

Individual heat pumps:

- 425 privately owned
- 100 housing corp.
- Mainly detached.



# Lessons learned: communication

- Minimal requirements professional projectteam: projectlead, communication, technics, finance (and maybe legal and governance).
- Visability: a physical information centre.
- Local people gain trust.
- Use social media on a regular bases.

Hardest issue: you will never get in touch with everyone untill you have the exact prices.

# Lessons learned: process

- Involve all stakeholders from the start.
- Inhabitants want to know exact prices: keep the time between the first feasibility study and a preliminary design as short as possible. Skip draft design and other in between steps.
- Set up a projectteam with municipal departments.
- Set up a regular meeting scheme with alderman.



Energie  
Coöperatie  
**Gaasterland**

**Dynhus**  
Thuis voor jou

**AVR**



**EIGEN  
WARMTE  
BALK**

*aardgasvrij in 2030*



DE FRYSKE MARREN



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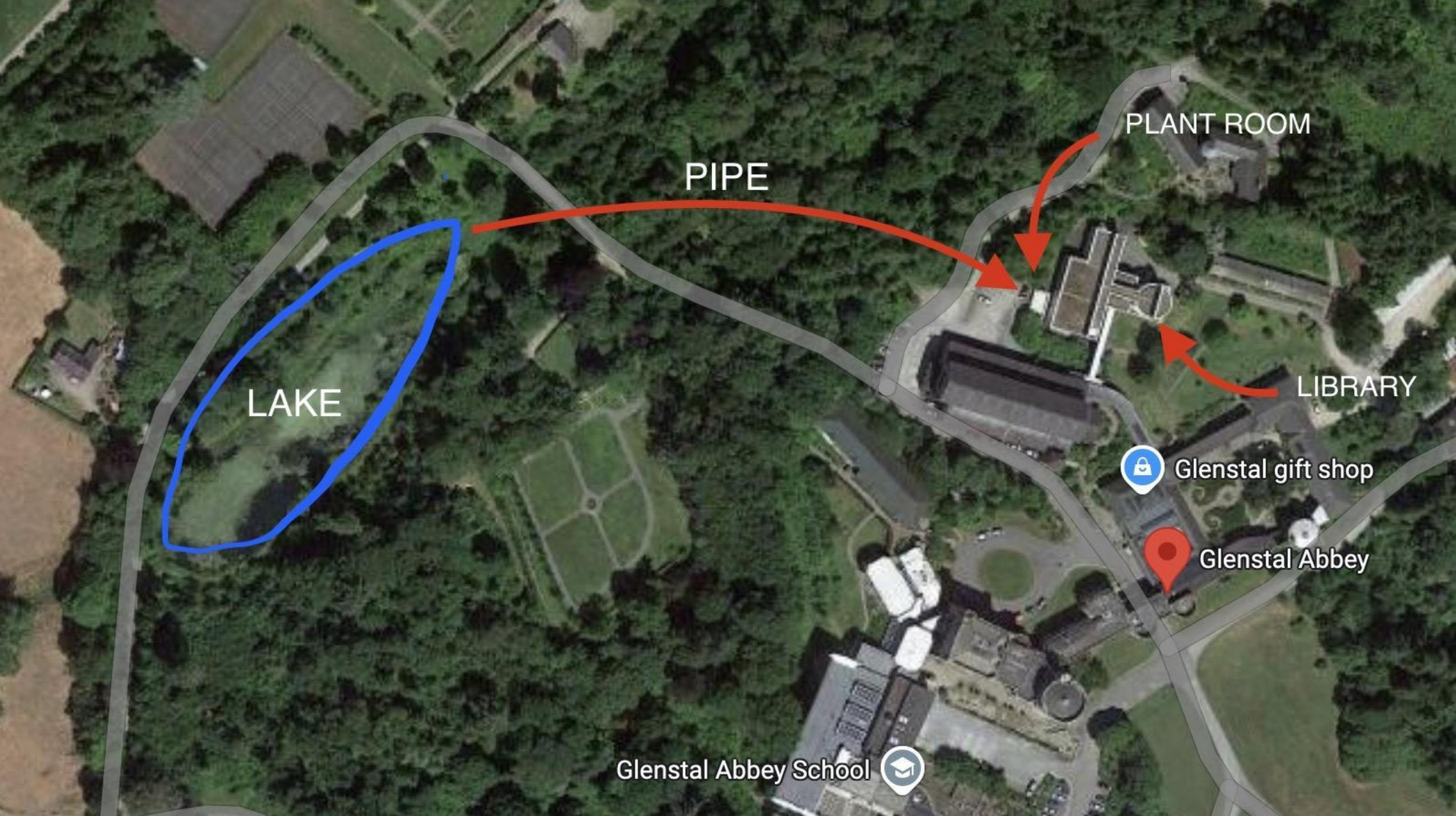
Eigen Warmte Balk



# Aquathermal Energy at Glenstal Abbey 13/02/26

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LAKE

PIPE

PLANT ROOM

LIBRARY

Glenstal gift shop

Glenstal Abbey

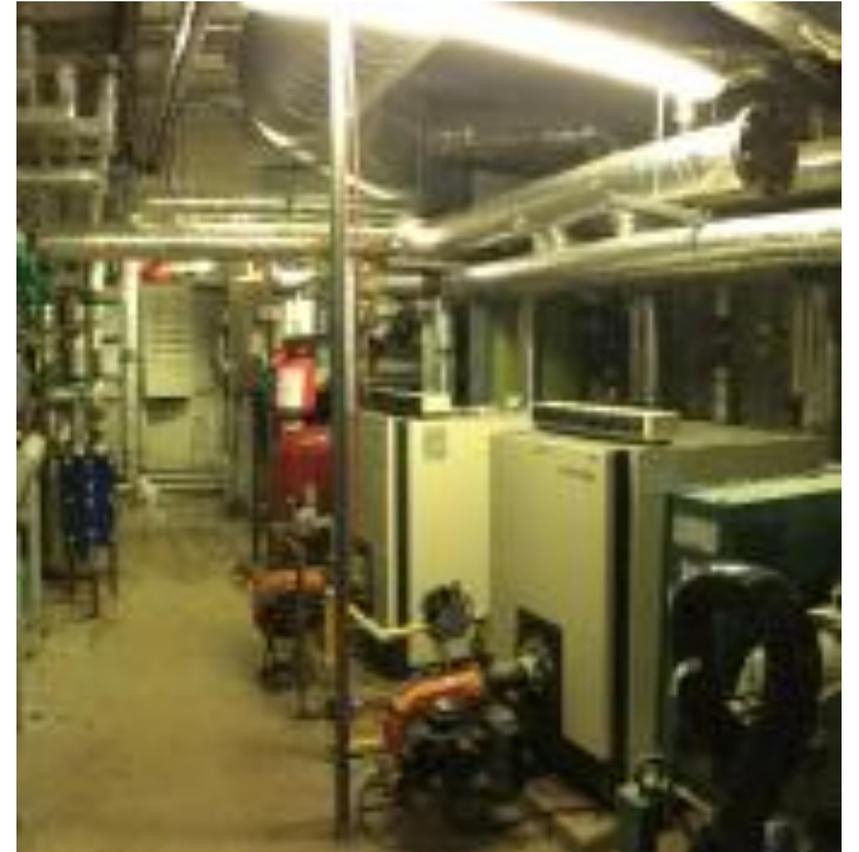
Glenstal Abbey School



# Original Water Source Heat Pump 2004/2005

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- Installed in 2004/2005
- Collector coils laid in lake
- Water pumped to plant room for heat exchange
- Supplied heat to Western Half of Abbey Cloister and Monastery Library
- Delivery temperature to underfloor heating – 36°C
- Effective temperature – 19°C
- COP 1.5



# Second Water Source Heat Pump 2016

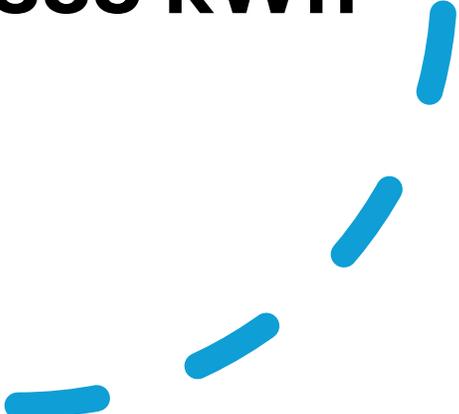
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- Installed in 2016
- Conduction system – minimal pumping
- Church underfloor heating installed
- Supplied heat to Western Half of Abbey Cloister  
Monastery Library and Church
- Delivery temperature to underfloor heating – 36°C
- Effective temperature – 19°C
- COP 5.45





## Second phase – energy savings

- System sprung a leak (due to work on carpark) from January 2023 - January 2024 and was not operational
  - 67,581L LPG used in 2022 vs 124,699L of LPG used in 2023 while system was not operational
  - This translates to ~ **404,385 kWh** saved while system was operational
- 

# Proposed Future Phase – Water Source Heat Pump at Glenstal Abbey

- Presence of lake
- Stream running through – refreshing the water
- Current system meets only 25% of the campus energy demand
- Possibility to extend use of aquathermal energy?

# A Complex Campus – Heritage – Natural & Built



# Engaged with Extraqt in Leuven, Belgium

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- Quick Scan – October 2024
- Detailed Feasibility Study – December 2024
- Heat Demand – Space Heating & Hot Water for various buildings
- Heat Supply – Available heat from lake during heating season

# Next Steps

## **1. Accurate assessment of heat demand** - required

- Recent restoration works on Castle & School 2024-2025
- Reduced heat demand
- Engaged with ESB Smart Energy Unit - referred to DCSix Technologies
- SEAI Energy Audit June 2025 (Previously EMP 2023)
- New monitoring & control system being installed
- More accurate readings to calculate heat demand
- Loxone automation system is proposed

# Next Steps

## **2. Accurate calculation of heat supply**

- Draining lake & scanning depth
- Installing hopper and measuring flow
- Temperature readings
- Revised feasibility study

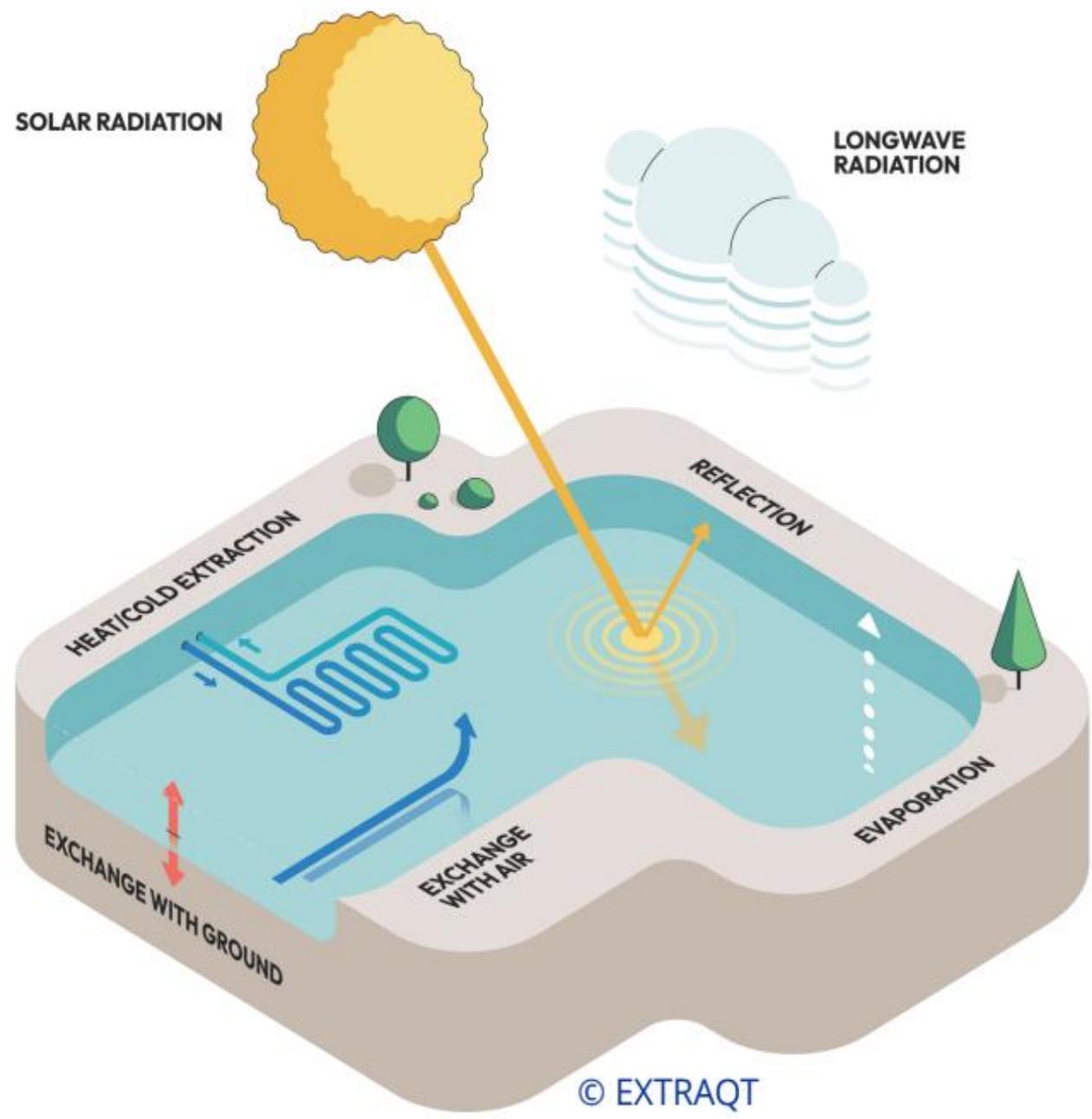
# Next Steps

## **3. Calculation of the Business Case**

- Civil engineering costs of laying new pipe to connect to School & Castle buildings
- Cost comparison of Air-Source versus Water-Source Heat Pump options
- Ecological considerations – nature sanctuary
- Heritage considerations – listed buildings & structures

# Learnings from Process

- Stream that flows into lake emerges from underground 20 meters above the entry point – so higher Winter temperatures.
- Stream has higher volumes in the heating season from October through to April
- Apparent spare capacity in lake to heat at least two thirds of the campus (to be accurately determined)
- A large investment – but a secure supply of energy
- Requires electricity – backup generator already in place

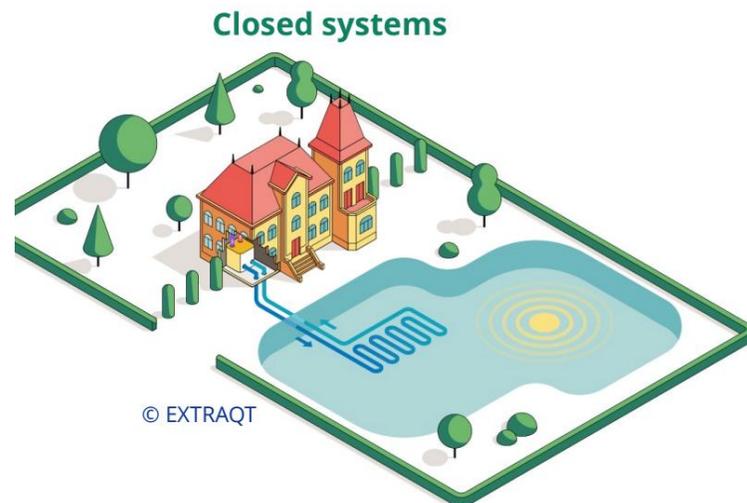




# Closed Water VS Open Water System

## Closed Water

- Heat Exchange in Waterbody
- Obstruction in Waterbody
- No Filtration needed
- Used in Closed Water (Lakes)



## Open Water

- Heat Exchange on Land
- Minimal Obstruction in Waterbody
- Filtration Needed
- Used in Flowing Water Bodies (Rivers Canals)

