



# Unlocking Geothermal Heat at scale in the UK & progress in County Durham

**Ellie Grimes**  
Net Zero Team Leader- County



# The Challenge

## Where we are now in 2024

Durham County Council emissions **down by 61 %** from 2008/09.

Countywide carbon emissions **down by 52%** from 1990

## Laying foundations for 2030

Actions for 2030 Council emissions to be reduced **by 80%** from 2008/09 levels and **net zero overall.**

County Durham emissions to be **reduced or offset by 80%** from 1990 levels.

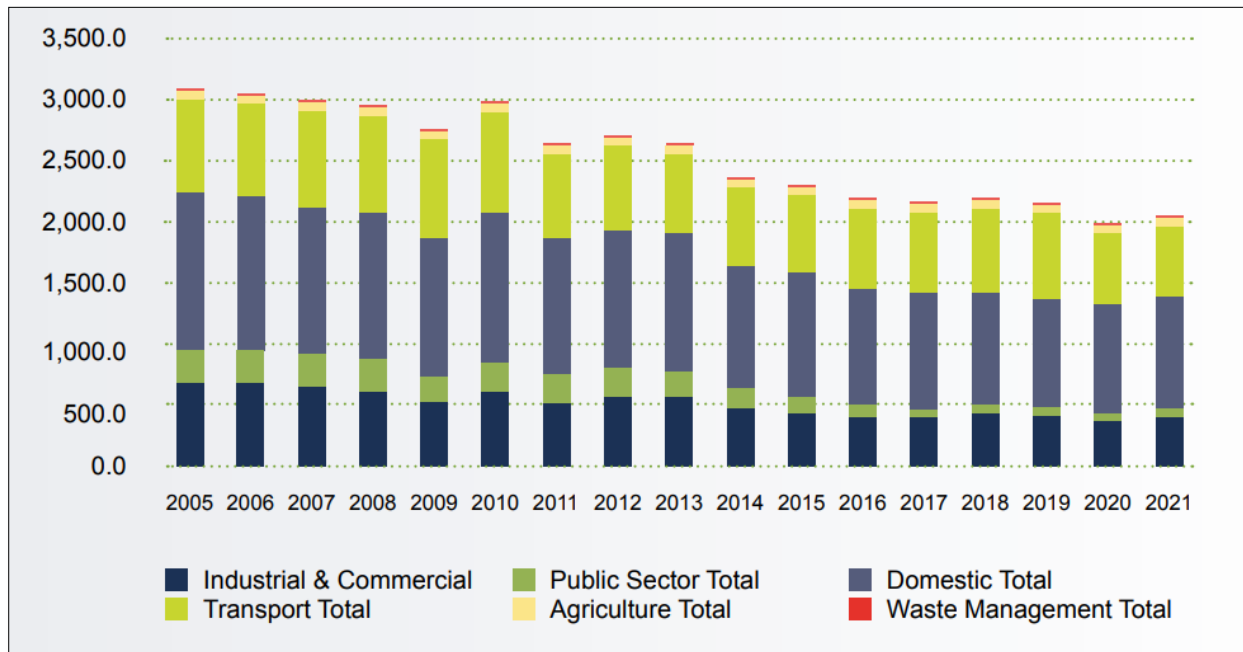
## County Durham's Aims for 2045

**Carbon Neutral County**  
All carbon emissions from the council and the whole of County Durham to be stopped or offset by 2045.

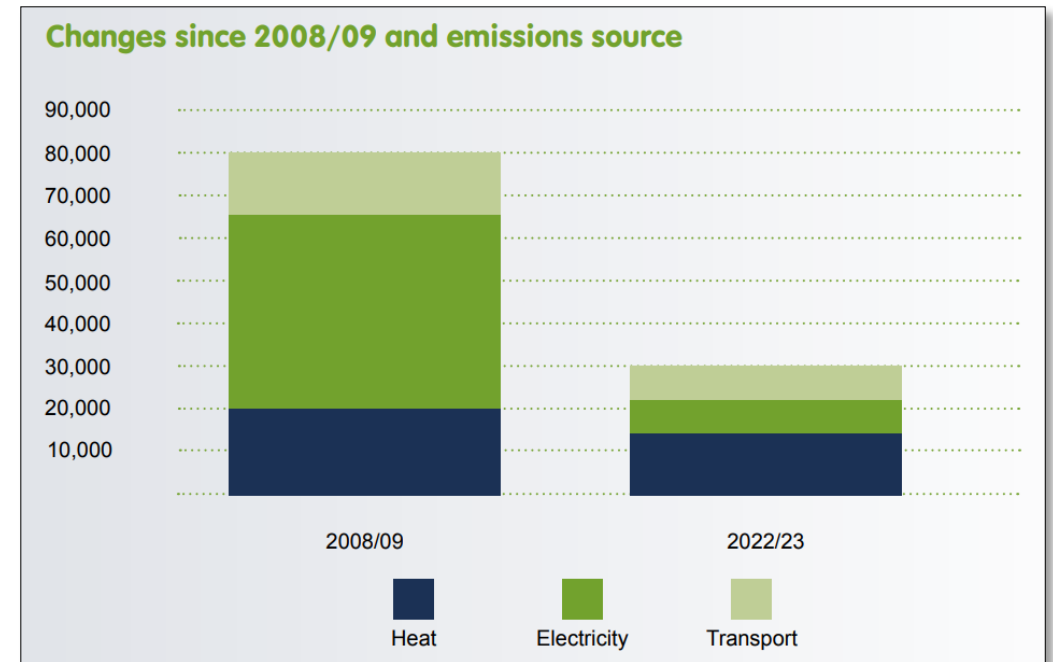


# Why now?

## Countywide



## Council



# Heat projects- Countywide



## Heat map

- Areas with **high heat demand** and possible anchor loads
- **Industrial clusters** with high levels of waste heat and other potential heat sources
- Areas that are “**off-gas**”
- Areas of **vulnerability**
- Areas that are **geographically insensitive**
- Areas with **non-ideal housing stock** that require retrofit
- Areas with **lesser constraints on the grid** or possibility of upgrades
- Areas with **potential heat sources**

## 5 areas/zones

Durham City

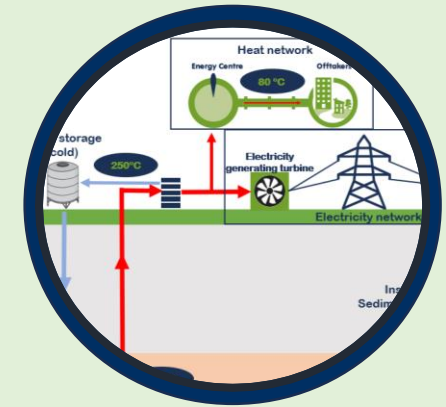
Newton Aycliffe

Peterlee

Seaham

Chester le Street

Confidence



## Geothermal

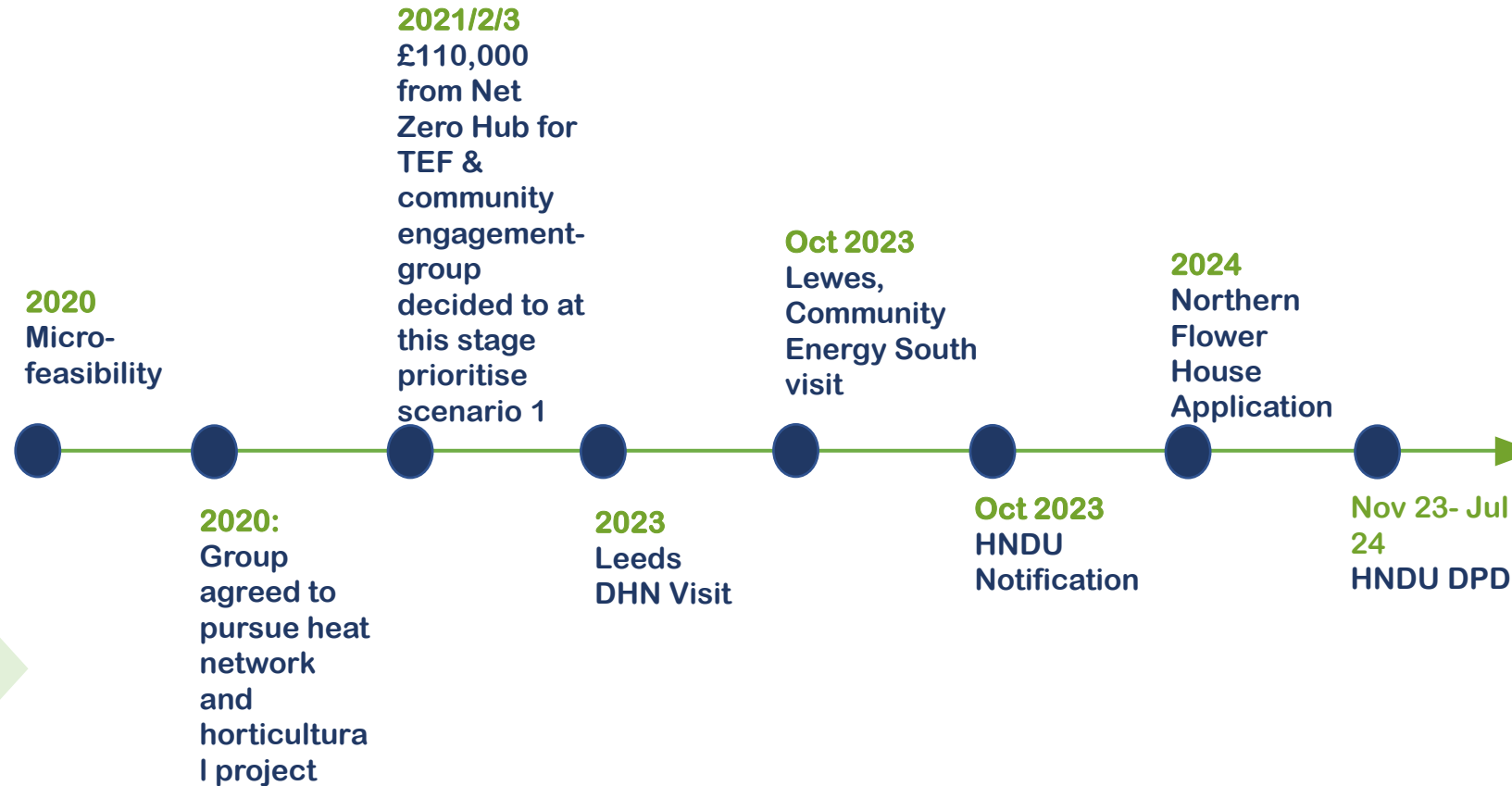
- Minewater- Horden & Seaham
- Deep Geothermal- Durham City

# Geothermal- Horden Minewater



## Geothermal

- Minewater- Horden & Seaham
- Deep Geothermal- Durham City



# Geothermal- Horden Minewater

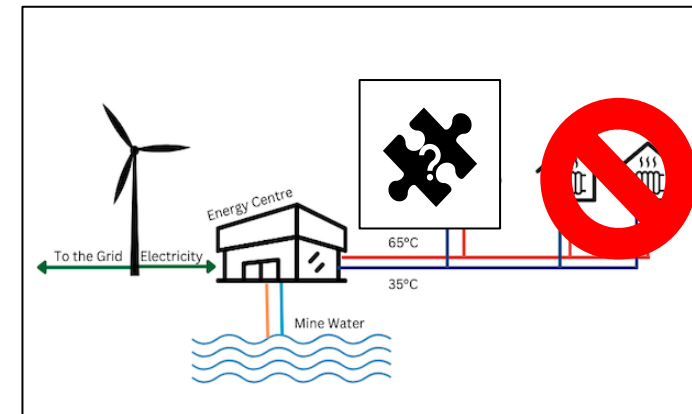


## Geothermal

- Minewater- Horden & Seaham
- Deep Geothermal- Durham City

CSF	Weighting
High chance of technical deliverability; in this case, deliverability refers to the technical viability of a proposed scheme.	5
Meets GHNF carbon thresholds, i.e. is eligible for GHNF capital grant.	3
Potential for community income generation/economic benefit, regeneration value/social value	5
Be financially self-sustaining; a positive Internal Rate of Return	5
maximise job creation;	5
Provide energy security and resilience and climate adaptation;	2
Maximise cost saving of customers and (whilst balancing this with wider com benefit) and maximise number of Horden buildings connected.	1

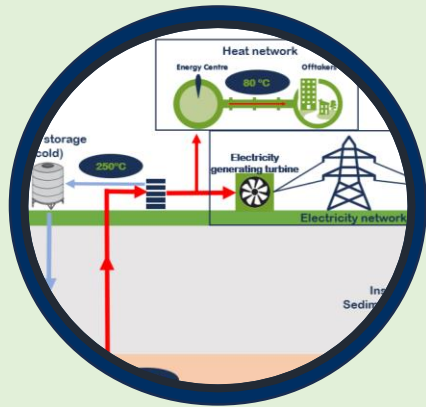
- Minewater already pumped to surface
- CBS potential ownership model
- Impoverished area
- To bring jobs to the region
- OBC stage- group assessing next steps



16 deg, 8 deg delta T

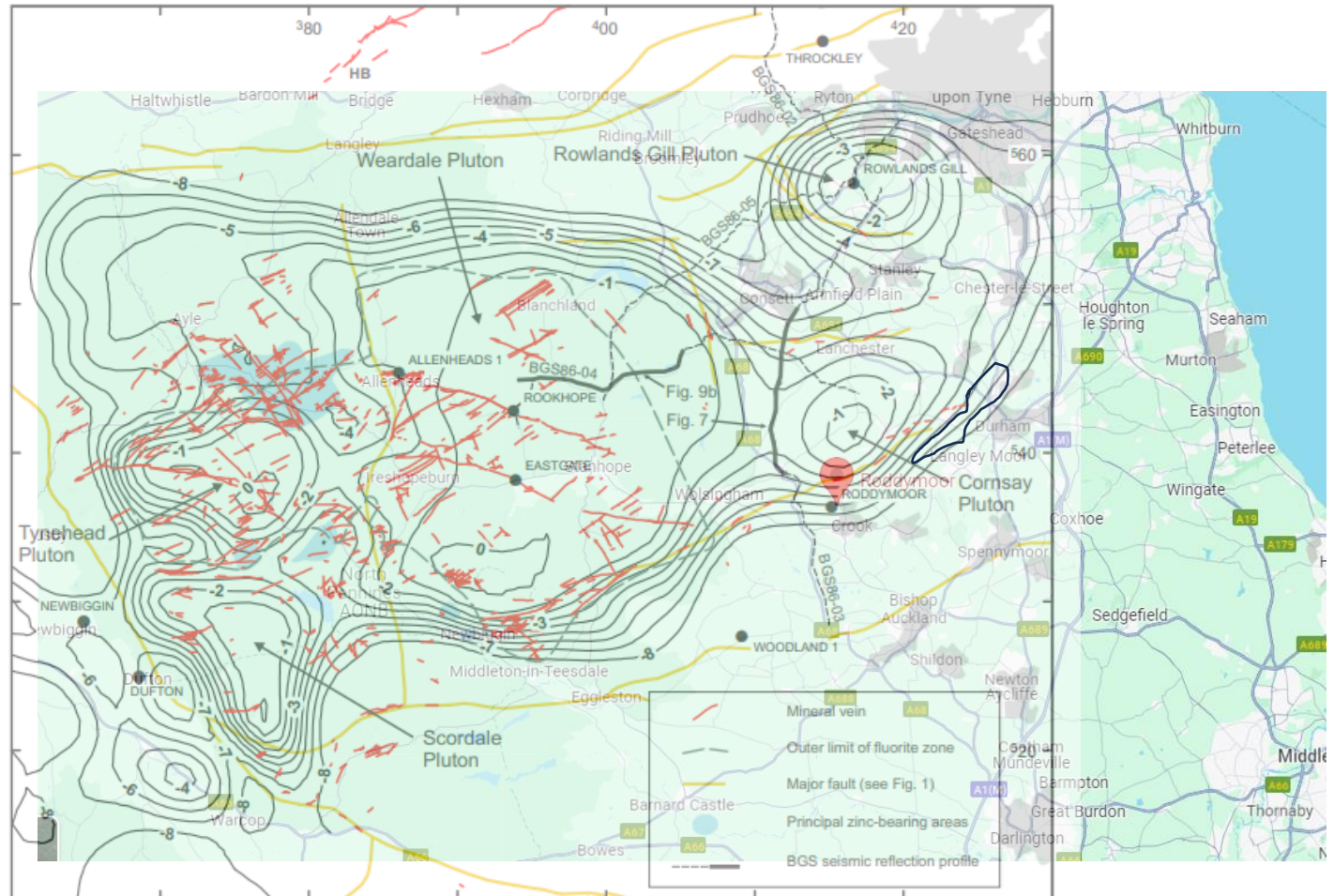
# Geothermal- Deep

County Hall: ~40 Deg C/km  
250 Deg C at 6km

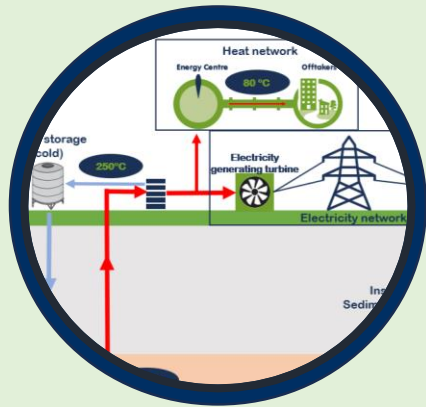


## Geothermal

- Minewater- Horden & Seaham
- Deep Geothermal- Durham City

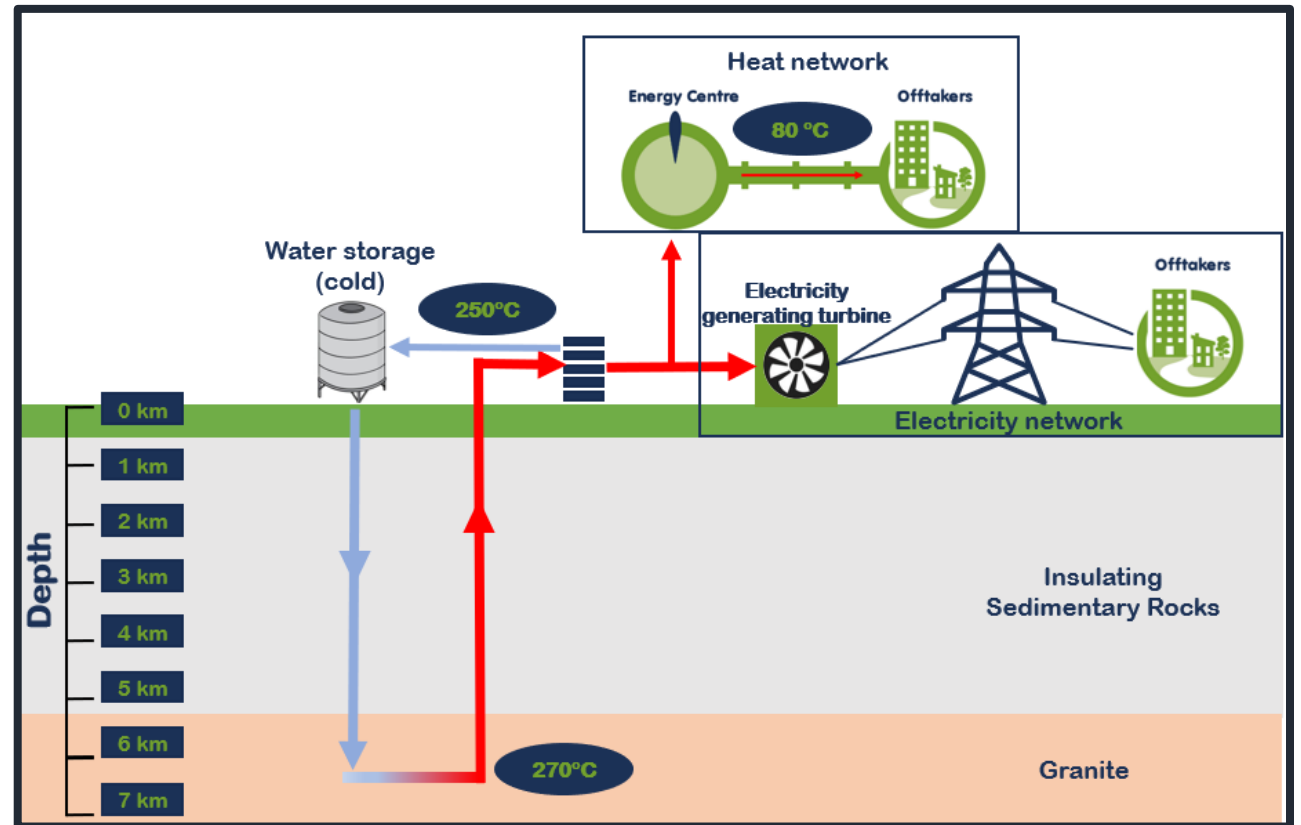


# Geothermal- Deep



## Geothermal

- Minewater- Horden & Seaham
- Deep Geothermal- Durham City



250 deg heat, 80 heat network



# Barriers- Geothermal



## Risk Vs Reward

- Temperature
- Need to drill
- Depth to drill
- Mining records
- Inability to access data



## Capital Cost\*

See heat network and deep geo as separate entities



## Need vs ability/time

- Community projects- rely on retired and active community members



## Grant funding competitiveness

- Need a specific geothermal fund



## Risk Appetite

Public sector risk averse

Public have a role here, as well as private sector



## Local authority expertise

- Private sector out competing employment market



## Skills\*

Working with regional LAs and British Drilling association





# DISTRICT HEATING DIVAS

## Public Sector



# DISTRICT HEATING DIVAS **PODCAST**



With host...



**Ellie Rose  
Grimes**

Net Zero Team Leader- County &  
District Divas Volunteer Co-ordinator  
for the Public Sector

Thank you for  
listening!  
Any questions?



# Training for Heat Networks

**The approved training providers (listed below) can offer trainees a grant of up to £500 towards eligible heat network courses.**

## Eligibility

You're eligible for the grant if all of the following are true:

- you're a heating engineer or work in the heat networks area
- you're based in England
- you, or the business you work for, have received less than £315,000 in government subsidies over the last 3 years

There may be additional requirements for some of the courses.

## [BESA Academy](#)

- Heat Network Foundation Course
- Heat Network 1 Installation and Maintenance Course

## [CIBSE](#)

- Heat Networks Code of Practice (CP1) full course
- Introduction to Heat Networks and Code of Practice and CP1

Sycous Limited

## Chirpy Heat

- Heat network operation and maintenance (housing associations, local authorities, ALMOs)
- Heat network operation and maintenance (supply chain (M&E contractors, heating ontractors, building services engineers)
- Strategic approaches to heat networks (housing providers and developers
- Advanced strategic approaches to heat networks (housing providers and developers)

## Fair Heat Limited

- Improving the performance of your existing heat networks
- Setting heat tariffs on heat networks
- HIU servicing for maintenance engineers
- Heat Network feasibility studies: how to get it right
- Effective quality assurance for new heat networks
- Heat network construction – guide for contractors
- Heat network construction – guide for local authorities and developers

## GTEC Training Limited

- Heat Networks –Principles of Operation
- Heat Network Feasibility and Design
- Heat Network Construction

- Heat Network Operation and Maintenance
- Heat Network Metering and Billing & Data Collection

### Guru Systems Limited

- Using Energy Performance Data to Optimise Heat Networks
- Developing a Heat Network Metering Strategy
- How to Meter Ambient Loop Heat Networks

### CPV Limited

- Jointing options of pre-insulated polymer pipe solutions
- Pipe surveillance systems

### SAV Systems

- Advanced service engineer course