



THE SMART CITY ALLIANCE

Execution is Everything



HEAT
ACADEMY
DOING IS KNOWING
STOKE
ON
TRENT
COLLEGE

INVITATION

SMART CITY CHALLENGE

MINE HEAT

DEVELOPING A COST EFFICIENT SCALABLE SOLUTION FOR
EXTRACTING AND STORING HEAT IN OLD MINE SHAFTS

STOKE

14 MAY, 2019 –09.00– 16.00

YOU ARE INVITED to a Smart City Challenge seminar organized in cooperation with the Coal Authority, Stoke City Council and the Heat Academy – Stoke-on-Trent.

The overall aim is to launch a process making it possible to offer affordable and sustainable heat from mines to residents on the surface. Old mines are currently regarded as a liability, requiring significant resources for required management and maintenance. Considering the number of abandoned mines, across the UK, this represent a huge cost for the taxpayers. However, there are some significant opportunities of turning mines into revenue generating assets.

The Coal Authority is actively developing programmes to generate revenues from mines, one being the opportunity for using minewater heat to supply district heat networks. It is estimated that the heat available in mines could more than meet the total demand of heating in the UK. There are limits to how far the heat can be distributed; however, mines have the potential to evolve into a billion £ industry, replacing gas as the main heat source in large parts of the UK. This in turn would make mines a significant contributor in reducing carbon emissions. The heating of buildings currently represents X% of all CO₂ emissions in the UK.

There is a strong interest for this emerging £billion market from a range of stakeholders in the industry, not least the supply chain. The potential is enormous, not only in the UK, but across Europe and beyond. Now is the time to engage for those aspiring to become leaders in the field of mine heat.

A number of pilot projects in mine heat are currently underway in the UK, one of which is located in Stoke. **On 14 May we invite professionals and companies possessing the best available technologies and competences related to extracting and storing heat in old mine shafts.** We hope you are ready to take up this challenge, and that we jointly will harvest the rewards from the successful completion.

THE OPPORTUNITY

The UK's former mine workings contain water which is typically warmed by the heat of the earth to a temperature of between 15 and 30°C. This warm water can be distributed by heat networks to provide heating to homes and other buildings. The heat of the earth naturally keeps mine water at a constant temperature. This natural heat resource can be increased by using the mine water to store industrial waste heat and heat from the summer for use in the winter.

THE CASE FOR MINE WATER HEAT

Benefits of connecting mine workings to heat networks;

- Constant and secure supply of renewable heat
- Reliable heat source = protection from energy price rises
- Understood and established technology
- Availability of local, national and international expertise
- Significant reduction of CO₂ emissions
- Reduction of gas imports to the region
- Stimulation of Inward Investment, business growth and jobs
- Economic regeneration of mining communities
- Engaging broader public in the smart city transition

ORGANISED BY



REGISTRATIONS

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BACKGROUND

The Smart City Alliance is an international cooperation platform involving cities, institutions and companies, all determined to be global frontrunners in developing smart city infrastructure. It's not a talking club to exchange theories and visions. It's all about execution – actions, swift delivery and practical results. For this reason we only engage with cities projects which are in delivery mode, having concrete projects to be executed in the near future. This has proven to be a good way of attracting the most innovative and progressive suppliers in the industry. Being an active partner in pioneering projects is potentially the best way of securing the position as leader, also in the future. Impatience and practical initiatives, not words, is what will make us resolve the challenges related to energy and climate. When you take the lead move forward and do things you will undoubtedly fail from time to time. We believe the alternative is worse. Doing is the only way to the future. Leaders are ready to fail, but when they do so they fail forward.

The Heat Academy represents one of the core activities within the Smart City Alliance. Having a very hands-on practical approach, the focus is on *Doing rather than just Knowing*. The training courses have been designed along two broad categories - **Master Classes** focusing on the theoretical aspects of implementing smart energy infrastructure, and **Vocational Training** addressing the practical activities related to design, installation, operations and maintenance of systems.

Since the start in 2014, some 3500 professionals in 12 markets have participated in training sessions organised by The Heat Academy. The Heat Academy is cooperating with local colleges and universities as well as industry organisations in designing and executing the training activities. Best in class suppliers are also invited to become engaged in the training activities.

In the UK, **Stoke-on-Trent College** has taken the lead in establishing a Heat Academy. Organised as a specific faculty, the Heat Academy in Stoke offers training in topics related to business planning, design, installation and operations of smart energy infrastructure.

THE SMART CITY CHALLENGE

The overall ambition of the Smart City Challenges is to highlight specific hands-on challenges in an ongoing investment programme in district energy, with the aim of transforming them into new business opportunities. Our basic belief is that the most efficient way of solving problems is to cooperate across the industry. Complex problems are often solved through the joint effort by best-in-class professionals. A focused sharing of competences and experiences leading to a solution combining a broad set of technologies and practices is what took us to the moon. We believe the same approach can be applied when addressing more modest, but equally critical challenges related to development and implementation of smart city energy systems. The market potential for such systems is enormous, as are the rewards for the winners.

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