CIH HOUSING BRIGHTON

8 - 9 MAY 2024

Welcome to Housing Brighton

Lee Venables, Chief Operating Officer, Kinovo

What do the New Heat Networks Regulations mean for the sector?

Josh Davis, Chirpy Heat

Andy Arnold, Head of Asset Management, Wandle Housing Association

Chair: Hony Premlal, Chair, Eldon Housing

Time to network and meet our exhibitors!

Complimentary refreshments are available in the exhibition hall. The next sessions begin at 11:45.

Healthy Homes, Healthy Places

Hugh Ellis, Policy Director, TCPA

Mat Colmer, Senior Innovation Lead, UKRI – Innovate UK

Andrew Waters, Business Development Manager, FRC Group

Elizabeth Ross-Smith, Senior Planning Manager, Greymoor Homes

Chair: Rachael Williamson, Head of Policy and External Affairs, Charted Institute of Housing

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Healthy Homes Pledge

8th May 2024

tcpa

Campaign sponsor

Nationwide Foundation


DISTRICT
COUNCIL
Toilets
AFFORDABLE
ACCOMMODATION
FOR LOCAL PEOPLE
SPACIOUS CUBICLE WITH
ENSUITE TOILET+SINK.
NO PETS · NO SMOKING ·

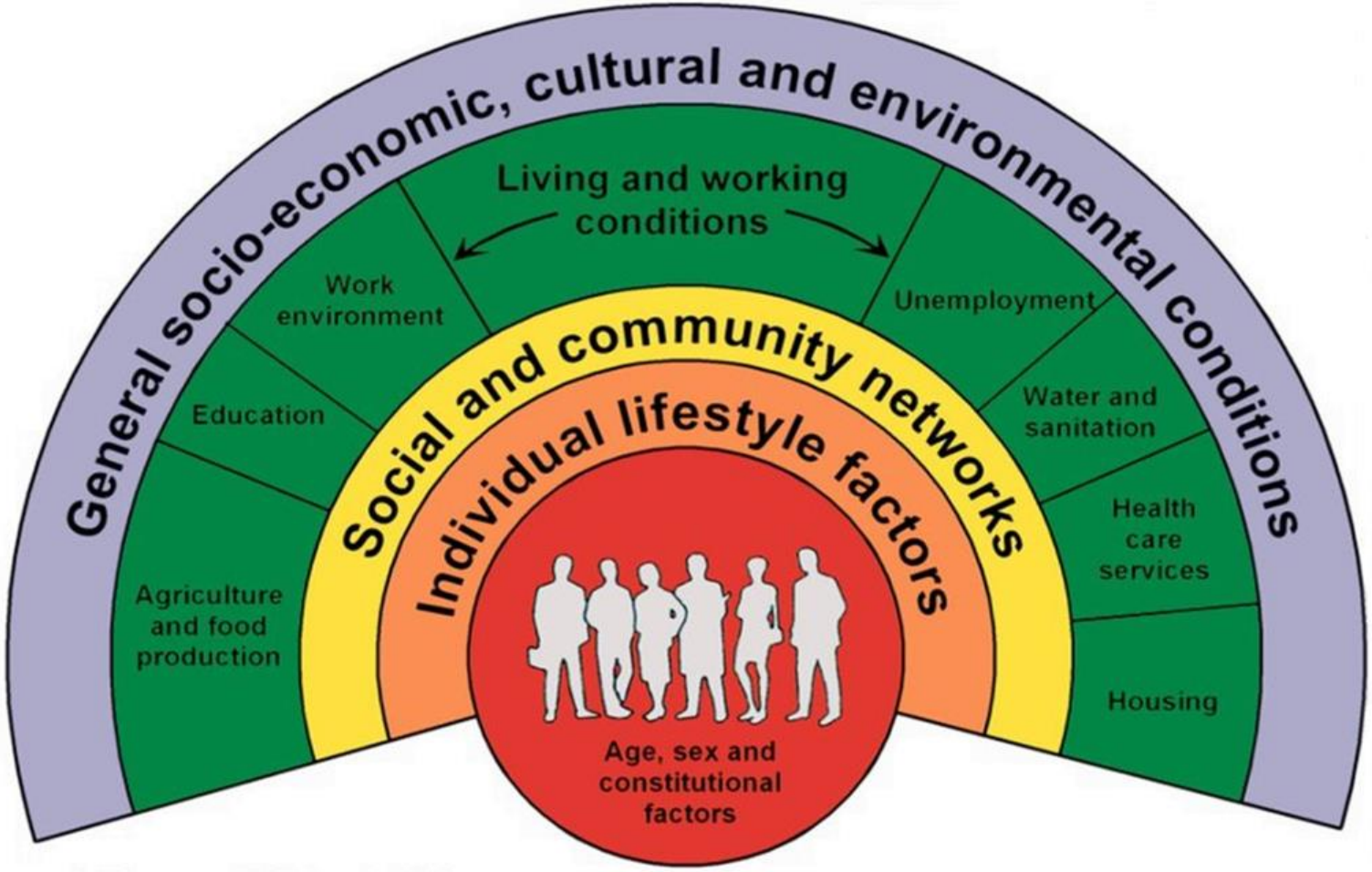
Housing and health disconnect

- **Over one in ten people in the UK live in homes that are not ‘decent’**
- **Those living in poor-quality homes are twice as likely to have poor health -** 70,000 ‘excess deaths as a result of cold, poorly insulated homes. 15.7 million UK homes fail the bedroom overheating criterion
- **Poor housing costs society £18bn annually, and the NHS at least £2bn a year to treat preventable illnesses –** e.g. respiratory and cardiovascular diseases, mental health, and mortality.
- **Deregulation of housing through ‘Permitted Development’ risks poor health -** structural safety, accessibility, overheating rules don’t apply.

Creating homes and communities with health at their heart: Letchworth Garden City

'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'

World Health Organisation



Source: Dahlgren and Whitehead, 1991

tcpa

Promoting Healthy Homes for all!

Call for a national ‘Healthy Homes and Communities’ statutory duty and strategy for delivery

- Join-up housing quality and quantity for existing and new communities, to promote human and planetary health
- ‘Our Shared Future’ White paper

Image:
Ebbsfleet Development Corporation

You can sign up to our Healthy Homes Pledge and join the campaign here:

For more information:

Rosalie.Callway@TCPA.org.uk
Clemence.Dye@TCPA.org.uk

FURNITURE POVERTY IN SOCIAL HOUSING

END FURNITURE POVERTY

EXTENT OF FURNITURE POVERTY

- 6m people in the UK are living in furniture poverty – 9% of the UK population
- 55% of people in furniture poverty, 2.6m people, have a disability
- 26% of social housing tenants are living in furniture poverty
- Over 1m adults living in ‘deep furniture poverty’, missing 3 or more items

END FURNITURE POVERTY

IMPACT OF FURNITURE POVERTY

Physical health:

- 7 in 10 had problems sleeping
- 7 in 10 with long term illness or disability said FP made condition worse

Mental health and social wellbeing:

- 9 in 10 felt stressed or anxious
- 8 in 10 felt more depressed

END
FURNITURE
POVERTY

SOCIAL HOUSING & FURNISHED TENANCIES

- Vast majority of social rented properties, (98%), allocated as unfurnished
- We believe at least 10% of social tenants would hugely benefit from a furnished tenancy scheme
- Those fleeing domestic violence, coming from homelessness, temporary accommodation, or even moving from private to social rental sector – often have nothing

END FURNITURE POVERTY

SOLUTIONS TO FURNITURE POVERTY

- Furnished Tenancies
- Local Welfare Schemes
- Furniture Reuse Schemes
- Grant-making Sector
- Furniture Gifting Schemes

END FURNITURE POVERTY

FURNISHED TENANCIES: BENEFITS FOR LANDLORD

- Better living conditions for tenants, so reduces turnover
- Sustained rental income
- Reduced void costs
- Improve chance of letting hard to let properties
- Improved sustainable communities
- Opportunities to create a surplus

END
FURNITURE
POVERTY

FURNISHED TENANCIES: BENEFITS FOR TENANTS

- Move into a ‘home’
- Likely to stay longer in the property – 2 years plus
- Furniture is a key source of debt
- Avoidance of ‘easy’ credit, such as rent to own stores or payday lenders
- More likely to engage with support services
- Improved health and wellbeing

END FURNITURE POVERTY

FURNISHED TENANCIES - OPTIONS

- Capital route
  - Landlord purchases furniture and recoups capital over 3 to 5 years, ideally through the service charge
  - Service charge includes element for repairs and replacement, and admin costs
- Rental route
  - Landlord rents the furniture from a third party
  - Service charge includes element for landlord admin costs

END FURNITURE POVERTY

EFP & FURNISHED TENANCIES

No Place like Home report

- Found that only **2% of social rented properties are let as furnished or partly furnished** (i.e. floor coverings/curtains) in comparison to **29% of private rented properties)**
- **Examined what furniture provision is available and impact on tenants**

Blueprint for Furniture Provision in Social Housing

- Detailed guide to create a furnished tenancy scheme

END FURNITURE POVERTY

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Utilising Technology to Decarbonise Housing Stock

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Dr. Ralitsa Hiteva, Senior Research Fellow, Science Policy Research Unit, University of Sussex

Paul Rogers, Senior Innovation and Technical Evaluation Coordinator, National Energy Action

Joe McMullen, Chief Operating Officer, AIREX

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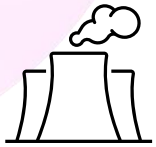
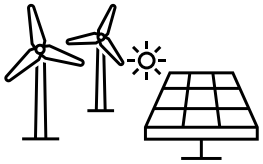
mixergy

Addressing the challenge of the decarbonisation of heat

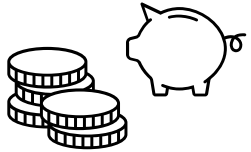
The decarbonisation of heat in homes presents one of the greatest energy challenges in this critical decade.



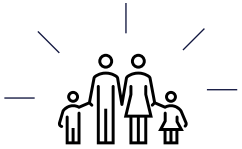
Urgent need to phase out fossil fuels



… and manage greater renewable energy capacity coming online



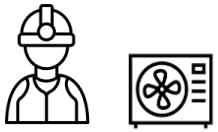
Need to protect households from fuel poverty



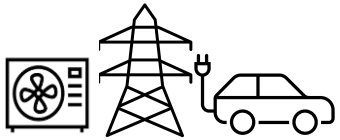
… whilst providing guaranteed comfort & better control

Need cost effective, futureproof standards for new homes

… whilst also offering an effective solution for existing homes



Need to grow the installer base to deploy new technologies



… and address grid constraints due to EVs & heat electrification

mixergy

The challenge with existing stored water cylinders is that they heat everything like kettles, they are dumb!

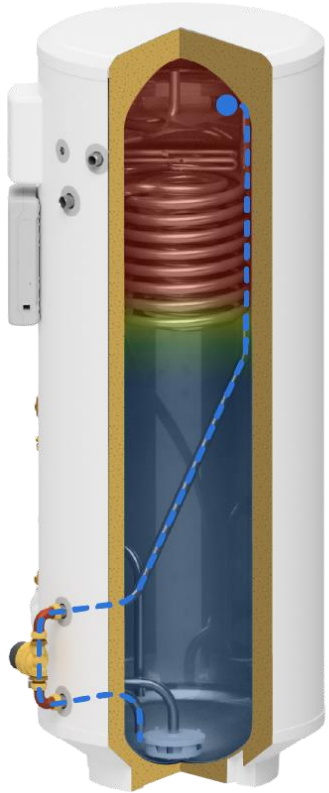
Even though on average

we use <50%

- Adaptive energy technology

Conventional Vs Adaptive Top Up Technology.

+



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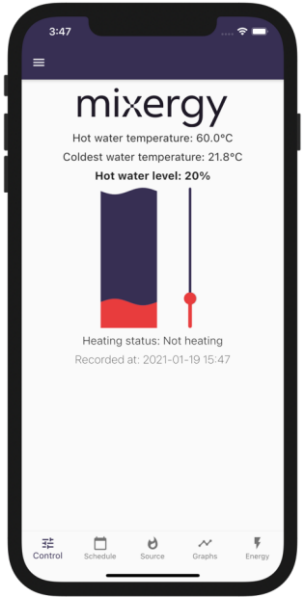
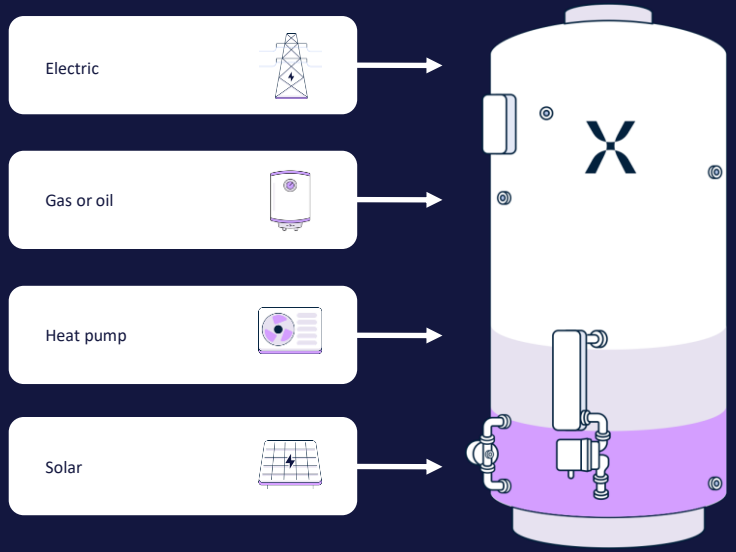


mixergy

Mixergy provides a clear path to transition from fossil fuel heating to low and zero carbon alternatives.



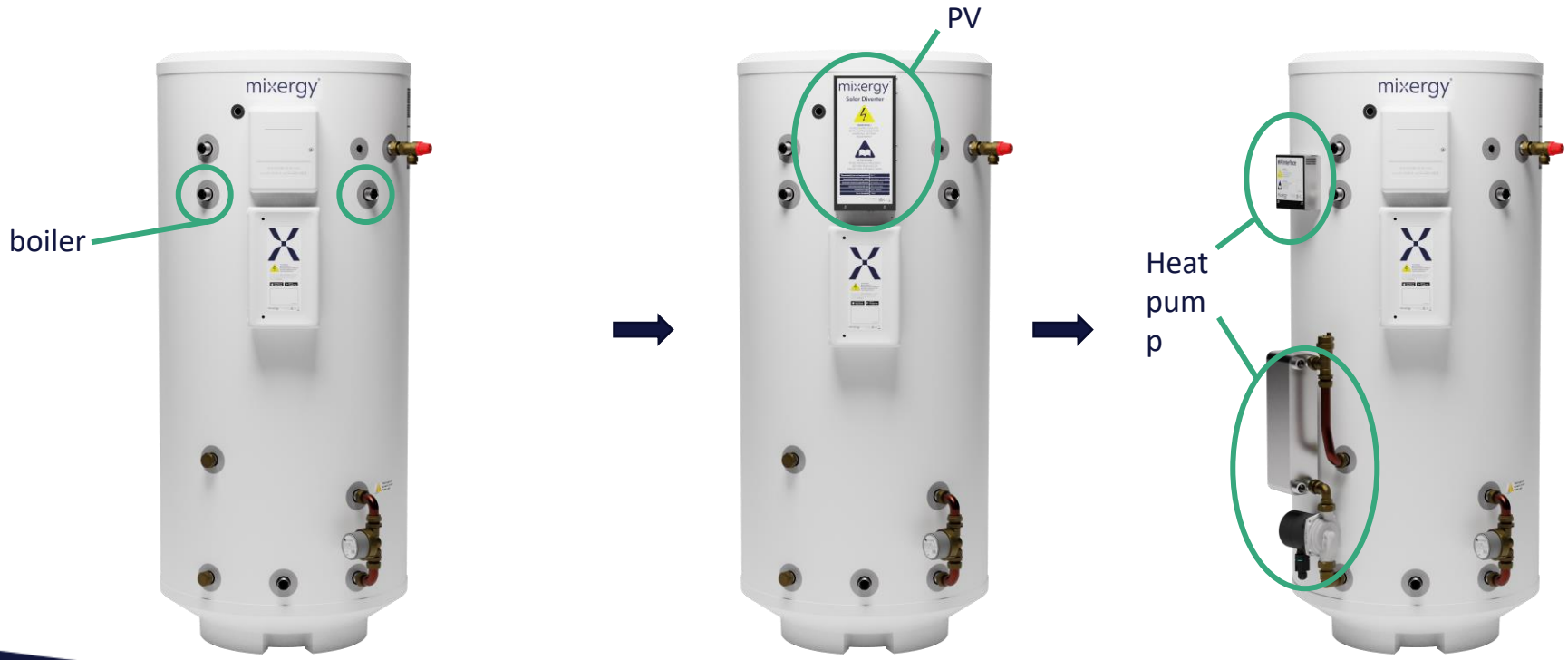
All Mixergy tanks are heat pump and solar PV ready

With a 25 year warranty, Mixergy tanks are future-proofed to support a household's journey to net zero living.

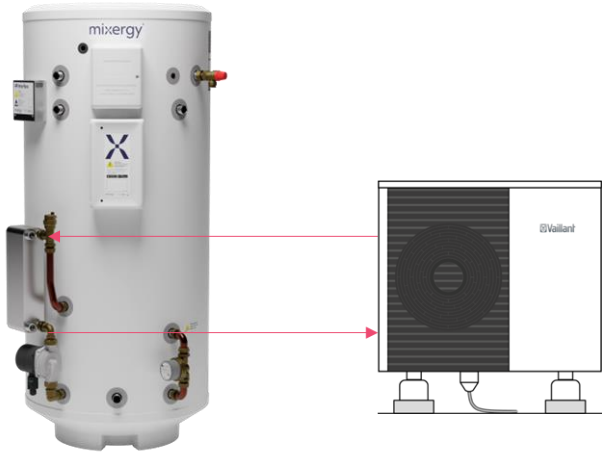
- Adaptive energy technology

Transition from gas to net zero

Install with a gas boiler today and upgrade throughout its working life to connect to solar PV or heat pumps at any time and without need for replacement:



The Mixergy tank provides a better solution for heat pumps than standard competitor solutions by using an externally mounted Plate Heat Exchanger. It is smaller, faster and more efficient.



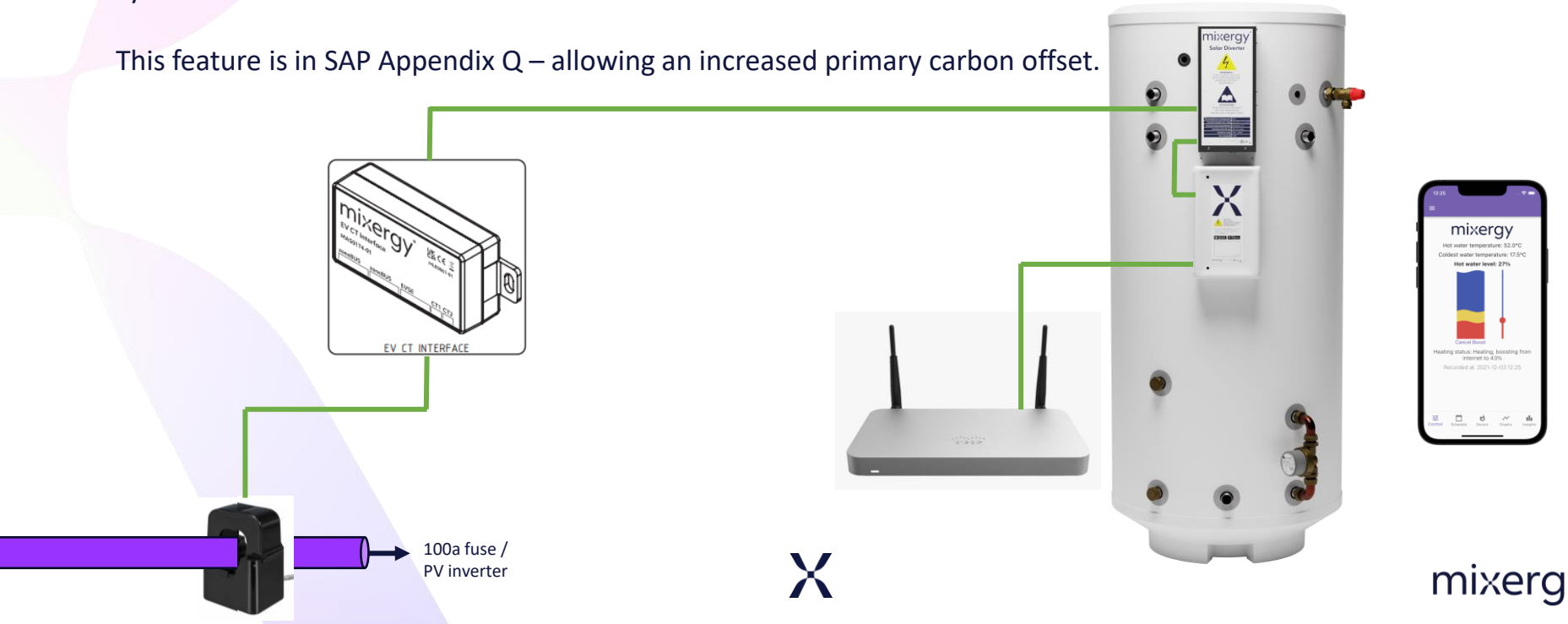
Key Benefits:

- 20% more useable hot water v. conventional heat pump cylinders.
- More efficient heat transfer with 5-10% COP improvement.
- More compact - typically 40% smaller. Also available as a slimline option.
- Better heating of the full contents of the cylinder to the same temperature.

Mixergy + PV installation

The Mixergy tank has a cylinder mounted solar PV diverter – this uses a cat5 data cable (green) to connect our current reader to our cylinder. This monitors and control solar energy flows between the PV diverter and the Mixergy tank. The house gets solar load priority before any excess is diverted to the hot water cylinder.

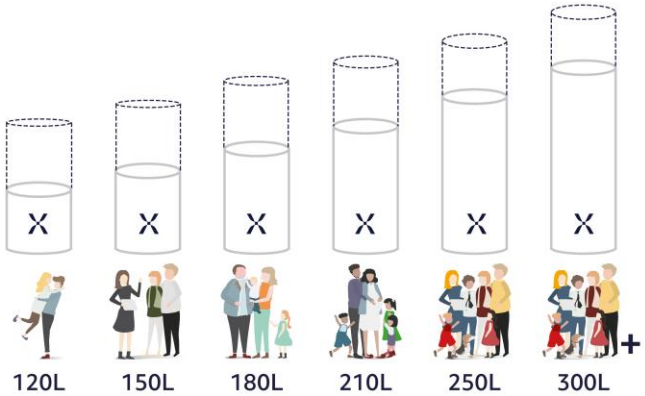
This feature is in SAP Appendix Q – allowing an increased primary carbon offset.

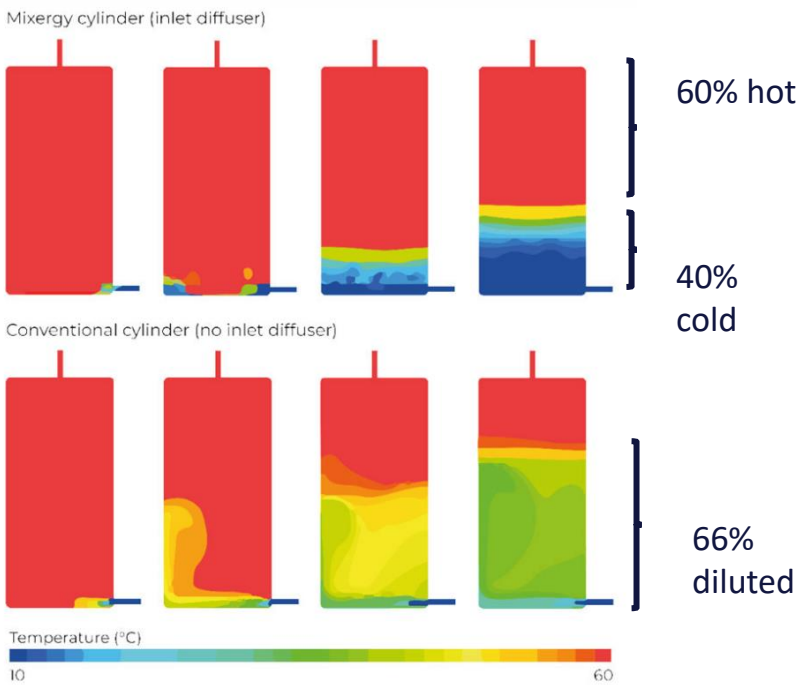


Install a size smaller

As a result of:
1) Knowledge of state of charge
2) Ability to rapidly reheat
3) Prevention of dilution on discharge

You can drop down a cylinder a size or reduce design volume by ~30%, the combination of controlled discharge leaves 30% more usable hot water from the same volume cylinder:



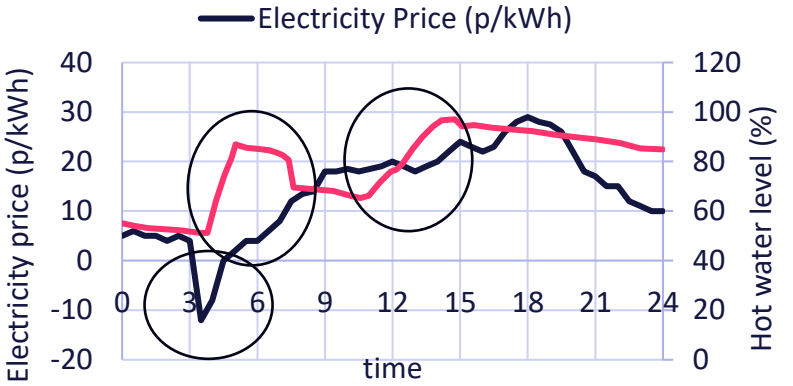


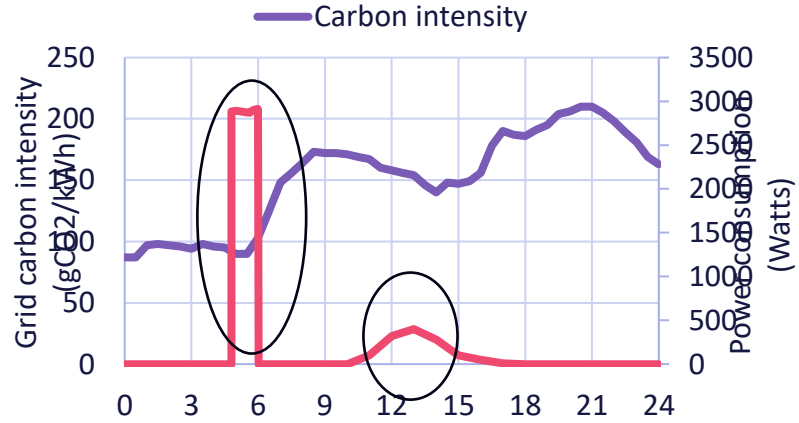
Above: 60litres discharged from a 180l conventional vs. 180l Mixergy tank.

*The 30% additional usable volume is verified by the National Physical Laboratory (NPL): https://www.npl.co.uk/case-studies/verifying-cutting-edge-environmental-technologies

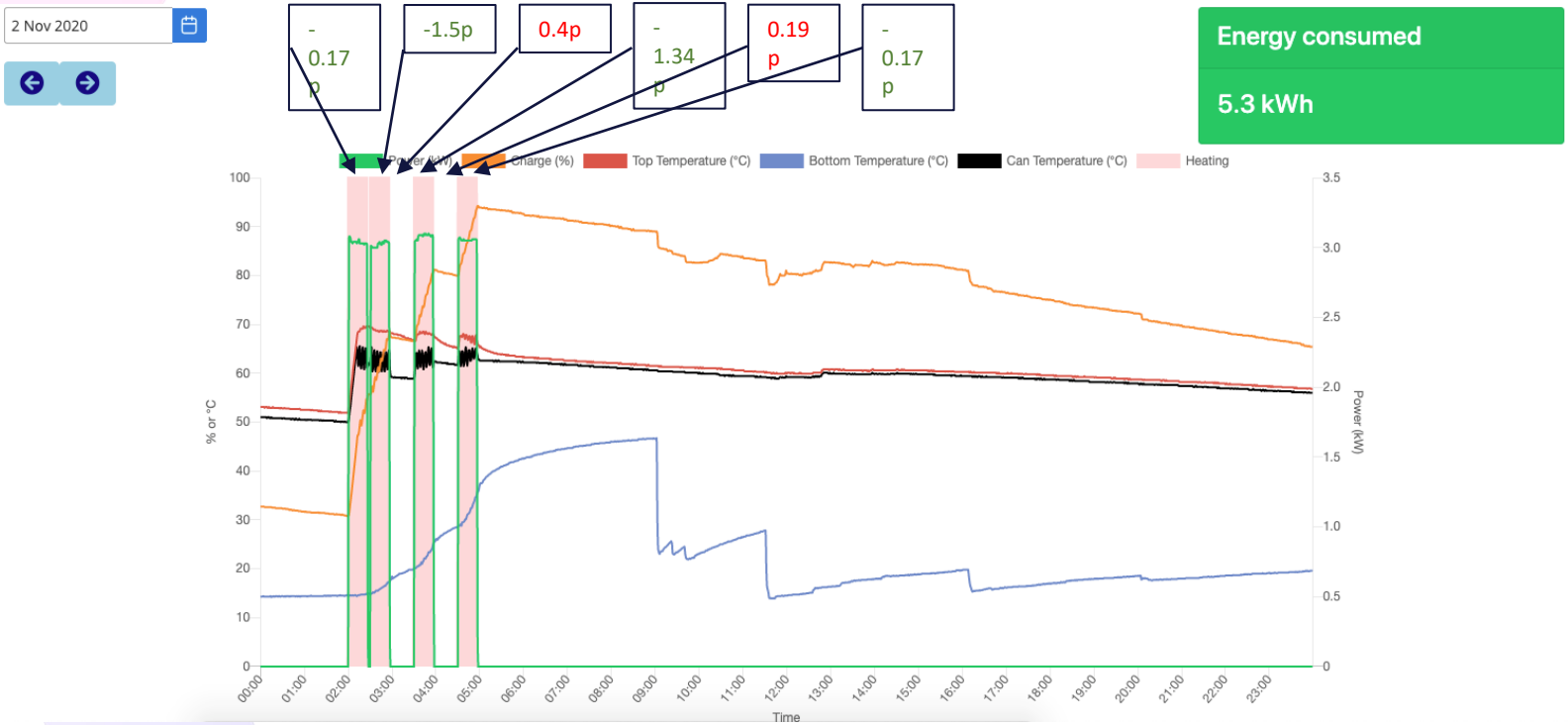
mixergy

Machine learning adapts the water heating schedule to exploit “time of use” tariffs delivering real cost & carbon savings





Tariff optimisation using machine learning



mixergy

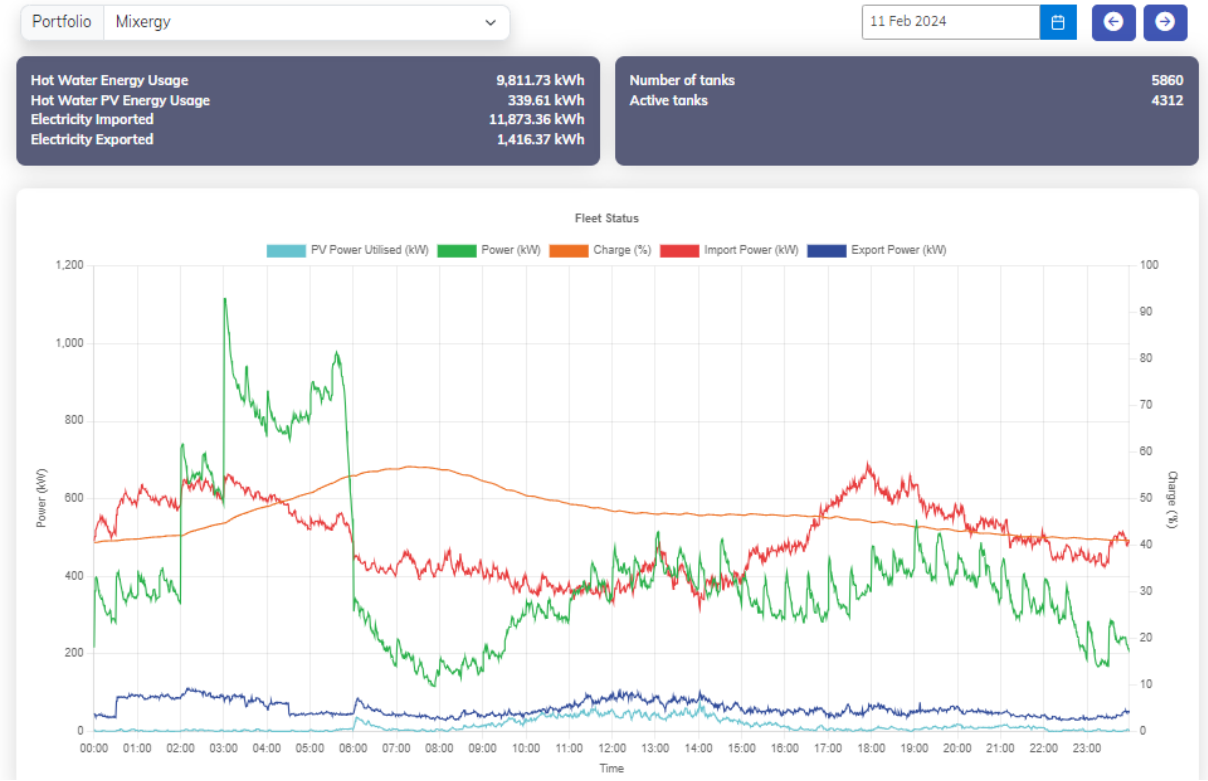
Bonus data!

Connectivity means we can access and interrogate lots of data:

- Hot water usage
- Solar PV data
- Energy consumption
- Carbon intensity
- Usage profiles
- Water hygiene

This is available at an enterprise level and a local level for homeowners too.

We can also factor insights and lessons learned into future product development.



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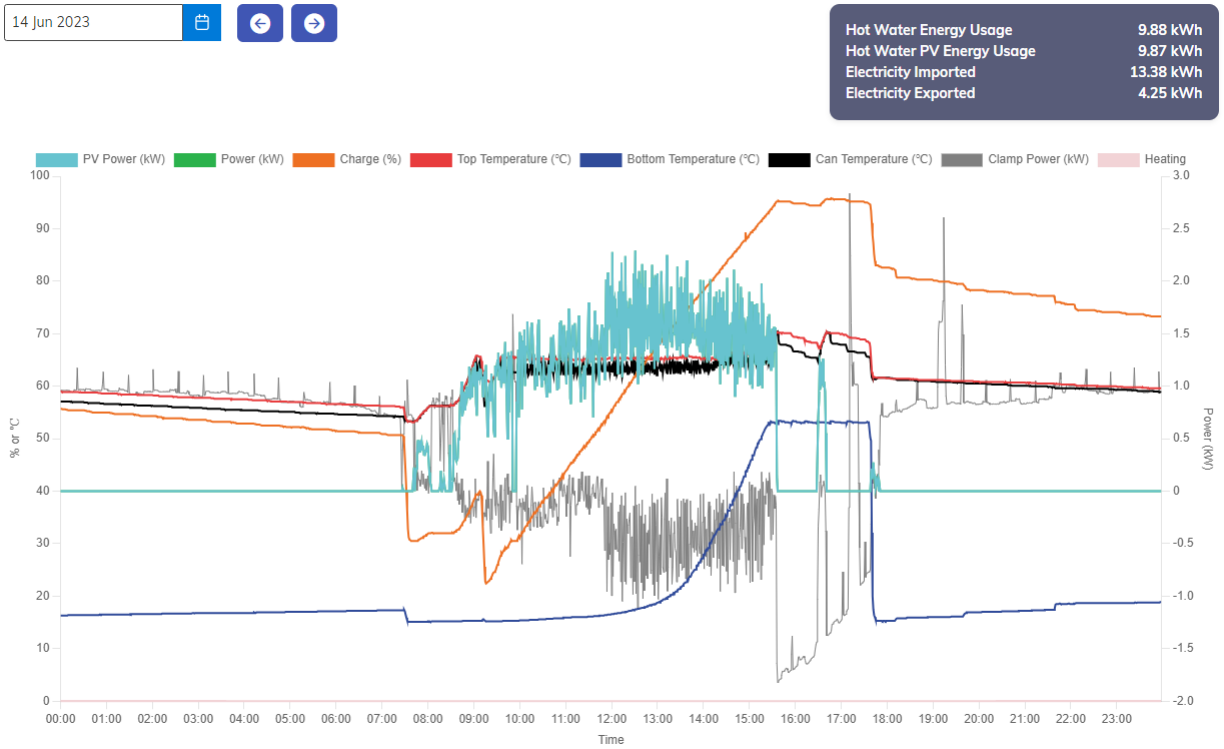


mixergy

How Mixergy improves your EPC rating

We're a cost effective and efficient way to reduce carbon and improve the energy performance certificates of your housing stock.

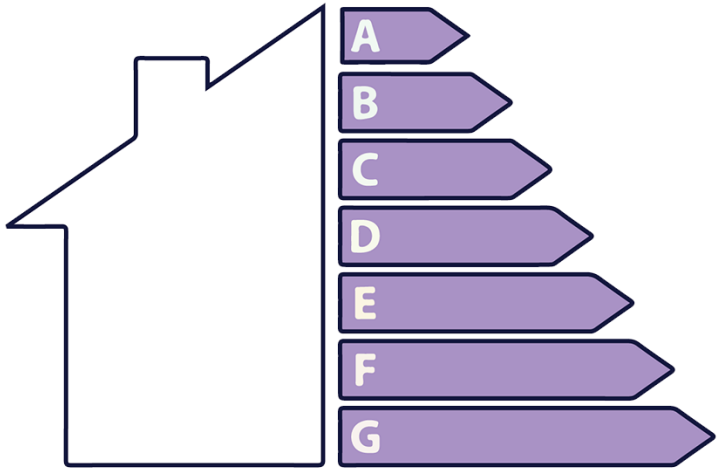
Mixergy is in **SAP Appendix Q.** This means our technology's carbon savings officially contribute to an EPC rating when combined with solar PV and / or heat pumps.

In retrofit projects, Mixergy is proven to offer an average gain **of 4 points** in an EPC rating (when combining with solar PV, and that's on top of the PV gain).

We can improve ratings by **up to 14 points**, depending on the amount of PV installed.

When combining solar PV and heat pumps, you can reduce to zero carbon with up to **50% less PV**.

Mixergy has the ability to **offset carbon** and needs less energy to heat water.



mixergy

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Oxfordshire OX29 4DB, UK

Thank you!

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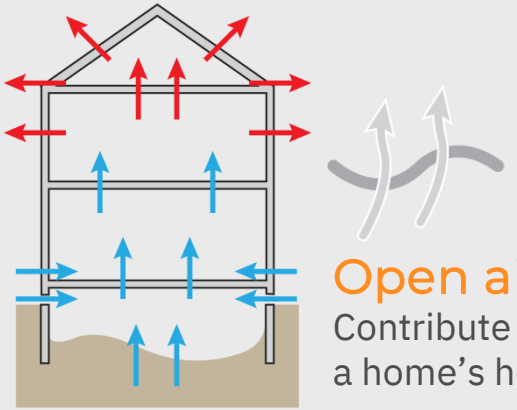
Joe McMullen
joe.mcmullen@airex.tech

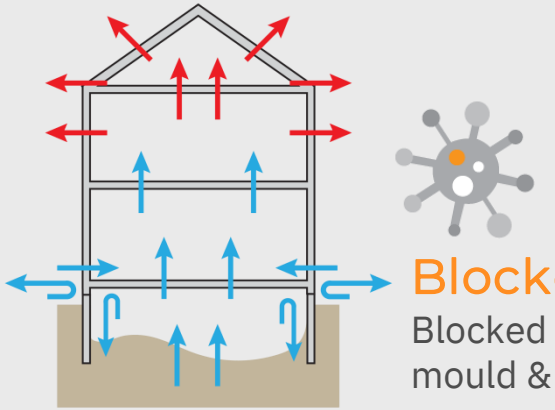
The challenge

Balancing thermal efficiency with healthy air exchange



Open air bricks

Contribute to around 15% of a home's heat loss

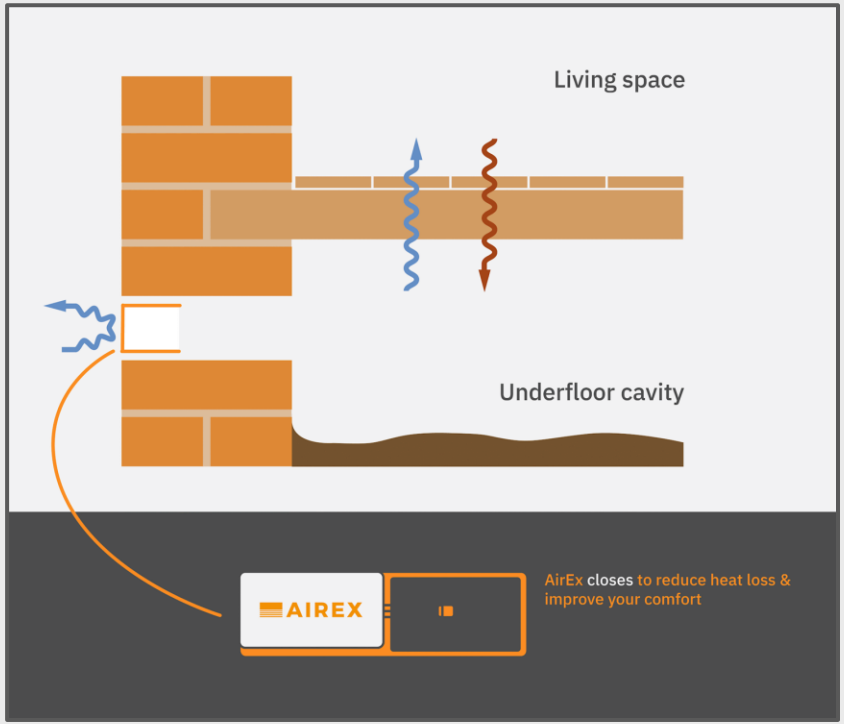


Blocked air brick

Blocked air vents cause mould & damp problems

The AirEx system

Smart air bricks open to allow adequate airflow, close to improve thermal performance



When closed

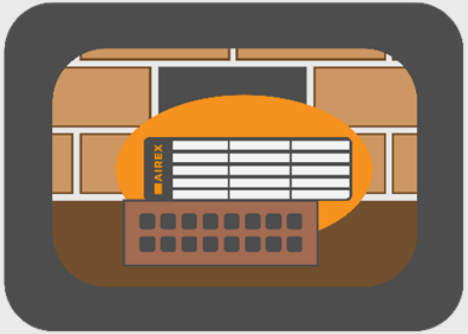
- Heat loss is reduced
- Energy consumption and heating costs are lowered
- Thermal comfort is increased due to warmer homes and reduced draughts

When open

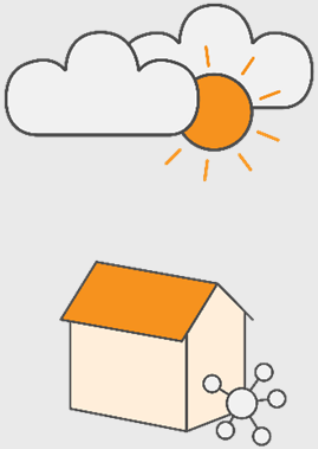
- Air quality is maintained
- Risk of damp, mould and timber rot is decreased

The AirEx system

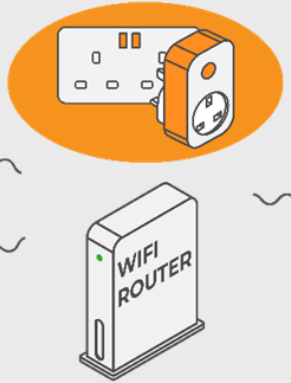
Measurements of internal and external conditions allow for optimised ventilation



Existing air bricks are replaced with AirEx Floorvent smart air bricks



Internal and external temperature and humidity are measured



Wirelessly connected, the home hub connects the smart air bricks to the cloud

By opening an closing the smart air bricks optimise ventilation

Validated impact

Four independently validated studies have confirmed AirEx's impact

The University Of Sheffield. — 2017

University of Salford MANCHESTER — 2018

ENGIE by people for people — 2019

bre ofgem — 2020

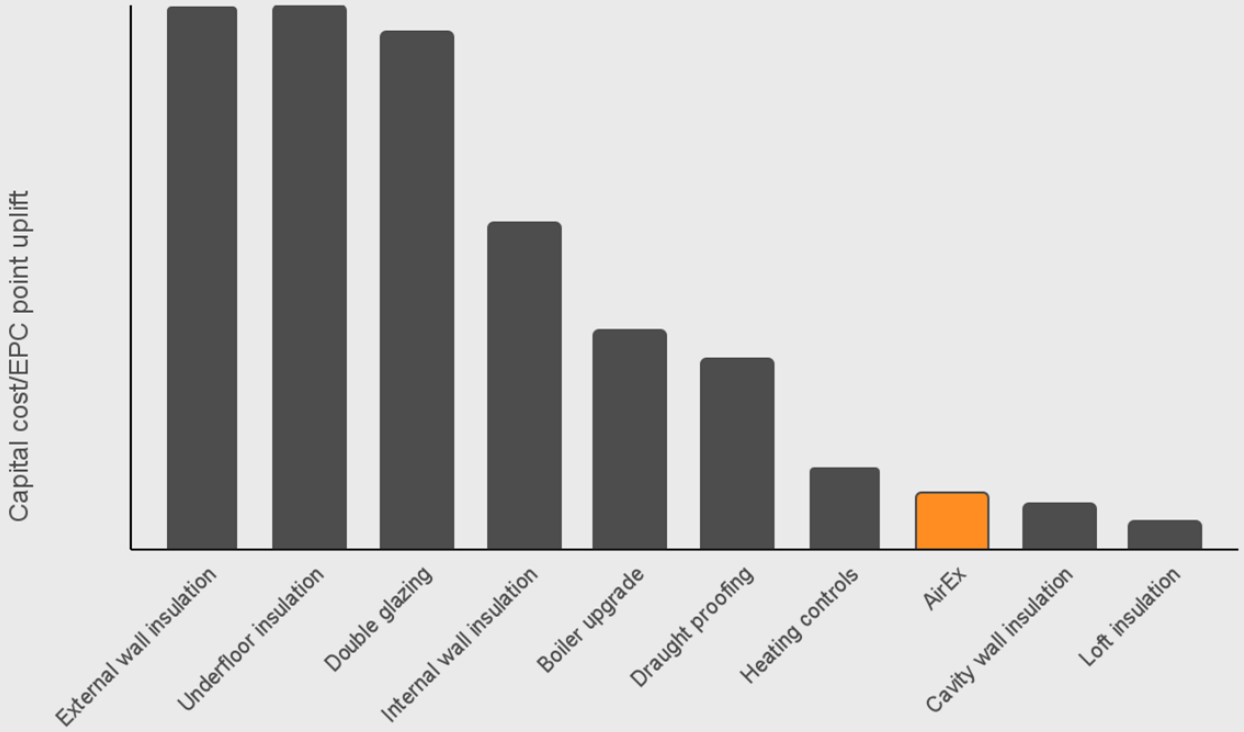
12%
Whole house Heat loss reduction

20%
Ground floor U-value reduction

9%
Air tightness Improvement

Validated impact

Proven heating cost reduction, recognised in EPCS



£250 annual saving

2-4 EPC point improvement

Traction

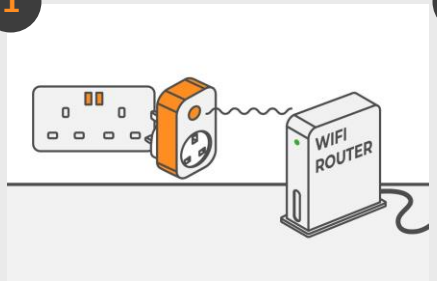
AirEx systems are now being deployed at scale and having real impact

- **15,000+** units sold to date
- **15,000+ tonnes** of carbon reduction
- **2,000+ households** in fuel poverty assisted
- **£15,000,000+** energy bill savings
- **82+ GWh** of energy demand reduction

AirEx system installation

Installation takes around one hour per home with minimal disruption

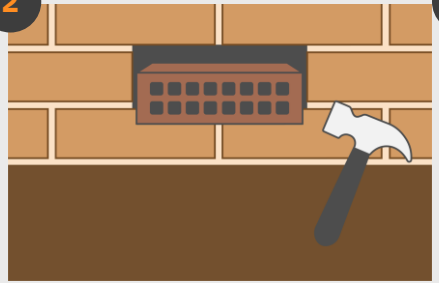
1



Connecting the system

Before installing the smart air bricks the hub and air bricks are registered and paired.

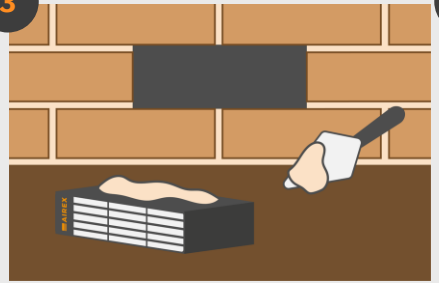
2



Remove existing air brick

Using a hammer and chisel the existing air brick is removed.

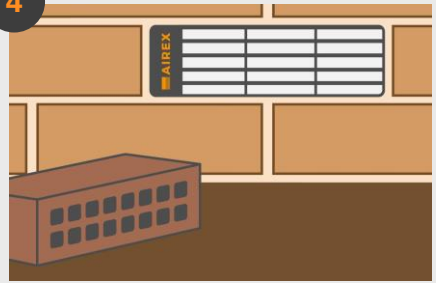
3



Mortar air brick

Mortar is applied to all sides of the air bricks.

4



Fit the air brick

The smart air brick is inserted into the wall applying mortar around all edges.

AirEx system installation

Suited to both standalone installation and whole house retrofit approaches

Standalone installation

The speed of installation makes AirEx well suited to rollout across a large number of homes. Experienced operatives are able to install the system in up to ten homes per day.

Whole house retrofit

As no special competencies are required operatives working on other aspects of a whole house retrofit will also be able to install AirEx.

Funded programmes

As AirEx improved the EPC rating of a property it can be installed as part of funded retrofit programmes such as SHDF.

Joe McMullen
joe.mcmullen@airex.tech

Utilising Technology to Decarbonise Housing Stock

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DIGITAL DECARBONISATION DECODED

EXPERIENCE THAT DELIVERS

What will we cover?

- Your panel
- The Why & the Challenge
- How Technology can meet this Challenge
- Solutions and real world examples
- Q & A

The Challenge!

The scale and diversity of existing stock

Fuel poverty and affordability

Limited funding and resources

Skills gaps and supply chain constraints

Regulatory and planning barriers

The Opportunity

Data-driven decision making

Remote monitor & predictive maintenance

Tenant engagement & behavior change

Operational transformation

Technology Opportunities

- The Internet of Things/Sensors/Renewables
- Remote diagnostics and Triage
- Dynamic Scheduling & Route optimisation
- Data driven decision making
- Tenant/Resident engagement

Solutions and real world examples

The project

Using IoT devices to measure the decarbonisation impact of retrofitting with heat pumps.

& those same devices

To measure the differential impact of set schedule vs behavioural heating patterns

Solutions and real world examples

Plus Dane Housing

Disruptive Innovators Network

HelpmeFix

The project

DinLab partnership to demonstrate use of XR technology
to:

Improve customer experience

Resolve repairs issues remotely

Reduce Carbon footprint

Over to the Panel

Other examples

QUESTIONS?

EXPERIENCE THAT DELIVERS

Utilising Technology to Decarbonise Housing Stock

Peter McBride, Senior National Business Development Manager, Mixergy

Dr. Ralitsa Hiteva, Senior Research Fellow, Science Policy Research Unit, University of Sussex

Paul Rogers, Senior Innovation and Technical Evaluation Coordinator, National Energy Action

Joe McMullen, Chief Operating Officer, AIREX

Chair: Stewart Davison, Managing Director, Elehan Consulting

Retrofitting the Region

Russell Smith, Managing Director, Parity Projects

Rowley Maggs, Strategic Advisor, Ambue

Jack Ostrofsky, Retrofit London Programme Director, London Councils

Ben Harrison, Housing Sustainability Officer,
Southend-on-Sea City Council

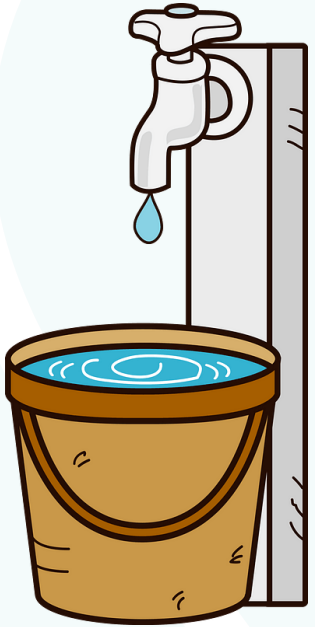
Chair: Sinead Lee, Associate Director, 4i Solutions

Retrofitting the Region

Ben Harrison- Housing Sustainability Officer

Context

- 2030 net zero target
- 6,000+ homes
- Homes = 45% of emissions
- 30% of homes below EPC C
- New builds need to be net zero



Action

- Parity Projects and Retrofit Action Plan.
- EPCs of 400 homes to improve data.
- Retrofit showhome.
- £2.3m SHDF bid.
- ECO4 for 100s of missing/failed cavity wall installs.

Retrofit Show Home






Retrofit Show Home

Retrofit Show Home Performance

Tours:

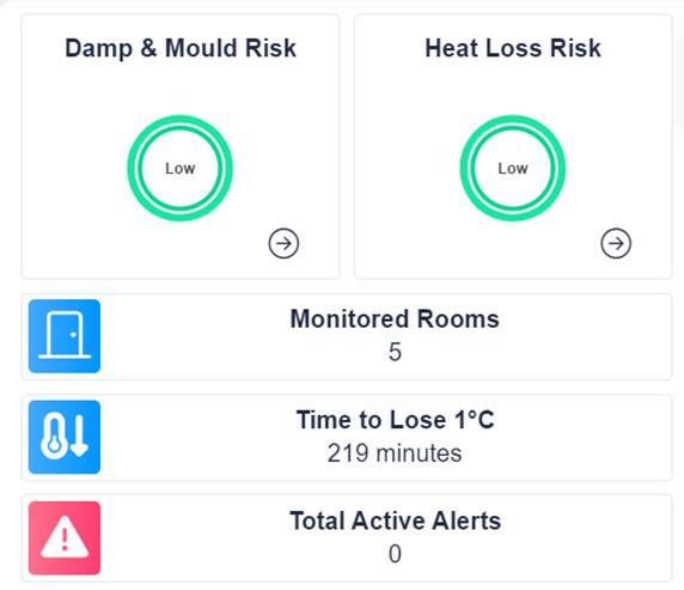
- 250 visitors

Home Performance:

- EPC B (For now)
- 75% reduction in bills and 90% Carbon reduction

Cost:

- £61,000 Energy works
- £83,000 Water saving

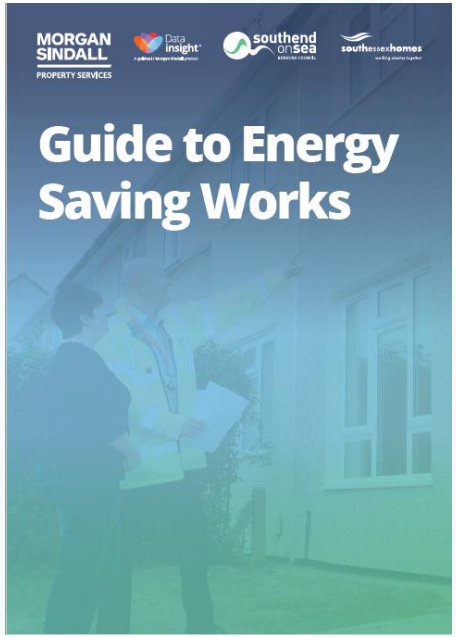


Social Housing Decarbonisation Fund (SHDF)

- Retrofit of 110 solid wall houses.
- External Wall Insulation, Loft Insulation, New Windows, improved ventilation.
- To complete April 2025.
- AICO in 20 homes for ongoing monitoring.

Ongoing lessons learnt

- Data needs improving.
- Contractors inexperienced with new technologies.
- Align with planned works.
- Additional PAS 2035 lead in time and fees.



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Time to network and meet our exhibitors!

Complimentary refreshments are available in the exhibition hall. The next sessions begin at 15:40.

Building Green Skills for Decarbonisation

Tessa Barraclough, Interim Director of Asset Strategy and Delivery, Riverside

Amy Boothman, Sales and Marketing Director, Ian Williams

Elise Langton, Divisional Manager, Build Recruitment

Chair: Sinead Lee, Associate Director, 4i Solutions