

Confidential

# Real Time Heat Network Efficiency & Control

mini **bems**



[www.minibems.com](http://www.minibems.com)

**Turning Heat Networks on their head**

**Flow Control – modulating demand**

**Guaranteed Efficiency**

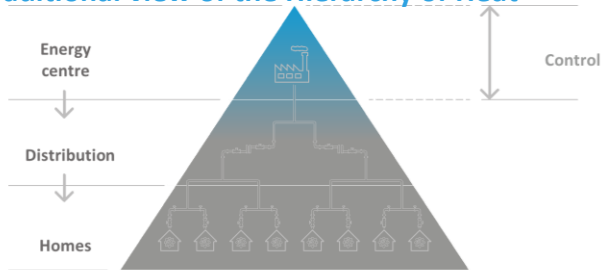
**Path to decarbonisation**

**Funded options – deployments funded by savings**

# Changing the Dialogue – Turning Heat Networks on their Head

Minibems focusses on real-time demand control at the edge, changing the heat network from outside to in

## Traditional view of the Hierarchy of Heat



30-50% fuel utilised for heat | 50-70% fuel unutilised for heat

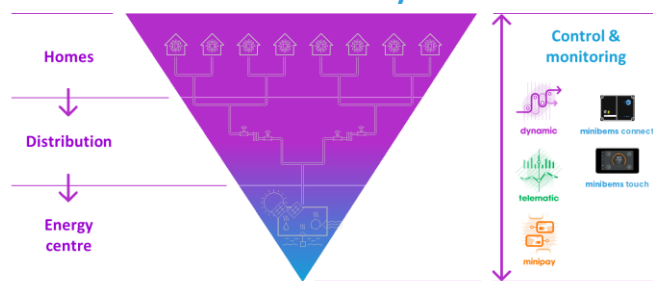
High volume,  
low heat transfer



$$\text{kW} = \text{Flow rate} \times \Delta T$$

- Highly inefficient with no demand control at edge nodes
- Energy losses, excess CO<sub>2</sub> and financial losses from the system
- High return temperatures and excess flow rate preclude, or at best negate, any changes in heat source to meet decarbonisation targets

## Minibems' view of the Hierarchy of Heat



60-80% fuel utilised for heat | 15-30% fuel unutilised

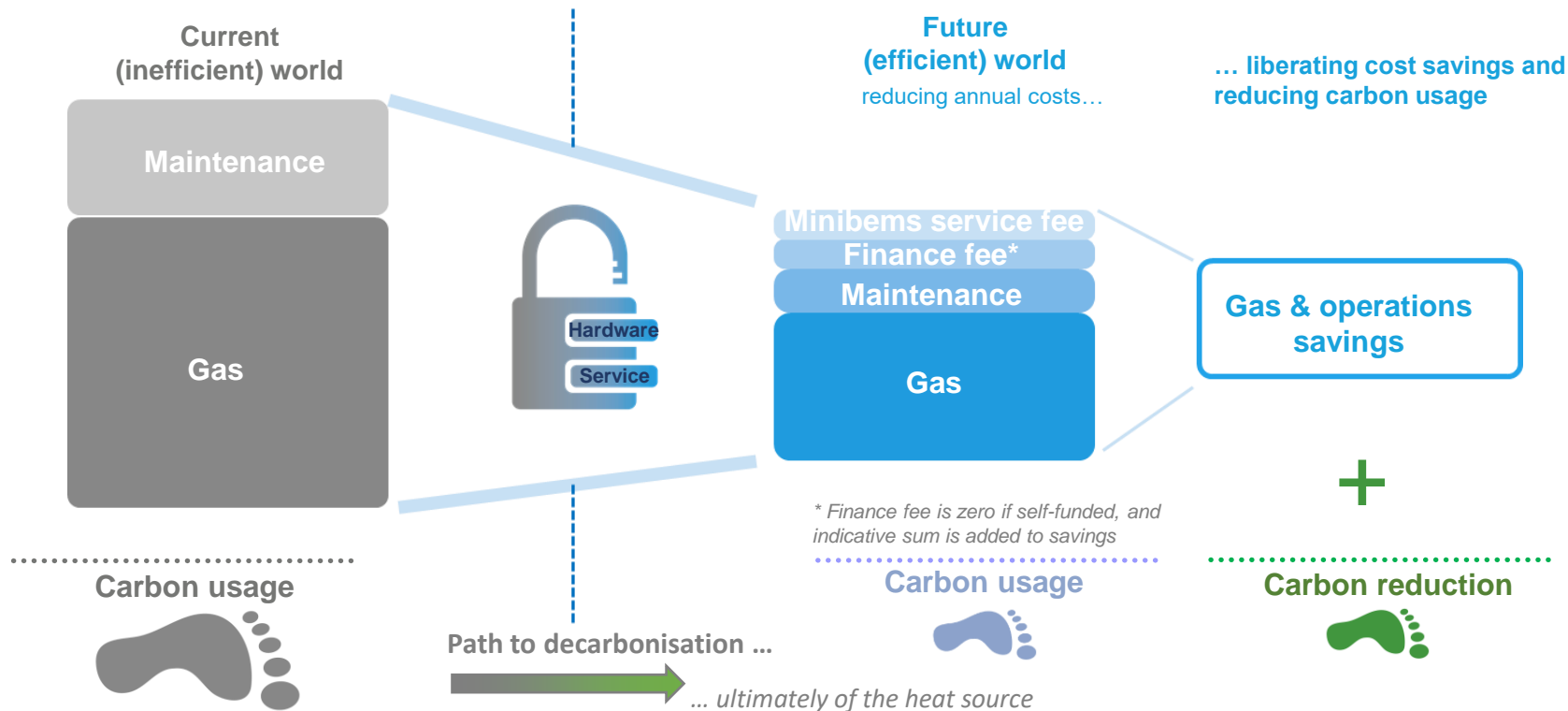
Real-time flow control  
and optimisation



$$\text{kW} = \text{Flow rate} \times \Delta T$$

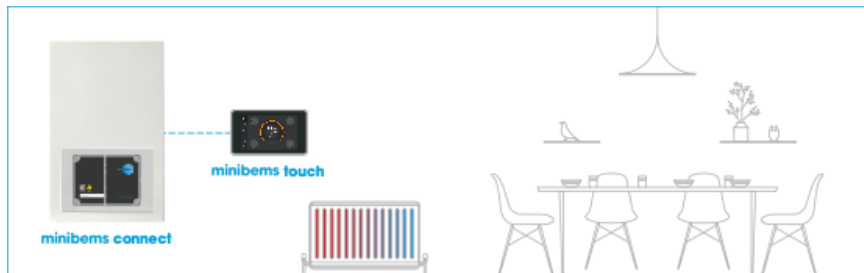
- Minibems looks at this a different way – turn it on its head, begin from outside in
- Instrument and control edge nodes (homes/flats) and moderate flow rates to maximise efficiency of demand
- Lower energy volumes, reduce return temperatures – save money and CO<sub>2</sub>
- When under control, engage in decarbonisation planning for alternative heat sources

# Minibems unlocks savings from current systems using advanced equipment and ongoing efficiency services

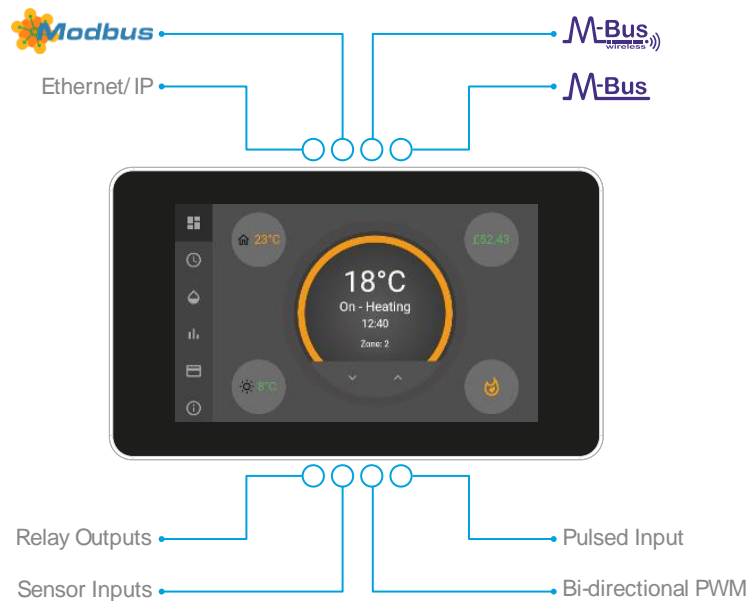


## Easy to integrate

- New build and retrofit
- Designed for simple integration in under two hours\*

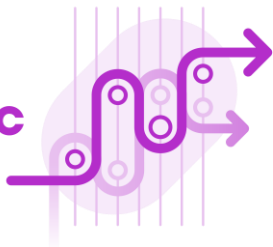


\*Two hour figure quote is per apartment. Installation and commissioning is site specific and time requirements are dependent on the project.



## Minibems connected services

**dynamic**



Real-time  
flow control

**telematic**



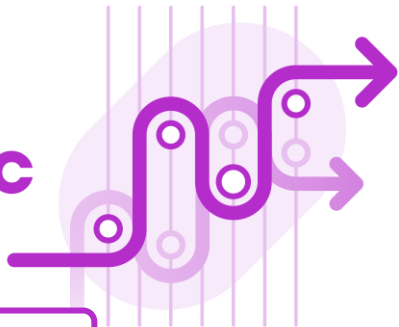
Data-driven  
performance  
management

**minipay**



Flexible &  
comprehensive  
metering  
& billing

# dynamic



*guaranteed performance*

## 60% flow reduction = 25-40% fuel reduction

### Energy used for heating & hot water

#### Current heat networks

30-50% fuel utilised for heat

50-70% fuel unutilised for heat

#### Minibems heat networks

65-85% fuel utilised for heat

15-35% fuel unutilised

\*Actual savings are dependent upon project specific conditions.



# telematic



*guaranteed performance*

## Reduced call-out rates

Current heat networks

3 out of 10

3 out of 10 call-outs result in effective repair

Minibems heat networks

9 out of 10

9 out of 10 call-outs result in effective repair

## Heat network reports





# minipay



## Minipay support services

- Credit billing
- Prepayment billing
- Emergency and friendly credit
- Payment reconciliation
- Regulation compliant
- Residents help-desk

## Payment methods

## Resident's bill

**minipay**

16, Avonlea Drive  
16, Avonlea Drive  
16, Avonlea Drive  
16, Avonlea Drive  
16, Avonlea Drive

**Your heating & hot water bill at a glance**

Your current balance on 01/10/19 is £41.56 - debit

Total amount to be paid	£41.56
Total amount paid	£0.00
Your current balance	£41.56
<b>Account balance</b>	<b>£41.56</b>

**Payment history (last 6 months)**

Payment date	Amount
01/10/19	£41.56
01/09/19	£41.56
01/08/19	£41.56
01/07/19	£41.56
01/06/19	£41.56
01/05/19	£41.56

**What happens next?**

1. You will receive a bill for your heating & hot water charges.

2. You will receive a bill for your heating & hot water charges.

3. You will receive a bill for your heating & hot water charges.

**Payment options**

- Pay by direct debit
- Pay by credit card
- Pay by bank transfer

**How to contact us**

• By phone

• By email

• By text

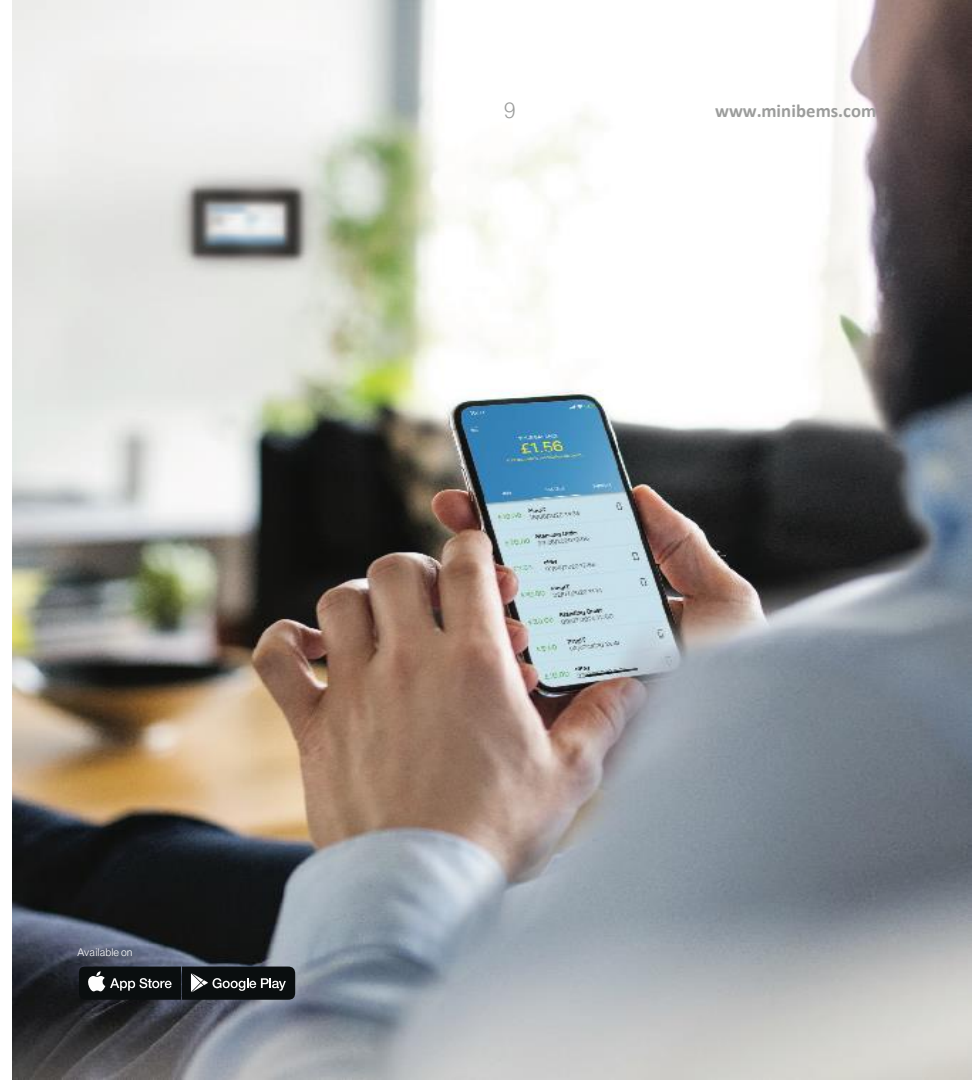
**Usage comparison**

• Compare your usage

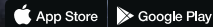
• Compare your usage

• Compare your usage

minibems



Available on



# Residents' comfort

## Resident benefits

- Heating and hot water control
- Resident help desk
- Friends and family access
- Easy top-up
- Emergency and friendly credit
- Energy usage insights

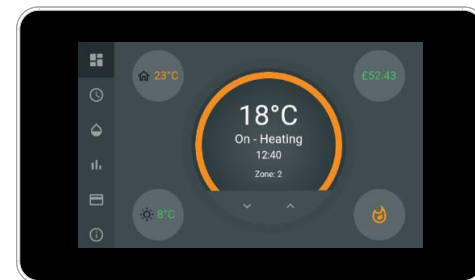
## minibems app



Available on



## minibems touch



5" colour touchscreen heating controller with energy usage insights and billing information

# Minibems platform ties it all together

## Heat network owner benefits

Decarbonisation

Improved P & L

Real-time reports

Outsourced performance risk

Customer care

### Software as a Service



Minibems Cloud



Big data



Machine learning



Predictive analysis

### Energy centre

Gas boiler



Heat pump



CHP



Dynamic flow control



Return temperature control



### Development & building portfolio

Warranted kit

Scheduled maintenance

Hassle-free heating

Performance Towers



Optimised Estate



### Service & support

Customer care & comfort

- 24/7 call centre
- Experts who care

Performance

- Continually optimised
- Always improving

Managed service

- Skilled heat network engineers
- In-house software development

Network management

- From plant room, through distribution, to end users

Reporting

- Online and up-to-date
- Selectable metrics



dynamic



telematic



minipay

# Appendix



# minibems touch

- Reads 8 Mbus meters
  - Heating
  - Cooling
  - Hot water
  - Cold water
- Relay with on/off switch on valve
- Metering and billing software is on the device - not in the cloud



# minibems connect

- Modular
- Easily added to the existing metering & billing system
- Back-up battery (UPS)

