Innovation solutions for energy management in retail, hospitality and schools

How to turn energy data into energy savings

08/11/2018
Crowne Plaza, London, UK

Time	Session
10.30am – 10.45am	The future potential of smart data and 'vision' for non-domestic sector Daron Walker, SRO and Director for the Smart Metering Implementation Programme (SMIP)
10.45am – 11.15am	The future potential of smart data and 'vision' for non-domestic sector Michael Harrison, SMIP
11.15am – 12.30pm	Competition partner pitches – session 1 *The first set of competition partners to present an overview of their innovations and potential relationships they are looking to explore.*
12.30pm – 13.30pm	Lunch & networking

Time	Session
13.30pm – 14.00pm	Accelerating energy savings in the hospitality, retail & school sectors; opportunities, barriers & enablers Richard Rugg, Managing Director of Programmes & Innovation, The Carbon Trust
14.00pm – 15.00pm	Competition partner pitches – session 2 *The second set of competition partners will present an overview of their innovations and potential relationships they are looking to explore.*
15.00pm – 16.30pm	Marketplace session & one-to-one meetings *The opportunity to explore each of the innovations in more detail and speak to the developers.*
16.30pm – 17.00pm	Closing remarks and Q&A

The future of potential of smart data and 'vision' for non-domestic sector

Daron Walker, SRO and Director,
Smart Metering Implementation Programme

The future of potential of smart data and 'vision' for non-domestic sector

Michael Harrison

Smart Metering Implementation Programme

Overview of NDSEMIC

Michael Harrison
Smart Metering Implementation Programme

8th November 2018

Department for
Business, Energy
& Industrial Strategy

Department for Business, Energy & Industrial Strategy

The opportunity

Significant abatement potential is present, particularly within SMEs

Understanding about how to realise this potential is a priority

Smart meters provide potential new avenues by which potential can be realised

Granular data allows real-time feedback

Actionable insights, with tailored information
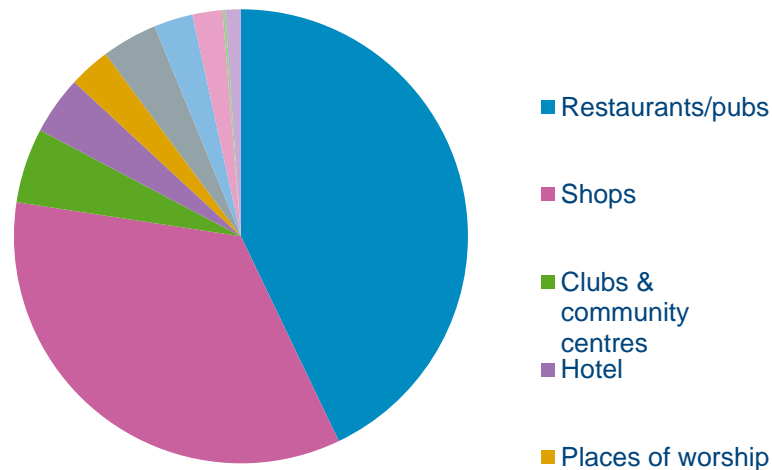
A new market opportunity for different parties

Department for Business, Energy & Industrial Strategy

A focus on smaller businesses

Proportion of the smart meter mandated population by business employment size band.

Independent businesses – total energy consumption by sub-sector, Gwh, BEES
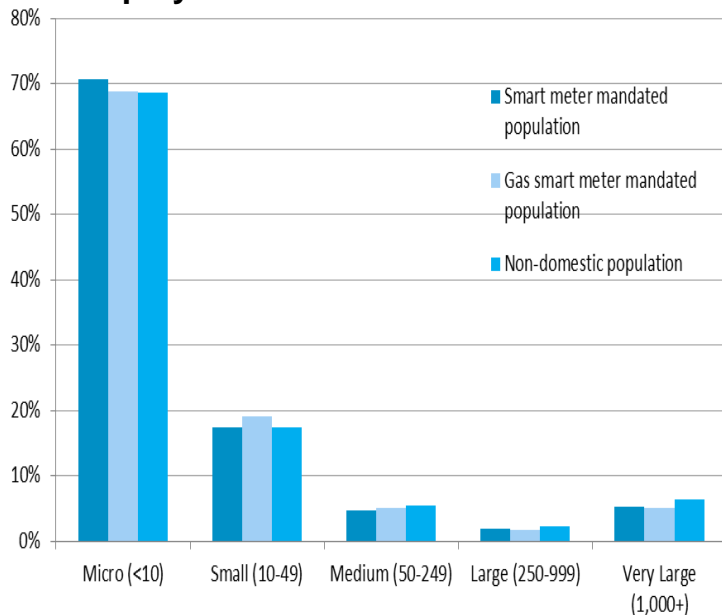
Source: ND NEED, England and Wales

Engaging small organisations with energy

Smart meters present new opportunities to engage small organisations with energy information and data

| Engaging with energy information and data |
| --- |
| • Many do not understand their current bills and/or do not engage with them on a regular basis |
| • Interventions need to be simple, easy to engage with and take up little time |
| • Reluctance to engage with external expertise |

Smart meters opportunities
• Enabling technology
• Data in-and-of itself is unlikely to be that useful to target audience
• Lots of solutions potentially available including: • Data disaggregation   • Tailored messages   • Timing

Department for Business, Energy & Industrial Strategy

Existing means of access to smart data

Your smart meter(s) provide information about your use of energy
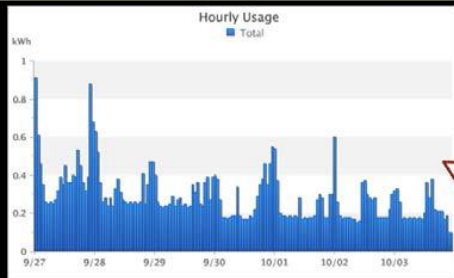
Near real-time information on energy usage, so you can see what you have used, typically, for every half hour. Information can be displayed to show consumption over different periods e.g. daily, weekly, monthly, yearly

Information can be displayed/ accessed in a number of ways, such as through interactive web based reports that you log onto using a laptop or smartphone.
Hard copies can be printed out.

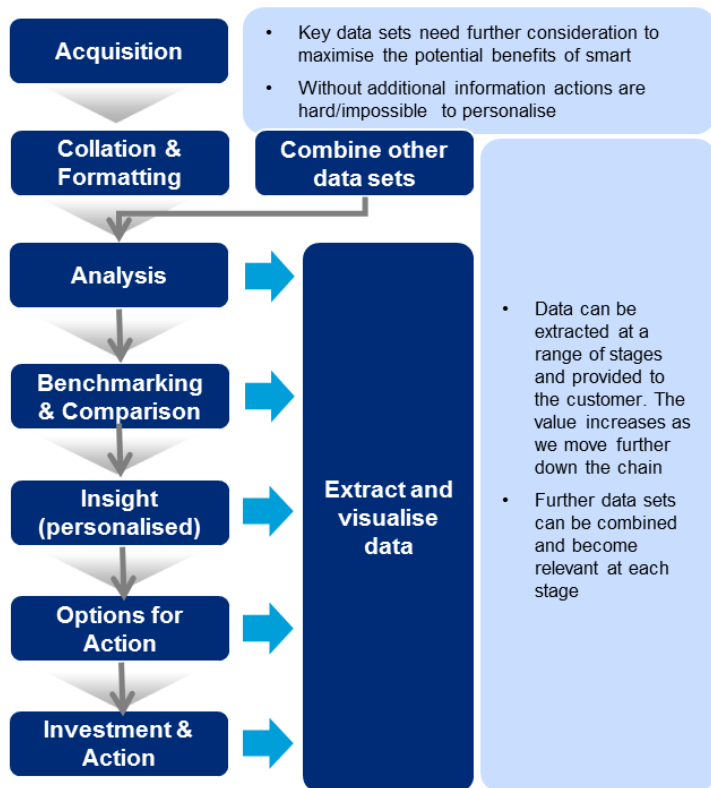It may also be possible to show real-time information on a visual display

Existing means of access to smart meter data may not be enough

"Having access to smart meter data was, in itself, unlikely to trigger changes in behaviour in many organisations, where they lacked the ability to translate the information into energy efficiency actions."

Research overview report, 'engaging with smart meter data' p41)

Adding value to smart meter data

Acquisition
- Key data sets need further consideration to maximise the potential benefits of smart
- Without additional information actions are hard/impossible to personalise

Collation & Formatting

Combine other data sets

Analysis

Benchmarking & Comparison

Insight (personalised)

Extract and visualise data

- Data can be extracted at a range of stages and provided to the customer. The value increases as we move further down the chain
- Further data sets can be combined and become relevant at each stage

Options for Action

Investment & Action

There's a need to do more than just provide this information back to the consumer in an easily comprehensible format

Key research finding: smart meter data has the potential to prompt organisations into taking action provided:

- they have easy (and preferably free) access to their energy use data

- they know how to interpret it within the context of their own operations

- and a cost effective solution is available

Enablers of energy management & saving
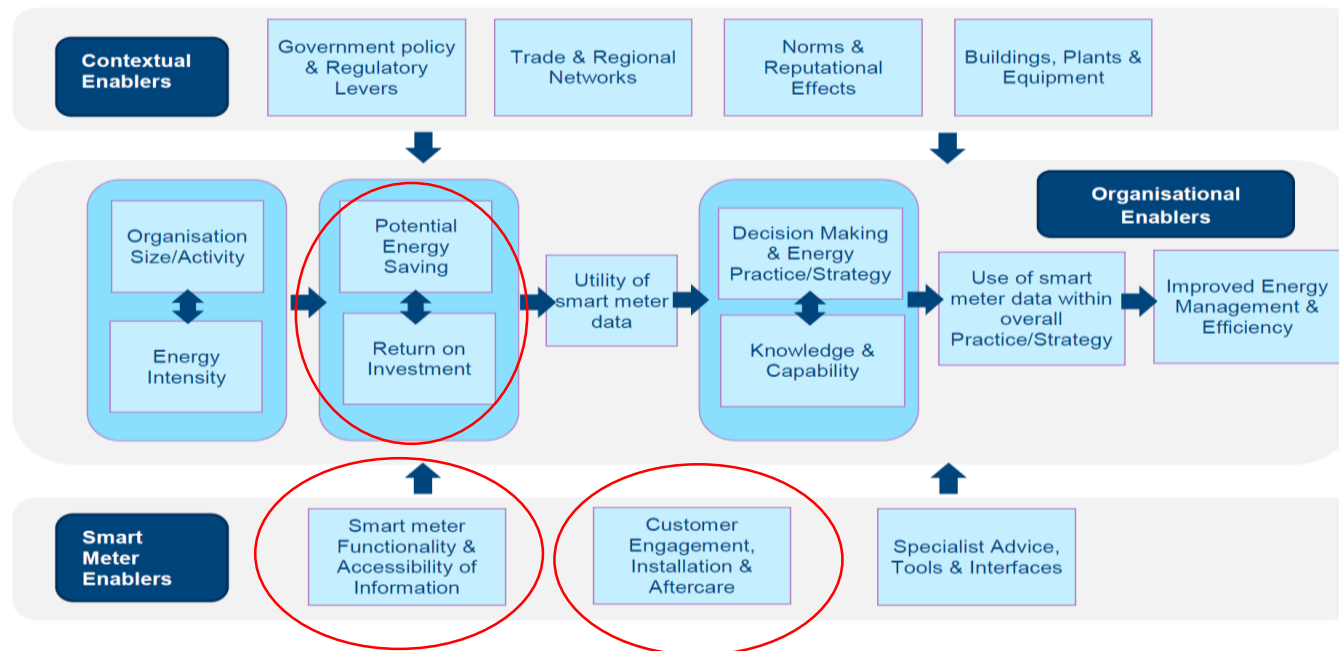
Summary of NDSEMIC

- **£8.8 million competition** over two years that aims to stimulate the market in this area for **smaller** non-domestic sites targeting our priority sectors [retail, hospitality, schools]

- BEIS funding nine competition partners to develop **products/services which use smart meter data analytics to help SMEs better manage their energy use**

- Result is a range of products/services, including **online platforms and apps** aimed at independent retail/hospitality, retail/hospitality chains & schools

- Built in to the competition is a **£1.5m research & evaluation programme**, led by Ipsos MORI and the Carbon Trust

Competition objectives

The competition is designed to deliver outputs which support the broader objectives of the Smart Metering Implementation Programme and the BEIS Energy Innovation Programme.

Competition outputs	**Broader objectives**
Develop innovative and easy-to-use **data tools**, tailored for the target segments, and adding value to smart data Develop tailored packages of **support mechanisms** which drive the uptake and effective use of data products and services	**Secure earlier and greater levels of energy management activity** in the target segments **Develop and strengthen the market for energy management products and services for smaller non-domestic consumers** **Support the implementation of energy management through enabling increased and more effective activity by partner organisations** (Smart Energy GB, energy suppliers, devolved administrations and others)

Timeframes

Two aims of event:

- Identifying piloting and trial sites

- Helping to develop routes to commercialisation

Phase 1	Phase 2	Phase 3	

August 2018

February 2019

Spring 2020

Developing a minimum viable product with functionality & user testing

Small-scale feasibility testing: embedding evidence & developing scale-up strategies

Wider-scale trialling, pursue route to market, implement scale up strategy

Market stimulation – competitive market offering non-domestic smart energy services

"What Will Good Look Like" in 2020?

- Projects have developed and refined their products in response to consumer testing and feedback

- Established commercial partnerships and routes to market in order to scale uptake

- Evaluation has identified what types of complementary intervention (e.g. by energy suppliers, trade bodies and networks) will maximise uptake and use

- Evaluation evidence has demonstrated levels of energy saving benefits achievable

- Other impacts and benefits are being demonstrated (e.g. load shifting, co-benefits)

Competition partner pitches

Session 1

Competition partner pitches

AND Technology Research (ANDtr)

RAE2
Responsive Algorithmic Enterprise

delivering

AEMS

Alert Energy Management System
An innovation for SMES

AND Technology Research

4 Forest Drive, Theydon Bois, Essex, CM167EY
01992814655
www.andtr.com

We research new technologies and create innovative products for the digital world.

Company Vision
To create and unlock value in a digital economy using innovation with purpose

Company Mission
To deliver technology solutions which empower and enhance the capabilities of ourcustomers

- Independent privately owned company founded in 1980.

- 38 years experience in delivering innovation.

- Recognised with awards for enterprise, technology and innovation.

- Successfully delivered 350 technology development projects.

- Partnered in many multi-million pound projects and collaborated with companies globally.

- ISO 9001 Certified since 1993 and recognised for pioneering quality practices in software development

AEMS – addresses challenges through two perspectives of energy management.

SME perspective

Energy perspective

Alert Energy Management System for SMEs.

Gain:

- Insight through analysis of energy data

- Knowledge to tailor business practices

AEMS enables users to understand how their energy is used and be alerted to unusual patterns of usage or behaviour.

www.andtr.com

Data gives you insights to:

Build better business models

Improve customer experience

What data can you gather from a taxi ride?

- Hours spent driving

- Overhead costs such as
  - The taxi itself
  - Car insurance
  - Road tax

- Petrol/Diesel use i.e. Energy

Why should SMEs care about their energy data?

What data can you gather from a cake?

- Hours spent baking

- Overhead costs such as
  - Store rent and rates
  - Advertising
  - Ovens/Fridges
  - Cooking equipment

- Ingredients costs

- Energy?

Energy data captures key, personalised insights for businesses

What can energy data tell SMEs?

Factoring in your energy data can help understand business operations and drive growth.

- Scheduling work processes at optimal time.

- Assess how efficient work equipment is.

- Indication of faulty equipment/work processes.

- Secondary power supplies, off-grid and loading balancing.

Insights
- **Build better business models**
- **Improve customer experience**

Technology options which lowers barriers

Data access from differing of sources:

- Smart Meters

- Data hubs

- Power monitors

Variety of data processing options:

- Live operational monitoring with notifications and alerts

- Report driven monitoring using data collected over time

- Whole business learning

- Operational modes or zone learning options

www.andtr.com

User friendly displays.

- ☐ Visualise and monitor energy usage.
- ☐ Easy to understand multi-screened user interface.
- ☐ Displays simple results based on energy consumption data.
- ☐ Users can set energy budgets and performance targets for their business.
- ☐ User are alerted to different energy activity and given meaningful insights.
- ☐ Engage SMEs with their energy usage.

AEMS iPhone application

AEMS dashboard software application

www.andtr.com

Machine learning tailors insights to SMEs.

- Intelligent software algorithms undertake machine learning on energy data.
- Energy profiles to understand what normal energy usage is are created.
- Translated into business operating modes (Background, Usual, Unusual Activity) and zones.
- Energy activity is monitored and compared with the energy profiles.
- Data analytics are performed to give meaningful insights to users.
- Gives a deeper understanding of energy usage within the business.
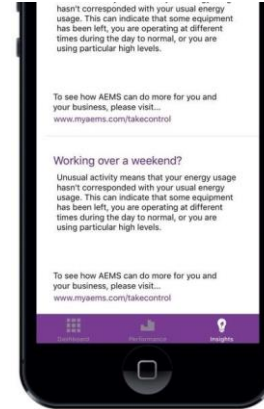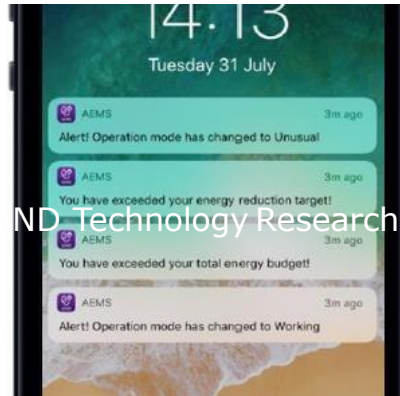
Business insights drive behaviour change and engage SMEs in energy.

Variants to support emerging energy markets and energy supply options.

Intelligent monitoring to support:

☐ Demand side response
☐ Local micro-generation
☐ Off-grid and micro-grid

SMEs using AEMS can benefit from:

- A better understanding of their business

- The ability to control and manage their energy usage more effectively

- Making informed business decisions

- Setting strategies to reduce waste that are based on tangible information

- Meaningful business insight to improve energy efficiency and productivity

- Promoting energy saving and 'green' values in their brand

www.andtr.com

Looking for partnership

Trade bodies
DCC users
Energy Supplier
Retailers, cafes and pubs

Please call or contact
gemma.rippengale@andtr.com

www.andtr.com

myAEMS.com

AND Technology Research

4 Forest Drive, Theydon Bois, Essex, CM167EY
01992814655
www.andtr.com

Competition partner pitches

Considerate Hoteliers

PAVE YOUR OWN ROAD TO
RESPONSIBLE HOSPITALITY

CONSIDERATE
HOTELIERS

ABOUT US

Considerate Hoteliers is a specialist company that helps hospitality businesses operate responsibly through technical and advisory services.

SOME OF OUR CLIENTS

CON-SERVE™: IDENTIFY- IMPLEMENT- IMPROVE

- Developed specifically for the hospitality industry
- Identify inefficiencies and save costs
- Improve business reputation
- Correlate consumption to room nights & food covers
- One platform for multiple users and sites
- Reporting & dedicated account management service
- Certified as ISO 50001 compliant

THE SME MARKET

- SMEs represent over 99% of all hospitality industry in the UK
- Fragmented market with high barriers to entry
- Energy perceived as a fixed cost that they don't control
- Unaware of potential energy, cost and emission savings

CONSIDERATE HOTELIERS

benedetta.cassinelli@consideratehoteliers.com

BARBERS

- Energy data and analysis outside their expertise
- Perceived need for investment
- Period of return too long
- Time and budget constrained
- Distance between those using resources and management

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MOTIVATIONS

- Cost savings
- Comfort of customers
- Reputational benefits
- Comparative advantage
- External pressures (energy price)
- Environmental ethos

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CHALLENGES

- How to change perception of energy cost into a cost that they can control?

- How to make energy relevant to their business?

- How to make energy performance easy to understand?

- How to drive action and engage staff?

- How to integrate seamlessly with their daily duties?

- How to ensure a cost effective solution?

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OUR NEW APP

✓ Simple presentation of complex data

✓ Correlated to industry metrics

✓ Easy to use

✓ Latest performance at a quick glance

✓ Signalling visuals to make performance trends instantly clear

✓ Empower the whole team to reduce energy

✓ Leverage on smart meter data

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HOTELIERS

benedetta.cassinelli@consideratehoteliers.com

INSIGHTS

✓ Provides actionable insight on how to achieve energy, emission and cost savings

✓ Guidance on how to implement tips

✓ Fun facts to raise awareness

✓ Follow up on implemented tips

✓ Tailored to hospitality operations

✓ Customised per business type

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DATA ACQUISITION

- Aim to leverage on smart metering

- Obtain energy consumption data through:

  - DCC

  - Other third party providers

- Avoid on-site data loggers due to high installation and maintenance costs

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ACHIEVEMENTS

✓ App already integrated with live data

✓ Early user testing confirmed that the app and its core features are valuable and useful

✓ Secured 10 industry, data integration and user testing partnerships, which will support scaling up of the app

✓ Delivered Phase 1 of the project within the agreed deadline and budget

DATA ACCESS

Potential partnerships for data access:

Data Collectors/Meter operators, which are able to provide us with both electric and gas half hourly data feeds:

✓ Increased retention rate

✓ Added value benefit

✓ Grow portfolio of end customers

✓ Gain referrals

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MARKET ACCESS

Potential partnerships for market access:

Interested parties with an existing customer base in the market or have interests in a white label solution:

✓ Increased retention rate

✓ Lower customer acquisition costs

✓ Added value to customer offering

✓ Enhance reputation

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USER TESTING

- The app will be validated through multiple user testing sessions throughout the development process

- Testing in collaboration with The University of Surrey Digital Lab using their cutting edge technology (biometric tests and software to analyse physiological responses to the app)

- Alpha and Beta testing is planned for 2019 with up to 300 users testing our app

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GET IN TOUCH

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+44 (0) 203 865 2052

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Innovation solutions for energy management in retail, hospitality and schools

Competition partner pitches

Element Energy

E-CAT
ENERGY COMPARISON & ADVICE TOOL

Jonathan Stokeld
Senior Consultant

elementenergy

E-CAT features

- Real-time comparative feedback

  - Comparison to "similar" organisations with the same sub-sector, size, electric/gas split for heating demands, etc.

  - Annual demand benchmarks and daily profiles developed based on national statistics and detailed analysis of half-hourly data from 2,700 non-domestic customers.

  - Feedback tailored based on information provided by the user

- Actionable energy efficiency advice

  - Tailored based on information provided by the user

  - Links to reputable external organisations for further information

Other features: comparison within chains, historic comparison, identifying background power levels, tariff switching (same supplier), DSR engagement, and more planned.

Scope		
Retail (Chains and Independents)	Hospitality (Chains and Independents)	Schools
Electricity		

Sectors:

Fuels:

Why is the E-CAT needed?

The E-CAT supports energy management in non-domestic organisations, particularly smaller organisations where there are significant barriers to energy management

Common barriers to energy management for smaller organisations	How the E-CAT addresses these barriers
Low interest in energy usage	Real-time comparative feedback and other interventions to encourage behaviour change
Lack of expertise/capacity	Simple and easy to use
Lack of time	Provides targeted and actionable energy saving advice
Large variation in organisation characteristics	Input options and outputs tailored to the user
Energy saving opportunity is distributed across a large number of organisations	Scalable solution – only requires a smart meter data feed

Come and talk to us at our stand

- We will be demonstrating the E-CAT at our stand – try it out and give us your feedback.
  - Are the live usage and comparative feedback outputs appropriate? Would you suggest other metrics?
  - Any suggestions on the energy saving measures included?
  - How else could the E-CAT be improved?
- Talk to us about our plans for next steps.

We are particularly interested in hearing from:
- Energy suppliers
- Retail sector representatives
- Hospitality sector representatives
- Schools representatives
- Data monitoring equipment providers
- Energy sector stakeholders: DNOs, regulator, etc.

Contact us after this event

Email: jonathan.stokeld@element-energy.co.uk

Competition partner pitches
Hildebrand
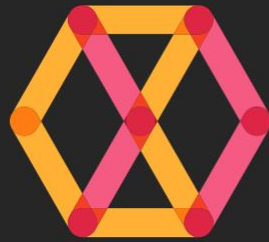
Joshua Cooper, CEO

jcooper@hildebrand.co.uk
http://hildebrand.co.uk

Hildebrand

- Ten + years in customer engagement and data platforms for retail energy and smart home markets

- Unique ➤ hardware, hosting, analytics, data science, behaviour science, application development

- To date ➤ 450 billion real-time data points from over 21 countries worldwide

- Tens of thousands of smart meters connected

GLOWPRO

Adding value to smart meter data

- Actionable information, business planning tool, gamification

- Analytics: anomaly detection, forecasting, benchmarking, HTC

- Consumption and sensor data + weather, mapping, EPC, Food hygiene

- Hildebrand's Glow hardware: CADs, IHD/CADs

- Temperature sensors

- Smart meters
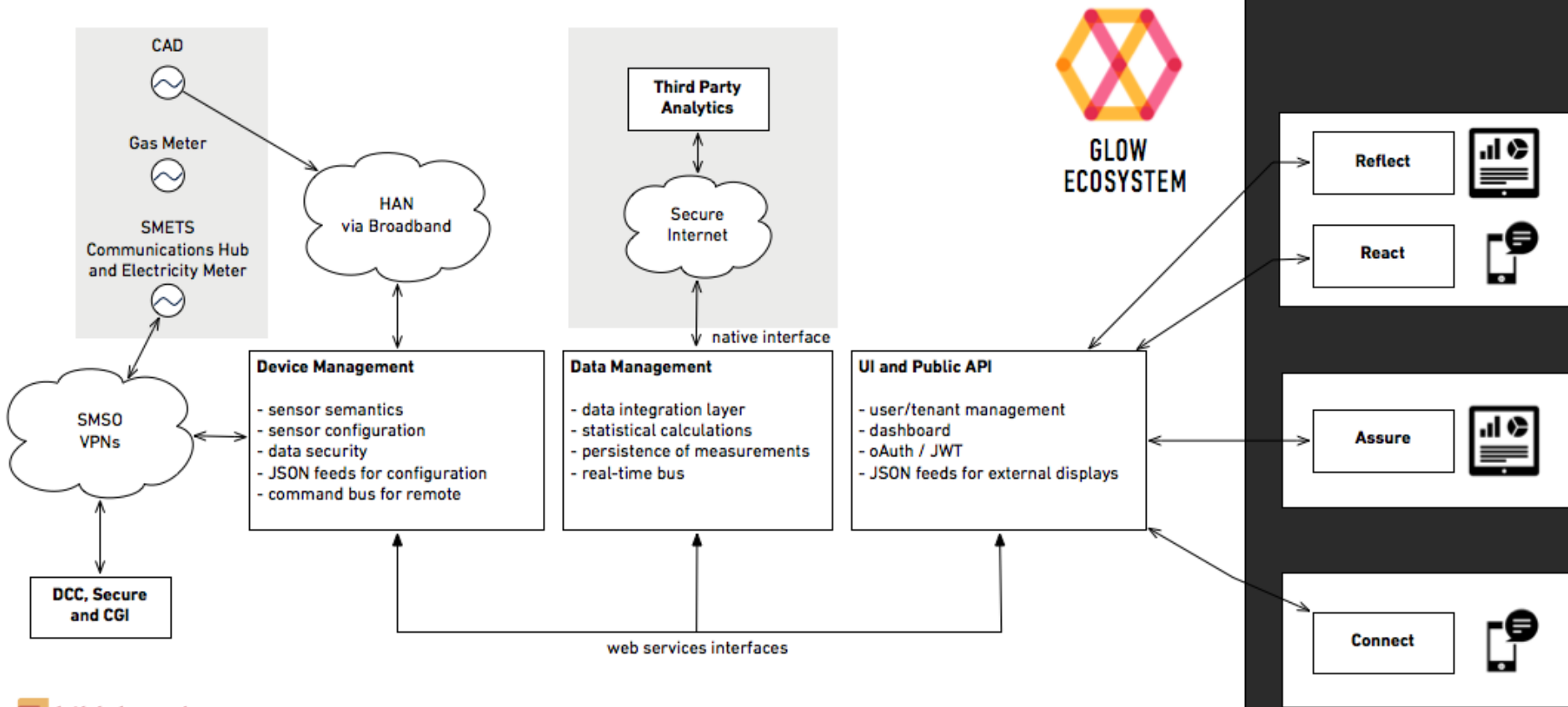
Phase 1 Achievements

- GlowPro Ecosystem ➤ Data flowing from multiple sites

- Applications built ➤ Assure, Reflect, React

- "Personalised" energy models

  - Energy activity models ➤ Forecasting + anomaly detection

  - Direct measurement HTC

- Commercial ➤ Property managers will buy

GLOWPRO

Competition partner pitches

Hoare Lea
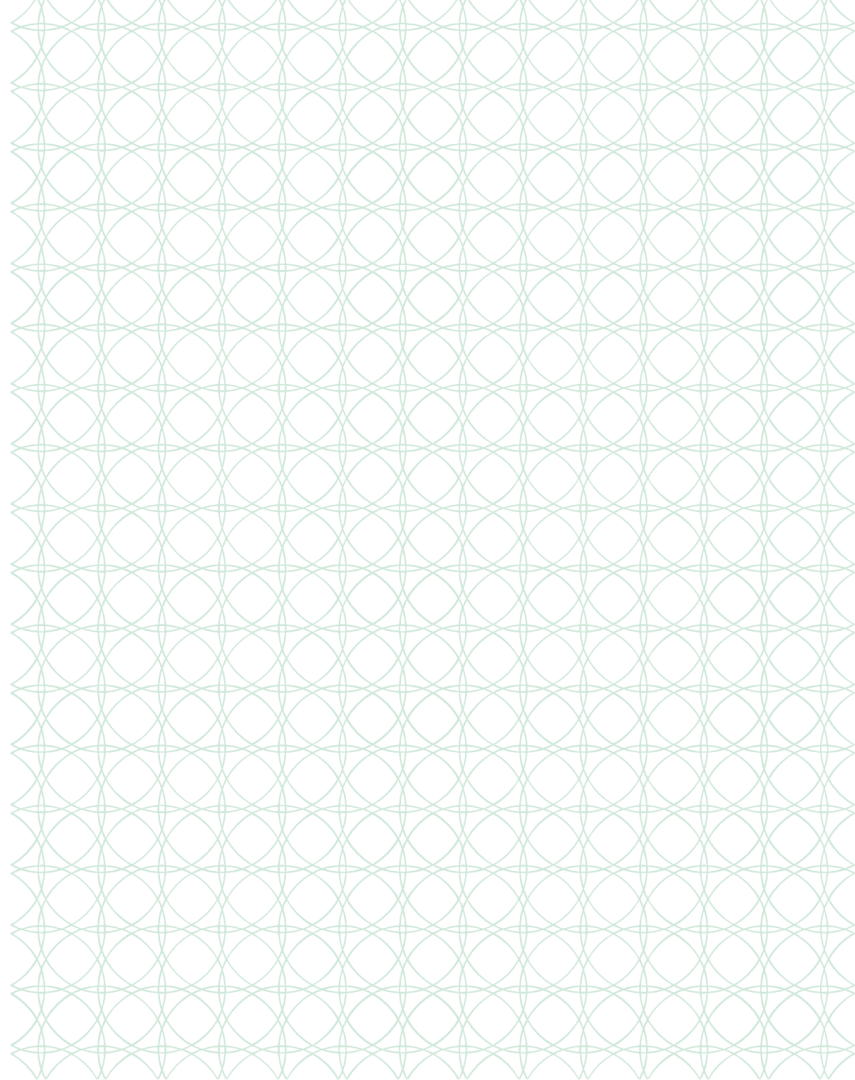
NDSEMIC
The Consortium lead by Hoare Lea.

INNOVATION SOLUTIONS FOR ENERGY MANAGEMENT

PRESENTATION BY ROGER MACKLIN

Who we are

HOARE LEA H.

An award winning consultancy with a creative team of engineers, designers and technical specialists.

Problem-solving DNA.

Whatever the scale or complexity of the problem,
we have the expertise, the determination, and the
ingenuity to make it happen.

Leaders in our field.

As the UK's largest MEP Engineering Consultancy, we are experienced in many sectors, and influential within our industry and further afield.

HOARE LEA H.

Irrespective of the scale or complexity of a project, we bring buildings to life and ensure they perform in operation as well as they look.

We only do what we can do well.
Acoustics. Air Quality. Audiovisual.
Building Physics. Digital Engineering.
Expert Witness. Façade Access. Fire Engineering.
Intelligent Buildings. Lighting Design. MEP.
Operational Engineering. Performance.
Property Services. Research & Development.
Security. Sustainability. Utilities & Energy
Infrastructure. Vertical Transportation. Vibration.

In the sectors we understand.
Arts, Culture & Heritage. Courts. Data Centre
& Mission Critical. Defence. Distribution.
Healthcare. Higher Education. Hotels.
Manufacturing & Process. Prisons. Residential.
Retail. Schools. Science & Research. Sport.
Transport. Workplace.

HOARE LEA

HIGHEST IMPACT

Advanced data and analytics
0–2 yrs | 2–5 yrs | 5–10 | ?
None

Augmented and virtual reality
0–2 | 2–5 yrs | 5–10 | ?
Moderate

Advanced energy storage and creation
0–2 | 2–5 yrs | 5–10 | ?
Moderate

Advanced offsite manufacture
0–2 yrs | 2–5 | 5–10 | ?
Moderate

Advanced material science
0–2 | 2–5 yrs | 5–10 | ?
Moderate

Artificial intelligence/ automation of processes
0–2 | 2–5 yrs | 5+ yrs | ?
Severe

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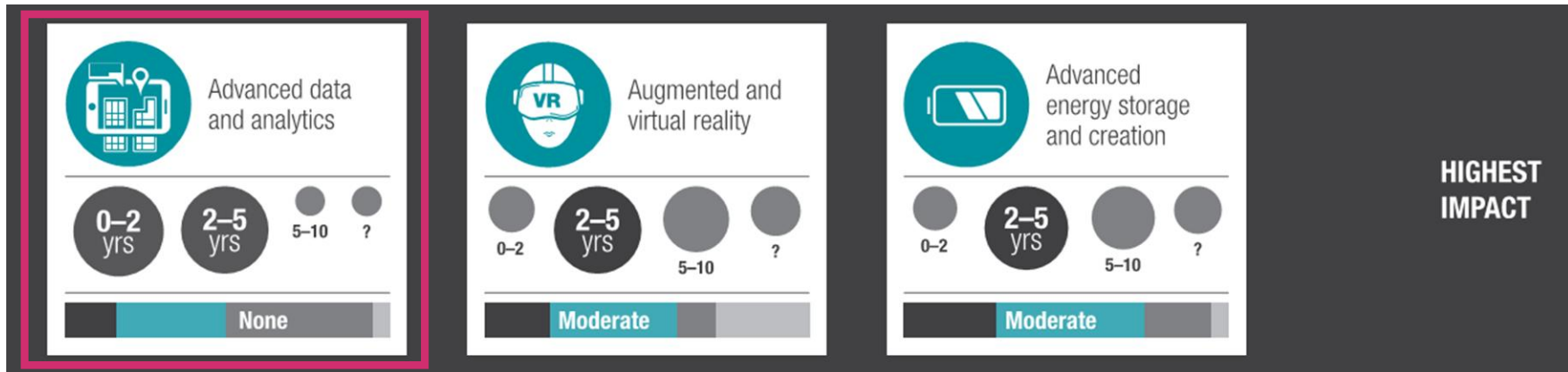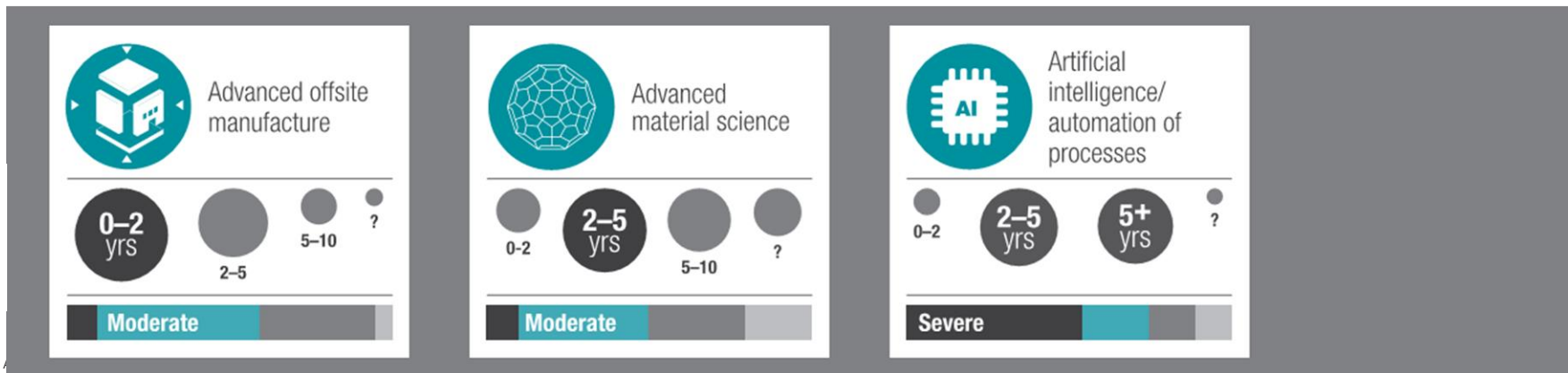
GOLDEN LANE - LONDON

STROOD ACADEMY - STROOD

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HESSLE
HIGH
SCHOOL

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BEAUCAMPS SCHOOL

INNOVATION SOLUTIONS FOR ENERGY MANAGEMENT

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CAMBRIDGE ACADEMY

CITY SCIENCE

endless possibilities

CITY SCIENCE

endless possibilities

Software and intelligence at scale

CITY SCIENCE
endless possibilities
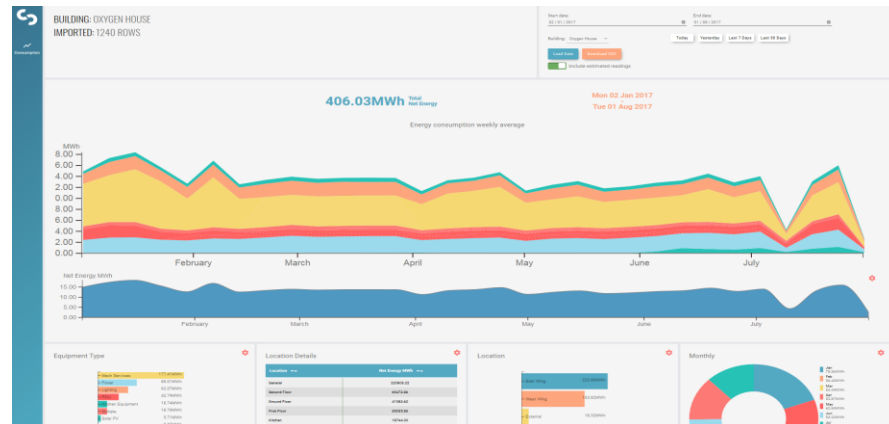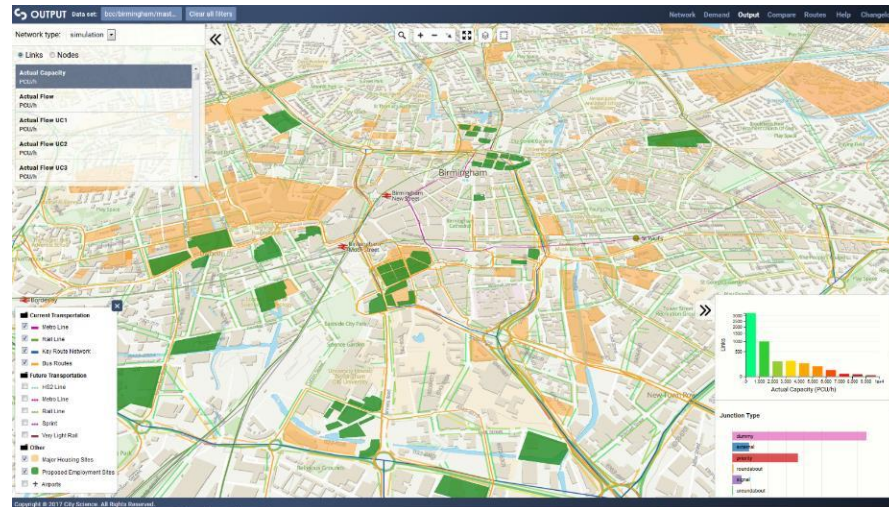
- Statistics, Big Data and Analytics

- Data management & IoT Hardware

- Experience in Energy & Buildings

- Scientific model development

- Modern AI techniques

- Development of bespoke software

- Security, Privacy and Trust

We bring a breath of fresh air

We bring trusted delivery

We bring a creative spark

We bring people together
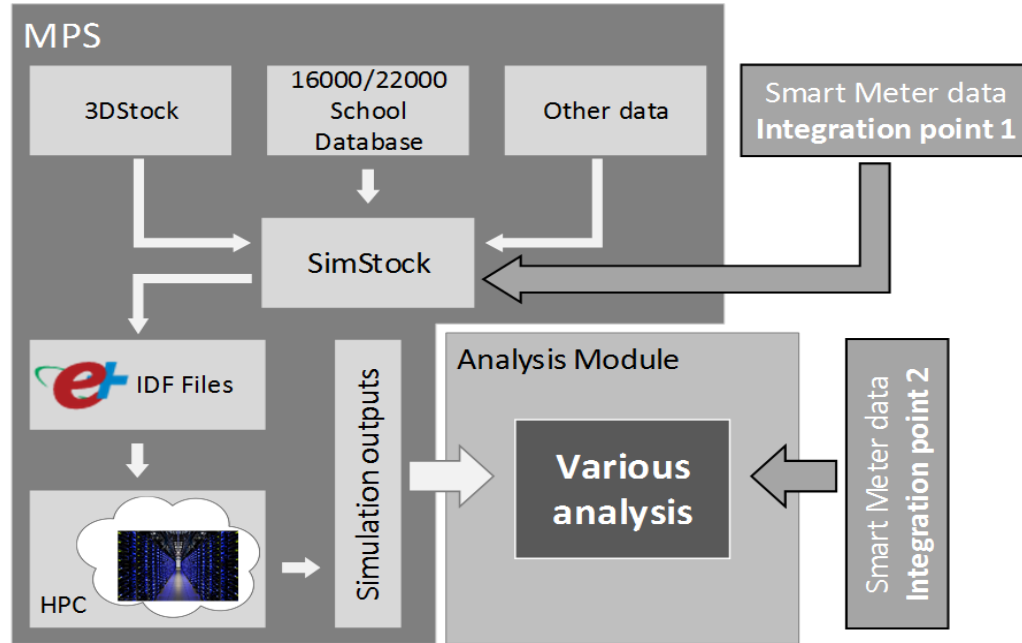
What we are providing
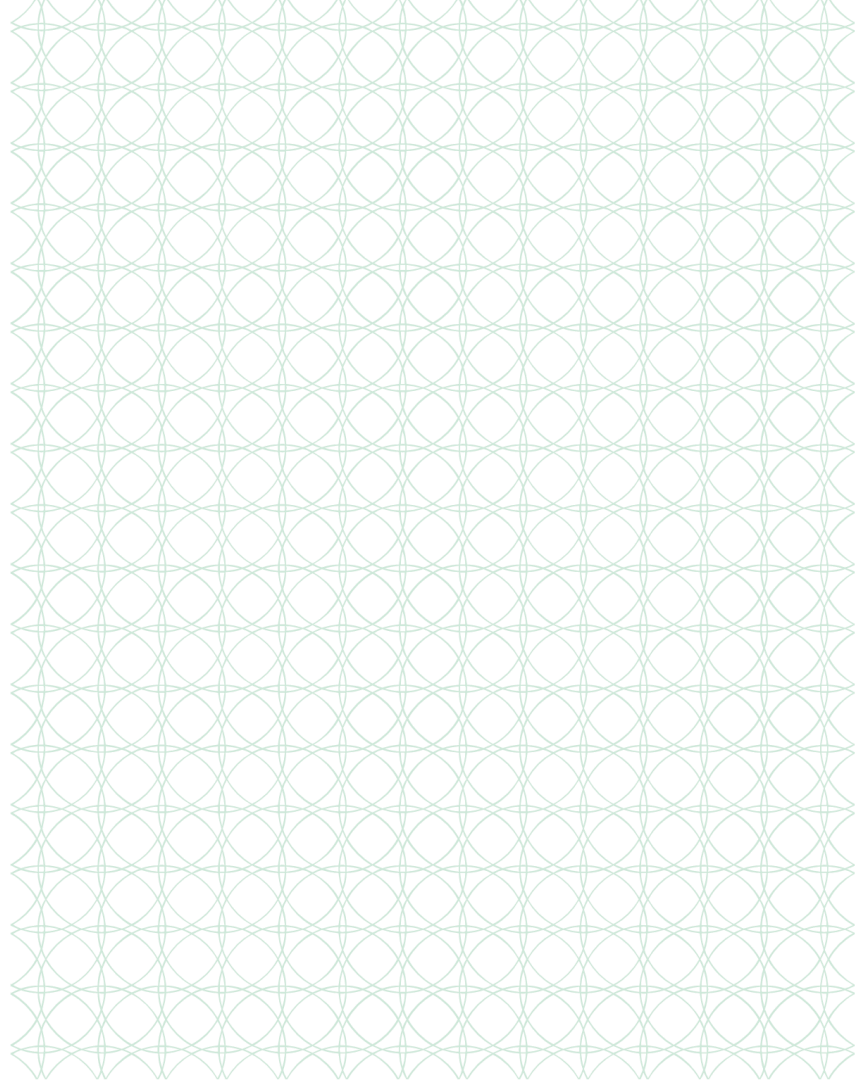
Trusted advice, tailored to customers' specific needs
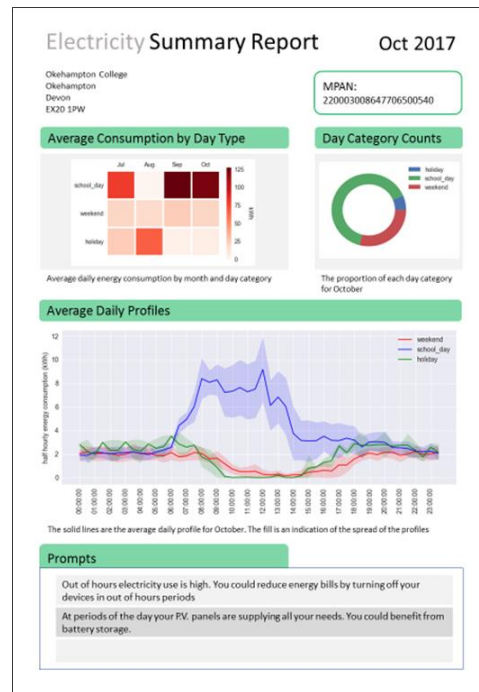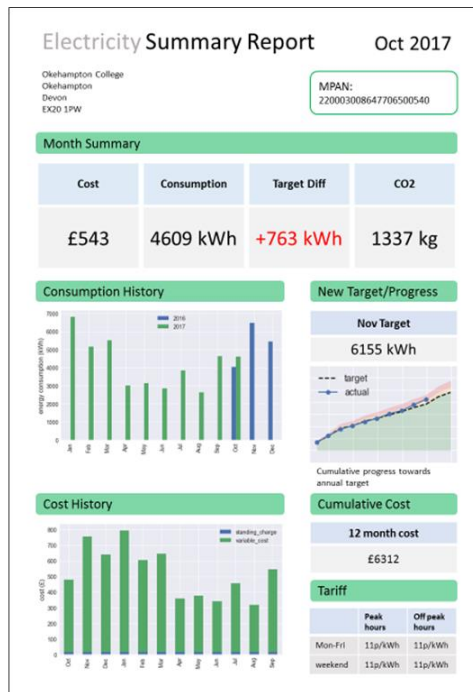
Machine Learning Algorithms

IoT hardware

Data Source	BacNet / Other		Smart Meters		AMR		ModBus		User-Generated	
Data Type			Electric	Gas	Electric	Gas	Electric	Gas	Electric	Gas

BMS Specific Hardware

DCC | CAD

DC/DA

DC/DA | Flow Clamp

Flow Clamp

DCC | CAD

Device

Upload File

CSV

DCC User

3rd Party Access
e.g. via TMA

ZigBee Smart Energy (SE)

Local / Remote Pairing

Data Collection Method

Smart Meters → Data Disaggregation Techniques → **Logical Testing Framework** [Parameter Prediction Code] → Test Outputs (22 True / False Values) → Financial Estimates / BCRs

Educational Content

YOU BE THE TEACHER!

Teacher: _____

Lesson Title: _____

Objective (what do you want your students to learn?) _____

_____

_____

Materials needed _____

_____

_____

Attention Signal (How will you get your students' attention if they get too noisy?)

_____

_____

Hook (How will you get your students excited about your lesson?)_____

_____

_____

Procedure (Steps)

_____

_____

_____

_____

Assessment How will you know your students have learned the objective? (Exit slip, discussion, written assignment, etc.) _____

_____

_____

HOARE LEA H.

We would like to

Do something amazing with data

Engagement
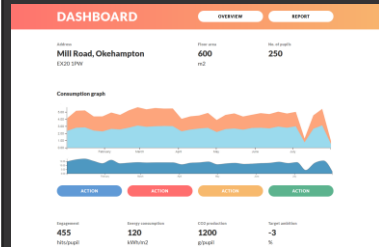
Education

Savings

Value Add

HOARE LEA H.

Reduce energy consumption in Schools

REDUCE ENERGY USE
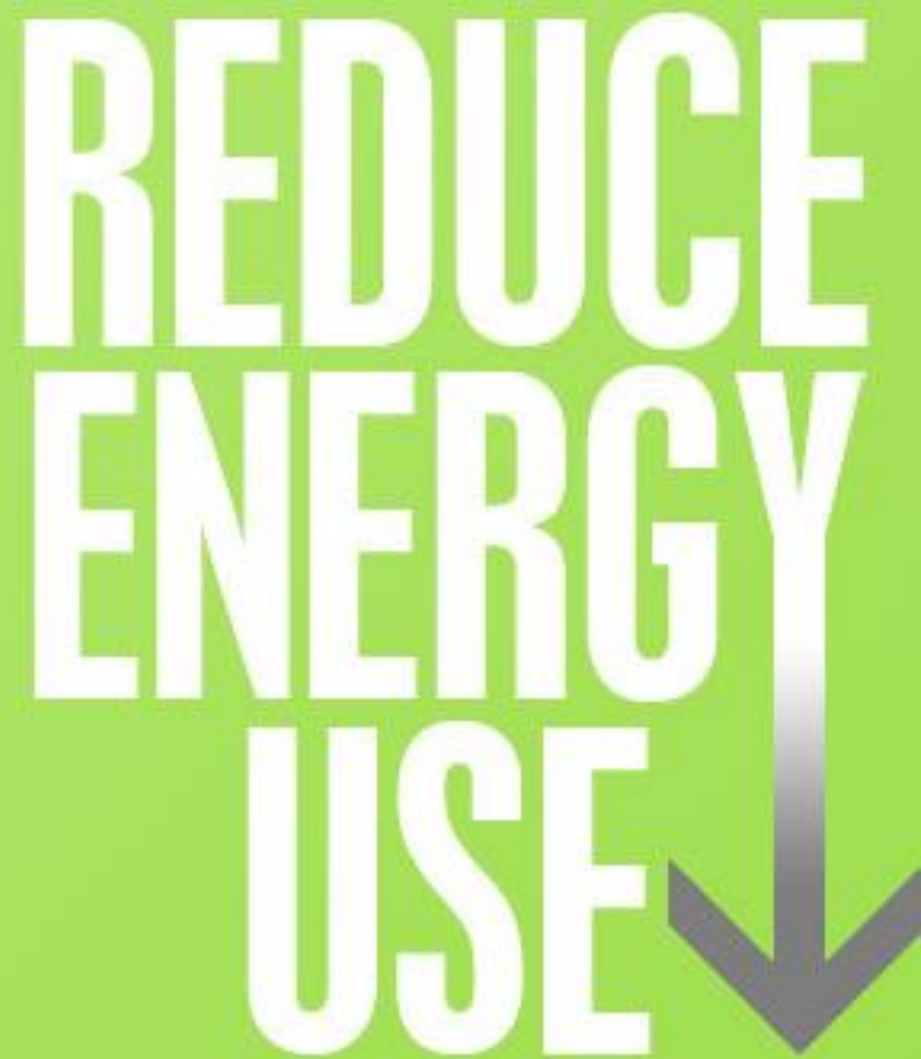
Develop relationships with

- Managed Service Providers

- Data Collector / Data Aggregators

- Utility Companies

- Energy Efficiency Experts

Thank you.
hoarelea.com

HOARE LEA H.

Innovation solutions for energy management in retail, hospitality and schools

Time	Session
13.30pm – 14.00pm	Accelerating energy savings in the hospitality, retail & school sectors; opportunities, barriers & enablers Richard Rugg, Managing Director of Programmes & Innovation, The Carbon Trust
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16.30pm – 17.00pm	Closing remarks and Q&A

Accelerating energy savings in the hospitality, retail & schools sectors; opportunities, barriers & enablers

Richard Rugg, Managing Director of Programmes and Innovation, Carbon Trust

We work with governments, multilateral organisations, businesses, cities & regions, helping them contribute to and benefit from a more sustainable future

- We're independent and mission driven; profits are reinvested in our mission to accelerate the move to a sustainable, low carbon economy

- 180 employees across 30 nationalities - experts who understand challenges and create bespoke solutions

- We are impartial, rigorous and innovative - working with new technologies, markets and business models

- We work internationally with offices in Mexico City, Pretoria and Beijing

We have helped over 35,000 small businesses including the retail & hospitality sector to progress energy saving solutions

Our insight into the energy efficiency potential for small businesses across the retail & hospitality has been developed through:

- ✓ Onsite energy surveys
- ✓ Capital contributions
- ✓ Technical telephone advice
- ✓ Energy management training workshops
- ✓ Toolkits, online resources & guides

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We've helped over 1,500 schools to progress energy savings of £35 million per year & 1.5 million tCO2

Our insight into the energy efficiency opportunity and related barriers in schools has been gained through:

- ✓ Footprint assessments & energy audits
- ✓ Feasibility studies for complex projects
- ✓ Behaviour change support (staff & pupils)
- ✓ Engagement tools & resources
- ✓ Energy performance contacting advice
- ✓ Training & best practice communities

The Case for Low Carbon
Motivators for energy efficiency

Cost saving & revenue

- Reducing operating costs, productivity, volatile energy prices
- Generating income, renewables, new business models

Improved reputation

- Consumer loyalty, competition, pupil intake
- Internal reputation, morale, organisational loyalty

Compliance

- Climate Change Act 2008, carbon budgets, building regulations
- Buyer / Supplier compliance

Broader Benefits

- Socio-economic, improved comfort, health, educational benefit / skills development, attainment

Typical investment returns

Energy efficiency	40%
'Typical' business investments	10%
Renewable energy (inc. subsidies)	5%

0 10 20 30 40 50 60

Internal rate of return (%)
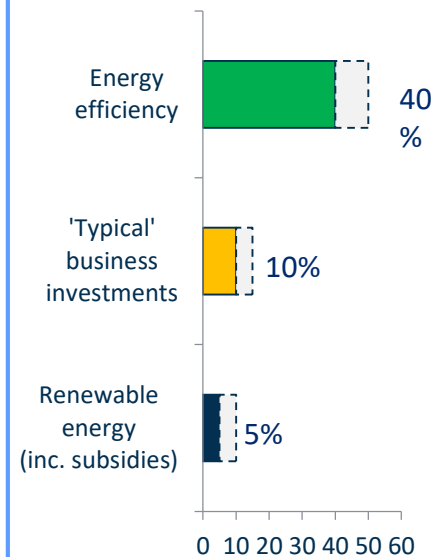
Source: Carbon Trust

Energy saving in Retail

Energy saving priorities:

1. Heating 30%
2. Refrigeration 25%
3. Lighting 20%

Overview

- Saving energy is one of the simplest ways to increase retail profits

- Energy costs may only be a small percentage of turnover but energy efficiency can directly **increase margins without the need to increase sales**.

- A 20% cut in energy costs can represents the same bottom line benefit as a 5% increase in sales.

Trends

- Increasingly competing for consumer loyalty with material impacts on suppliers

- Open door / fridge policy – consumer engagement

- The drive to on-line retail is increasing transport-related energy demand & associated packaging

- Significant focus on plastic packaging – drawing attention away from non-plastics recycling & energy efficiency

- Electric vehicles are reshaping energy demand profiles

ICT equipment 90
Hot water 530
Small power 350
Catering 780
Fans 860
Cooling & humidiafication 950
Other 2,350
Heating 8,740
Lighting 5,740
Cooled Storage 6,960
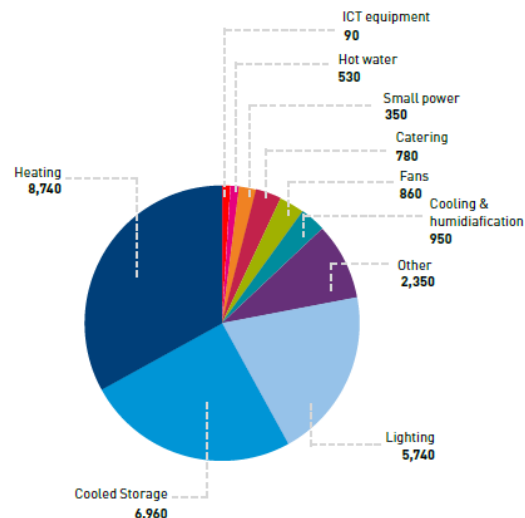
Breakdown of annual energy use in the average retail environment.

Energy saving in Hospitality

Energy saving priorities:

1. Heating 48%
2. Hot water 22%
3. Catering 18%
4. Lighting 8%

Overview

- **Pressure on the profitability in hospitality** is growing rapidly - energy consumption of the sector across ~45,000 hotels leaves material scope for a proactive approach to improve energy efficiency

- The hospitality sector is diverse, comprising hotels, guest houses, pubs, bars, restaurants and other catering establishments and dominated by the behaviours of the bigger players

Trends

- Material increase in hospitality selling their green credentials – danger of green wash. Data can help.
- On-going focus on water usage and related engagement of consumers
- Installation of LEDs means space & water heating gaining importance
- Decline in pubs overall (rent and price of beer – bottom line impacts)
- Large hotels chains are driving behaviours of independent hotels
- BREXIT-related strain on hotels – balance of weak pound and scale of supply impacting room rate competition
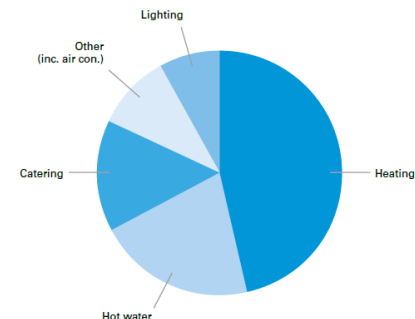
Annual energy use in the average hotel
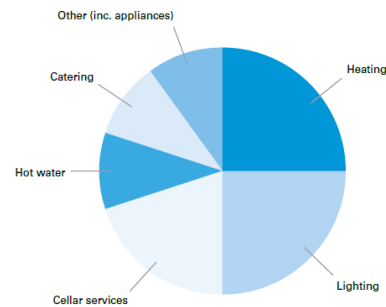
Annual energy use in the average pub

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Energy saving in Schools

Energy saving priorities:

1. Heating 60%
2. Hot water 16%
3. Catering 8%
4. Lighting 8%
5. Swimming pool?!

Overview

- Improving energy efficiency in schools does not mean compromising the comfort of staff and students. In many cases, implementing some simple energy saving measures actually improves conditions, as well as saving money.

- An **opportunity to influence** the curriculum, the next generation, the low carbon leaders of tomorrow and the wider school community

Trends

- Electricity usage increasingly materially with increased integration of IT

- Low carbon building & attainment relationship is increasing

- Rising use of energy data as an aid to broader teaching & engagement

- Academisation leading to more profit-focussed business attitudes

- Very open to collaborative working, local authority engagement and responsive to direction from Department for Education
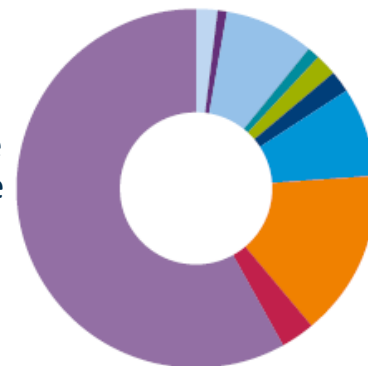
Space heating (fossil fuel) 58%
Catering (elec) 4%
Hot water (elec) 1%
Lighting (elec) 8%
Office equipment 1%
Other (elec) 2%
Space heating (elec) 2%
Catering (fossil fuel) 8%
Hot water (fossil fuel) 15%
Other (fossil fuel) 3%

Annual energy use in the average school

In the real world this stuff is hard!
The view from our customers….

Obstacles to addressing sustainability issues

Obstacle	%
Competing Priorities	51%
Insufficient resources	39%
Short-term thinking regarding planning and budgeting cycles	37%
Lack of customer demand for sustainability strategies	36%
Difficulty quantifying intangible effects of sustainability (e.g. reputation)	33%
Lack of framework to incorporate sustainability into core business	28%
Lack of regulation requiring sustainability strategies	27%
Lack of government support to pursue sustainability strategies	27%
Outdated mental models and perspectives on sustainability	23%
Difficulty predicting customer response to sustainability strategies	21%
Silo-focussed thinking across business units or geographies	21%
Lack of employees' financial incentives for considering sustainability	19%
Opposition from executive or influential individuals	12%
Opposition from investor community	8%
Other	3%
Don't know	5%

Q. What are the main obstacles to addressing sustainability issues more robustly?

Source: MIT Sloan Review

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The barriers are varied
And saving energy is rarely the biggest priority

ss – d... ..., whole li...
drive... ...sation ...consumers, suppliers
– busine... ...riate fir... ...vity of sites v ROI
human ...prioriti...
dge – w... ...hes, fe...
l – landlo...

7. ...lac... ... - internal capa... ...g, lack of ex...
ic motivati... ...rnal owner...
behaviour ...ing, need...
hurdles to ac... ...eter dat...

Time to investigate savings

We don't have the money to invest

Internal resource

Tenant / landlord barrier

Competing priorities

Expertise to know where to start

Enablers
Data & Capacity building…..

Data

- Raising awareness of smart metering and overcoming issues related to accessing and interpreting data
- Developing appropriate tools, resources and support to help organisations understand their energy use and identify practical ways to save energy

Capacity building

- Regularly refreshed training, dovetail in induction and appraisals
- Signposting sources of information and advice and promoting communities of best practices, mentoring, peer-to-peer learning (Green Business Fund, LESSCo2)
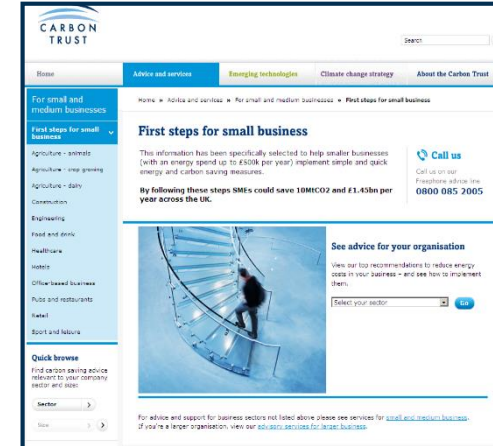
Enablers
Ownership, Governance & Communications

Ownership & Governance

- Need single point of accountability, driver, empowered with time & buy in

- Sponsors and allies - Engage decision makers, funders: Business owner, MD, office manager, Head/Governor, Wilful individuals, Bursar/Business Manager, Caretaker/site manger, Teachers, Pupils

Communications

- Provide approach to use energy data as the foundation for awareness campaign

- Help the message to land

    - A 20% cut in energy costs can represents the same bottom line benefit as a 5% increase in sales.

    - Annual school savings of £21k equivalent to the salary of a UK primary school teacher

Competition partner pitches

Session 2

Innovation solutions for energy management in retail, hospitality and schools

Competition partner pitches

Pilio

pilio

Pilio was founded in 2011 by energy efficiency experts Catherine Bottrill and Dr. Russell Layberry to bring cutting-edge energy analytics and innovation to those with responsibility for reducing energy use in buildings.

Pilio spun out from the University of Oxford's Environmental Change Institute and is part of Climate-KIC, Europe's largest public-private innovation partnership.

Catherine Bottrill
CEO

Dr. Russell Layberry
CSO

holistic energy management

POLICY

PLANNING

RESPONSIBILITY

COMMUNICATION

INTELLIGENCE

INVESTMENT

Scorecard
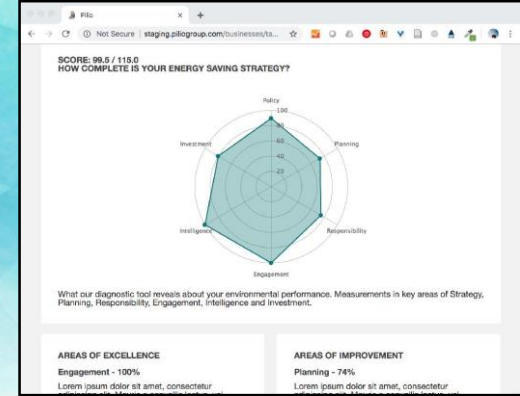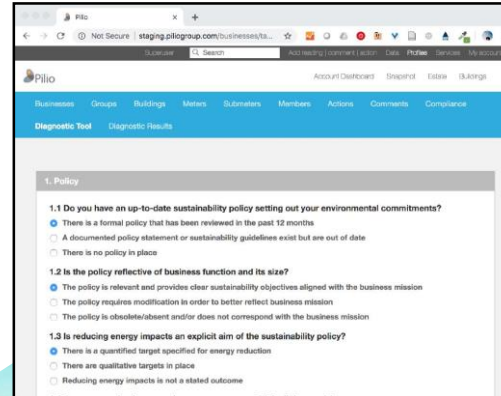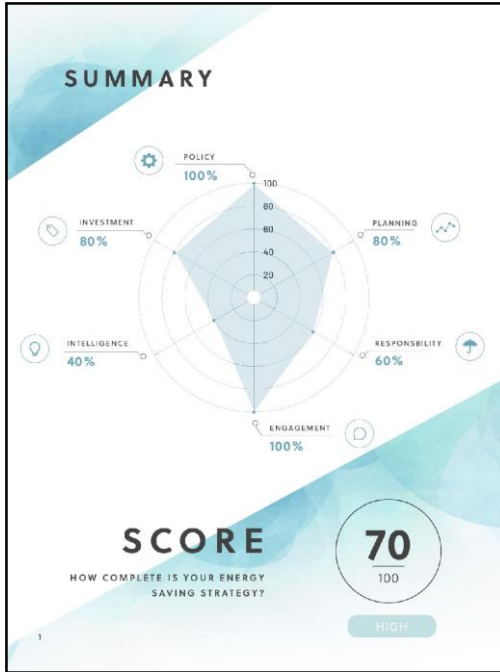
	Learn More	Learn More	Learn More
SOFTWARE FEATURES	STARTER	PERFORMANCE	IMPACT
Energy Scorecard	●	●	●
Energy, water, transport tracking	●	●	●
Manual data processing	●		
Automatic data processing		●	●
Half-hourly data processing		●	●
Submeter tracking		●	●
Building results snapshot	●	●	●
Building monthly results report (emailed)	●	●	●
Estate results dashboard		●	●
Estate monthly report (emailed)		●	●
Automated exception reporting		●	●
ISO50001 evidence pack	●		

data collection

intelligence

clients

LUSH
FRESH HANDMADE COSMETICS

UNIVERSAL
UNIVERSAL MUSIC GROUP

BLENHEIM PALACE

YMCA

CURZON

Royal Albert Hall

BORDERS
B
COLLEGE

Lake District
National Park

National
Theatre
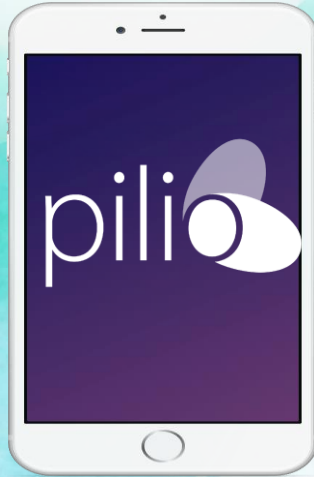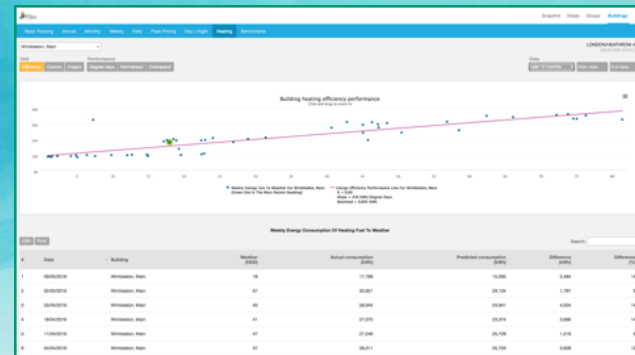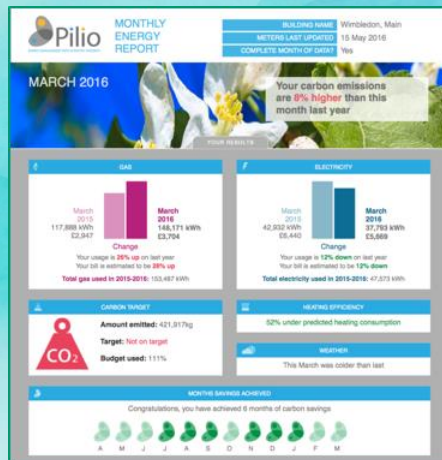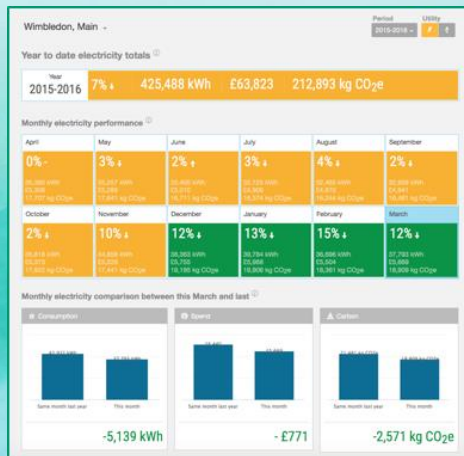
Julie's Bicycle
SUSTAINING CREATIVITY

Pilio has a partnership with Julie's Bicycle for delivering environmental strategy, analysis and tools across the Creative Industries.

ACE Environmental Programme

THE ARTS COUNCIL ENGLAND PROGRAMME

Julie's Bicycle has been working in partnership with Arts Council England to inspire environmental action across the arts and cultural sector for over a decade.

This collaboration led to a pioneering policy intervention in 2012, when the Arts Council became the first cultural body to make environmental reporting and policy part of funding agreements for National Portfolio organisations. Collectively, these organisations have reduced energy consumption by 22% and made savings of £11 million.

This crucial policy intervention is supported by an Environmental Programme devised and delivered by Julie's Bicycle which is transforming the vision of the arts.

Our partnership with Arts Council England is firmly built on the shared vision of the transformative role of culture and creativity. Julie's Bicycle supports that vision through an ambitious Environmental Programme with a strong focus on leadership, giving the arts and cultural sector agency to act on sustainability and climate change.

Name for Report (e.g. business or organisation name)

1. Policy

1.1 Do you have an environmental policy?

◯ Yes, we have an up-to-date policy which has been reviewed and approved by our board and/or senior management.

◯ Yes, a policy or sustainability statement exists, but it is out of date.

◯ No, there is no policy or statement in place.

1.2 Does the scope of the policy cover all the major environmental impacts of your business/organisation?

◯ Yes, all major direct and indirect environmental impacts are covered, for example our supply chain and/or product lifecycle.

◯ Yes, but the policy only covers direct environmental impacts of our business.

◯ No, the policy does not clearly articulate the primary environmental impacts of our business.

partnership

A heating control solution for social housing landlords.

![pilio]

london, uk

SUSTAINABLE WORKINGS
105 SUMNER STREET

piliogroup.com

Innovation solutions for energy management in retail, hospitality and schools

Competition partner pitches

Samsung

Energy in Schools: School Information Pack

Efficiency, Economy and Education
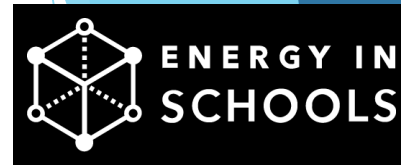
ENERGY IN SCHOOLS

Dr Joe Finney,
Lancaster University

Tim Bailey,
Samsung Research

Nick Banks,
CSE

Guy Thompson
MUGC

SAMSUNG

centre for sustainable energy

MY UTILITY genius. co.uk

Lancaster University

What is it?

▶ Energy in School is a government funded initiative to help all schools in the UK to reduce their energy usage, reduce their energy bills, and to educate their pupils about energy efficiency. It provides:

▶ An easy-to-use Energy Platform comprising:

  ▶ a) energy management portal to help staff manage the buildings

  ▶ b) tariff switching portal comparing time-of-use based tariffs

  ▶ c) teacher and pupil portal and an energy display (TV) to support behaviour change and engage building users on energy issues

  ▶ d) supporting energy advice materials, energy champions training and an initial energy audit

▶ An Educational Platform comprising

  ▶ a) curriculum aligned STEM teaching and learning resources for KS2/KS3 supported with micro:bit kit

  ▶ b) educational environment to teach the basics of coding and to solve real world problems

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Architecture

Learning environment
- Smart lightbulb
- Smart switch

SmartThings hub

Energy monitoring
- Motion, temp and open/closed sensor x 12

Weather + Carbon data

TOU pricing information

SmartThings Cloud
HANAN Ignite ARTIK

ENERGY assets

CHAMELEON

CAD

geo
GreenEnergyOptions

Schools Energy Server

- Storage of energy and price data;
- APIs to Raspberry Pi, ST and Portals;

Energy Dashboard (TV)

Raspberry Pi + Micro:bit bridge

Download the code

20 x Micro:bits

IoT coding Portal + lesson plans

Energy Manager portal

Pupil coding portal

Samsung Flip

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Lancaster University

Benefits for schools… beyond energy management

▶ Give your students the chance to use cutting-edge IoT coding tools to learn how address one of the key issues for their generation (climate change).

▶ Energy cash back payments of up to **£1,000 per year** until at least January 2020.

▶ A full on-site energy audit **worth £2,000**, conducted by the Centre for Sustainable Energy.

▶ A dedicated Samsung energy display TV for your reception or other area.

▶ Three Samsung tablets for facilities managers, teachers and governors to allow access to your school's live and historic energy usage data.

▶ Tips and advice on how to minimise bills and how to maximise cashback.

▶ Curriculum aligned teaching resources which solve real world energy problems

▶ Training package for energy champions

▶ Easy to use contract management for automatic price comparison at the end of your current energy contract.

Energy Platform

Energy Dashboard

\+

Energy Usage Plan

\+

Energy Manager App

Energy Portal: Price Comparison…

Energy Portal: Contract Acceptance Online…

Technical and Behavioural Audit

A **comprehensive assessment** of the school's buildings, services and energy management systems with **costed recommendations** for technical and behaviour change measures to improve energy performance

Building	Item Reference	Item	Description	Annual energy saving (kWh)	Annual cost saving (£)	Annual CO$_2$ saving (tonnes)	Capital cost (£)	Payback period (years)
Whole site	1	Energy policy	Develop formal energy policy and Action Plan with commitment from top level management	28,143	1531	7	0	0
Whole site	2	M and T regime	Implement M&T regime	56,286	3,062	17.2	3000	1
Whole site	3	EE awareness	Raise EE awareness throughout school	28,143	1,530	8.58	2000	1.3
Main building	4	Lighting control	Install occupancy sensors to halls and gyms	3724	484	1.309	1400	2.9
Whole site	5	BEMS	Install new Building Energy Management System to include optimal start	39401	866	7.256	5700	6.6
Whole site	6	TRVs	Clean the heat distribution systems in Main building, J block and Art building then install TRVs throughout	19701	433	5.614	6200	14.3
Whole site	7	LED Lighting	Install LED lighting battens throughout the entire school	69264	9004	24.35	41342	4.6
Main building	8	Glazing	Double glaze remaining 50% of single glazing in Main building	101147	2225	28.826	102572	46.1
Main building	9	Subzoning in main building (halls)	Install motorised valves to heating circuit servicing halls in Main building	67488	1484	12.428	5000	3.4
Whole	10	Time of use tariff	Consider TOU tariff	none	13170	none	None	NA

Figure 3: Facade and plan of the main buildings

Educational benefits for schools…

► A set of six engaging, fun and curriculum aligned lesson plans designed for KS 2/3 that allow your pupils to solve real world problems with a focus on STEM subjects.

► A micro:bit learning platform hub including temperature sensors and colour changing light bulbs which can be controlled by the micro:bits.

► A class pack of 30-40 BBC micro:bit devices for your school, allowing your teachers and pupils to create digital class projects using your school's energy data, such as:

  ► Programming a micro:bit to record temperature every minute; pupils can then use the platform to download and analyse this long term data.

  ► Programming a micro:bit to measure the energy usage of an appliance every 30 seconds; pupils can then download appliance and school level data for analysis and understanding.

  ► Programming a micro:bit to fetch data on the current level of coal-powered generation in the UK, and on the live school electricity usage, and to set the lightbulb to change colour based on this data.

  ► Crafting their own in class digital projects to shown how energy is used in their school.

Micro:bit Learning Platform

30 BBC micro:bits

Smart Lightbulb

Smart Switch

Temperature Sensor

Raspberry Pi

SmartThings Hub

What we are looking for today

▶ Energy suppliers who want to work with us to develop a time-of-use tariff for schools;

▶ Supply chain and commercial arrangements to support three phase electricity and larger gas SMETS2 installations in phase 3;

▶ Partners who can help us take our message to schools for phase 3 recruitment;

Demo

Competition partner pitches

Toshiba

Hub4 SME's - NDSEMIC

Gareth Williams and Tom Cunliffe

Toshiba Information Systems (UK) Ltd
2018.11.08

hub4

Contents

hub4

PART 1: **HUB4 Solution Overview**

hub4: THE UK's LEADING **SMART ENERGY** AND **SMART HOME** PLATFORM FOR ENERGY RETAILERS

★

DESIGNED TO BE
WHITE LABELLED

★

BUILT FOR MASS
MARKET
CONSUMERS

★

CENTRED
AROUND USERS
NOT DEVICES

★

DELIVERED AND
ASSURED BY
TOSHIBA

hub4 helps transform the customer relationship
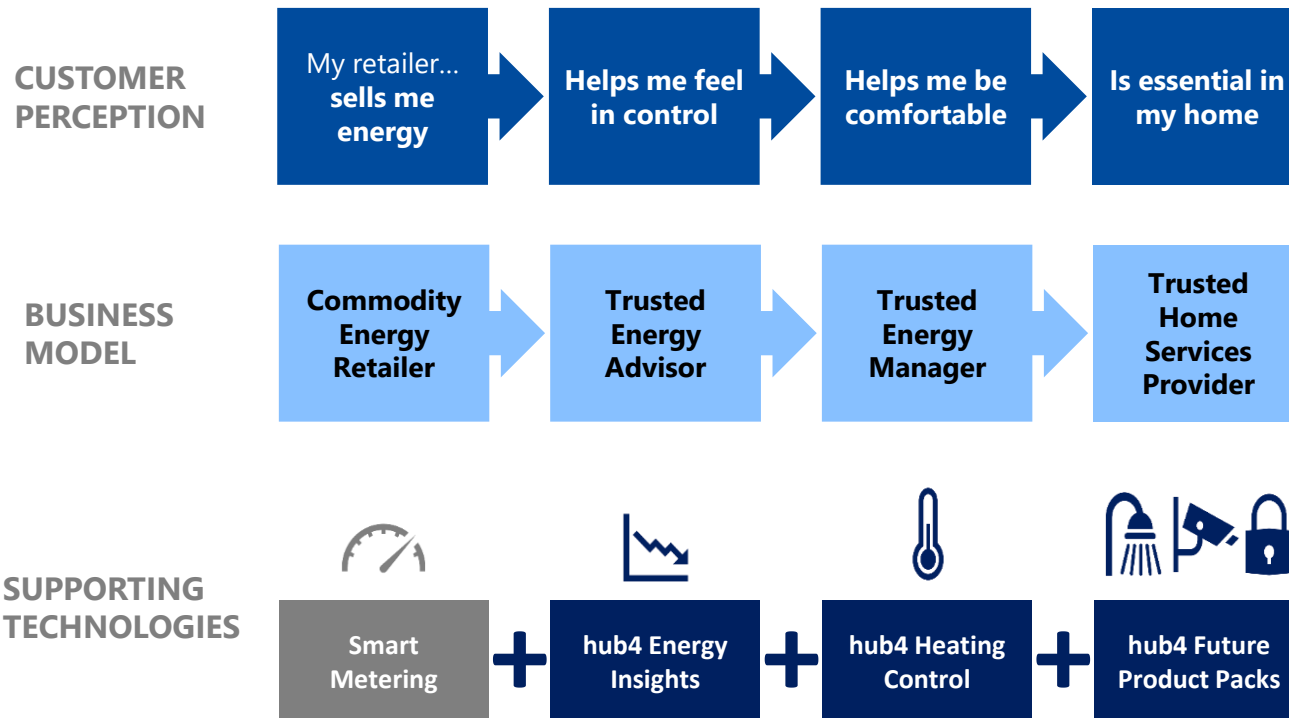
How our energy insights are differentiated

THE RICHEST ENERGY INSIGHT FEATURE SET

DOMESTIC & SME SUPPORT FROM ONE PLATFORM

COMPATIBLE WITH MULTIPLE CADS AND IHD GATEWAYS

ALL SETUP FUNCTIONALITY & DATA ACCESSIBLE BY API

Utilising data from the smart meter investment
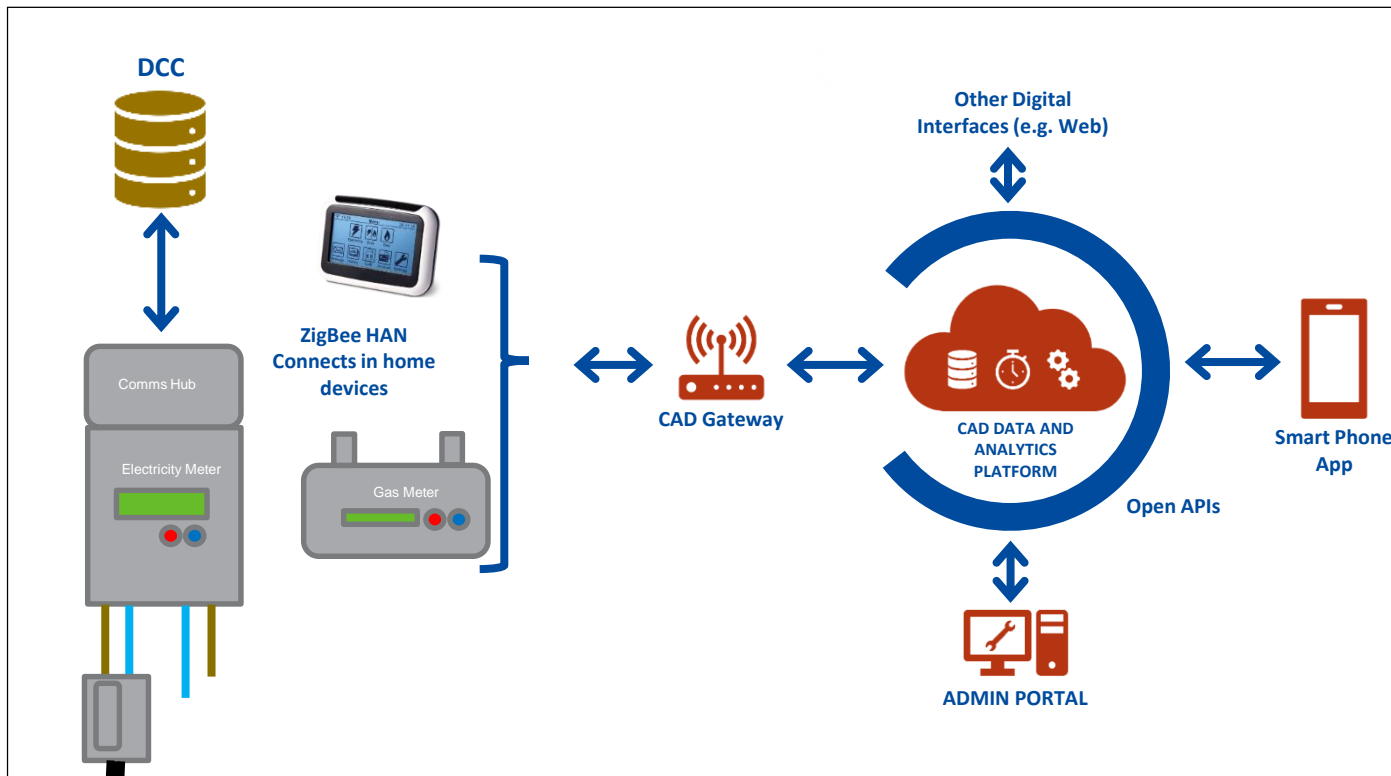
Part 2: **Hypothesis and concept generation for target SME's**

Hub4 view on SME problems – what are we trying to fix?

SME PAIN POINTS

- **Lack of awareness** on what the benefits are regarding smart energy management and what the potential solutions are to realise these

- Little **factual information** or quantitate data regarding benefits

- **Access to data** is a critical success factor – timely accurate, specific and easily relatable to ROI

- Knowing **where you can save** energy

- **Understanding** costs and consumption patterns

- Practical issues **how to present data** and the format it is in – get the right consumer experience

SME ENERGY BENEFITS

UNDERSTAND & CONTROL	CHANGE BEHAVIOUR	INVEST WISELY
Users know what energy they use and when, and how that compares to best practices	Users know the behavioural actions they can take which will achieve the greatest benefit	Users know what energy saving technologies are appropriate given their energy usage patterns

HUB4 SERVICE BENEFITS

REDUCTION IN TIME TO ACTION	PERSONALISATION	PROACTIVE USER ENGAGEMENT
Real-time features reduce the time lag between an energy wastage situation occurring and the user being made aware of it and being able to act	We make the energy insights highly personalised for the user through the use of analytics and information about their business	Our solution proactively pushes messages to users to encourage ongoing engagement and to alert them to specific situations

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Target customers and Feature and UX Innovation

TARGET SME's	ENERGY INSIGHT FEATURES			USER EXPERIENCES
	EXPLORE USAGE	INTERPRET USAGE	MANAGE USAGE	
SCHOOLS	CONSUMPTION HISTORY	TRADING HOURS ANALYSIS	ENERGY BUDGET TRACKING	ANY INSIGHT, ANY TIME, ANYWHERE
RETAILERS	LIVE CONSUMPTION	TIME TREND ANALYSIS	ENERGY CONSUMPTION ADVICE	CURATED CUSTOMER JOURNEY
HOSPITALITY	TODAY'S CONSUMPTION	BENCHMARK ANALYSIS	CONSUMPTION FORECAST	MONTHLY REPORTS

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Part 3: **New and enhanced features**

Current energy insight features

CONSUMPTION HISTORY
Your actual energy usage, in energy and pounds, for every half-hour since you had a smart meter installed

CUMULATIVE HISTORY
Your 'running total' energy usage, for today, this week, this month and this year

LIVE CONSUMPTION
Your power usage, in real-time, with a personalised indicator of whether this is high or low for you

ACTIVITY BREAKDOWNS
Your gas and electricity usage, analysed to show what you used it for

CONSUMPTION CHARACTERISTICS
Your consumption interpreted, showing your average usage patterns across the day, week and year

ENERGY BUDGETS
Set your own energy budgets and track expenditure against them

CONSUMPTION ADVICE
Prioritised energy saving advice, with personalised estimates of the benefits to you

CONSUMPTION FORECASTS
Your future energy usage and expenditure, estimated based on your own consumption history

EVERYTHING OFF CHECK
Check in real-time if any electrical appliances have been left on

BENCHMARK COMPARISONS
Produce a Display Energy Certificate and receive an A-G rating of your energy usage

Icons indicate if applicable for domestics and/or non-domestic users

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New features in development

NEW FEATURES

TRADING HOURS ANALYSIS
Compare your usage between when your business is open and closed

VIEW METER READINGS
See your latest readings and validate readings on your bill

TIME PERIOD COMPARISONS
See how your consumption compares to similar previous time periods

CONSUMPTION CHANGE EXPLAINER
Understand the main reasons why your usage changed from one time period to another

FEATURE ENHANCEMENTS

ACTIVITY BREAKDOWNS
Improved breakdowns for homes with storage heating and electric hot water systems

HISTORIC, CUMULATIVE & LIVE CONSUMPTION
Addition of data items presenting all information in kgCO2e as well as cost and energy

LIVE CONSUMPTION
Refinement of personalised indicators for premises with storage heating

BENCHMARK COMPARISONS
Addition of energy usage rating capability for domestic users

EVERYTHING OFF CHECK
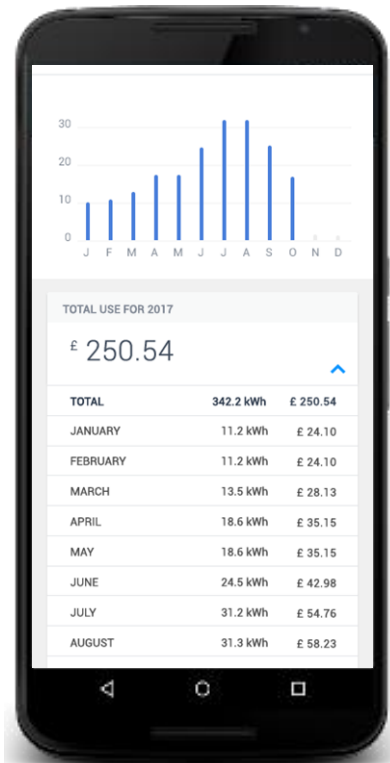Refinement of algorithms for premises with storage heating

CONSUMPTION CHARACTERISTICS
Derivation of new characteristics describing how energy usage changes with temperature

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Part 4: **Key Feature Outcome**

What will our customers experience?

Curated Customer journey

The curated customer journey defines when each Energy Insight service is made available to each customer.

EXPLORE USAGE

User Profile and Consumption History - The customer profile defines a set of metadata associated with the customer, their premises, their energy consuming appliances and their energy consumption behaviours. The consumption history service provides the customer's own historic energy consumption presented for different fuels in both kWh and £

Live Consumption – This service provides the customer's own power usage presented for electricity only in both kW and £/hr with an ambient indicator of usage adjusted based on their business type for consumption to provide a red / amber / green rating.

Today's Consumption – This service provides the customer's own latest cumulative consumption for the different fuels that they have over different time periods (year/month/ week/day) in both kWh and £

What the SME customers experience

INTERPRET USAGE

Trading Hours Analysis – This service provides details as to how the customer's energy usage compares between trading and non-trading time periods for each fuel in kWh and £

Time Trend Analysis - This service provides details as to how the customer's energy consumption usage in a time period compares with, and has changed versus, previous and typical similar time periods, presented for each fuel, for different time periods (specific month/week/day) in kWh and £

Benchmark Analysis - This service provides the user with the ability to obtain a benchmark statement of their energy usage, which is in the form of an A-G rating and is a versus benchmark for energy usage values for users of a similar business types. The methodology and benchmark data used to create the certificate is that of the UK Government's Display Energy Certificates (DEC) or BEIS BEES data, as appropriate.
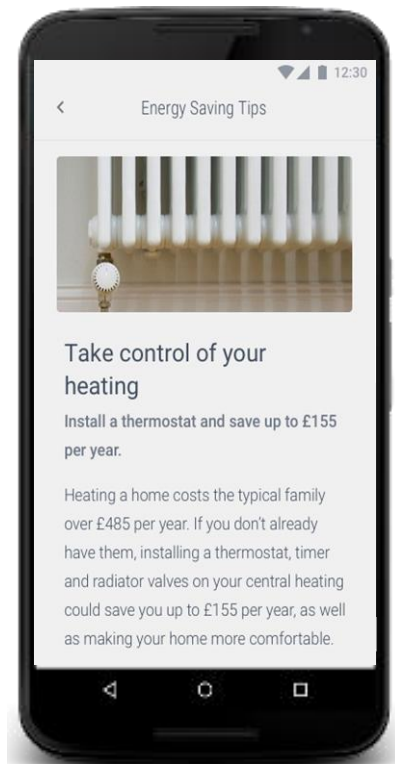
What the SME customers experience

Energy Budget Tracking – This service provides customer-specific budget information providing a budget amount, budget consumed and budget remaining values, managed on a weekly, monthly or annual budget period (configurable for each user)

Energy Consumption Advice – A catalogue of energy consumption tips for each customer, comprised of a tip identifier with associated reference copy text, a relevance score, indicating which tips are most relevant to the customer; and parameters, which provide information such as the estimated monetary saving of a tip.

Consumption Forecast – This service provides the customer's forecasted energy consumption presented for each fuel in kWh and £ for different levels of granularity (years/months/days/half hours)

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hub4

Part 5: **Next steps...**

Next steps

The hub4 team are working with several clients to **test, trial and deploy** the SME features to trial participants to gain feedback

The hub4 team are also developing and enhancing new features, some of which are specific for SME customers:

- Statistical Disaggregation to enable a service similar to domestic users
- Everything off checks for SME's
- Weather Adjusted Consumption
- Abnormal Usage alerts
- Consumption change explainers

We are also exploring new architecture and deployment models to enable the hub4 service without a CAD for Advanced Metered customers

hub4

TOSH **hub4**

Thank you for listening

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Competition partner pitches

Transition Bath

Energy Sparks

Energy Sparks

www.energysparks.uk

Helping schools become more energy efficient

Online school specific energy analysis tool and energy education programme

Energy Sparks
Background

Energy Sparks:

- Run by Transition Bath, a charity focussed on sustainability

- Working with schools using Smart Meter (AMR) data to make them more efficient since 2010

- 2016: developed a website to encourage school children to save energy at school through analysing their smart meter data

- 2017 Rolled out to 10 schools in the Bath area

Energy Sparks
Background

Energy Sparks:

- Energy education for pupils and adults providing life skills in understanding energy

- Reducing schools' energy costs and carbon emissions through automatic analysis of smart meter data

Energy Education

Energy education through 70 pupil led activities, focused on:

- Using Smart meter data to highlight ways their school can save energy

- Using activity based behavioural change to reduce energy consumption

- Gamification to increase enthusiasm and interest

- Provide school pupils with life skills in understanding energy

- Use pupils as advocates of behavioural change and for capital investment in energy saving

Energy Education

Intra-schools competition:

Scoreboard

See how well each of our Energy Sparks schools are recording their energy saving activities

Position	School	Score
1	Freshford C of E Primary School	245
2	Pensford Primary School	145
3	Roundhill Primary School	95
4	Castle Primary School	90

70 categorised activities, points awarded for documented activities:

Investigating energy usage	5 Pupils carry out a spot check to see if lights or IT are left on after school (KS1, KS2)
Learning	5 Pupils monitor whether outside doors and windows are closed during cold weather (KS1, KS2)
Spreading the message	5 Pupils carry out a spot check of classroom temperatures (KS1, KS2)
Taking action around the school	5 Pupils monitor whether adults and pupils are wearing warmer clothes inside the school building during winter (KS1, KS2)
Whole-school activities	5 Pupils carry out a spot check to see if lights or electrical items are left on at lunch time (KS1, KS2)
	5 Other (please specify) (KS1, KS2, KS3)
	10 Pupils install appliance monitors to understand the energy use of individual appliances (KS1, KS2, KS3)

Energy efficiency analysis:

- Very school focused, targets the most cost effective opportunities specific to schools

- Schools are unoccupied for 85% of the year

- Half of all school electricity and gas usage is when there is no one in the school

- Energy Sparks provides users with tools to understand this and provides advice on behavioural change and capital investment to reduce consumption

- Based on 8 year's experience of using smart meter data to save energy in schools (~100 schools, ~300 meters)

Energy efficiency analysis:

- 40 different analysis charts with contextual analysis

Benchmarking:

Annual Electricity and Gas Consumption Comparison with other schools in your region

St Marks C of E School is a secondary school near BA1 6ND with 192 pupils and a floor area of 5200.0m².

Your school spent £25,267 (210,558kWh) on electricity and £16,161 (538,716kWh) on gas last year. The electricity usage is more than similar regional schools which spent £5,760 (48,000kWh). The gas usage is more than similar regional schools which spent £13,455 (448,500kWh):

Appliance breakdown:

Focus on out of hours usage:

Breakdown by type of day/time: Gas
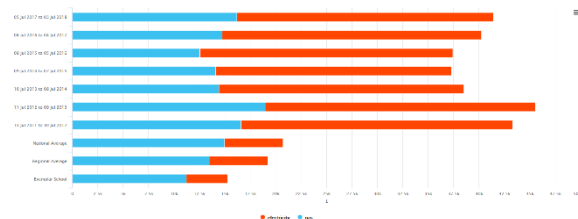
This chart shows when you have used gas over the past year. 56% of your gas usage is out of hours: which is above the average of 50%. The best schools only consume 25% out of hours. Reducing your school's out of hours usage to 25% would save £4,810 per year.
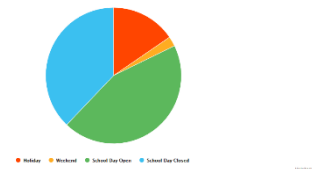

Specialist boiler control analysis:

Optimum Start Control Check
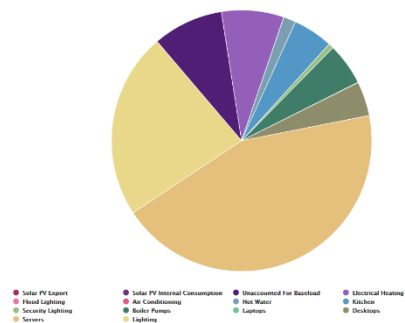
Optimum Start Control? Or, is your boiler turning on too early or being left on too late??

Most modern commercial boilers used in schools support 'optimum start control' - this is where the boiler controller learns over time how long it takes to heat up a school depending on how cold it is outside and inside. This allows the boiler to be turned on later in the morning (e.g. 06:00am) in milder weather saving energy and earlier (e.g. 04:00am) in colder weather. Without this type of control schools often set their heating to come on at a fixed time, often earlier in the day (e.g. 04:00am) just in case the weather is cold, but this is unnecessarily early in mild weather and wastes energy.
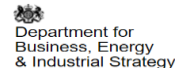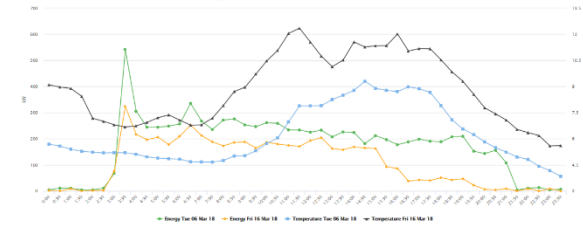
Automated Email and Text Alerts:

St Marks C of E School Alerts

Set alerts for your school to let you know if there are problems with your energy consumption or efficiency. Energy Sparks will automatically look at your gas and electricity data, and identify any issues which will be fed back to you by email or text. This functionality gives you the opportunity to take prompt action to prevent your school wasting energy and money. You will only receive an alert if you set up at least one contact for it. We recommend you set up contacts for all the alerts to get maximum benefit from Energy Sparks.

Edit your contact list using the Alert Contacts button. Assign contacts to an individual Alert using the Edit button for that Alert.

Alert Contacts

Category	Title	Description	Frequency	Contacts	Actions
Electricity	Electricity baseload has changed	Compares this week's electricity baseload with average baseload over the year	Weekly	No one allocated	Edit
Electricity	Electricity baseload too high	Compares average electricity baseload over last year with benchmarks from other schools	Termly	No one allocated	Edit
Electricity	Electricity usage high	Compares this year's electricity usage with benchmarks from other schools on both per floor area and per pupil basis	Termly	No one allocated	Edit
Electricity	Electricity consumption has changed	Compares this week's electricity consumption with the week before	Weekly	No one allocated	Edit
Electricity	Electricity out of hours usage too high	Compares this year's out of hours (holidays, weekends, evenings) electricity consumption with benchmarks from other schools	Termly	No one allocated	Edit
Gas	Turn heating on/off	Looks at next 10 days weather forecast for the local area and notifies you if it is warm enough to turn the heating off, or cold enough for it to be turned on	Weekly	No one allocated	Edit
Gas	Hot water efficiency	Compares your school's hot water efficiency with benchmarks	Termly	No one allocated	Edit
Gas	Heating coming on too early in the morning	Reports if your heating is coming on too early in the morning	Weekly	No one allocated	Edit
Gas	Thermostatic Control	Notifies you how well your school's thermostats are controlling the heating over the last year	Termly	No one allocated	Edit
Gas	Gas out of hours usage too high	Compares this year's out of hours (holidays, weekends, evenings) gas consumption with benchmarks from other schools	Termly	No one allocated	Edit

Target a broad range school users:

Our website is publicly available to:

- KS1, KS2, KS3, KS4, KS5 pupils

- Business managers

- Headteachers

- Governors

- Building managers

- Interested and enthusiastic parents

Future Developments

- Currently rolling out to 4 new school areas with new smart meter data interfaces; longer term looking for more

- Enhanced gamification

- Improved behavioural psychology

- Improved user experience, analysis and alerts

- Better comparative analysis

Focus

- Focus on behavioural change

- Encouraging capital investment: but with realism:

  - Schools have limited funding

  - Paybacks on energy efficiency investments often poorer than other sectors because of lower occupancy hours (15% of the year: factor of 2 to 6 extension in payback time)

Long term objectives

To develop a sustainable business within the schools sector providing:

•Energy education and energy life skills

•Reducing schools' energy costs, and carbon emissions

Next Steps

- Project summaries and contact details can be found here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/716654/180503_NDSEMIC_phase_1_project_summaries___REP_v03a_rg.pdf

- BEIS team email address: SmartEnergyManagement@beis.gov.uk

Q&A

Is there any more we can do to help realise BEIS' vision?

Stephanie Gale, BEIS

Andrew Lever, Carbon Trust

Antonia Dickman, IPSOS

Michael Harrison, SMIP

Thank you for attending

- Edit text styles
  - Second level
    - Third level
      - Fourth level
        - Fifth level