Harnessing data to unlock energy savings

Session Chair

Lisa Gingell – 3-Eight Communications

Speakers

Julie Allen – King's College London

Dinker Bhardwaj – The Department for Business, Energy and Industrial Strategy

Luke Olly – Central England Co-operative

Alex Hill – ZTP

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Energy Data Taskforce Project Update

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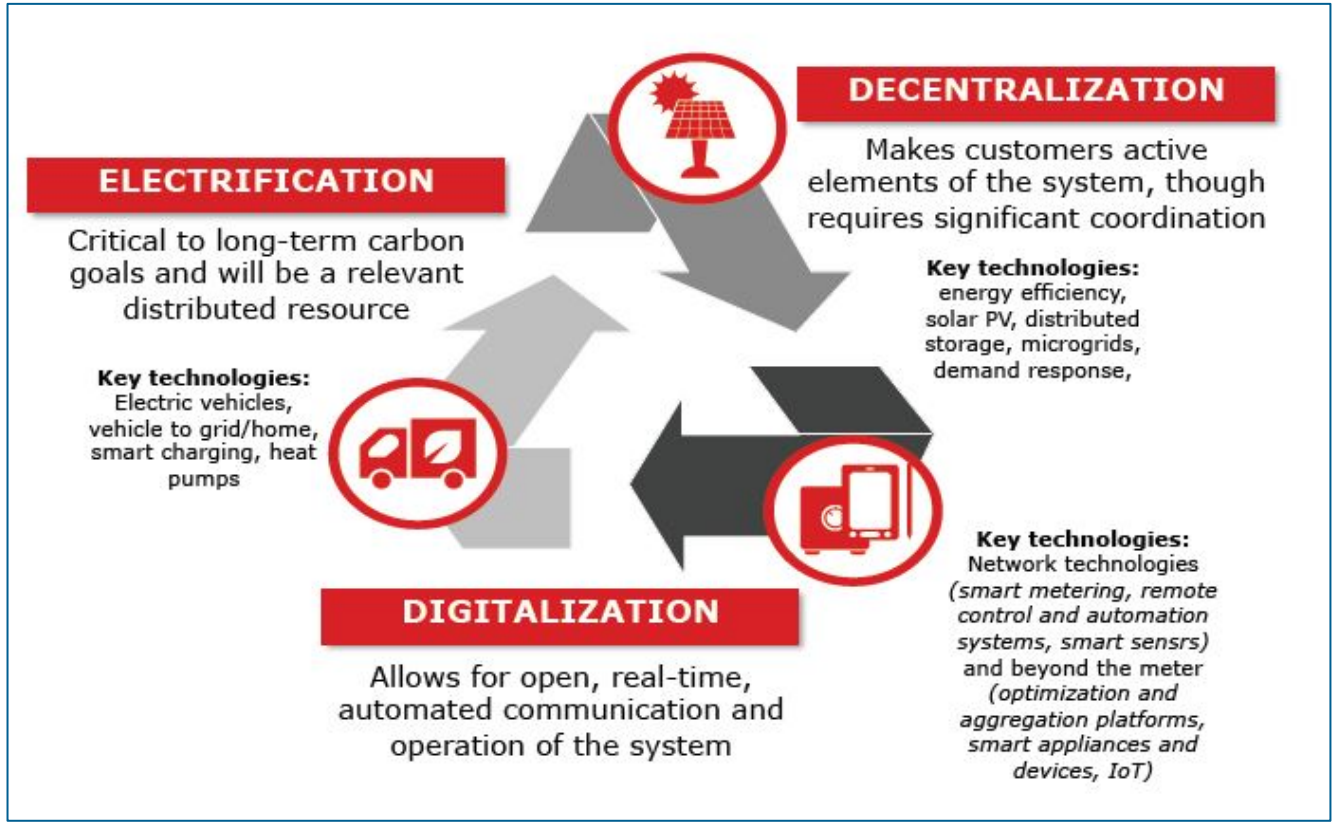
Department for Business, Energy & Industrial Strategy

Focus today

- Why is data important in energy context?
- Why do we need the Energy Data Taskforce?
- What are the likely recommendations?
- What difference can it make for consumers?

Future Energy System



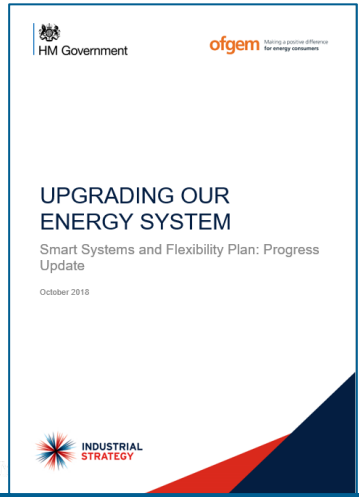
Source: World Economic Forum

Background

Oct18- Smart Systems and Flexibility Plan Update

- Data is **intrinsic to transition** to a smart system.
- Currently, there is a **lack of transparency** and **barriers to access** to certain data-sets which can **limit competition** for energy services and **restrict innovation**
- **Opportunities exist for optimisation** and allowing innovators to realise where they can **add value to the system**

So,
"BEIS and Ofgem (and Innovate UK)…launched EDTF that will look across the energy sector, identify gaps where data can be used more efficiently and make clear, actionable recommendations."



Scope

Remit: Focusing on Energy "System" data rather than "consumer" data with the overarching ambition of opening up data

Purpose: The Taskforce aims to deliver more open access to the UK energy system data to facilitate the energy transition and deliver on the Digitalisation Agenda.

Its **Outcomes** aim to:

- **Optimise System Management:**
  - Effective system optimisation
  - Clarity of roles & responsibilities across multi-actors
- **Optimise Procurement and Reducing Costs**
  - Appropriate procurement of assets meeting real needs
  - Better price discovery
  - Enhancing Demand side Markets
- **Improve Policy and Regulatory Oversight**
  - Symmetry of information and knowledge
  - More accurate understanding of system needs and infrastructure requirements
- **Enable New Markets and Actors**
  - Accelerating new markets
  - Opening up to new actors

Outputs: The Taskforce will deliver the following to BEIS / Ofgem

- Establish overarching principles to guide government, regulators and industry
- Develop an open method of sharing data
- Propose a set of data license requirements to drive a richer data environment

- Identify and make recommendations on "how" to unlock System Opportunities
  - **Data Visibility:** The development of an Energy Sector Data Index
  - **Infrastructure Visibility :** What and where are energy assets
  - **Operational Improvements:** Data informing better decision making
  - **Market Development:** Transparent markets delivering better price discovery around time, location and performance
  - **Regulatory Visibility:** Providing clear and useful data to the regulator to address consumer, market and system risk

Taskforce: Policy Principles

Presumed Open

Energy system data should be presumed Open / Shared to create more value for the system and consumers, and should guide all existing and future policies and regulatory measures.

Data is integral to Infrastructure	**Discoverable, Searchable, Understandable**	**Common Structures and Interfaces**	**Secure and Resilient**
Requiring physical infrastructure to be evidenced through data on asset & operational behaviour	Revealing the "hidden" value in data that today is opaque, incomprehensible and inconsistent	Employing common structures & interfaces to enable data to be aggregated and utilised more effectively	Deploying best practice to ensure openness without compromising security while building in greater resilience

Recommending: Policy, Regulation, Architecture, Governance, Standards, Access, Risks

Source: ES Catapult: Energy Data Taskforce

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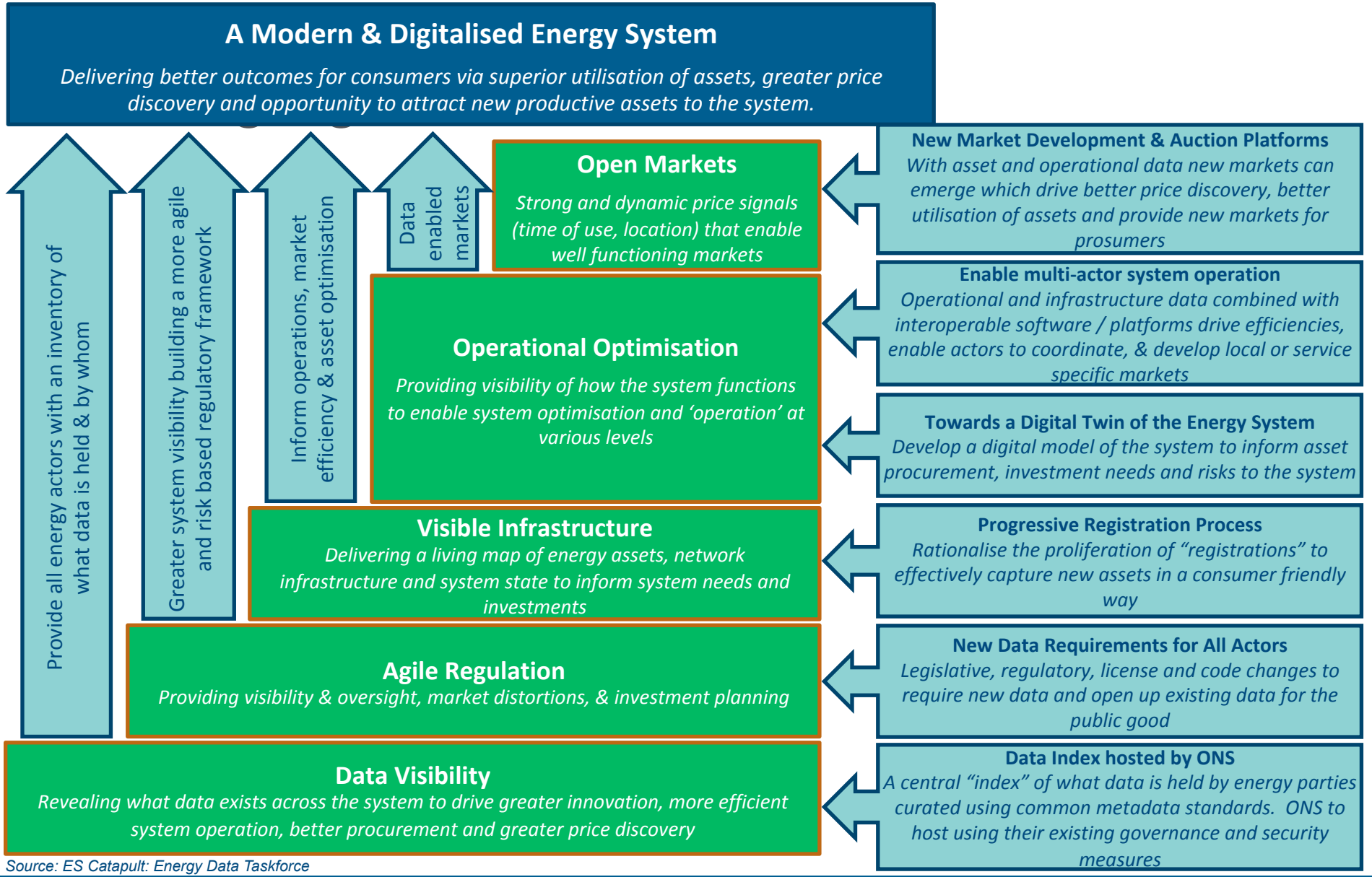

Source: ES Catapult: Energy Data Taskforce

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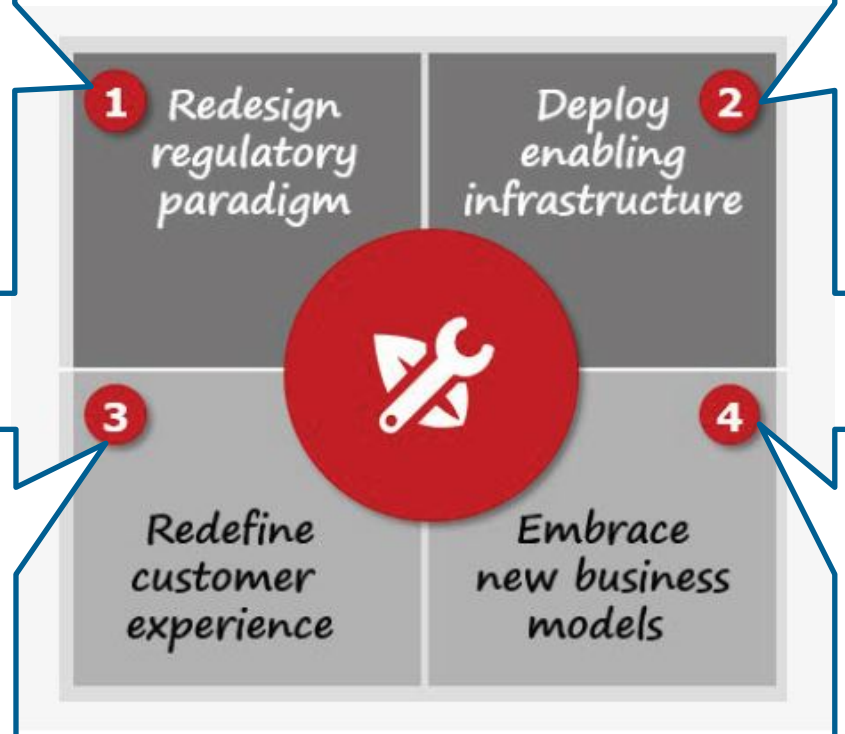
Why do it?

- Efficient DERs markets (e.g. efficient locational price signals)
- Modernising System Planning (e.g. data sharing between all system participants)



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- Open, interoperable standards (e.g. common metadata standards)

- Improve customer experience by combining multiple services (e.g. single point of engagement for prosumers)

- Cross-vector integration enabled by a culture of open data sharing (e.g. Open Banking, XaaS)

Next Steps

- **Taskforce recommendation report**

- **Policy declaration**

- **Delivery**
  - **BEIS/Ofgem leading by example**
    - Legislative changes necessary to do this or alternative routes, engaging with other reviews to do so e.g. Significant Code Review

  - **Data Products**
    - Other items within the recommendations will require further work to bottom out details (Data Index, Digital Model, Registration Platform)

Feedback

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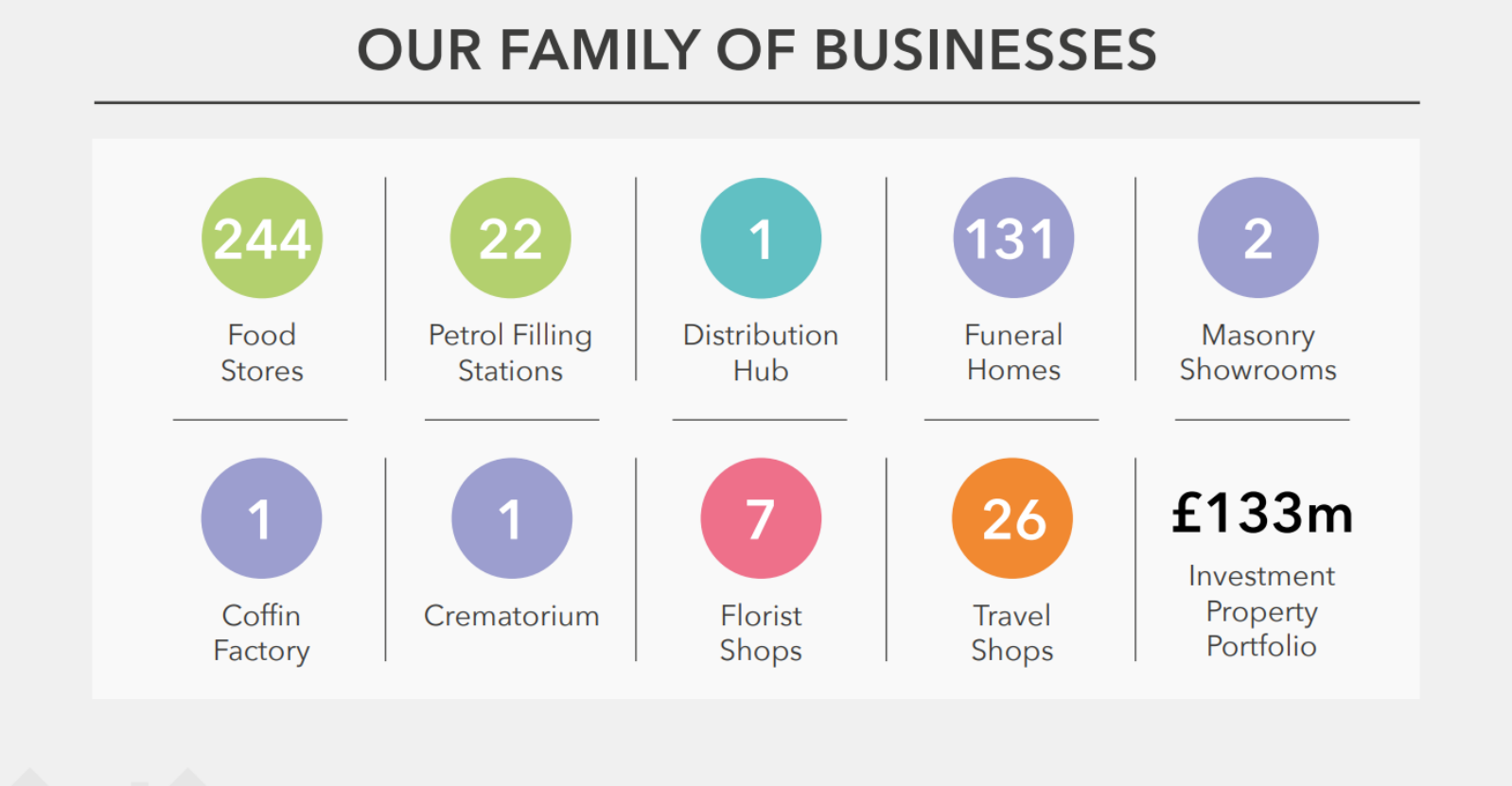
Luke Olly – Energy & Environment Lead



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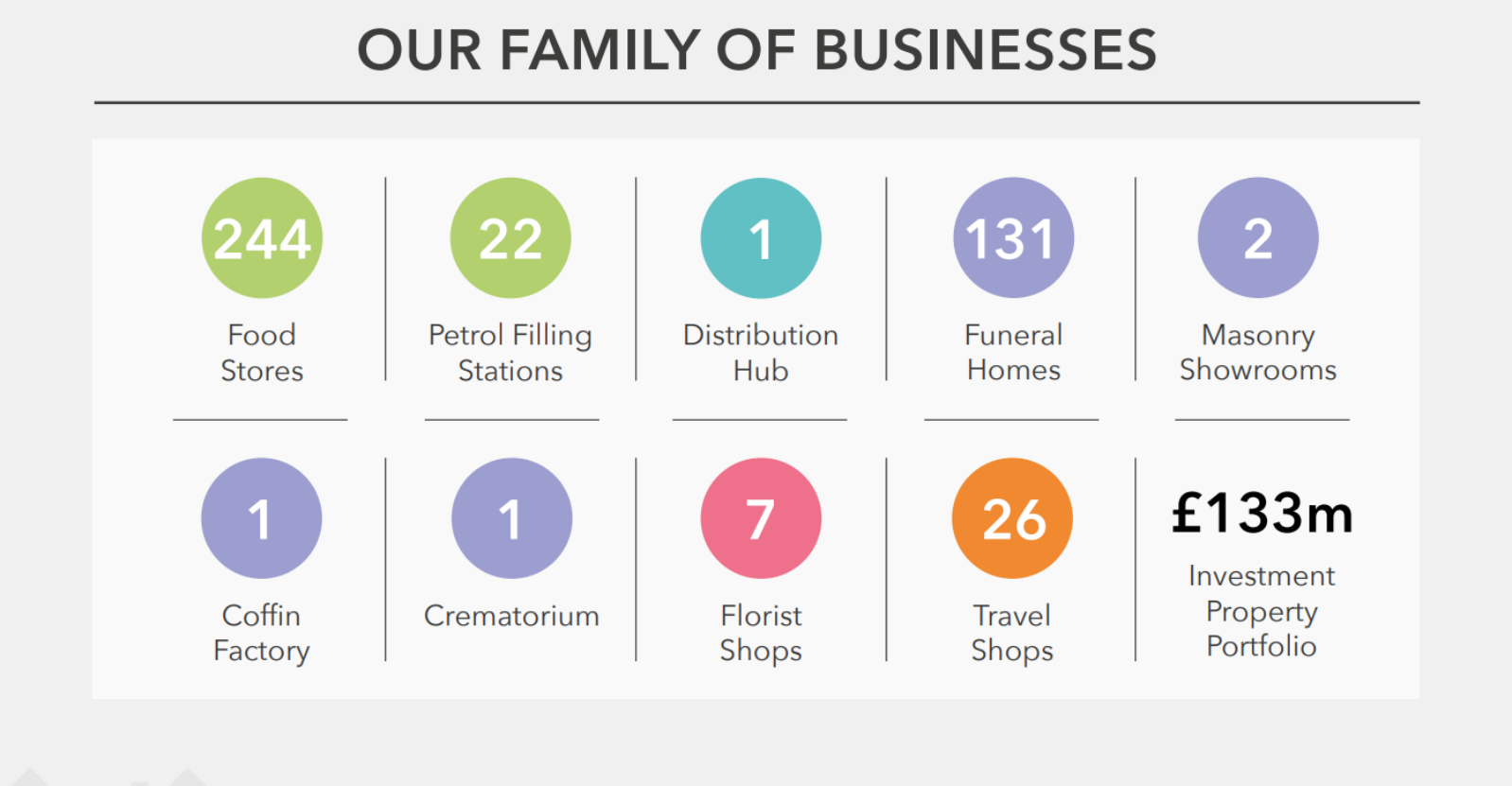


Key Challenges

- Energy spend of £10.6m (£9.9m electricity, £0.7m gas)
- Large, varied estate
  - In size (220 sqft – 36,000 sqft)
  - Legacy equipment and building design from previous mergers and long history of trading
  - Sub-metering only on new sites
- Limited resources
  - One energy manager
  - Tight revenue spend
- Large amount of underused data
  - Invested in AMR across 80% of trading estate
  - No energy bureau or other 3rd party data analysis service in place

Solution - kWIQly

- Use machine learning to constantly monitor consumption and provide insight into; changes in consumption & why, good & bad energy habits, errors in billing & improved budget forecasting
- Communicate findings to site in a collaborative manner
- Monitor changes on site and confirm if recommendations have been implemented

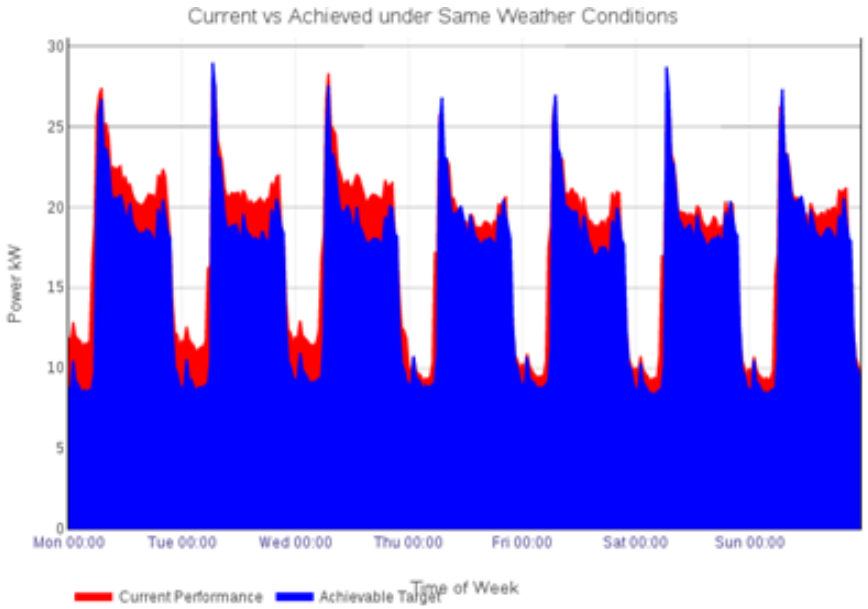
Important things to consider:

- Every site is different but each will have a good day that they can be benchmarked against
- Weather conditions and technology improvements on sites, plus any holes in data will all need to be automatically factored into the analysis

Example – Littlemoor Retail

Hi there,
A change in electricity consumption has been identified at your store, please find the details of this below and graphs attached. This change occurred in June this year and has continued from then and has so far cost the site approximately £750.

Can you help us identify how this change has happened? A few potential reasons are provided below, and if possible please can you reverse the change.



Result – Littlemoor Retail

Can you guess when the site received the email?

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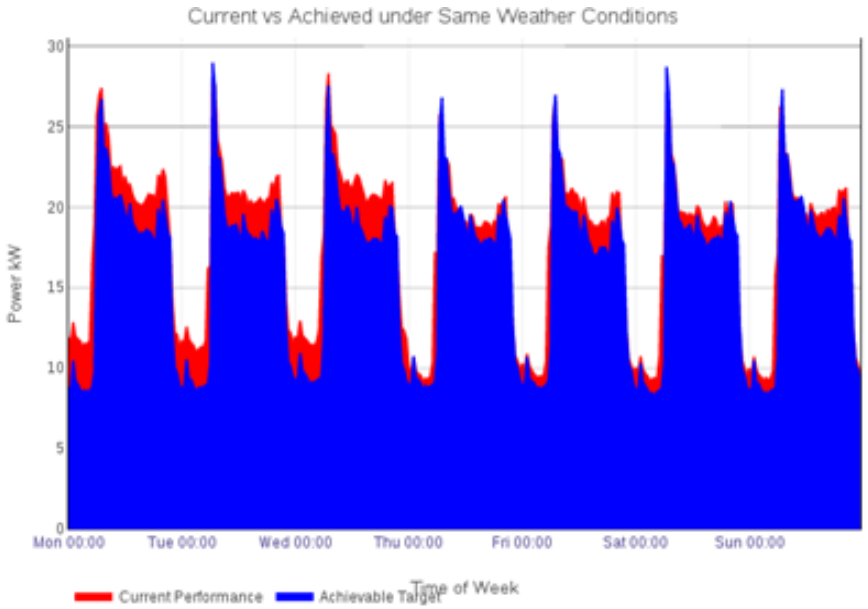

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Who We Are

- Consultancy
- Contract Management
- Brokerage Services
- Software Development

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Opportunities

Unlock Energy Savings Using Data

Basic

Cost Avoidance

- Portfolio Identification and Tracking
- Contract Renewals
- Notice of Termination Management
- Change of Tenancy
- Carbon Reporting
- Billing Validation

Intermediate

Cost Reduction

- Energy Consumption Tracking & Forecasting
- Budget Creation & Analysis
- Live Market Pricing
- Commodity Cost Forecasting
- Tenant On Charging
- On Site Generation Tracking
- Business Case Identification

Advanced

Cost Reduction & Revenue Generation

- Demand Side Response
- Battery Storage
- Non-Commodity Cost Forecasting
- Live Delivered Cost Analysis
- Flash Bill Calculation
- Value at Risk (VaR) Modelling
- Price Forecasting
- A.I. Driven Trading Opportunities
- Transparency & Fee Validation

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