COP27 ROADSHOW

9 NOVEMBER 2022

Jim Davison
Regional Membership Director South

makeuk.org

Today's Agenda

12.30 Arrival and Lunch

13.15 Panel Discussion chaired by Jim Davison, Regional Director, Make UK

- **Brigitte Amoruso, Senior Energy & Climate Change Specialist, Make UK**
- **Johan Hanekom, Principal for Sustainability and Innovation, AWS**
- **Dimitrios Spiliopoulos, Industrial IoT Lead for manufacturing, EMEA, AWS**
- **Alberto Corti, Director – IoT & Sustainability Solutions, EMEA, Hitachi**
- **Shashank Jain, Director – Manufacturing, EMEA, Hitachi**
- **Jack Gale, Utilities Director, Lush**
- **Dan Hulme, Head of Sales, Inspired Plc**

14.45pm Q&A

15.00 Close of panel

15 – 17.00 Optional drop-in sessions and networking w/ Inspired and AWS

COP27 ROADSHOW

Brigitte Amoruso,

Senior Energy & Climate Change Specialist

makeuk.org

SUSTAINABILITY TRANSFORMATION ACCELERATION TEAM (STAT)

Helping Customers Become Future Fit

Accelerating Sustainability Transformation
Make UK

Johan Hanekom

jhanekom@amazon.co.uk

Principal BDM, Sustainability Innovation

November 2022

AWS for Manufacturing industry

AWS leverages experience with leading industrial customers and Amazon's years of experience with factory operations.

AWS has purpose-built services to optimise operations at industrial sites.

AWS enables partner offerings addressing more industrial workloads than any other provider.

https://aws.amazon.com/industrial/

aws industrial

Future fit

adjective, future-fit, fit for the future

An aspirational state in order to remain relevant, compete and generate value in an increasingly resource constrained, carbon intense reality:

1) Sustainable, circular, and inclusive
2) Creates value (soc, env, eco) for a broad group of stakeholders
3) Leaves things better than how we found them

The purpose of business is to produce profitable solutions to the problems of people and planet, and not to profit from producing problems for people or planet.

- Colin Mayer CBE, Saïd Business School, University of Oxford

Current Business OS: Increasingly VUCA* Reality

Move customers from 'reactive' to 'proactive' to unlock scalable business models

Integrating ESG

Valuing human capital

Responding to climate change

Safeguarding natural systems

Building sustainable & resilient supply chains

Enabling sustainable consumption & production

Optimizing sustainability through technology

Protecting fundamental rights

Shaping policy, regulation & norms

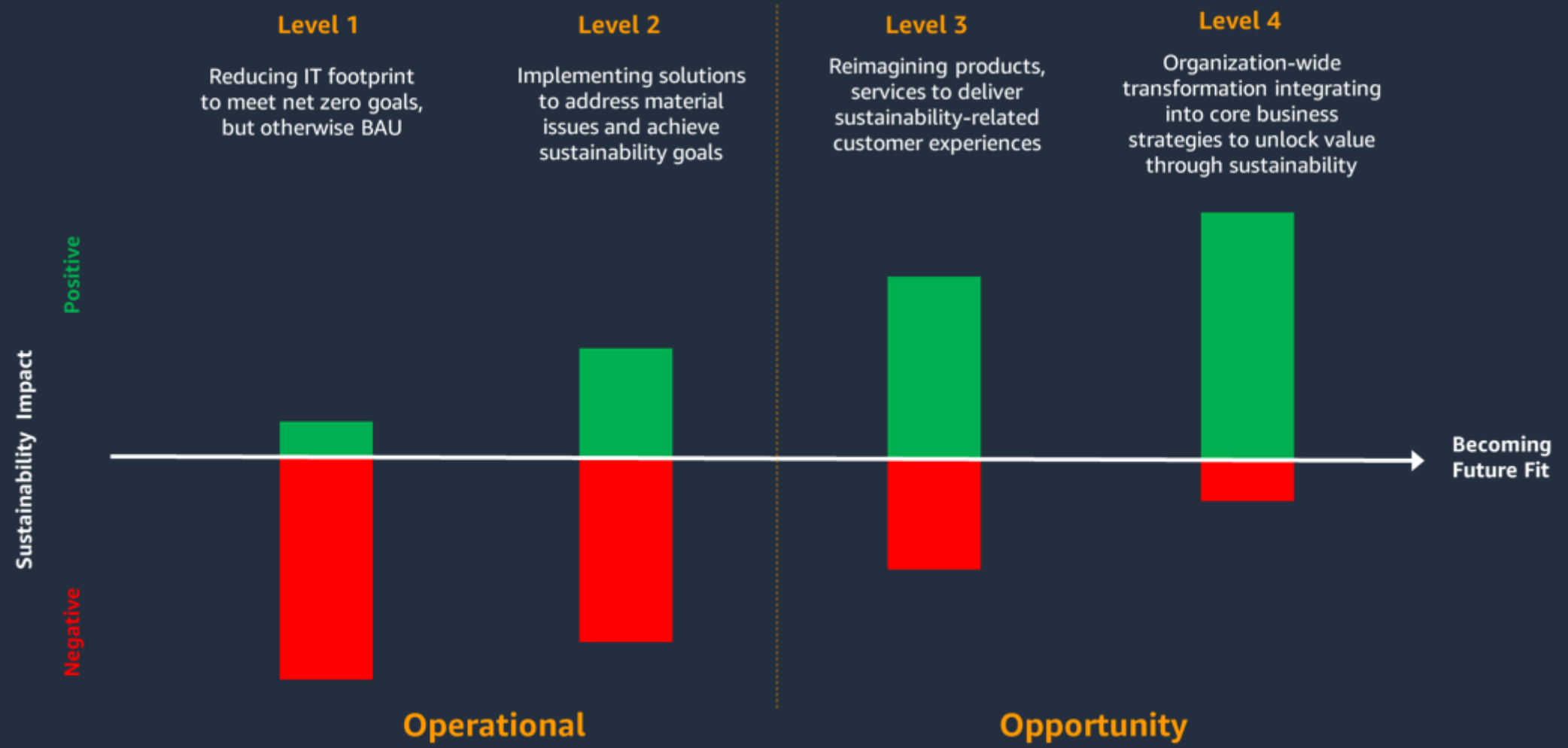
Creating multi-stakeholder partnerships

*Volatile, Uncertain, Complex, Ambiguous

The Sustainability Landscape is Evolving

AWS Future Fit Customer Engagement Framework

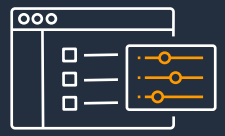
Understanding your level of ambition will help us qualify the opportunity for impact and value



Data-driven optimisation to go further faster

Energy & Resource Optimisation

Reduce carbon footprint, waste and costs



Production & Process Optimisation

Increase productivity, reduce waste and reduce costs

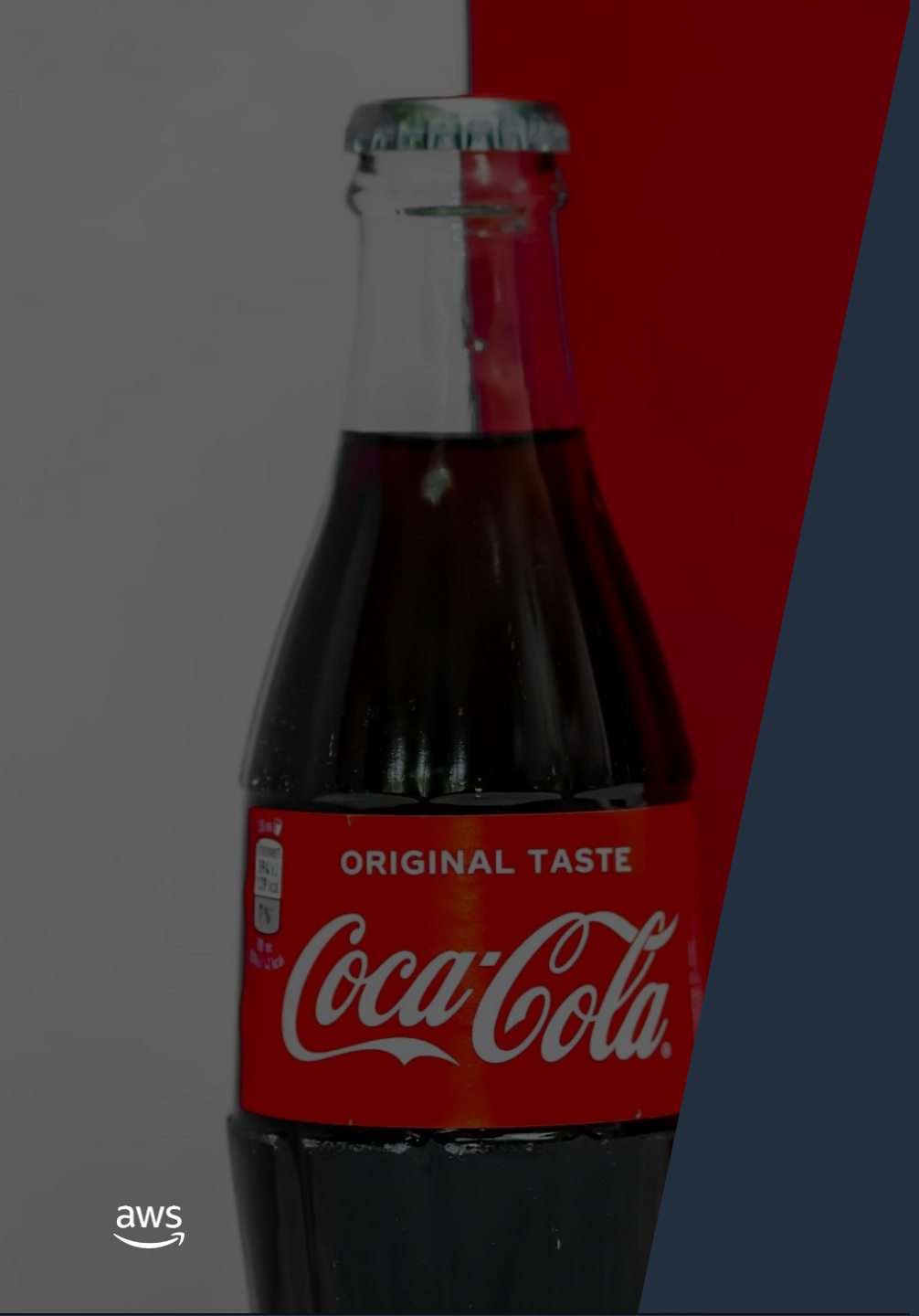
Decarbonise Production

Measure, report and reduce carbon footprint per product

Future Fit Products

Improve customer satisfaction, product life and reduce carbon footprint

aws industrial



Case study: energy analytics and forecasting (ML/AI)

Coca-Cola, Turkey with distribution to 400M consumers

Improved clean in place (CIP) process

Saved 20% on energy annually

Saved 9% on water annually

Time and performance gains

34 days annual process gains/year

Multiple pathways to a successful green and digital transition

Build

AWS Services & Solutions

Engage

AWS Partners & AWS ProServe

Deploy

AWS Partner Solutions

Plus AWS manufacturing and sustainability focus teams to help customer journey

aws industrial

Thank you and get in touch with us!

Johan Hanekom jhanekom@amazon.co.uk
Dimitrios Spiliopoulos dimspil@amazon.co.uk
Charlie Hockton hocktonc@amazon.co.uk

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Dimitrios Spiliopoulos

Industrial IoT Lead for Manufacturing, EMEA, AWS

makeuk.org

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Alberto Conti, Director – IoT and Sustainability Solutions, EMEA, Hitachi

Shashank Jain, Director – Manufacturing, EMEA, Hitachi

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Energy Management & Sustainability

Hitachi view

Alberto Corti

November 2022

HITACHI
Inspire the Next

US$87.4 BILLION

18%
INFORMATION & TELECOMMUNICATION S SYSTEMS

13%
LOGISTICS & OTHER SERVICES

10%
ELECTRONIC SYSTEMS & EQUIPMENT

14%
SOCIAL INFRASTRUCTURE & INDUSTRIAL SYSTEMS

7%
SMART LIFE & ECOFRIENDLY SYSTEMS

7%
POWER SYSTEMS

7%
CONSTRUCTION MACHINERY

13%
HIGH FUNCTIONAL MATERIALS

3%
FINANCIAL SERVICES

8%
AUTOMOTIVE SYSTEMS

Hitachi's Commitment to Sustainability

HITACHI
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Environmental Vision

Hitachi will resolve environmental issues and achieve both a higher quality of life and a sustainable society through its Social Innovation Business, in collaboration with its stakeholders

Long-term Environmental Targets: Hitachi Environmental Innovation 2050

For a decarbonized society	For a resource-efficient society	For a harmonized society with nature
Achieve carbon neutrality by FY2050 through the value chain Reduce CO2 emissions by 50% by FY2030 (compared to FY2010) **Achieve carbon neutrality by FY2030 at business sites** (factories and offices)	**Build a society that uses water and other resources efficiently** with customers and society Efficiency in use of water/resources by FY2050 **50% improvement** (compared to FY2010 in the Hitachi Group)	Impacts on natural capital **Minimized**

Environmental Action Plan

To achieve its long-term environmental targets, Hitachi sets indicators and targets every 3 years.

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Sustainability for value creation

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Several macro trends are driving the need for increased focus on managing energy consumption and cost.

CONSTRAINED SUPPLY

- Generation constraints
- Transmission reliability
- Storage for wind/solar

OPPORTUNITY

- Revenue generation
- Innovation

INCREASING DEMAND

- Communication
- Electric Vehicles
- Emerging economies
- Growing population

FINANCIAL RISK

- Prices continue to rise
- Prices are volatile
- Reliability issues

REGULATIONS

- Environmental Protection Agency
- Greenhouse Gas Reporting
- Green House Gas Emissions

INCENTIVES

- Reduce energy prices
- Reduce cost of energy generation
- Efficiency investments

Our Maturity Model for Energy Management & Sustainability

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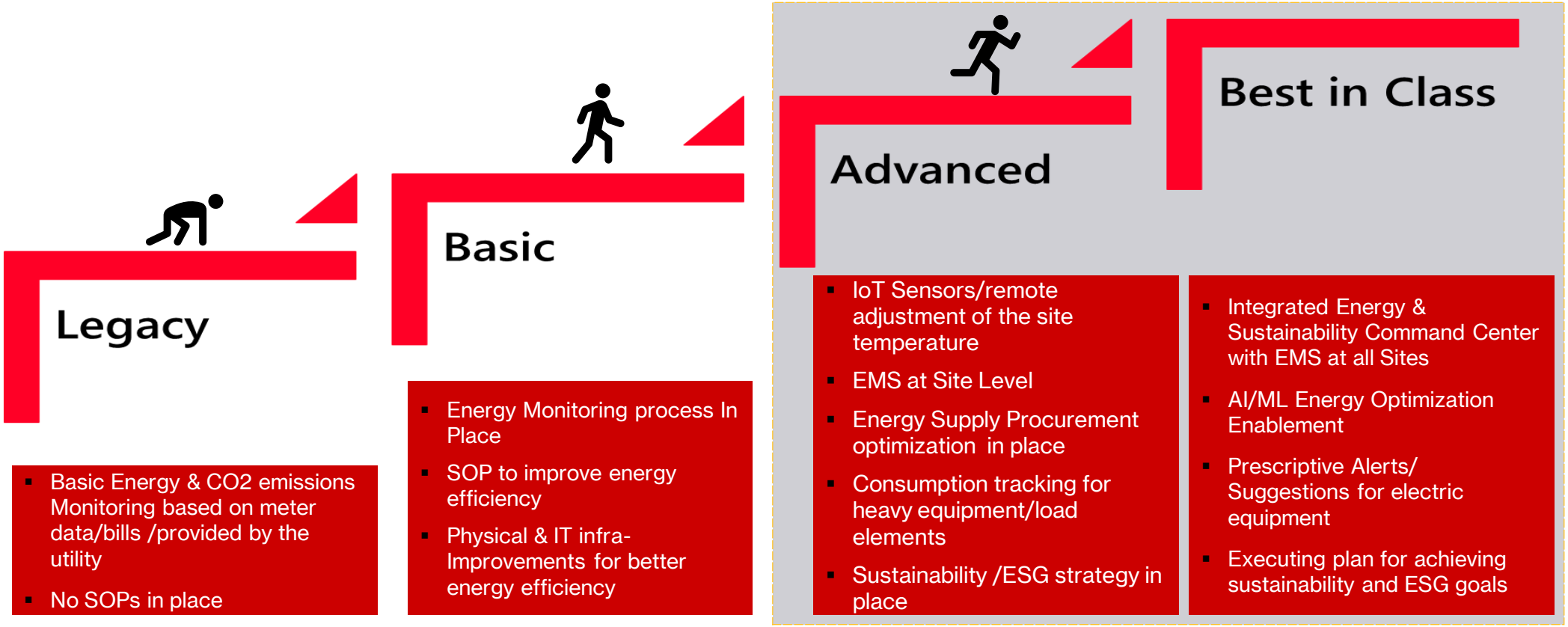
The maturity framework will help us baseline the current stage, and identify gap to reach future stage



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Typical Approaches

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Reduce Consumption

> Capital investment in technologies to reduce energy consumption

> Typically challenges with internal funding

> Uncoordinated deployment of technology and programs

Reduce Rate

> Electricity rate negotiation with utility companies

> Purchase energy blocks at a reduced commodity rate over a period of time

Lighting
- Case Lighting
- Interior Lighting
- Exterior Lighting

HVAC

People-flow Analytics

Facilities
- Administrative
- Warehouse
- Data Center

Refrigeration

Water heating

Industry 4.0 technology adoption helps the industries to achieve its energy management goals.

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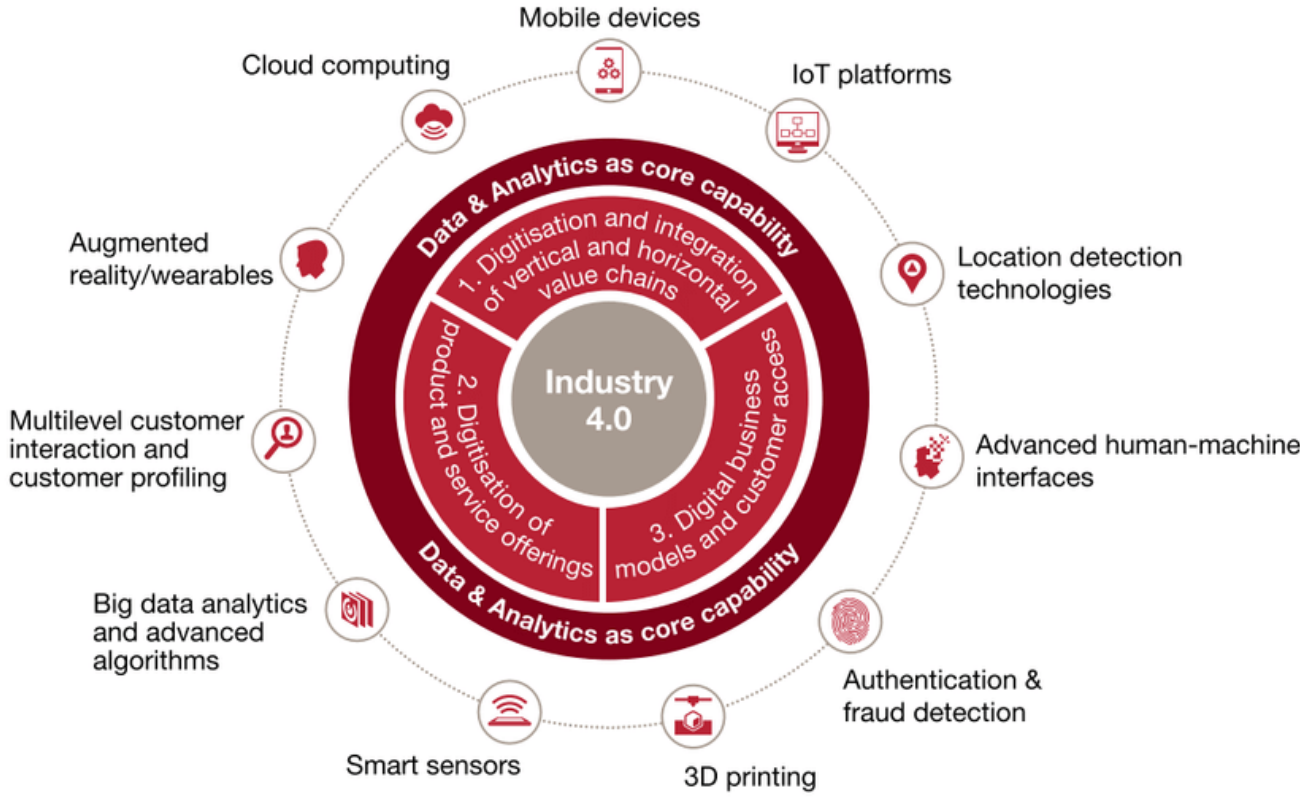
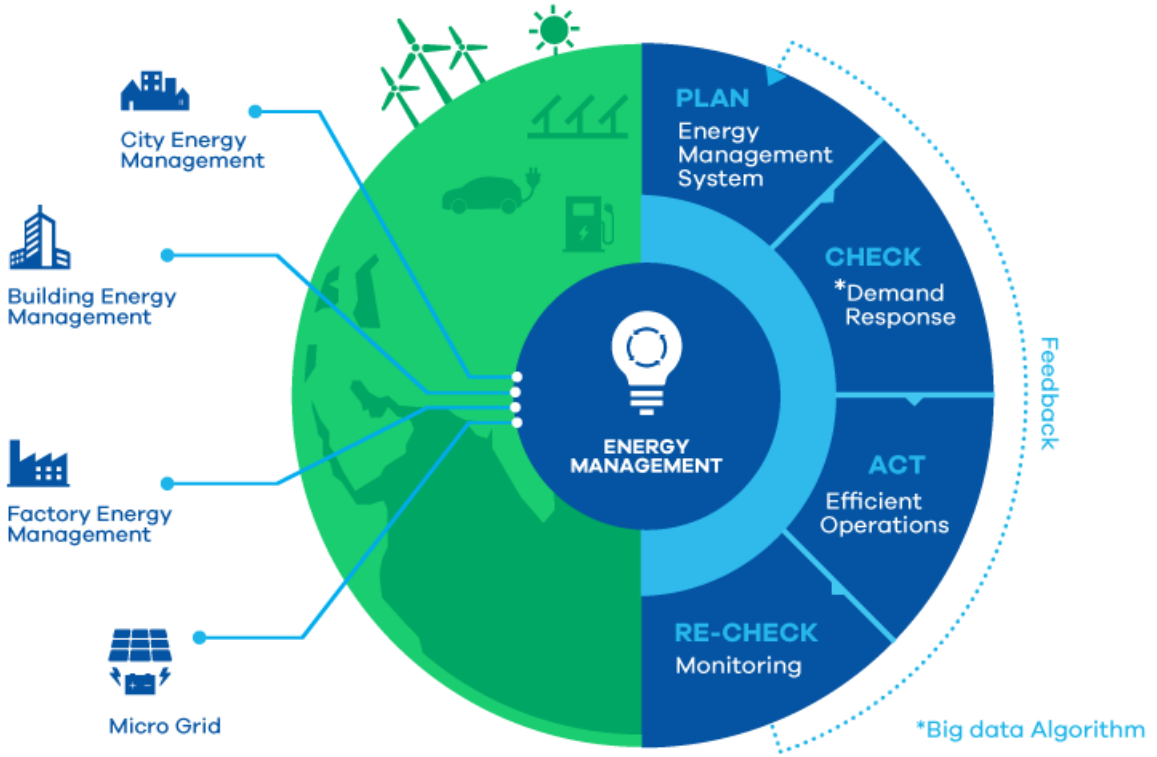
Adoption of Industry 4.0 Technologies such as IoT, Edge, and cloud-based analytics can be leveraged for Energy Management and Optimization work streams





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Levers for Driving Energy Optimization

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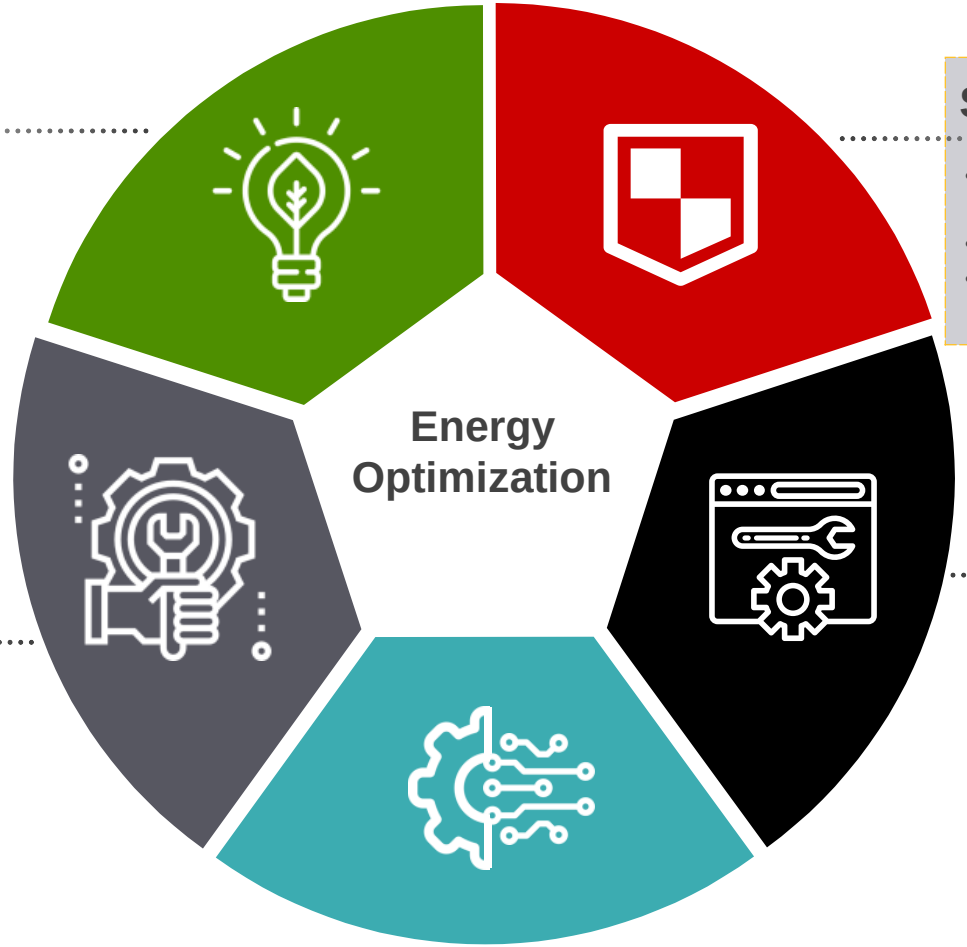
Depending on the current level of energy management maturity of organization, multiple tools (process & systems) can be leveraged for energy optimization and reduce operations cost

IoT /Edge based sub metering at Facilities

- IoT sensors to monitor energy consumption
- Installation of sensors led controls for remote adjustment of the site temperature.
- Use of smart meters/smart sensors (airflow, thermal imaging etc)

Strategic & Sustainable Sourcing

- Buddling of energy procurement for multiple sites through custom C&I contracts
- Better energy forecasting and planning capabilities
- Dedicated energy management desk for planning and procurement



Advanced Energy Monitoring

- Identification operational inefficiencies
- Enable visualization, analysis, and optimization of the energy consumption and utilization

Physical & Site infra-Improvements

- Energy Management Audit for site/buildings
- Retro fitting of equipment and energy efficiency measures

AI Enabled Energy Efficiency

- Build predictive/Analytical AI/ML model for enabling energy efficiency
- Proactive alerts and prescriptive suggestions

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Our Overall value realization approach for the Businesses

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Study business operations and conduct analysis to arrive the potential solutions…

Reduce Energy Cost

Business Objective

Value Streams

Better Energy Procurement

- Better C&I Contracts
- Energy Pooling across Sites
- Better Energy Forecasting
- Energy Management Desk
- Professional Services
- Energy Trade Capability

Reduce Energy Consumption

- Infrastructure Retrofits
- Equipment Retrofits
- Smart Monitoring & Controls
- Energy Optimization Solutions
- Process Changes
- Business Controls/SOPs

Equipment Maintenance Cost Reduction

- Equipment Retrofits
- Remote Monitoring
- Remote Diagnostics
- Rule based Inspections
- Predictive Maintenance
- Service Contracts

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Thank You

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HITACHI

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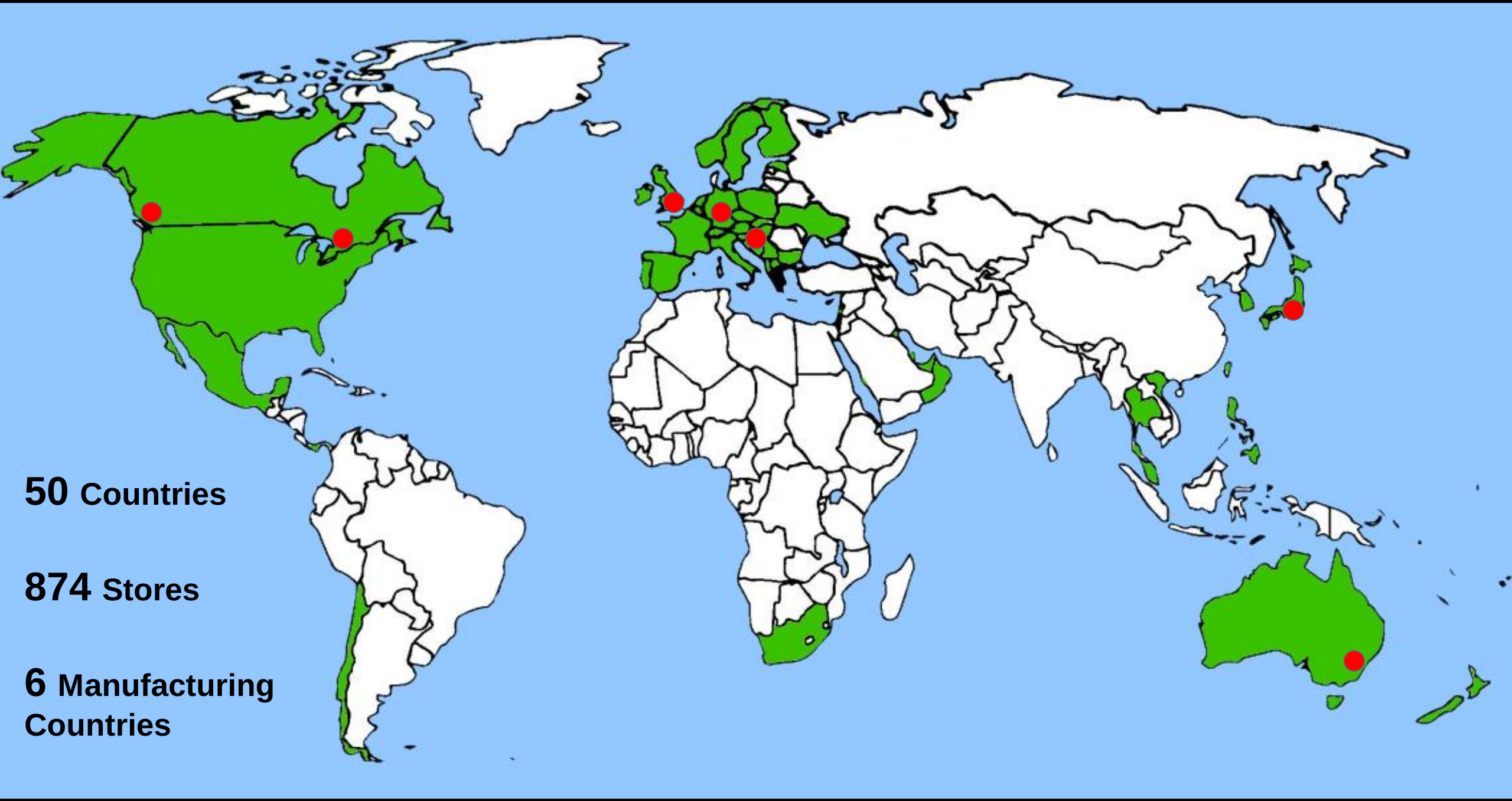
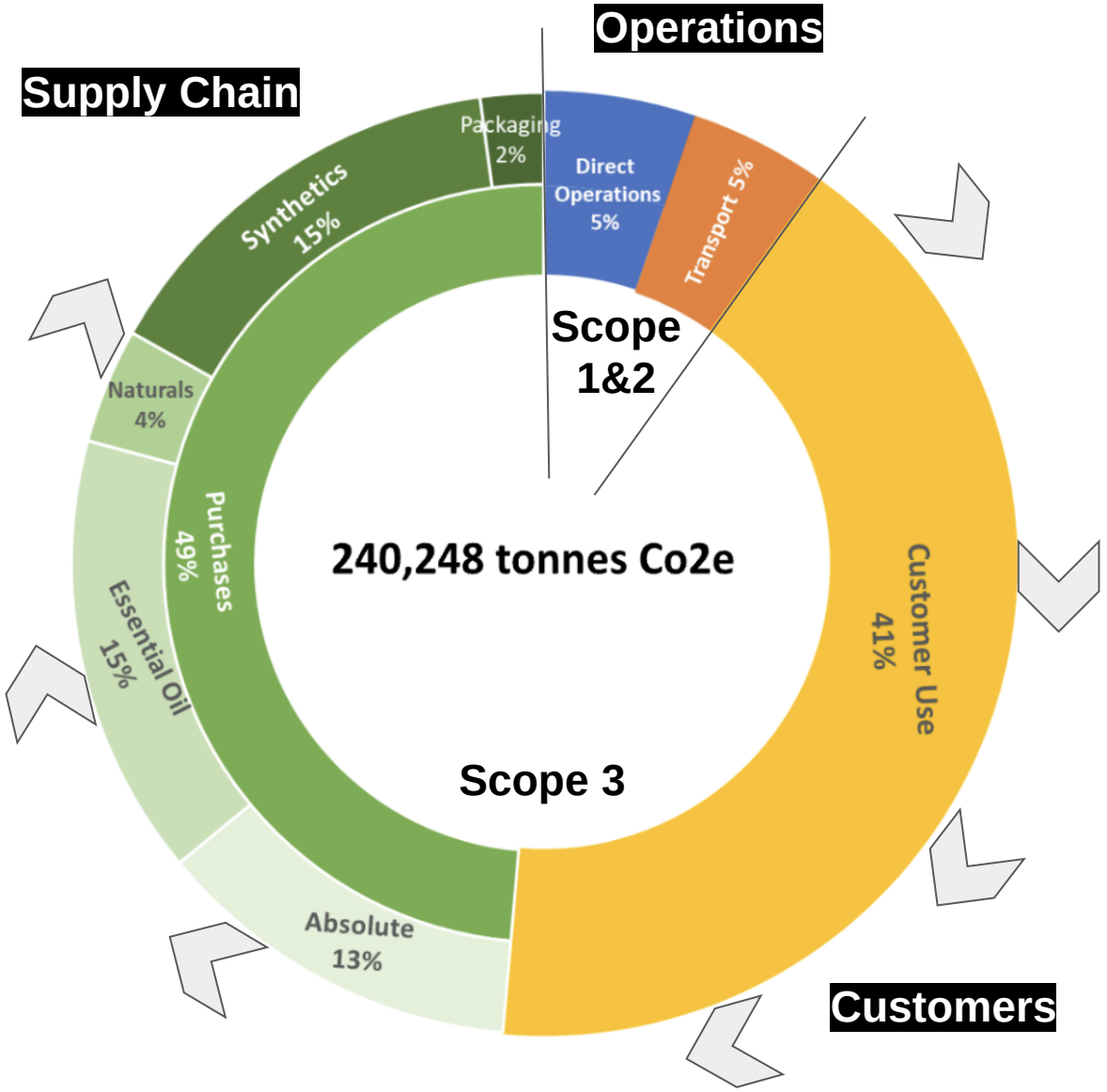
LUSH
Leaving the world Lusher than we found it.


50 Countries
874 Stores
6 Manufacturing Countries

What Makes Up Lush's Global Carbon Footprint?

- Purchases of **Absolutes, Essential Oils and Synthetics** each have an outsized impact on the total footprint.
- **Customer use** is estimated to be 41% of the total footprint, due to emissions from heating water for baths and showers.



* Excludes exports and DF emissions

Climate and Nature Plan

Protect Forests, Protect Wildlife

100% Renewable Power Everywhere

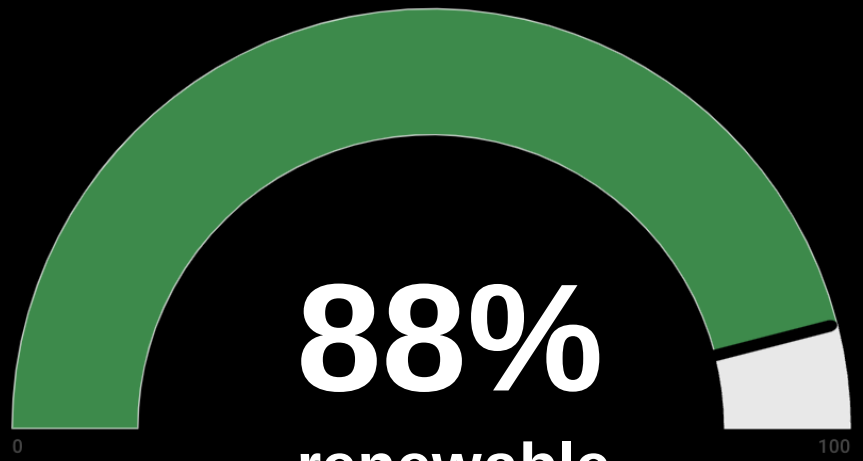
Make Our Materials Regenerative and Circular

Radically Reduce Transport Emissions

Stand Up for Climate Justice & Adaptation

These five areas were selected based on a materiality study and key global trends.

We identify ongoing work and next steps for each pillar.



88%

renewable electricity across group in FY23

Austria	North America (100%)	Australia
Belgium	Japan (100%)	Hong Kong
France	UK (84%)	Croatia
Germany		Hungary
Luxembourg		MENA
Netherlands		New Zealand
Portugal		
Spain		
Sweden		
Italy?		

Power Down

Pursue radical energy efficiency in our buildings and operations

Smart lighting & controls

Heat retention & rejection

Equipment efficiency

Replace Fossil Gas

Rapidly move from fossil fuels to cleaner technology everywhere

Electrified transport

Electric hobs

Electrified heat

Power Up with Renewables

Generate our own renewable energy and purchase only no-fossil energy

Unit 1 - 126kWp

Unit M - 31kWp PV

Virtual power plant trial

Leaving the World Lusher Than We Found It

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Net Zero/Real Zero

Power Down

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Power Up with Renewables

Technology/Software

Operational Efficiency - fitout standards

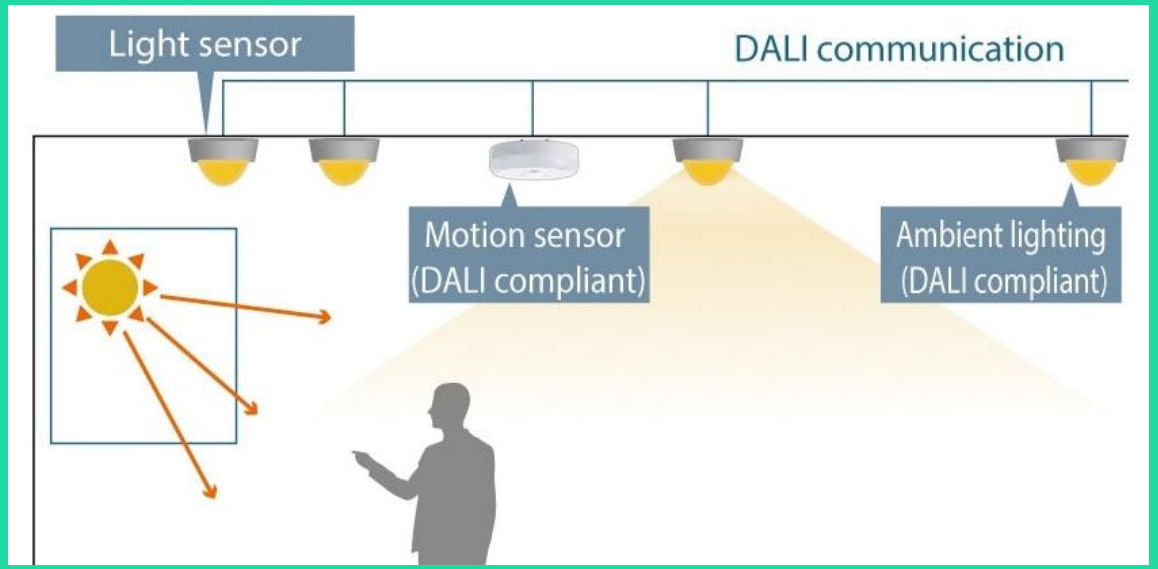
BMS Technology - remote data and baseline control

NDEA (Non-Domestic Energy Assessment) - EPC modelling

1. Savings

Operational Efficiency

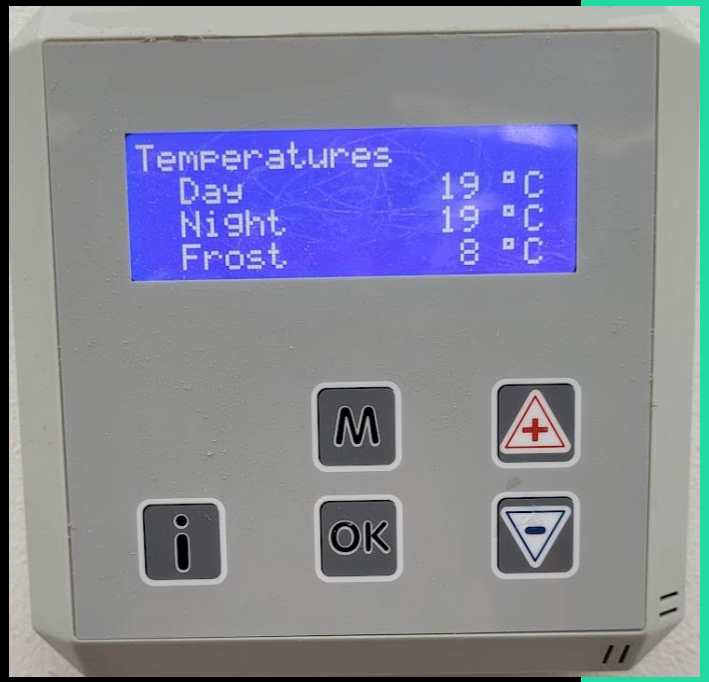
- Fitout standards

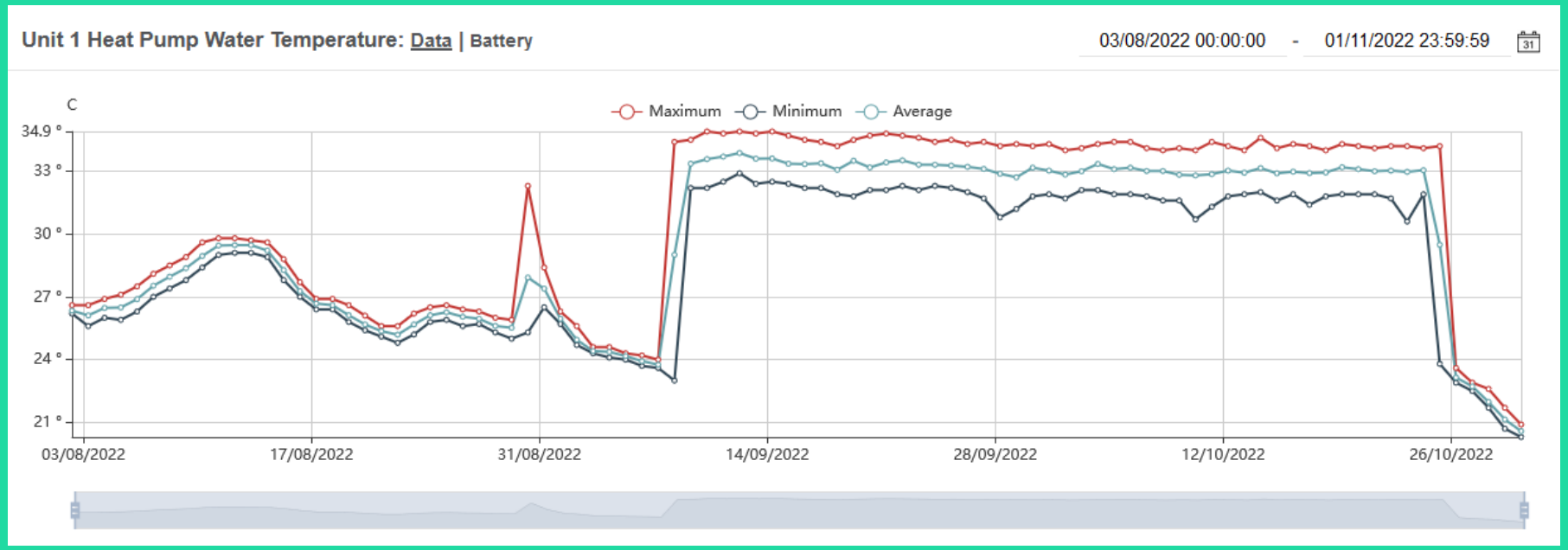


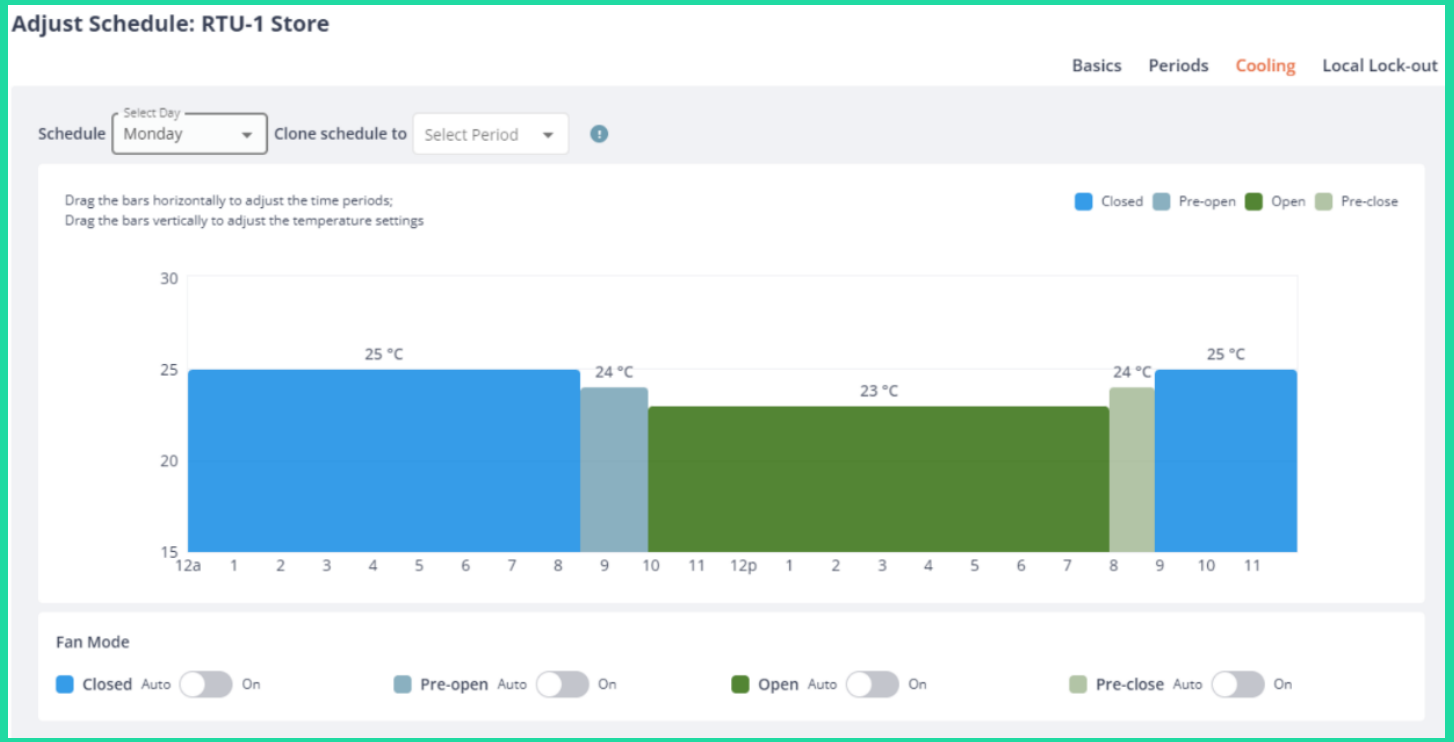
2. Insight

BMS

- Remote data
- Setpoint control

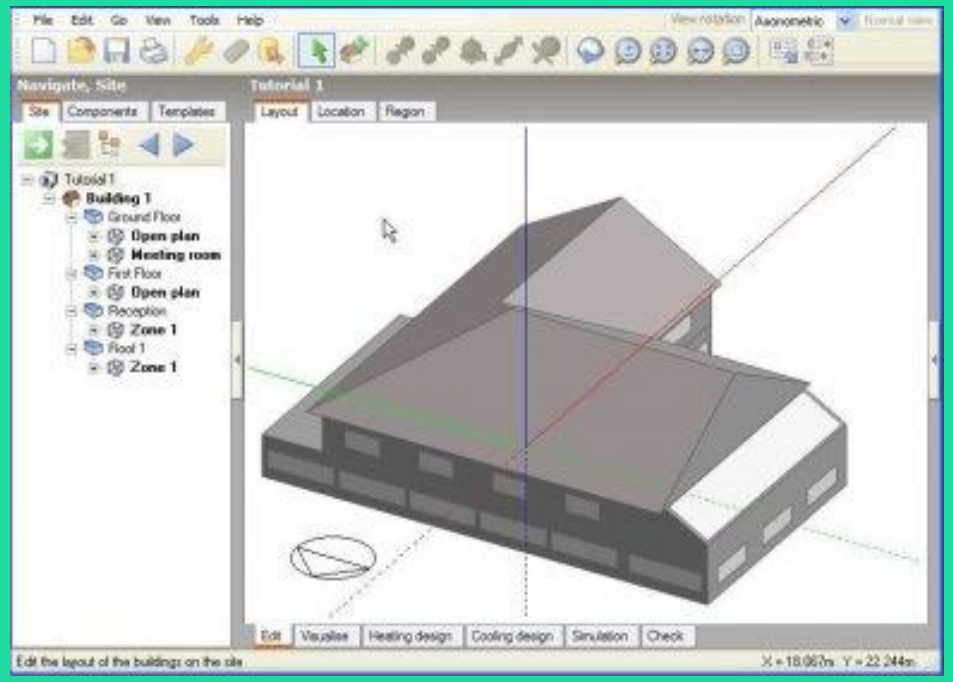


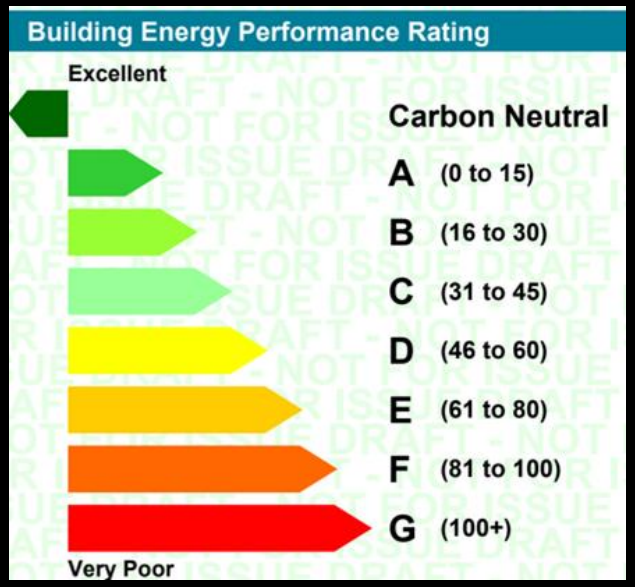




3. Strategy

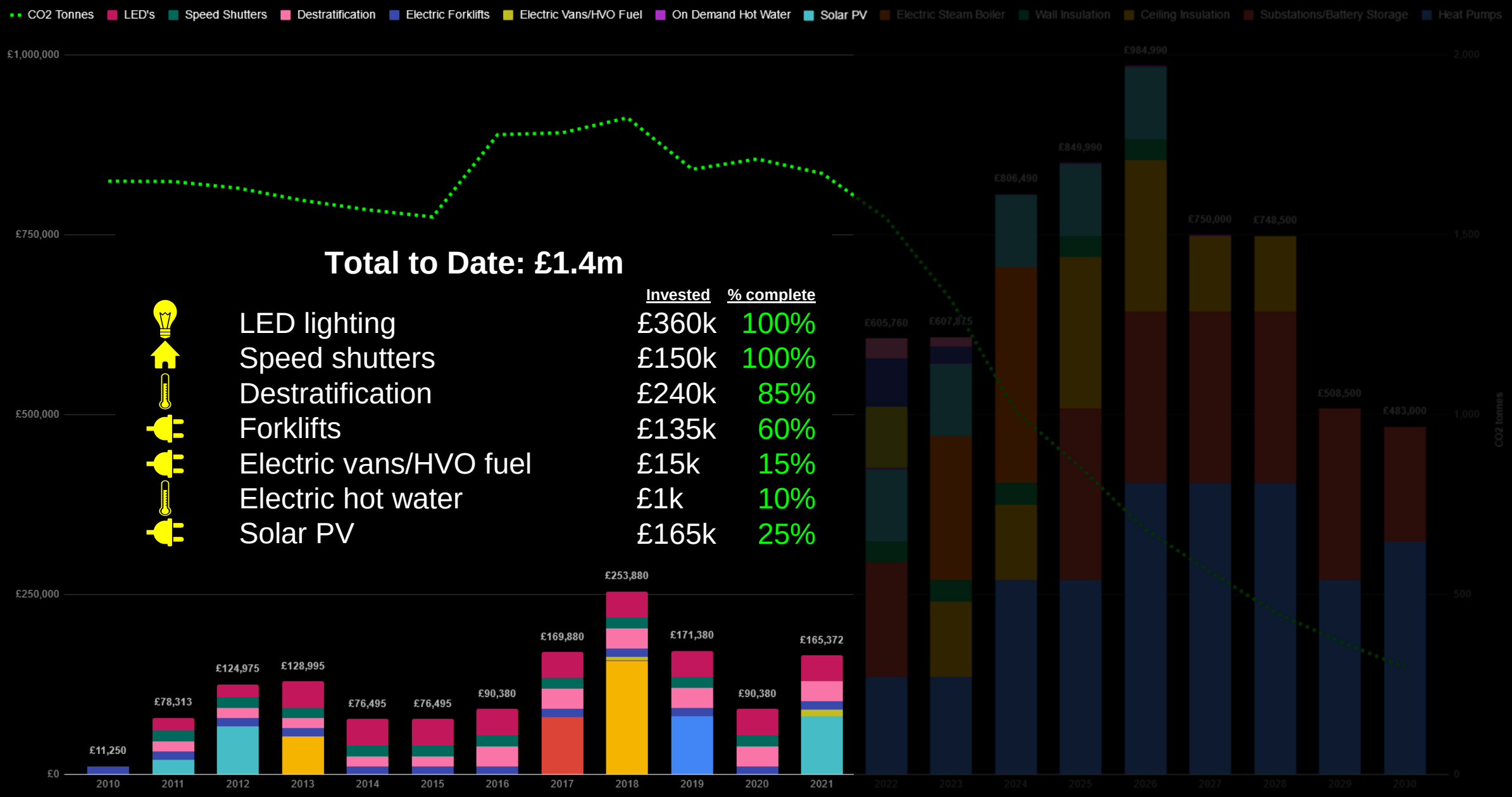
NDEA
(Non-Domestic Energy Assessment) - EPC modelling





Item	Name	Description	New Rating Band	Rating Improvement
1	AHU	Replace/Refurbish AHU.*	F (143)	51
2	HWS	Replace calorifier and all under sink units with instantaneous units.	G (195)	-1
3	Lighting	Change lighting from T8 to modern T5 or LED without a lighting design.	G (180)	15

UK Manufacturing - Historic Energy Efficiency Spend

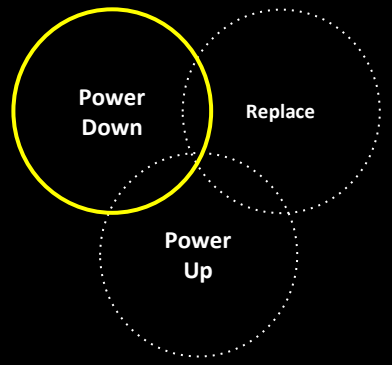


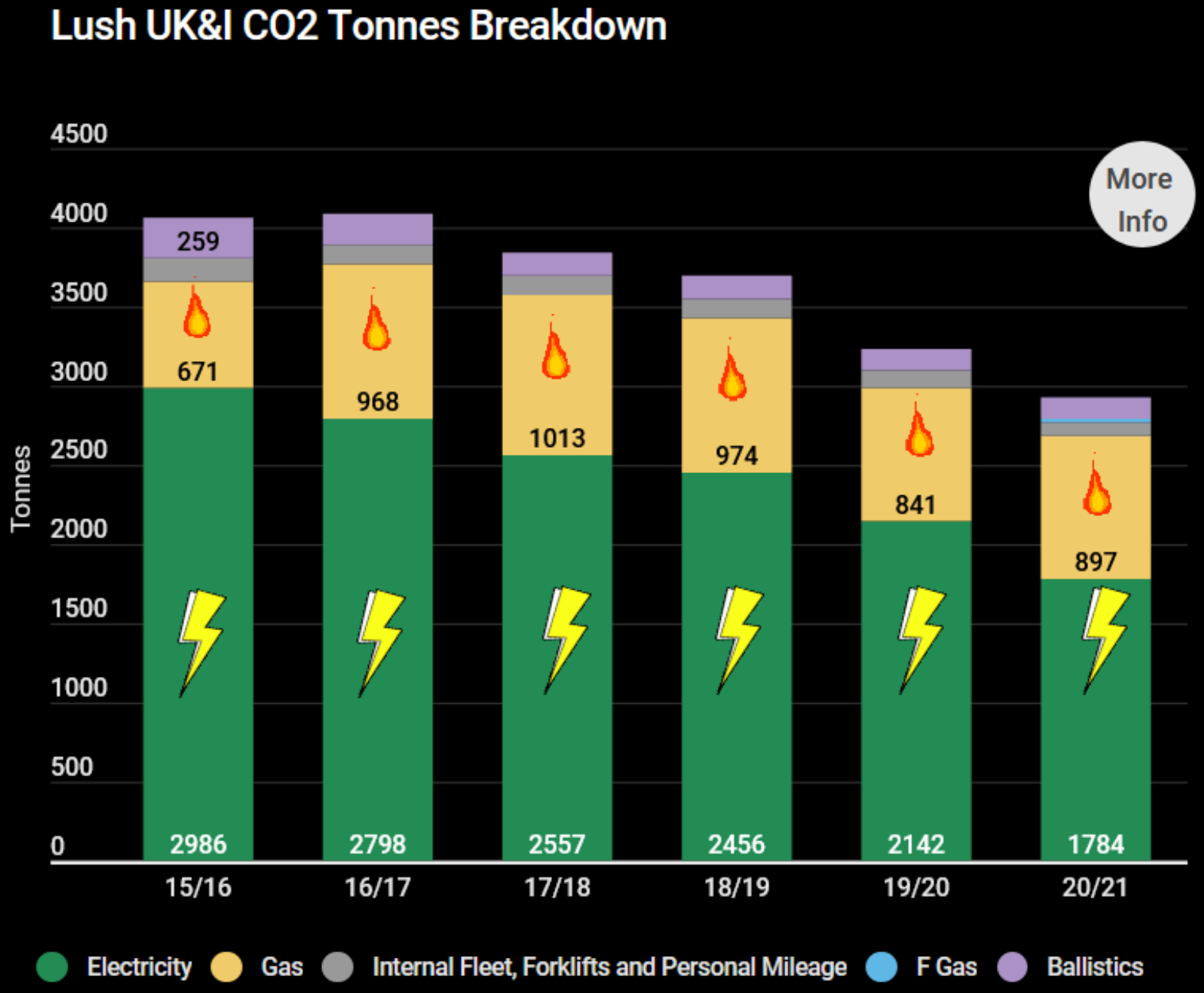
Total to Date: £1.4m

	Invested	% complete
LED lighting	£360k	100%
Speed shutters	£150k	100%
Destratification	£240k	85%
Forklifts	£135k	60%
Electric vans/HVO fuel	£15k	15%
Electric hot water	£1k	10%
Solar PV	£165k	25%

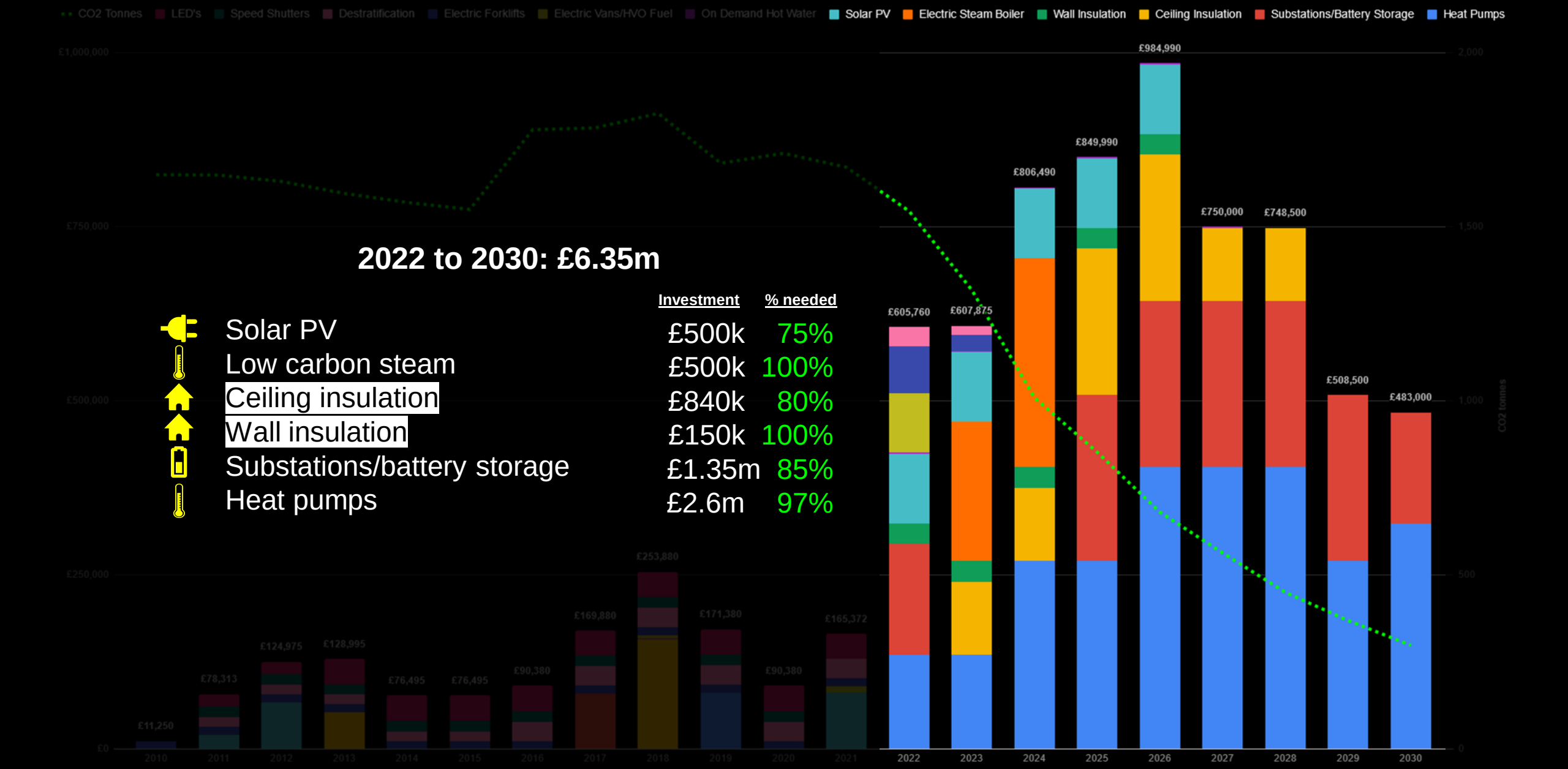
UK CO2 reduction:

Pandemic + efficiency + cleaner grid





UK Manufacturing - Future Energy Efficiency Spend



2022 to 2030: £6.35m

	Investment	% needed
Solar PV	£500k	75%
Low carbon steam	£500k	100%
Ceiling insulation	£840k	80%
Wall insulation	£150k	100%
Substations/battery storage	£1.35m	85%
Heat pumps	£2.6m	97%

1 Witney Road

Net Zero Research & Development Space

MANUFACTURING AWARDS 2020

SOUTH WINNER

Energy and Sustainability

Lush Manufacturing Ltd & Cosmetic Warriors Ltd

MAKE uk
The Manufacturers' Organisation

100% renewable electric

September 2017/2018
- £4.6M
- 4,411sqm

Refit budget of £2.68M

Roof insulation and skylights	**£310,000**	**Daylight dimming warehouse lighting**	**£35,000**
1000sqm underfloor office heating, 100kW heat pump	**£120,000**	**Destratification**	**£35,000**
Electric warehouse heating	**£25,000**	**Draught prevention**	**£20,000**
126kWp Solar PV	**£82,000**	**Bicycle charging**	**£5,000**
Glazing improvements	**£250,000**	**Vehicle charging**	**£5,000**

Leaving the World Lusher Than We Found It

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Operational Efficiency - fitout standards

BMS Technology - remote data and baseline control

NDEA (Non-Domestic Energy Assessment) - EPC modelling

Key Messaging

A+ Rated Properties

100% Renewable Supply


LUSH
Leaving the world Lusher than we found it.

COP27 ROADSHOW

Dan Hulme, Head of Sales

Inspired Plc

Make UK Energy Partner

INSPIRED PLC

Markets Mitigation Enabling Net Zero

9th November 2022

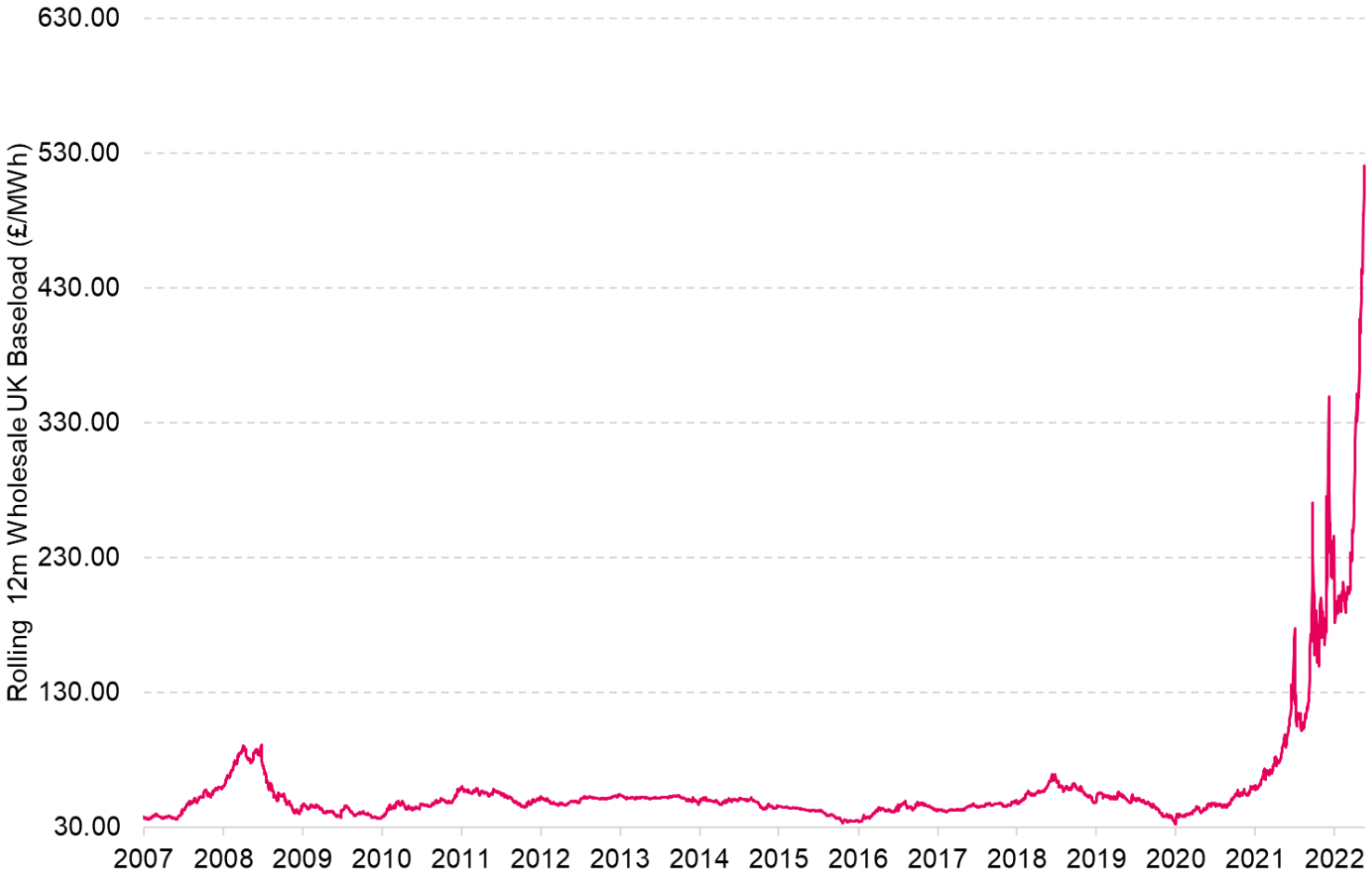
MAKE uk

GREEN ECONOMY LONDON STOCK EXCHANGE

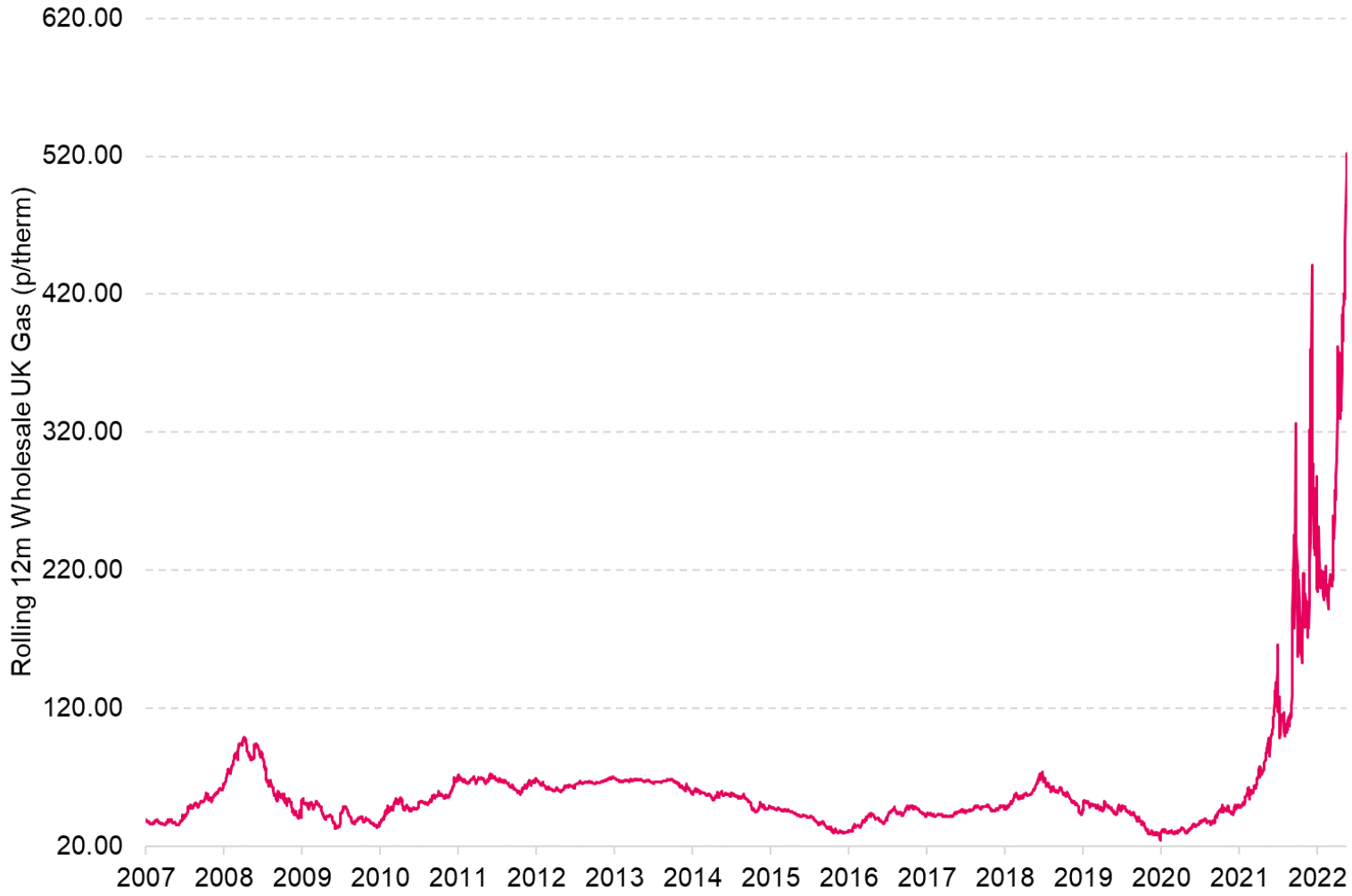
appg Net Zero All-Party Parliamentary Group

MARKET REVIEW

INSPIRED PLC



HISTORIC MARKET VOLATILITY - ELECTRICITY



HISTORIC MARKET VOLATILITY - GAS

Electricity Market

p/kWh	Average	Max	Min	Spread
2012 - 2017	4.71	5.47	3.33	2.14
2017 - 2020	4.85	6.95	3.23	3.72
2020-2022	8.43	62.45	2.68	**59.77**

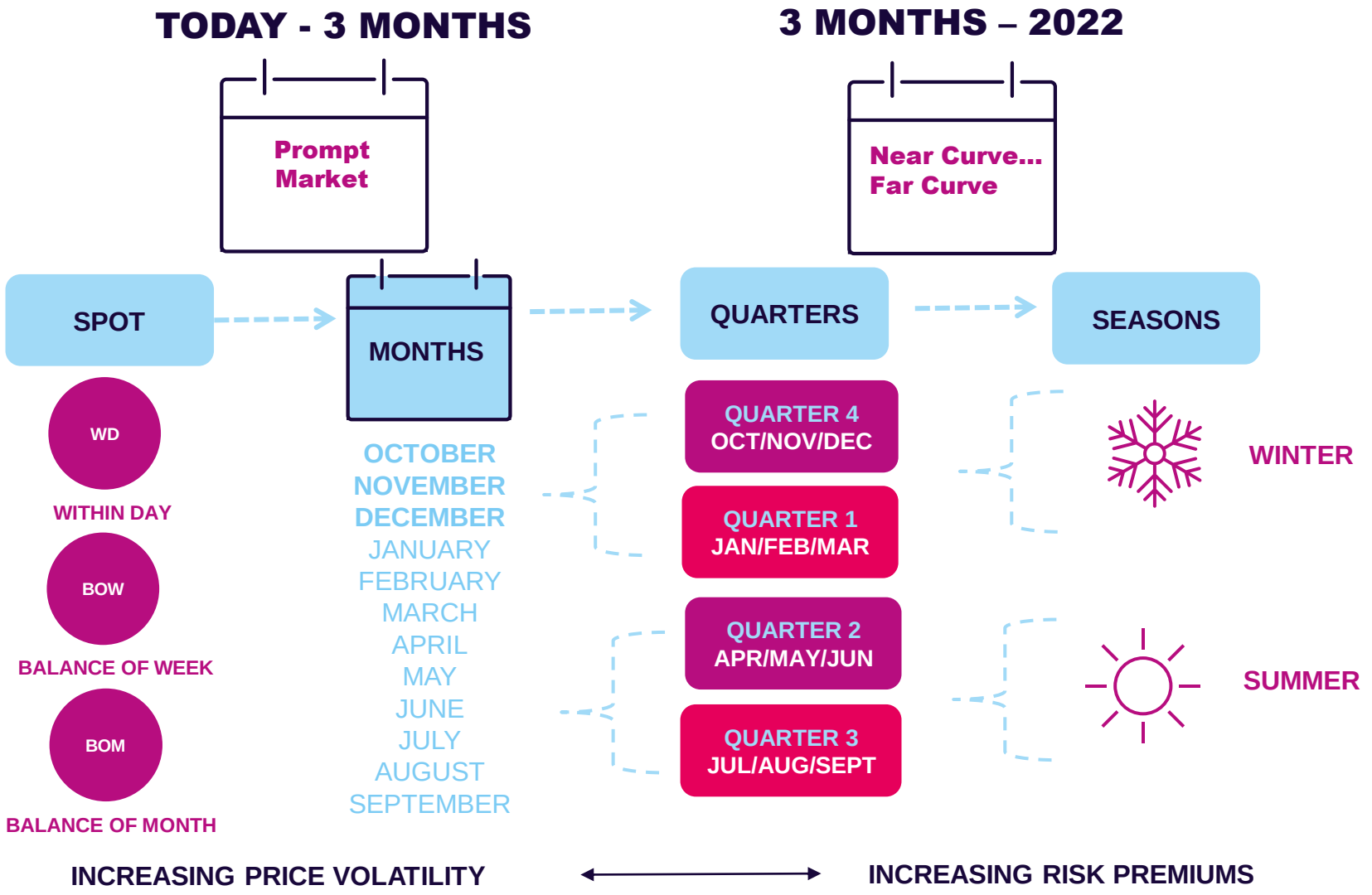
Gas Market

p/th	Average	Max	Min	Spread
2012 - 2017	51.91	70.85	29.54	41.31
2017 - 2020	47.16	69.65	24.59	45.06
2020-2022	67.34	560.29	17.95	**542.34**

What are the implications?

- Timing is everything!
- Market lows have been lower than the previous 5 year period
- Market highs have been higher than the last 15 year period.
- Is your procurement strategy allowing you to protect from risk and take advantage of the bottom of the market?

Market Volatility

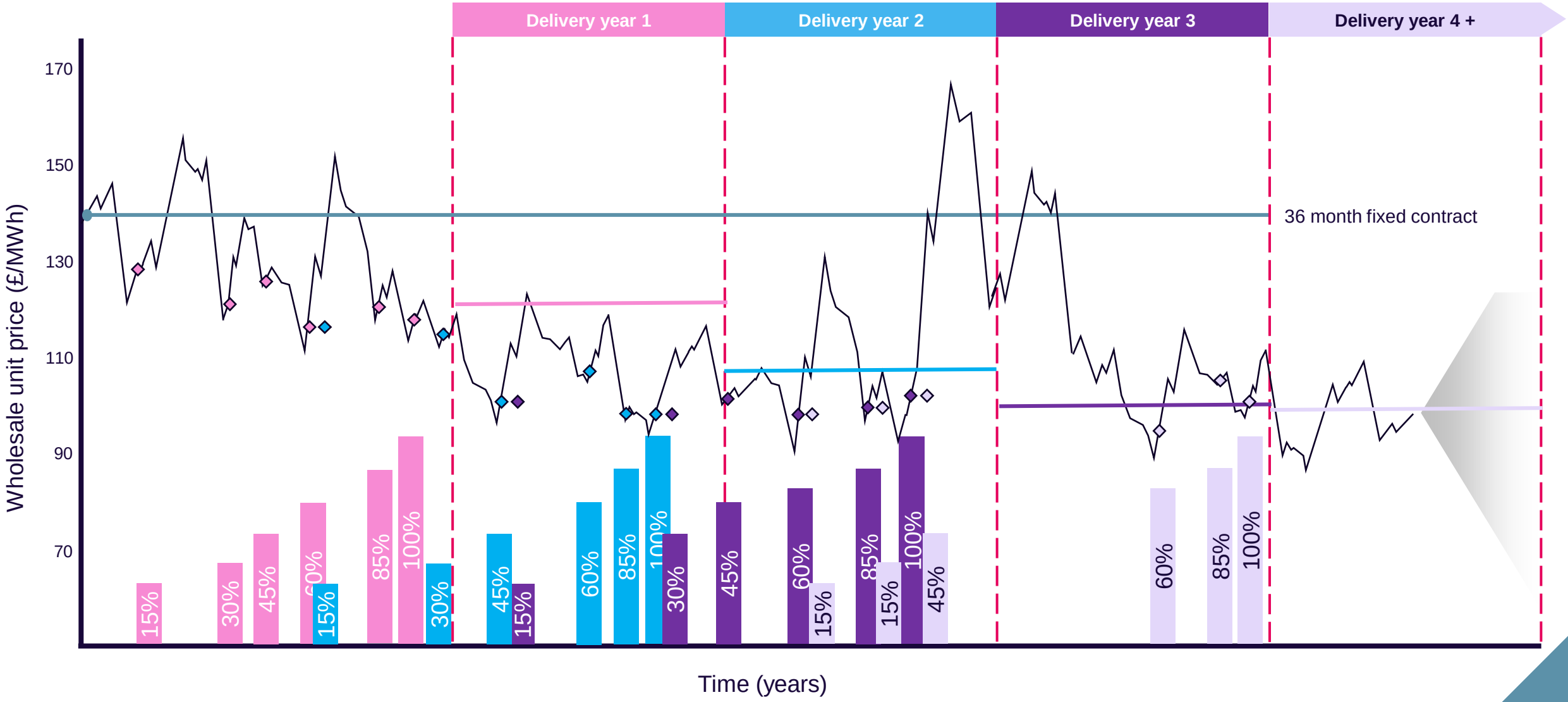


GRANULARITY – WHAT CAN YOU BUY AND WHEN?

RISK MANAGEMENT

INSPIRED PLC

The long-term view – Guard Strategy



ENABLING NET ZERO

INSPIRED PLC

Thank you.

INSPIRED PLC

makeuk@inspiredenergy.co.uk

MAKE uk

GREEN ECONOMY LONDON STOCK EXCHANGE

appg Net Zero All-Party Parliamentary Group

Q & A

9 NOVEMBER 2022

Jim Davison
Regional Membership Director South

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