Getting your Business to Net Zero

- Thursday 7th July 2022
- The Bacchus Hotel, Sutton on Sea

TEAM LINCOLNSHIRE

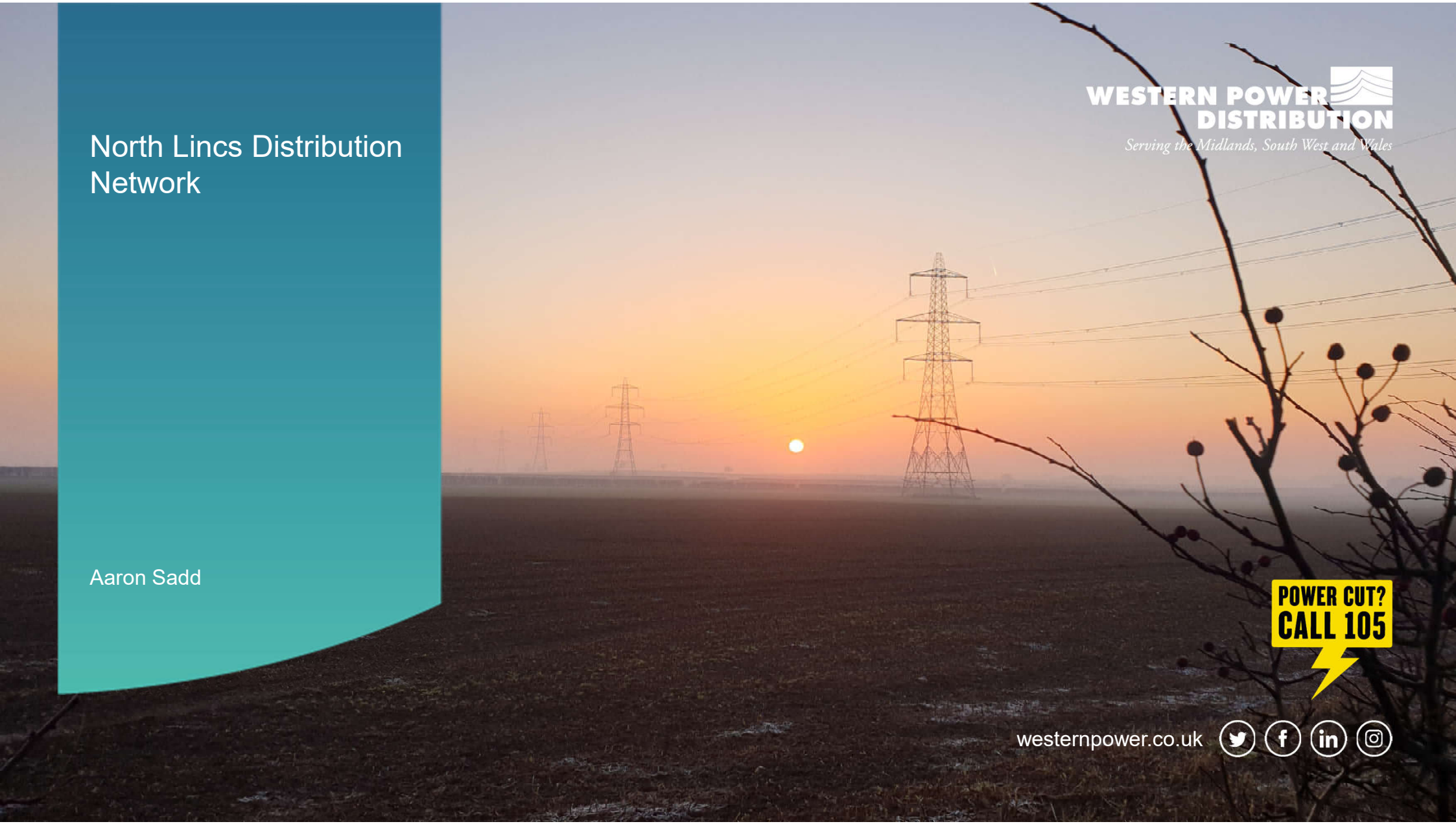
Lincolnshire COUNTY COUNCIL

Business Lincolnshire
The place to go for business growth

The Bacchus Hotel

North Lincs Distribution Network

Aaron Sadd

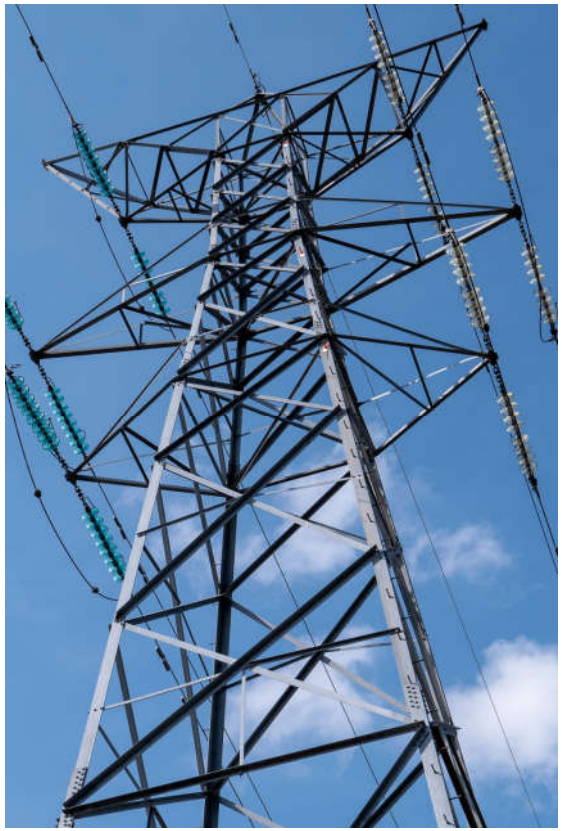


Introduction

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Objectives of todays presentation

- What does WPD do?
- RIIO-ED2 Business Plan
- Preparing the networks to meet Net Zero at lowest cost to customers
- Connectability – Readiness for low carbon technologies

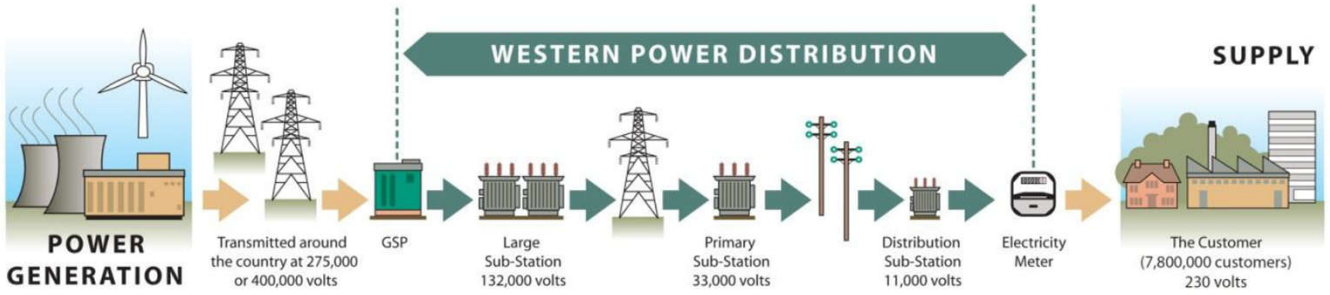


Western Power Distribution

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

- **WPD are responsible for the operation and maintenance of the distribution network made up of underground cables, overhead lines and substations that distribute electricity to customers homes and businesses every day.**

- **We locate and repair faults on the network to restore supplies following power cuts, as well as facilitating new connections and disconnections from the network.**



WPD Name Change

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Our name is changing. From September, Western Power Distribution will be known as National Grid.

You will therefore start to see the name and branding on the vehicles change over the coming months.

We're changing our name, but our contact details, people and focus on providing great service to you remains unchanged.

We're responsible for keeping the energy flowing to communities across our region for your home or business.

As part of National Grid, we're now the largest electricity transmission and distribution business in the UK at the heart of a clean, fair and affordable energy future.

The website address will change to nationalgrid.co.uk from 19 September, but the westernpower.co.uk address will still work.

RIIO-ED2

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

What is RIIO-ED2?

- **Ofgem regulatory price control**
- **RIIO-ED2 will cover the 5 years 2023-2028**

"RIIO-ED2":
Revenue = Incentives + Innovation + Outputs (Electricity Distribution 2)

ED2 Business Plan

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

- **Our Business Plan has been co-created with over 25,000 stakeholders across 280 events, starting from a blank piece of paper.**

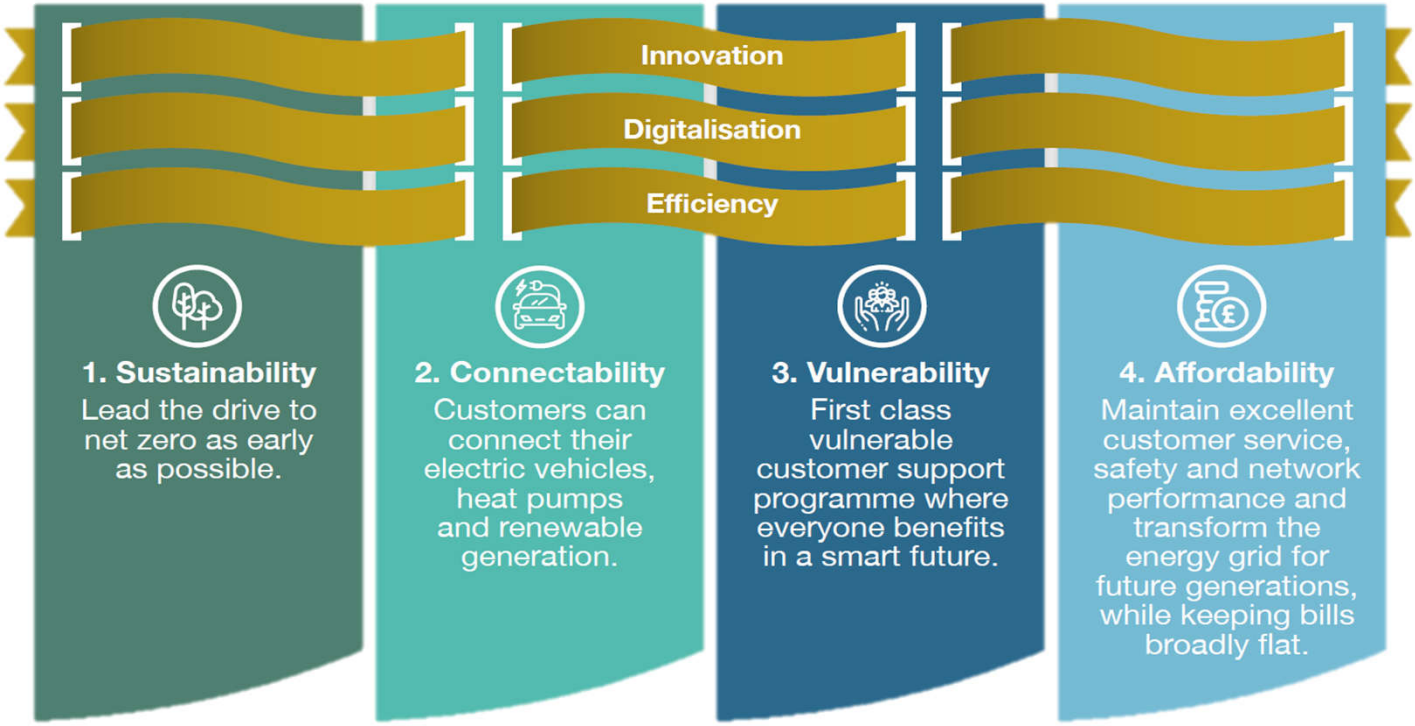
- **It has included significant numbers of bill paying and future customers from diverse locations and backgrounds.**

www.westernpower.co.uk/RIIO-ED2BusinessPlan

An ambitious vision for the future

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

- **Four overarching outcomes for our customers**
- **42 core commitments**
- **£6.7 billion investment for our customers required to deliver net zero**
- **£1.4 billion expenditure increase, but keeping bills broadly flat**
  - Thanks to huge efficiencies, innovation & digitalisation



Preparing the networks to meet Net Zero at lowest cost to customers

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Key outcome:

NETWORK READINESS

- Ensure network capacity is available to meet the net zero targets and LCT targets of our stakeholders
- Use smart meter data, network monitoring and analysis to identify network reinforcement needs

Preparing the networks to meet Net Zero at lowest cost to customers

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Key outcome:

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SMART & FLEXIBLE

- Consider flexible alternatives to resolve network constraints
- Expand flexibility products and constraint management zones (supporting quicker, cheaper connections)

Preparing the networks to meet Net Zero at lowest cost to customers

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

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SMART & FLEXIBLE

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- Expand flexibility products and constraint management zones (supporting quicker, cheaper connections)

DIGITALISATION & DATA

- **More utilisation of smart meter data than any other DNO (LV monitoring only where data not available) - transform fault management, network planning and asset management**

Connectability – Readiness for low carbon technologies

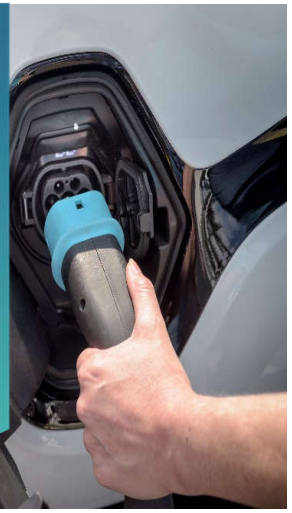
WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Connectability – Readiness for low carbon technologies

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Key outcome:

Customers can connect when they want to with capacity never a barrier



LOW CARBON TECHNOLOGIES

- Ready for an additional 1.5m EVs and 600k heat pumps by 2028
- Customers can connect LCTs quickly and affordably
- Same day connections response for single domestic LCTs
- Automated approach to provide a quality service to customers

Connectability – Readiness for low carbon technologies

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Key outcome:

LOW CARBON TECHNOLOGIES

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COMMUNITY ENERGY

- 30 new community energy schemes a year (150 by 2028)
- Support the expansion of green, renewable energy generation
- New, dedicated WPD Community Energy Engineers

Connectability – Readiness for low carbon technologies

WESTERN POWER DISTRIBUTION
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COMMUNITY ENERGY

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- Support the expansion of green, renewable energy generation
- New, dedicated WPD Community Energy Engineers

ADAPTING TO CUSTOMERS' NEEDS

- Align future energy forecasts with local regions
- 'Flexibility first' approach to keep bills low and avoid some load-related reinforcement
- Flexibility tenders to develop flexibility market and unlock capacity

westernpower.co.uk

Aaron Sadd

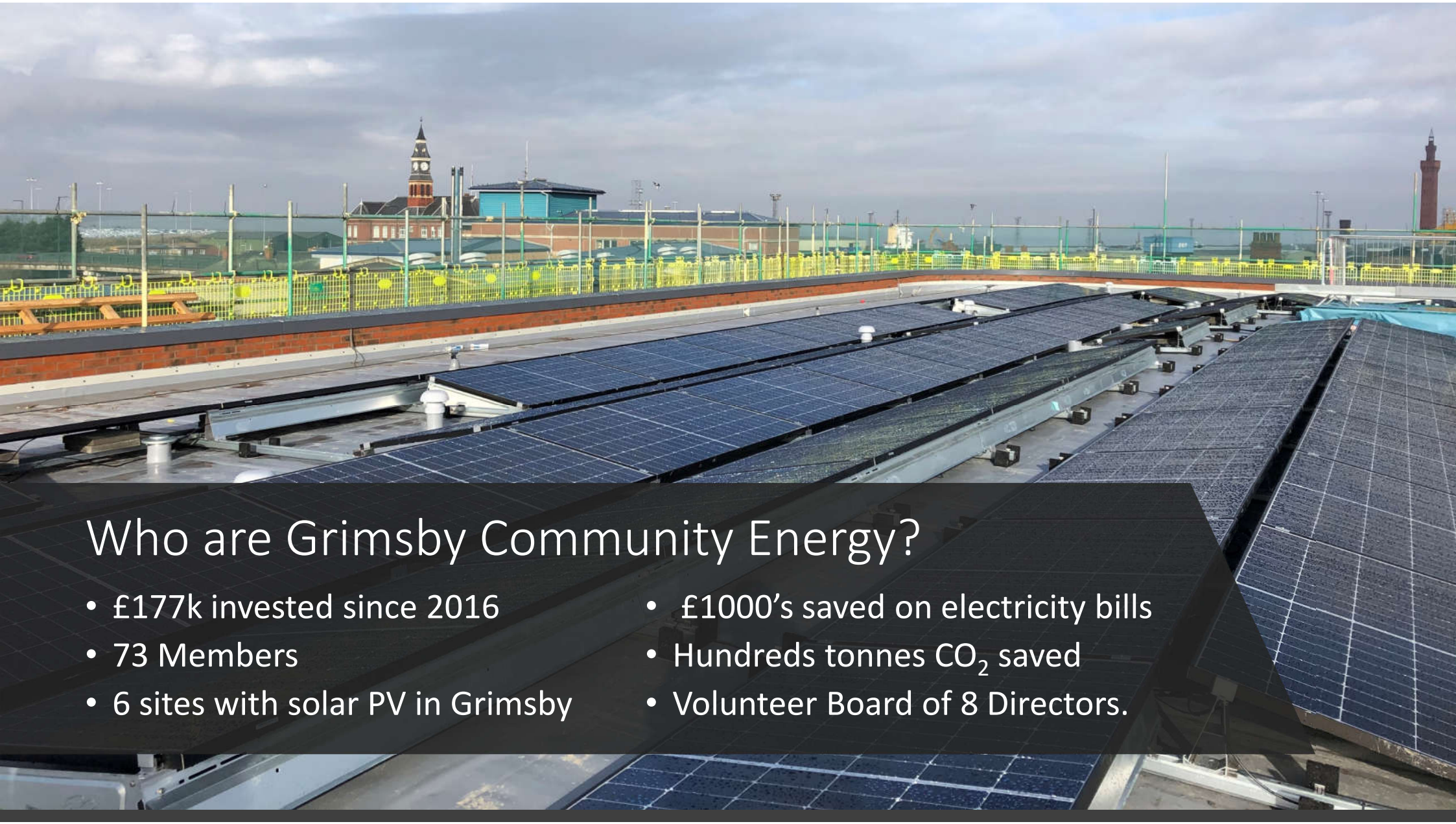
asadd@westernpower.co.uk

01522 517675

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Vicky Dunn - Director

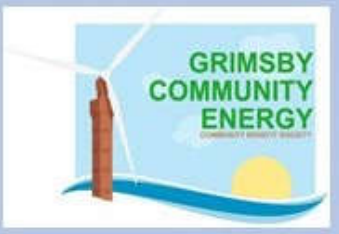


Who are Grimsby Community Energy?

- £177k invested since 2016
- 73 Members
- 6 sites with solar PV in Grimsby
- £1000's saved on electricity bills
- Hundreds tonnes CO_2 saved
- Volunteer Board of 8 Directors.

LOCATIONS OF GCE'S SOLAR PANELS

Grimsby Dock Tower



E- Factor Enterprise Village

New YMCA Humber building

E- Factor Business Hive

Freeman Street Market

St Andrew's Hospice and The Rock Foundation charity shops

Contribution to Smarter Energy NEL

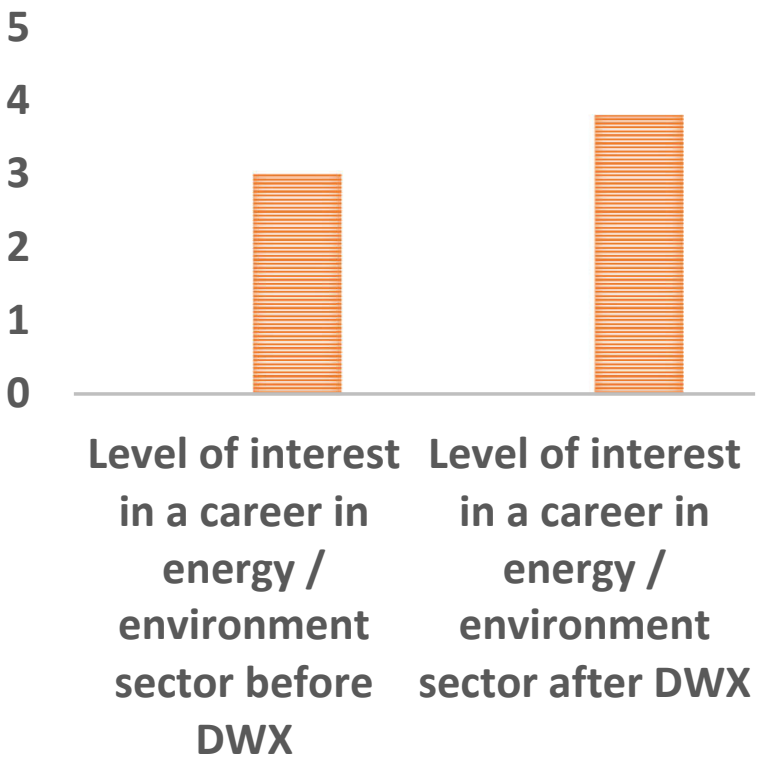
- Assisting small to medium enterprises with data analysis and sharing knowledge
- £1000 “Zero Carbon Start Up” grants to SMEs for projects
  - Sustainability training
  - New kiln for ceramics crafts business
  - Efficient lighting for a mobile entertainer
- Hosting Kickstart placement and student “Decarbonisation Work Experience” – DWX
- Identifying new sites for solar PV to feature in our next community share offer.

smarter ENERGY NEL

Decarbonisation Work Experience 2022

Part-Funded by the UK Government through the UK Community Renewal Fund

GRIMSBY COMMUNITY ENERGY
COMMUNITY BENEFIT SOCIETY



Grimsby Community Energy's next phase:

- 8 new sites for solar PV – projected total 400kW.
- Due diligence and project development
- Grant funding being sought to cover staff costs – allowing us to provide 5 student placements
- Community Shares Standard Mark
- Our fourth community share offer – projected £350k – and 100–200 new Members.

Lee Marshall
Managing Director

Chartered Engineer

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★★★★★

Unlike our competitors, we guarantee sustainability isn't an expensive word.

Contents

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Our Accreditations...

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Chartered Engineer

CIBSE Certification Ltd
CIBSE

BREEAM®

energy institute

elmhurst energy APPROVED ENERGY ASSESSOR

QUALITY PROMISE

Acclaim Accreditation

We are a Living Wage Employer

Carbon Literacy Project Certified Trainer

Constructionline Gold Member
Constructionline
A UK GOVERNMENT CERTIFICATION SERVICE

DESIGNER
PASSIVE HOUSE DESIGNER

CONSULTANCY OF THE YEAR
WINNER
VIRIDIS BUILDING SERVICES LTD
Greater Lincolnshire Construction & Property Awards 2022

RIBA 2030 CLIMATE CHALLENGE

SUSTAINABLE DEVELOPMENT GOALS

EQA European Quality Assurance
UKAS MANAGEMENT SYSTEMS 047

Nottinghamshire BUSINESS AWARDS 2020
FINALIST

DIRECTOR OF THE YEAR AWARDS 2021
A celebration of leadership talent, success and achievement
HIGHLY COMMENDED

BUSINESS MASTERS 2021 EAST MIDLANDS
SHORTLISTED

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Passiv Design

"Highly insulated, airtight, artificially ventilated buildings."

Aktiv Design

"Sustainably insulated, breathable, naturally ventilated buildings."

Environmental Design

"Optimal combination of Passiv and Aktiv"

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Cost Optimal

"...energy performance level which leads to the lowest cost during the estimated economic lifecycle"

Energy

"...taking into account energy-related investment costs

Sustainability

"...economic lifecycle of a building element "

Energy Performance of Buildings Directive 2010

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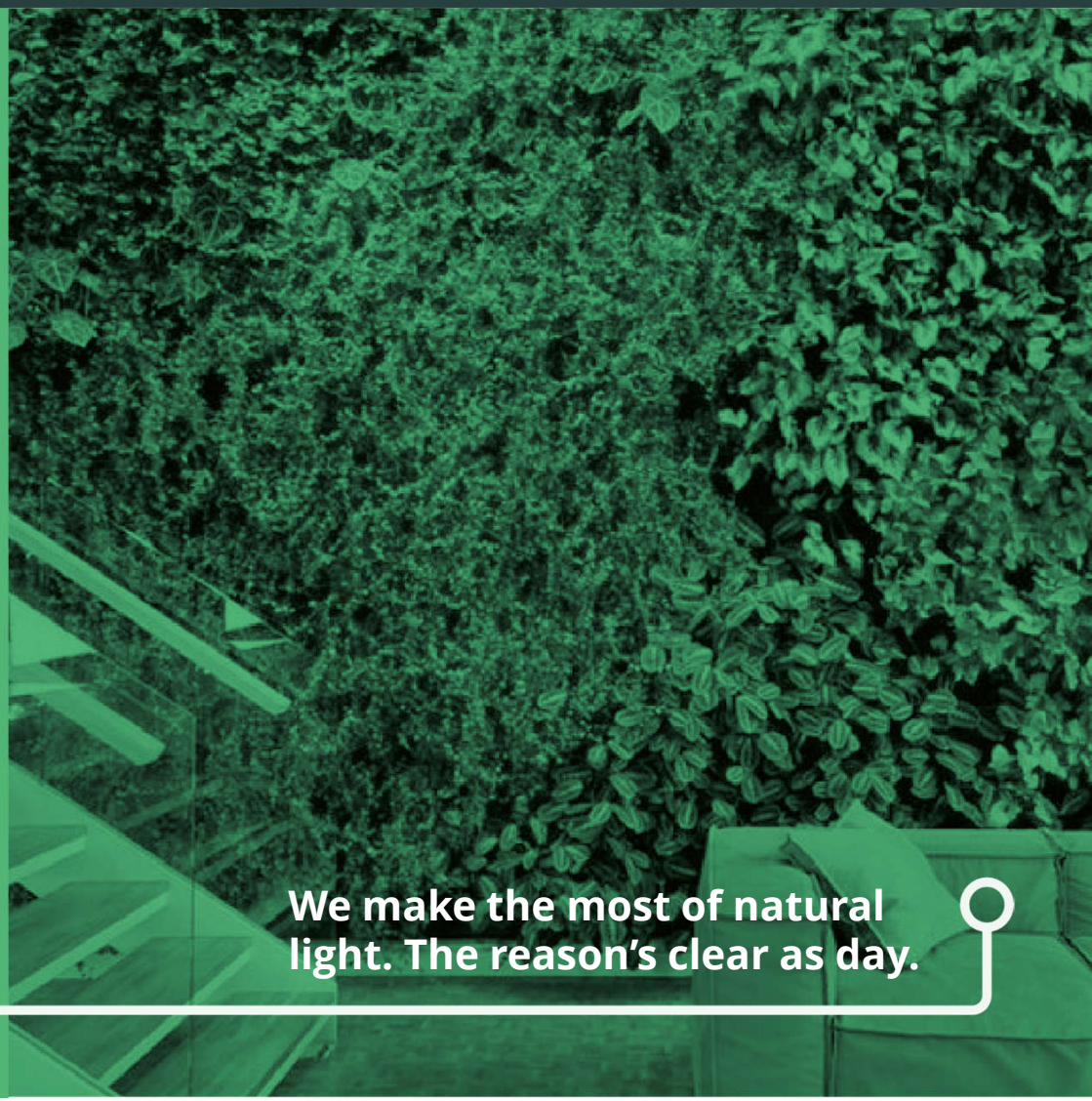
NEARLY ZERO

"...has a very high energy performance [..]."
Energy Performance of Buildings Directive.

NET ZERO

"...operational energy on an annual basis is zero or negative."

The Government Property Agency, (August 2020).
Net Zero and Sustainability Design Guide - Net Zero Annex



We make the most of natural light. The reason's clear as day.

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Lawful Requirement

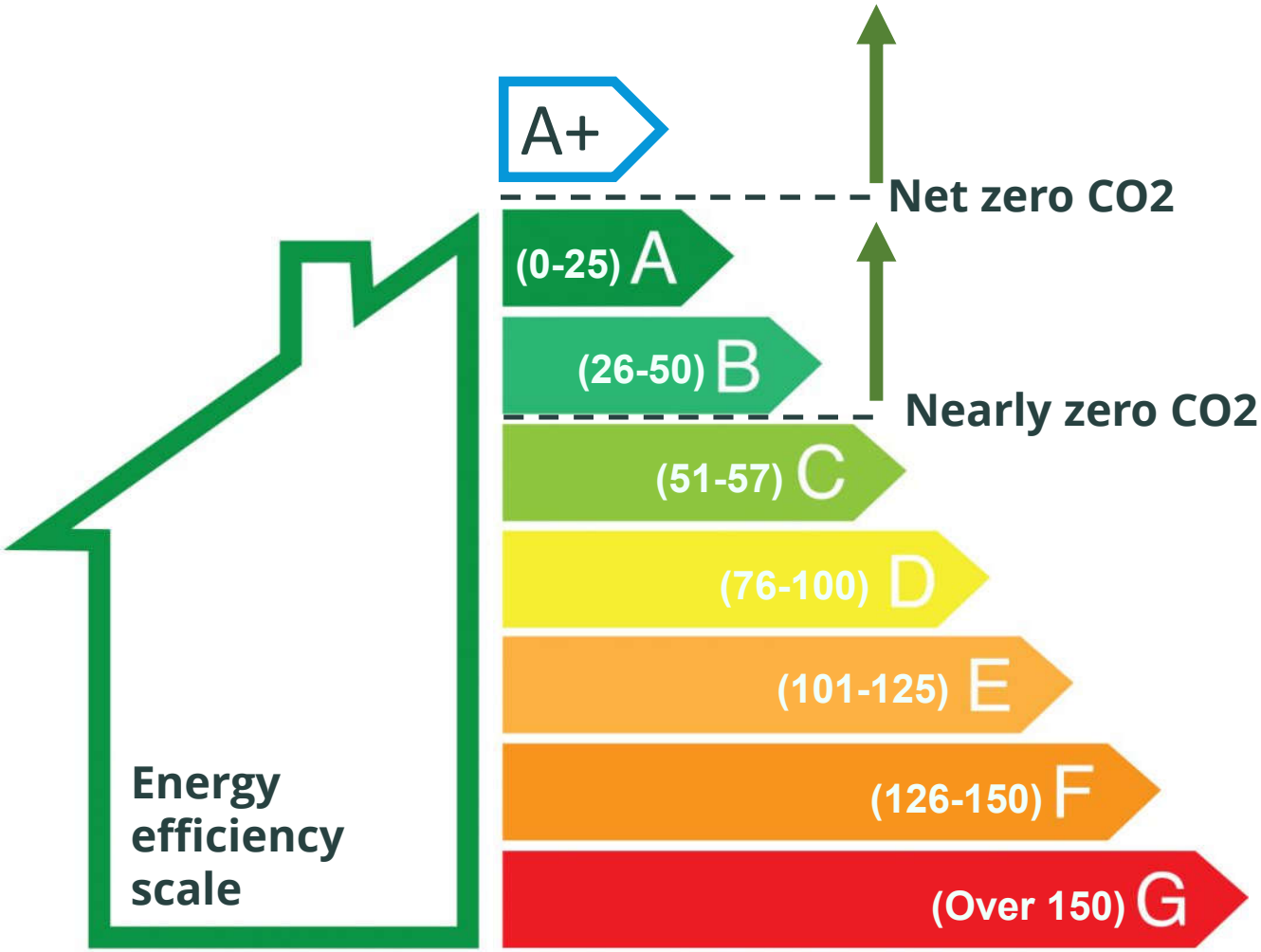
PART L 2021

25B ...it must be a nearly zero-energy building

- **BER ≤ TER**
  (kgCO2/m²/year)
- **BPER ≤ BTER**
  (kWh/m²/year)
- **EPC**
  Energy Performance Certificates

DER - Building Emission Rate
TER - Target Emission Rate

BPER – Building Primary Energy Rate
BTER – Building Target Energy Rate



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Solar Gains in Summer

PART L 2021
BUILDING
REGULATIONS

- **Limit Heat Gains**
- **Reduce Need For Air-conditioning**
- **Reduce Capacity of Air-Conditioning**

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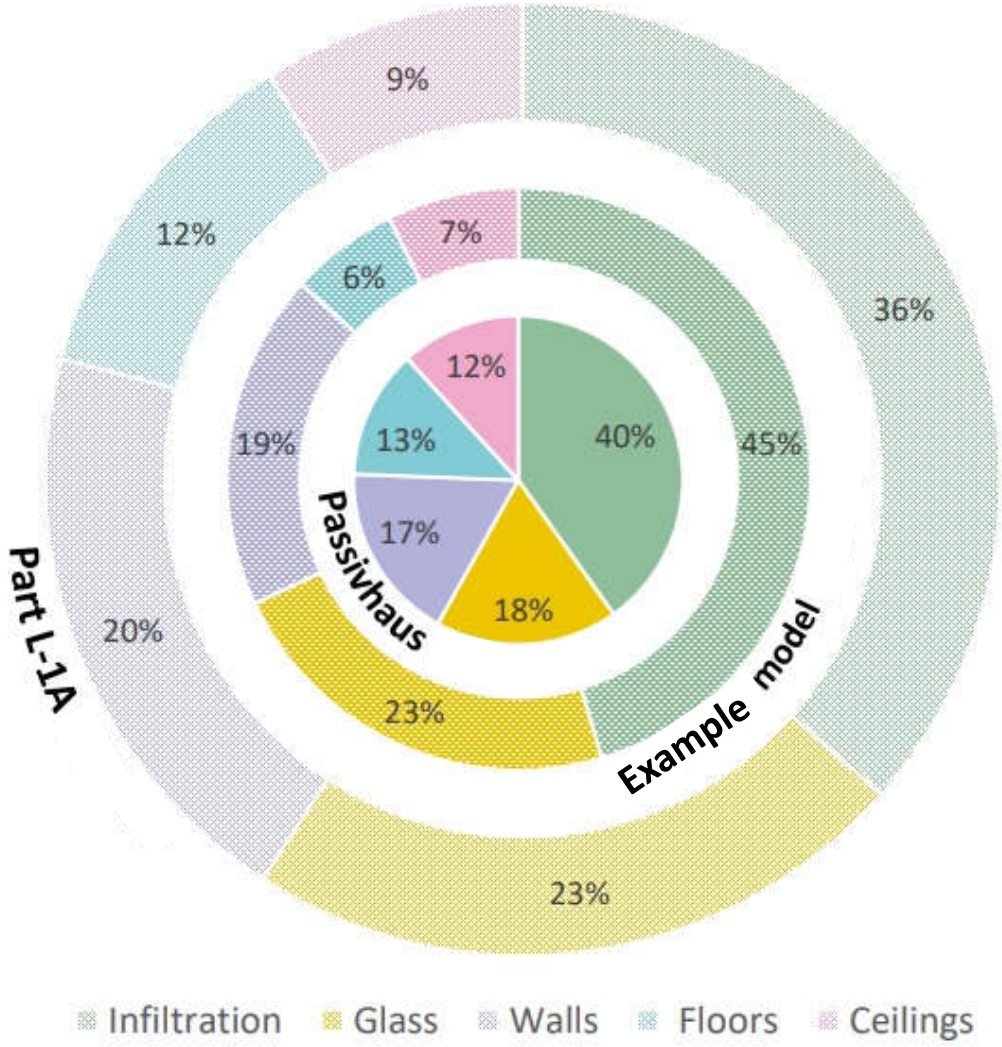
Heat Losses

PART L 2021
BUILDING
REGULATIONS

- **Limit Heat Losses**
  U-values – A W A's
  Air permeability
- **Energy efficient building services**

A W A – Area Weighted Averages



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Renewables

PART L 2021
BUILDING
REGULATIONS

- **Technical, Environmental & Economic Study <u>ONLY</u>**
- **New Buildings Only**

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Myth's

PART L 2021
BUILDING
REGULATIONS

- Weather Compensation
- Heat Rec. Ventilation
- Complex Controls
- Pressure Tests
- Renewable's
- Oversized Heating Plant
- U - Values
- Energy Sub Meters
- Oversized Cooling Plant
- Too Many Lights

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Summary

PART L 2021
BUILDING
REGULATIONS

- Reduce C02 Emissions
- Reduce Heat Losses
- Renewables Study Mandatory
- Reduce Heat Gains
- Effective Controls
- Reasonable Fuel & Power Use
- Energy Efficient Equipment
- Nearly Zero Energy Building
- Acceptable Primary Energy Rates
- Renewables not Mandatory

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NET & NEARLY ZERO IN PRACTICE

TRANSFORMING TARGETS INTO ACTIONS

CASE STUDIES

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Community

YMCA Grimsby

Date:
2019

EPC: B

The New YMCA building provides 74 high quality Residential units, a health and wellbeing centre, café, gym, training kitchen, conference and exhibition rooms

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Community

YMCA Grimsby

Date:
2019

EPC: B

The New YMCA building provides 74 high quality Residential units, a health and wellbeing centre, café, gym, training kitchen, conference and exhibition rooms

- ✗ All Electric
- ✗ Smart Hot Water
- ✓ Intermittent Extract
- ✓ MVHR
- ✓ Natural Ventilation
- ✗ Renewables
- ✓ Boiler Back up
- ✓ Sub Station
- ✓ Fabric Efficiency

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Student Residential

Sincil Street Lincoln

Date:
2019

Operational Energy:
~19.79 kWh/m²/year
EPC: B

64% improvement
in the
RIBA 2030 Challenge Target
(< 55 kWh/m²/year)

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Student Residential

Sincil Street Lincoln

Date:
2019

Operational Energy:
~19.79 kWh/m²/year
EPC: B

64% improvement
in the
RIBA 2030 Challenge Target
(< 55 kWh/m²/year)

- ✓ All Electric
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- ✗ MVHR
- ✓ Natural Ventilation
- ✗ Renewables
- ✗ Boiler Back up
- ✗ Sub Station
- ✓ Fabric Efficiency

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Residential

Gregory Street Nottingham

Date:
2019

Operational Energy:
~35 kWh/m²/year
EPC: B

36% improvement
in the
RIBA 2030
Challenge Target
(< 55 kWh/m²/year)

RIBA EXEMPLAR PROJECT

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Residential

Gregory Street Nottingham

Date:
2019

Operational Energy:
~35 kWh/m²/year
EPC: B

36% improvement
in the
RIBA 2030 Challenge Target
(< 55 kWh/m²/year)

- ✓ All Electric
- ✓ Smart Hot Water
- ✗ Intermittent Extract
- ✓ MVHR
- ✓ Natural Ventilation
- ✗ Renewables
- ✗ Boiler Back up
- ✗ Sub Station
- ✓ Fabric Efficiency

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Student Residential

Dwell City Living, Nottingham

Date:
2017

Operational Energy:
~105 kWh/m²/year
EPC: B

4.5% improvement
in the
RIBA 2025
Challenge Target
(< 110 kWh/m²/year)

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Student Residential

Dwell City Living, Nottingham

Date:
2017

Operational Energy:
~105 kWh/m²/year
EPC: B

4.5% improvement
in the
RIBA 2025
Challenge Target
(< 110 kWh/m²/year)

- ✓ All Electric
- ✓ Smart Hot Water
- ✗ Intermittent Extract
- ✓ MVHR
- ✗ Natural Ventilation
- ✗ Renewables
- ✗ Boiler Back up
- ✗ Sub Station
- ✓ Fabric Efficiency

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Offices

Newark & Sherwood District Council

Date:
2013

Operational Energy:
~41 kWh/m²/year
EPC: B

25% improvement
in the
RIBA 2030
Challenge Target
(< 55 kWh/m²/year)

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Offices

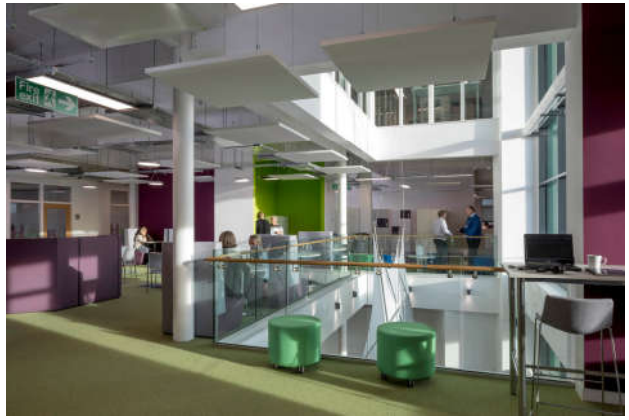
Newark & Sherwood District Council

Date:
2013

Operational Energy:
~41 kWh/m²/year
EPC: B

25% improvement
in the
RIBA 2030 Challenge Target
(< 55 kWh/m²/year)

- ✓ All Electric
- ✓ Smart Hot Water
- ✗ Intermittent Extract
- ✓ MVHR
- ✓ Natural Ventilation
- ✓ Renewables
- ✗ Boiler Back up
- ✓ Sub Station
- ✓ Fabric Efficiency



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Education

Institute of Technology, Lincoln

Date:
2020

Operational Energy:
~19.79 kWh/m²/year
EPC: B

64% improvement
in the
RIBA 2030
Challenge Target
(< 55 kWh/m²/year)

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Education

Institute of Technology, Lincoln

Date:
2020

Operational Energy:
~19.79 kWh/m²/year
EPC: B

64% improvement
in the
RIBA 2030
Challenge Target
(< 55 kWh/m²/year)

- ✓ All Electric
- ✓ Smart Hot Water
- ✓ Intermittent Extract
- ✗ MVHR
- ✓ Natural Ventilation
- ✓ Renewables
- ✗ Boiler
- ✗ Sub Station
- ✓ Fabric Efficiency

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Education

Loughborough College

Date:
2020

Operational Energy:
~90 kWh/m²/year
EPC: B

18% improvement
in the
RIBA 2030
Challenge Target
(< 110 kWh/m²/year)

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Education

Loughborough College

Date:
2020

Operational Energy:
~90 kWh/m²/year
EPC: B

18% improvement
in the
RIBA 2030
Challenge Target
(< 110 kWh/m²/year)

- ✗ All Electric
- ✓ Smart Hot Water
- ✓ Intermittent Extract
- ✗ MVHR
- ✓ Natural Ventilation
- ✗ Renewables
- ✓ Boiler Replacement
- ✗ Sub Station
- ✓ Fabric Efficiency

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Student Residential

Bishop Burton College

Date:
2019

Operational Energy:
~19.79 kWh/m²/year
EPC: A

64% improvement
in the
RIBA 2030 Challenge Target
(< 55 kWh/m²/year)

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Student Residential

Bishop Burton College

Date:
2019

Operational Energy:
~19.79 kWh/m²/year
EPC: A

64% improvement
in the
RIBA 2030
Challenge Target
(< 55 kWh/m²/year)

- ✓ All Electric
- ✓ Smart Hot Water
- ✓ Intermittent Extract
- ✗ MVHR
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- ✗ Sub Station
- ✓ Fabric Efficiency

If your project is...

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Faith

Community

Apartments

Heritage

Education

Leisure

Offices

SEN Education

Student Accommodation

Industrial

Residential Multiple Plot

Residential Individual Plot

then why not...

...contact us for

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Net Zero

Sustainability

MEP

Carbon Literacy Project

Carbon Literacy

elmhurst energy APPROVED ENERGY ASSESSOR

QUALITY PROMISE

BREEAM®

DESIGNER PASSIVE HOUSE DESIGNER

Thank you!

viridisbsl.co.uk

sustainable@viridisbsl.co.uk

+44 (0)1636 703 101

Questions?

TEAM LINCOLNSHIRE

Lincolnshire COUNTY COUNCIL

Business Lincolnshire
The place to go for business growth

Getting your Business to Net Zero

- Thursday 7th July 2022
- The Bacchus Hotel, Sutton on Sea

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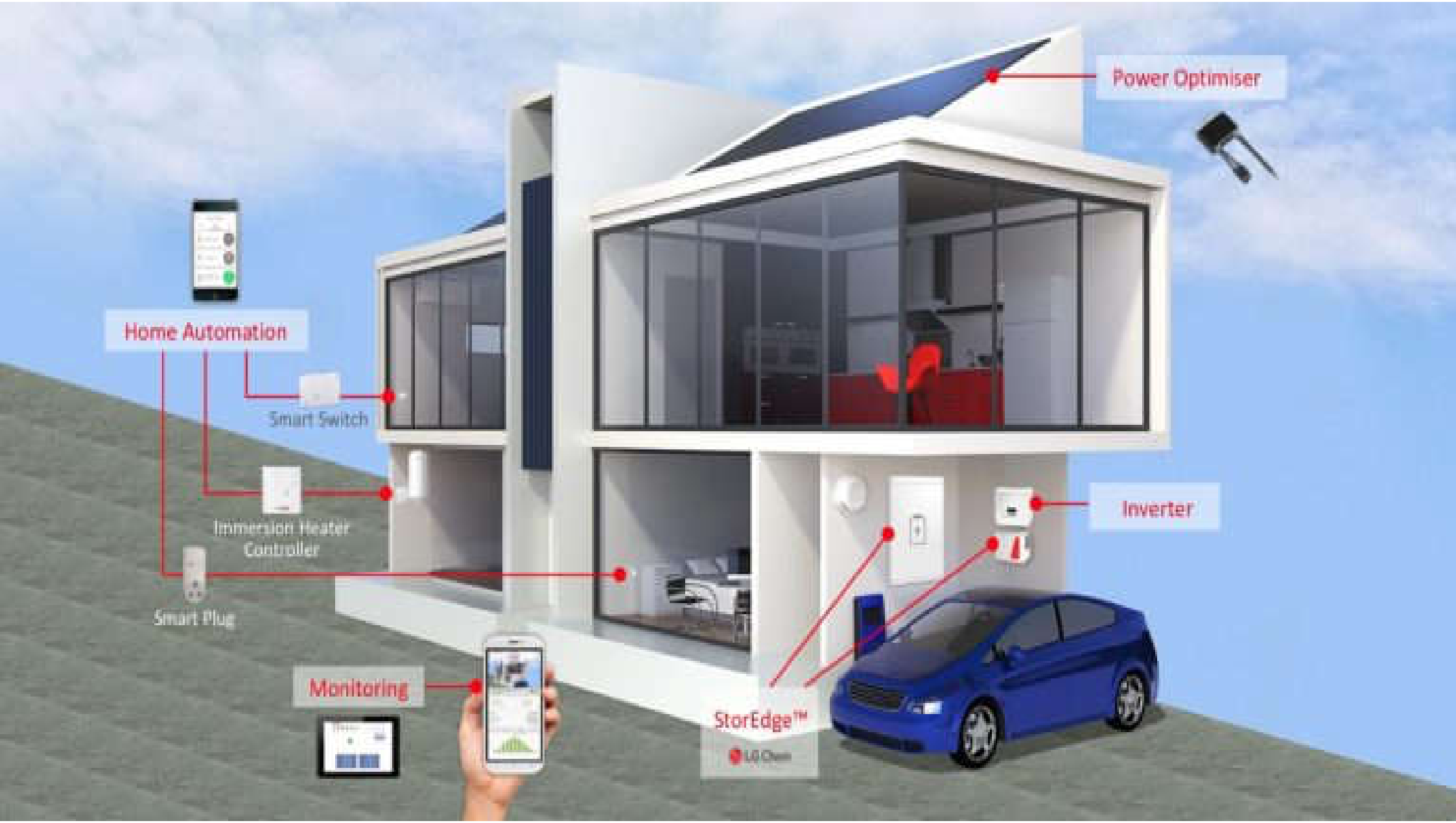
Business Lincolnshire
The place to go for business growth

Amelio Solar Energy

It’s time to get electricity freedom.


Power Optimiser
Home Automation
Smart Switch
Immersion Heater Controller
Smart Plug
Inverter
Monitoring
StorEdge™

Amelio
Solar Energy

Robust Strategy

- Need to understand objectives
- Current consumption – Half Hourly Data

	30 minute kWh Readings															
	SERIAL NO:															
	0.00	0.02	0.04	0.06	0.08	0.10	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.27	0.29	0.31
01/07/2019	7.8	7.9	7.7	7.6	7.9	8	8.3	8	7.7	7.9	10.8	8.1	6.5	5.3	5.3	14.8
02/07/2019	7.9	8.1	7.8	8.2	7.9	8.1	9.1	9.3	9	7.8	6.4	4.5	4.7	4.7	11	8.9
03/07/2019	7.6	8.4	8.3	7.9	7.7	7.7	7.9	8.4	8.2	8.7	11.5	9.3	8.2	10.9	11.1	9.9
04/07/2019	8.8	8.8	8.9	8.5	8.4	8.5	8.6	8.5	8.4	8.9	12.6	12.1	11.9	10	12.9	10.6
05/07/2019	7.3	7.3	6.9	7.2	7.3	7.1	7	6.2	7.2	7	9.1	8.8	8	7.4	15	8.4
06/07/2019	4.2	4.8	4.7	4.8	4.8	4.8	4.7	4.5	4	5.3	8.6	9.6	8.8	8.2	11.8	11.9
07/07/2019	4.2	4.1	4.1	4.5	4.1	4.5	4.4	4.4	4.3	5.5	7.9	8.3	7	5.7	5.3	14
08/07/2019	4.4	4.3	4.5	3.9	4.4	4.4	4.8	4.6	4.5	4.7	8.3	7.3	6.3	5.5	8.7	14.9
09/07/2019	4	4	3.9	3.8	3.8	3.5	3.9	4.2	4.2	4.1	3.4	2.7	2.8	2.2	3.2	2.9
10/07/2019	4.7	4.6	4.6	4.3	4.4	4.2	4	4.3	4.7	5.7	9.2	9.2	8.9	7.6	15.8	11.6
11/07/2019	3.7	4	4.3	4.1	4.2	4	4.3	3.7	3.8	5	9.5	9.9	9.6	8.9	16.4	12.6
12/07/2019	5.1	4.8	5.6	5.3	5.1	5.2	5.2	4.9	5	5.1	9.4	9.4	9.9	8.6	16.2	12.6
13/07/2019	4.2	3.7	3.9	3.6	4	4	3.9	3.8	3.6	4.8	8.9	8.4	10	8.8	17.3	12.2
14/07/2019	4.3	3.8	3.8	3.7	3.6	4	4.2	4.1	4.1	4.8	7.8	7.7	6.9	7.4	14	9.3
15/07/2019	4.3	4.1	4.1	3.9	4.1	3.7	3.8	4.3	4.1	4.9	8.4	7.7	6.9	5.6	7.6	13.9
16/07/2019	4.1	4.2	4.3	3.9	3.7	3.6	3.7	3.4	3.7	3.7	3.4	2.6	3.9	2.4	3.3	3.6
17/07/2019	3.9	3.8	4.5	4.6	4.6	4.3	4.1	4	4.1	4.6	8.7	8.6	8	6.7	14.1	10.5
18/07/2019	3.8	4	3.4	4.1	4.4	4.3	4	4.1	4.2	5.1	8.5	8.8	10.8	9.7	11	10.5
19/07/2019	5.2	5	5	4.8	5.2	5.9	5.4	5.9	8.7	8.8	7.5	7.9	9.5	7.4	13.7	9.9
20/07/2019	4.2	4	3.9	4.2	3.9	4	4.3	4.3	4.1	5.1	9.1	8.1	8	7.2	5.1	11.9
21/07/2019	4.1	4.4	4.4	4.2	3.9	3.8	4.3	3.8	4.4	5	9	8.1	8.5	8.6	9.2	10.5
22/07/2019	3.7	4.2	4.1	4.2	4.1	3.9	3.7	4.1	3.8	4.4	8.9	8.6	9	7.5	8.4	14.7
23/07/2019	3.6	3.7	3.5	3.9	4	3.9	3.8	4.3	4	3.8	4.5	4.7	5.5	4.3	4.7	3.9
24/07/2019	4.9	5.2	5.1	4.3	4.4	4.5	4.5	4.1	4.4	5.7	8.7	8.6	8.4	7	15.2	10
25/07/2019	4.4	4.5	4	4	4	3.6	4.3	4.1	4.1	5.5	8.5	8.7	12.7	8	8.7	12
26/07/2019	4.7	4.4	4.5	4.2	4.6	4.2	4.4	3.9	4.5	5.5	9.9	9.7	11.6	9.9	12	10.9
27/07/2019	5.4	5.3	5.5	5.1	5.2	4.6	4.5	4.6	4.2	6.2	11.8	11	14.2	12.9	11.8	12.5
28/07/2019	4.6	4.4	4.1	4.6	4.3	4.4	4.6	4	3.9	4.4	8.3	9.3	8.9	8.4	8.5	13.8
29/07/2019	5.4	5.4	5.3	5.1	5.7	6	6.2	6	6	7.1	11.8	10.9	9.9	9.8	10.1	16.4
30/07/2019	5.3	6.2	6.5	6.9	7	6.7	7.1	7	7.4	7.7	6.9	6.6	6.5	6.2	6.8	7.1
31/07/2019	5.6	5.6	5.6	5.7	6.1	6.1	6.3	6.2	6.6	7.1	11.2	10	8.7	8.1	15.8	13.8

Robust Strategy

- Need to understand objectives
- Current consumption – Half Hourly Data
- How might this change in future
- Current costs and how these may vary in future

Robust Design

- Matching system size to consumption
- Considering time of day usage vs generation
- All the little things necessary to optimize performance

e.g. Nottingham School

NOTTINGHAM ACADEMY GREENWOOD ROAD SITE FINAL

Ripon Road, Nottingham, NG3 7FQ, United Kingdom | Greenwood Road | 4 Oct 2021

Amelio Solar Energy

SIMULATION RESULTS

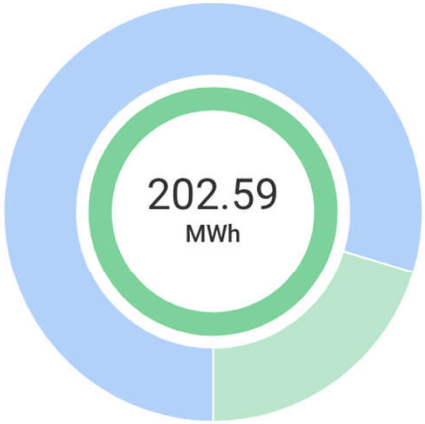
Installed DC Power	Max Achieved AC Power	Annual Energy Production	CO2 Emission Saved	Equivalent Trees Planted
235.98 kWp	180.00 kW	202.59 MWh	47.2 t	2,168

SYSTEM PRODUCTION

Total Production - 100 %
202.59 MWh

Self-consumption - 80 %
161.48 MWh

Export - 20 %
41.11 MWh

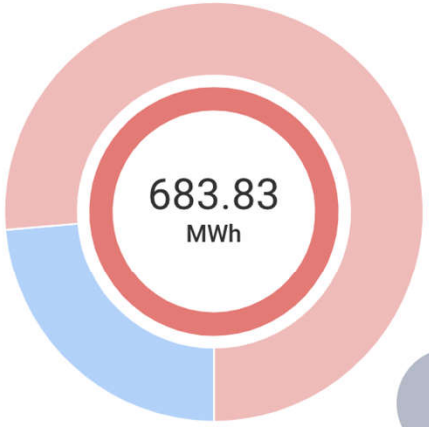


CONSUMPTION

Total Consumption - 100 %
683.83 MWh

Self-consumption - 24 %
161.48 MWh

Import - 76 %
522.35 MWh



Help

Robust Performance

- Monitoring generation
- Monitoring performance down to panel level
- Enhanced performance
- Enhanced safety
- Enabling maintenance
- Enabling further electricity and CO_2 savings
- Long warranties
- Demonstration of Climate Emergency Leadership

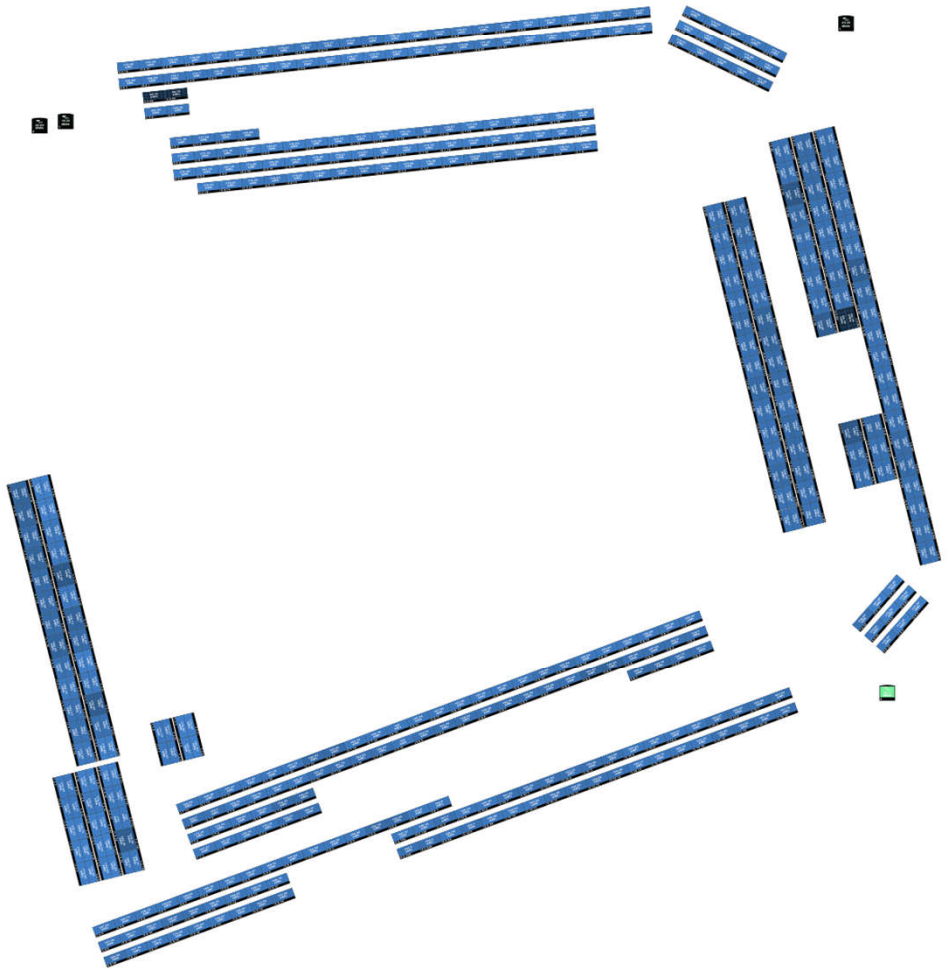
e.g. Nottingham School

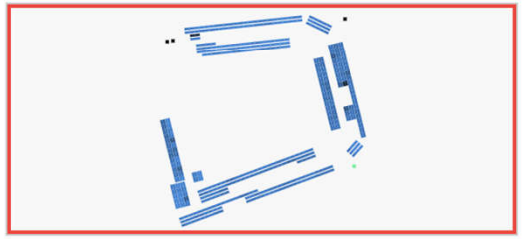
Dashboard | Layout | Analysis | Reports | Alerts | Admin

Choose a site (insert at least 3 letters to search):

Nottingham Academy, Greenwood Road

layback | Total | Physical layout





Amelio Solar Energy

solaredge

Home Richard Jones

Dashboard Layout Analysis Reports Alerts Admin

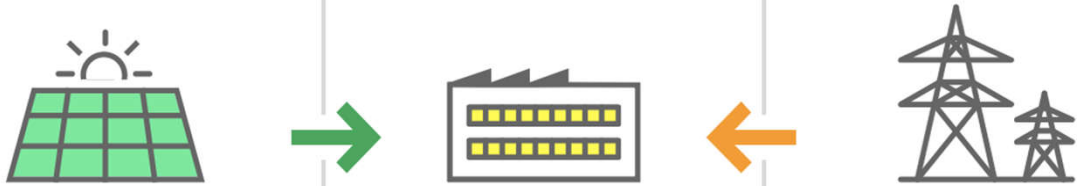
Choose a site (insert at least 3 letters to search):

Nottingham Academy, Greenwood Road

Energy today	Energy this month	Lifetime energy
66.07 kWh	1.36 MWh	150.04 MWh

Amelio Solar Energy

58.99 kW	105.03 kW	46.04 kW



Status	**Active**
ID	2123822
Name	Nottingham Academy, Green…
Address	Greenwood Road, Nottingham,England,United K…
Installed	08/03/2021
Last Updated	04/10/2021 10:02
Peak Power	235.98 kWp

Partly Cloudy
10 °C
Feels like 10 °C

Power and Energy

Day | Week | Month | Billing Cycle | Year

28/09/2021 - 05/10/2021

System Production: **2.69 MWh**

96% | 4%

Self-consumption: 2.59 MWh

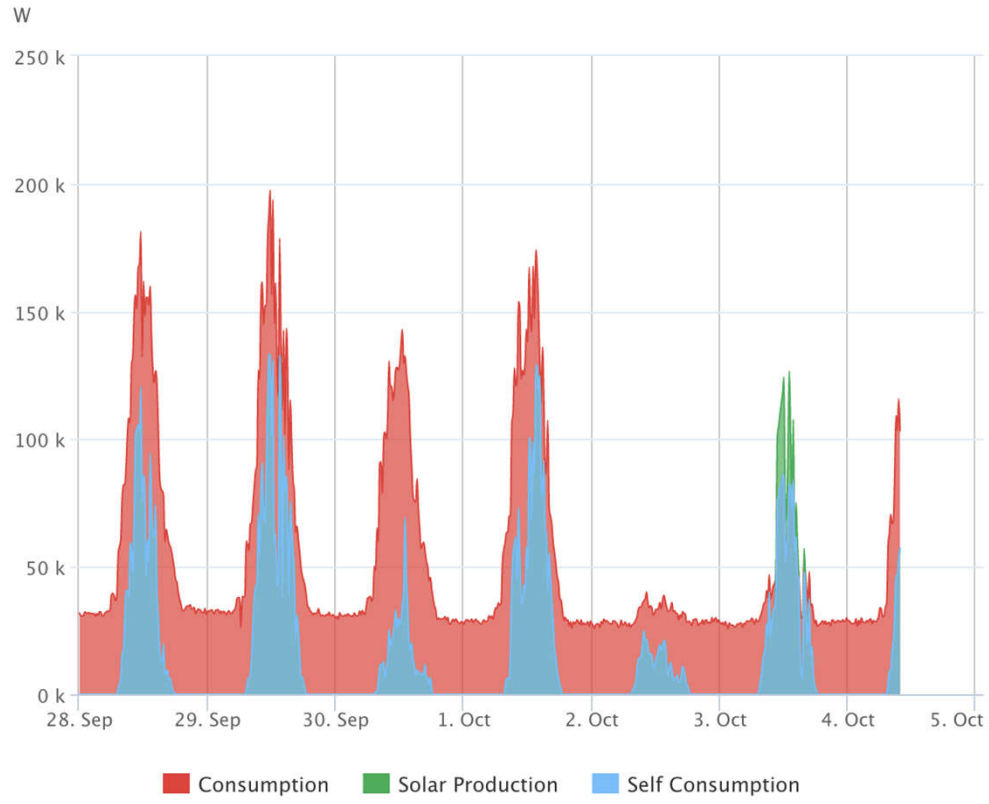
Export: 0.1 MWh

Consumption: **8.35 MWh**

31% | 69%

Self-consumption: 2.59 MWh

Import: 5.76 MWh



Humidity 91 %
Sunrise at 07:11
Sunset at 18:34

Monday	Tuesday	Wednesday
15 - 11 °C	13 - 9 °C	16 - 9 °C
Mostly Cloudy	40% Chance of Rain	Partly Cloudy

Environmental Benefits

CO2 Emission Saved
38,350.03 kg

Equivalent Trees Planted
1,755.46

Power and Energy

Day | Week | Month | Billing Cycle | Year

01/01/2021 - 31/12/2021

System Production: **80.28 MWh**

92% | 8%

Self-consumption: 71.52 MWh

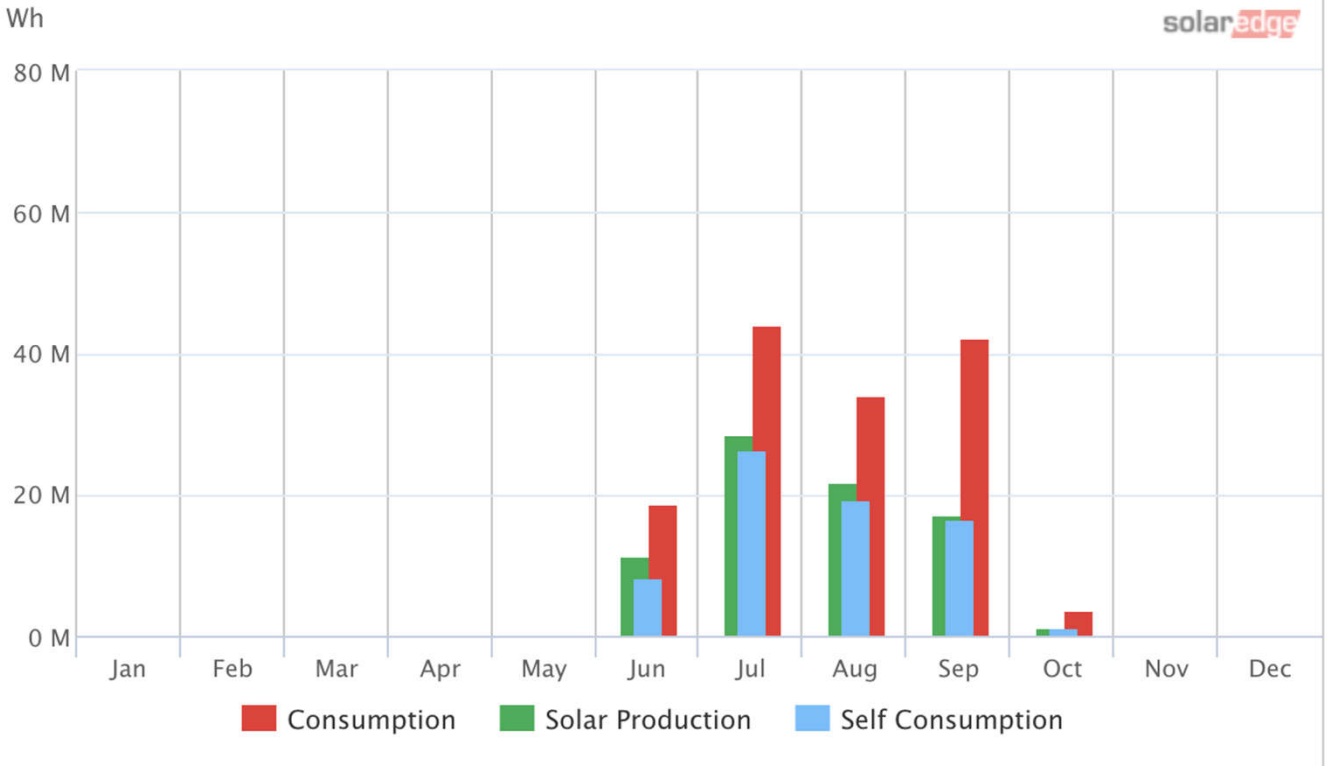
Export: 6.15 MWh

Consumption: **142.91 MWh**

50% | 50%

Self-consumption: 71.52 MWh

Import: 71.39 MWh



Amelio Solar Energy

It’s time to get electricity freedom.

EV CAMEL

fuelling your journey

™

Robust Strategy

- Establishing **Why** charging is needed
- For **Whom**?
- For **How Long**?
- **Future Changes**…

- Timings:
  - Need
  - Availability of Power
- Demonstration of Climate Change Leadership

EV CAMEL
fuelling your journey

Robust Design

- Power supplies now
- Power supplies future
- Speed of charging now
- Protections and opportunities
- Future changes…

EV CAMEL
fuelling your journey

Robust Performance

- Monitoring usage
- Flexibility for groups and taxation
- Safety
- Maintenance

EV CAMEL
fuelling your journey

More Cars

EV CAMEL

fuelling your journey

™

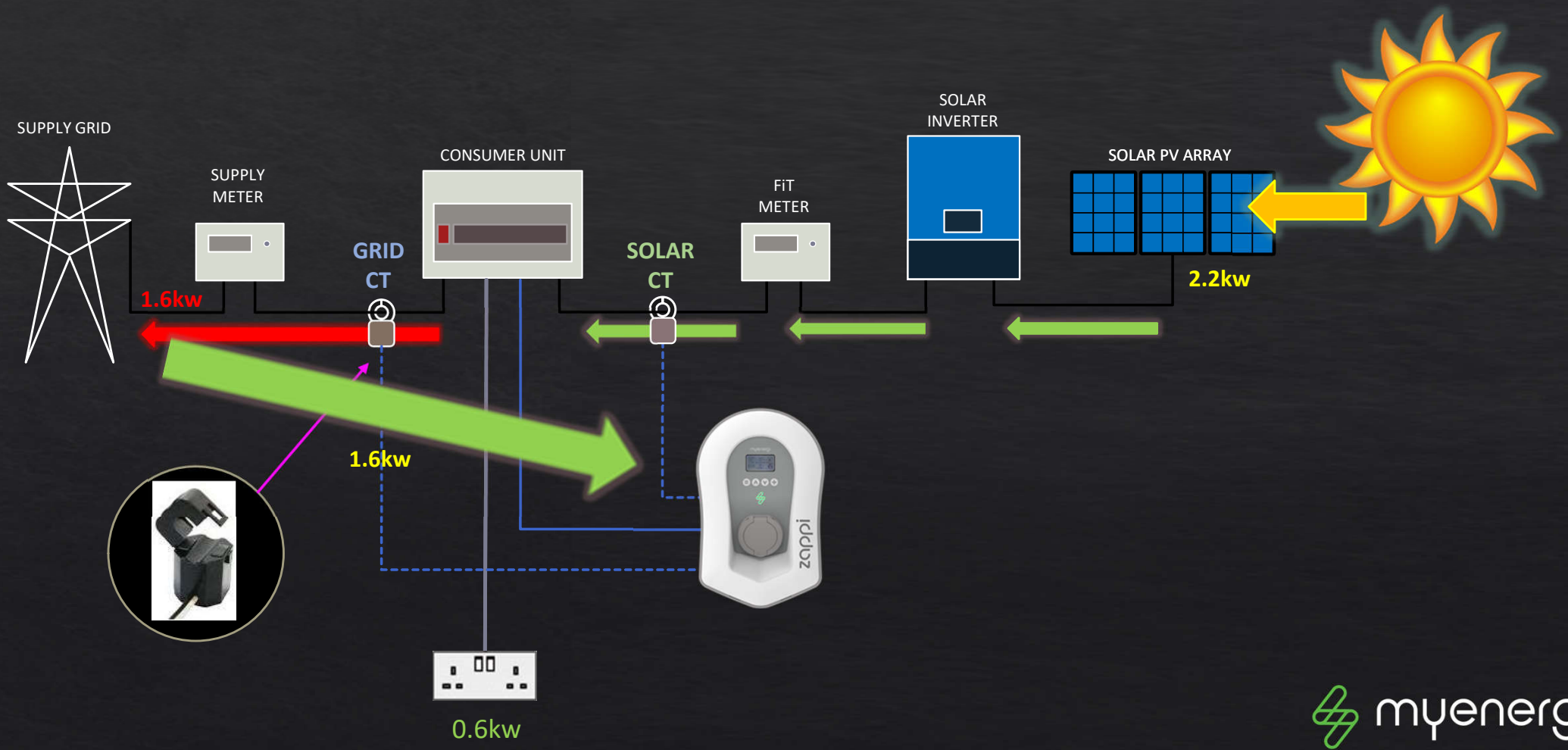

myenergi
A Grimsby based manufacturer of Eco-Tech products that help people around the world make smarter use of their energy

About myenergi

- Founded in 2016 by Lee Sutton and Jordon Brompton
- Domestic market leaders for Electric Vehicle Charging & Solar Power Diverting
- Four global subsidiaries in Germany, Belgium, Ireland and Australia
- Grown from a team of 6 to over 390 in only 6 years

myenergi

Using Energy Smartly

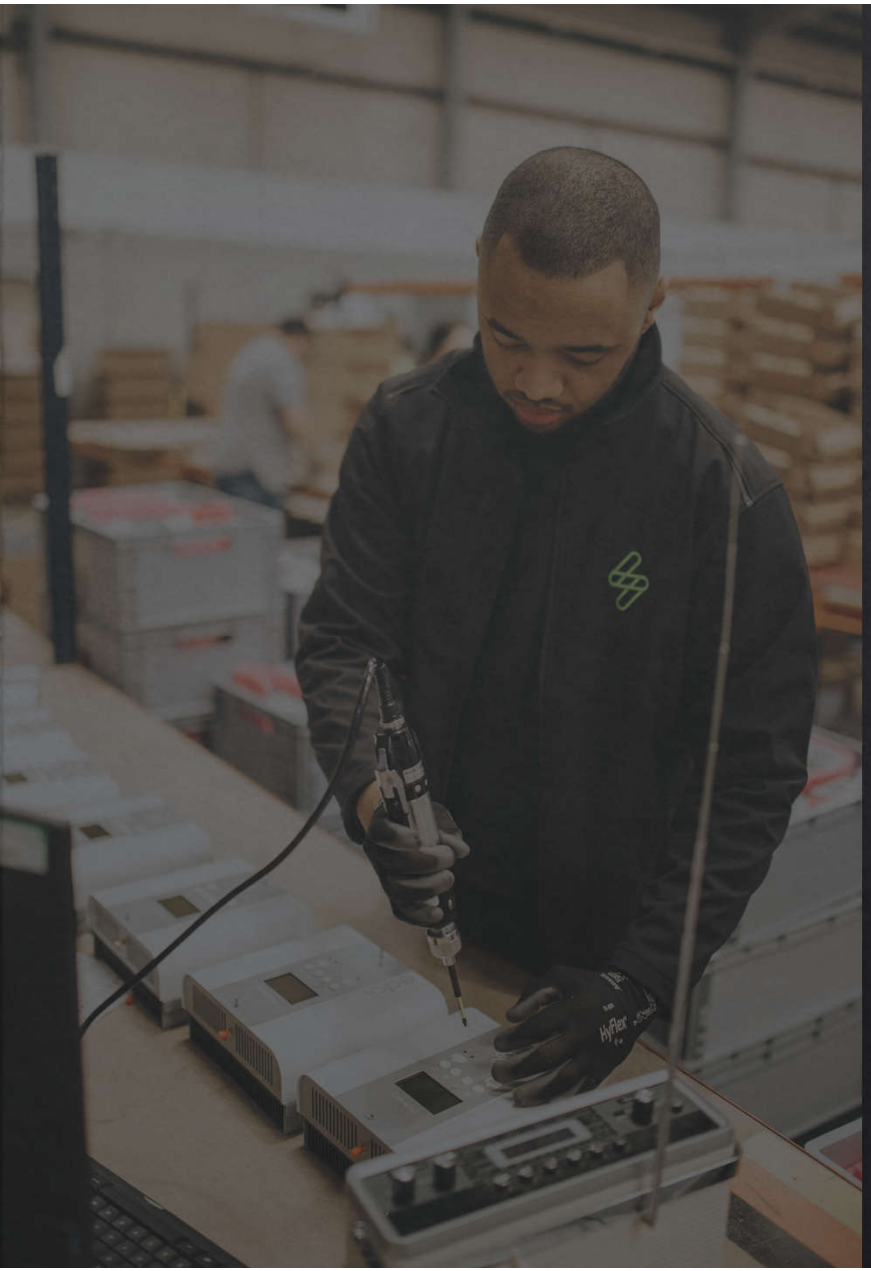


myenergi

A Sustainable Future

- The grid is already massively oversubscribed
- Energy costs are rising dramatically
- Micro-generated surplus can be as high as 80%
- 100% of that can be self-consumed with our products

myenergi



Products

eddi

Solar Power Diverter

zappi

Electric Vehicle Charger

myenergi

zappi **For Business**

3 Choices To Make;
- 7kW Single Phase / 22kW Three Phase
- Tethered / Untethered
- Black / White

- **Eligible For OZEV Grant - £350 per socket!!**
- **Lock Via Pin Code**
- **Load Balancing**
- **No Earth Rod Required**
- **Mobile Application**

myenergi

eddi **For Business**

Divert Solar/Wind Power To Hot Water

- Immersion Tank
- Underfloor Heating
- Towel Rail
- Many More!!

- **Programmable Timer**
- **Back-lit LCD Screen**
- **Support Two Load Sequentially**
- **Relay & Sensor Board Integration**

myenergi


everything is energy
myenergi
Our Mission Is To Change The World Through Green Technology. Saving Customers Money And Creating A Kinder, More Sustainable Future

FOX ELECTRICAL - In partnership with Ansell Lighting

FOX ELECTRICAL SUPPLIES Ltd

EXCELLENT STOCK SERVICE PEOPLE

Getting your business to "Net Zero"

LED lighting + controls

About us

FOX ELECTRICAL - In partnership with Ansell Lighting

Fox Electrical Supplies Ltd

Established in 2006 by Stewart Fox, Fox Electrical Supplies is a 3 branch independent electrical wholesaler in Lincolnshire.

We stock a wide range of electrical supplies available over the counter or via our free delivery service. Bespoke and un-listed products can be sourced through our extensive network of suppliers.

Ansell Electrical Products.

Established in 1992, Ansell Lighting is a recognised market leader in the design and manufacture of high quality luminaires for the commercial, domestic, industrial and architectural markets. Ansell Lighting are proud to have been awarded an array of industry awards over the years. This has gained us important accolades such as “Best Overall Supplier”

LED lighting

why led lighting?

FOX ELECTRICAL - In partnership with Ansell Lighting

• LEDs are the size of a fleck of pepper, and can emit light in a range of colors. A mix of red, green, and blue LEDs is sometimes used to make white light.

•Direction: LEDs emit light in a specific direction, reducing the need for reflectors and diffusers that can trap light. This feature makes LEDs more efficient. With other types of lighting, the light must be reflected to the desired direction and more than half of the light may never leave the fixture.

•Heat: LEDs emit very little heat. In comparison, incandescent bulbs release 90% of their energy as heat and CFLs release about 80% of their energy as heat.

•Lifetime: LED lighting products typically last much longer than other lighting types. A good quality LED bulb can last 3 to 5 times longer than a CFL and 30 times longer than an incandescent bulb.

LED lighting

why led lighting?

FOX ELECTRICAL - In partnership with Ansell Lighting

EFFICIENCY

A typical 40-watt light uses 40 watts of electricity to produce 490 lumens. The efficiency of that light bulb is 12.75 lumens per watt.

A 40W-equivalent fluorescent uses 10 watts of electricity to put out 580 lumens, so the energy efficiency of that light bulb is 58 lumens per watt. That's more than 4.5 times as efficient as the incandescent light bulb. Pretty impressive.

A typical 40W-equivalent LED light bulb uses just 6 watts of electricity to produce 450 lumens. That's nearly 75 lumens per watt that’s almost a 33 percent efficiency increase over the efficiency of the fluorescent. And it's nearly six times as efficient as the incandescent light bulb it's replacing.

LED lighting

why led lighting?

No. Lamp Watts	Lamp Type	Total Circuit Watts	Gear Loss (W)
1x18w	T8linear	26	8
2x18w	T8linear series pair	48	11
3x18W	T8linear	73	19
4x18W	T8linear	96	22
1x36W	T8linear	47	11
2x36W	T8linear	94	22
3x36W	T8linear	141	33
4x36W	T8linear	188	44
1x58W	T8linear	70	12
2x58W	T8linear	140	24
1x70W	T8linear	84	14
2x70W	T8linear	168	28
1x18W	compact	24	6
2x18W	compact	48	12
1x26W	compact	32	6
2x26W	compact	64	12
1x16W	TC-DD	21	5
1x28W	TC-DD	34	6
1x38W	TC-DD	49	11
2x36W	PL-L	96	22
3x36W	PL-L	144	33

FOX ELECTRICAL - In partnership with Ansell Lighting

Taking line 1 of the table as an example

An 18w fitting (output) actually requires 26w to power that luminaire.

8w's out of that is lost just to power the internal gear + components i.e ballasts

LED lighting

why led lighting?

FOX ELECTRICAL - In partnership with Ansell Lighting

MAINTENANCE

With an LED light source you can measure the lumen Maintenance (amount of light produced by the source When brand new) and compare it with its output at a specific time in the future.

Put another way, if a light source produces 1000 lumens when brand new and 700 lumens after 50,000 hours of use, it has a L70 rating of 50,000 hours.

So instead of a incandescent lamp deteriorating and failing, you know after 50,000 hrs of use your LED luminiaire will still be emitting 70% of its initial light output <u>WHILST WORKING.</u>

LED lighting
the proof is in the pudding

FOX ELECTRICAL - In partnership with Ansell Lighting

CASE STUDY

Inzpire

Office lighting design

BRIEF

Reduced energy lighting design
We provided a lighting design for Inzpire's entire office, maintaining a goal of reducing the energy output of their current lighting while still ensuring they have a well lit workplace.

Inzpire

Fitting replacements

Following a site survey, we determined that the existing total of circuit Watts across the two areas was 21780. Subsequent to our lighting design we proposed a new total of circuit Watts valued at 7439, meaning they would save a total of 14,341 circuit Watts.

EXISTING LIGHTING	QTY	Existing Circuit Watts / per fitting	Existing Circuit Watts - Total	Proposed New Fitting	Proposed Circuit Watts / per fitting	Proposed Circuit Watts - Total
AREA 1						
RM418	92	90	8280	ALOTLED	29	2668
RM418/M3	20	90	1800	ALOTED/SM3	29	580
DL226	7	51	357	AVEGLED2/CW	23	161
DL226/M3	4	51	204	AVEGLED2/CW/M3	23	92
			10641			3501
AREA 2						
RM418	90	90	8100	ALOTLED	29	2610
RM418/M3	23	90	2070	ALOTLED/M3	667	667
DL226	11	51	561	AVEGLED2/CW	23	253
DL226/M3	8	51	408	AVEGLED2/CW/M3	23	408
			11139			3938
			21780			7439

Inzpire

Payback projection

Due to our lighting design, the Inzpire offices would save a projected £5,042.27 on annual electricity costs, as well as reducing their Co2 emissions by 16.033238 tonnes.

The proposed cost of the product was valued at £13,854.36, which would be earned back in approximately 2.75 years from the money saved in annual electricity costs.

Present Costs	
Gear Type	Quantity
	1
Product code	**OLD**
Load per lamp (inc. losses) in Watts	21780
Total Load KW	**21.78**
Maximum hours per day	10
Days per week	5
Days per year	260
Maximum hours run per annum	2600
Level of occupancy*	100%
Actual hours run	2600
Annual consumption KWh	**56628**
Percentage of Daylight Saving	0
Annual consumption KWh	**56628.00**
Unit rate (£)	0.135
Annual Electricity Cost	**£7,657.80**
Annual Tonnes of Co2 Produced	**24.35004**
Proposed New Product Cost	**£13,854.36**

Projected Costs	
Gear Type	Quantity
LED	**1**
Product code	**NEW**
Load per lamp (inc. losses) in Watts	7439
Total Load KW	**7.439**
Maximum hours per day	10
Days per week	5
Days per year	260
Maximum hours run per annum	2600
Level of occupancy	100%
Actual hours run	2600
Annual consumption KWh utilising Presence Detection	**19341.4**
Percentage of Daylight Saving	0
Annual consumption KWh	**19341.40**
Unit rate (£)	0.135
Annual Electricity Cost	**£2,615.54**
Annual Saving (£)	**£5,042.27**
Annual Tonnes of Co2 Produced	**8.316802**
Annual Saving Tonnes of Co2 Produced	**16.033238**
% of Occupancy	**100%**
ROI Based on Control / Occupancy Savings (Years)	**2.75**

LED lighting

Why waste energy when no-ones there?

FOX ELECTRICAL - In partnership with Ansell Lighting

LIGHTING CONTROLS

PIR SENSORS - PIR (passive infrared) sensors utilise the detection of infrared that is radiated from all objects that emit heat. These are efficient for smaller spaces.

MICROWAVE SENSORS - A Microwave sensor uses high frequency radio waves operating at 360 degrees. They are especially effective in Large areas such as Warehouses monitoring any changes in the return waves and responding immediately.

DAYLIGHT HARVESTING - Daylight harvesting systems use lux meters to read daylight to offset the amount of electric lighting needed to properly light a space, in order to reduce energy consumption.

LED lighting

Why waste energy when no-ones there?

FOX ELECTRICAL - In partnership with Ansell Lighting

WHY USE LIGHTING CONTROLS

Any of the sensors listed in the slide before will help you reduce energy costing by only using luminaires when presence is detector, or will reduce the efficiency of the luminaire throughout the day in accordance with the natural light in that area,

These are installed either integrally into a luminaire, or can be free standing and wired in separately to control the lights installed.

The Carbon Trust also recommends occupancy sensors, stating that they can help reduce electricity use by 30 per cent. So, when it comes to the question of saving money, research suggests that occupancy motion sensors do lead to energy savings

QUESTIONS?

Questions?

TEAM LINCOLNSHIRE

Lincolnshire COUNTY COUNCIL

Business Lincolnshire
The place to go for business growth

Getting your Business to Net Zero

- Thursday 7th July 2022
- The Bacchus Hotel, Sutton on Sea

TEAM LINCOLNSHIRE

Lincolnshire COUNTY COUNCIL

Business Lincolnshire
The place to go for business growth