



City of
BRADFORD
METROPOLITAN DISTRICT COUNCIL

ELE[®]

Extreme Low Energy

BACKED BY THE



**NORTHERN
POWERHOUSE**
Investment Fund

 Delivered by British Business Bank

Who we are



Extreme Low Energy Ltd (ELE)

is a specialist low voltage, low energy solutions provider.



ELE utilises industry leading products from world leaders such as Phillips, Tridonic and Intel and where there are no off-the-shelf products to solve our customers' specific problems we design and manufacture our own inventions to build into the solutions.



ELe Key Facts (2014-2019)

Mark was joined by David Nuttall and Mark Frost as angel investors with Mark Frost taking on the role of Chair.

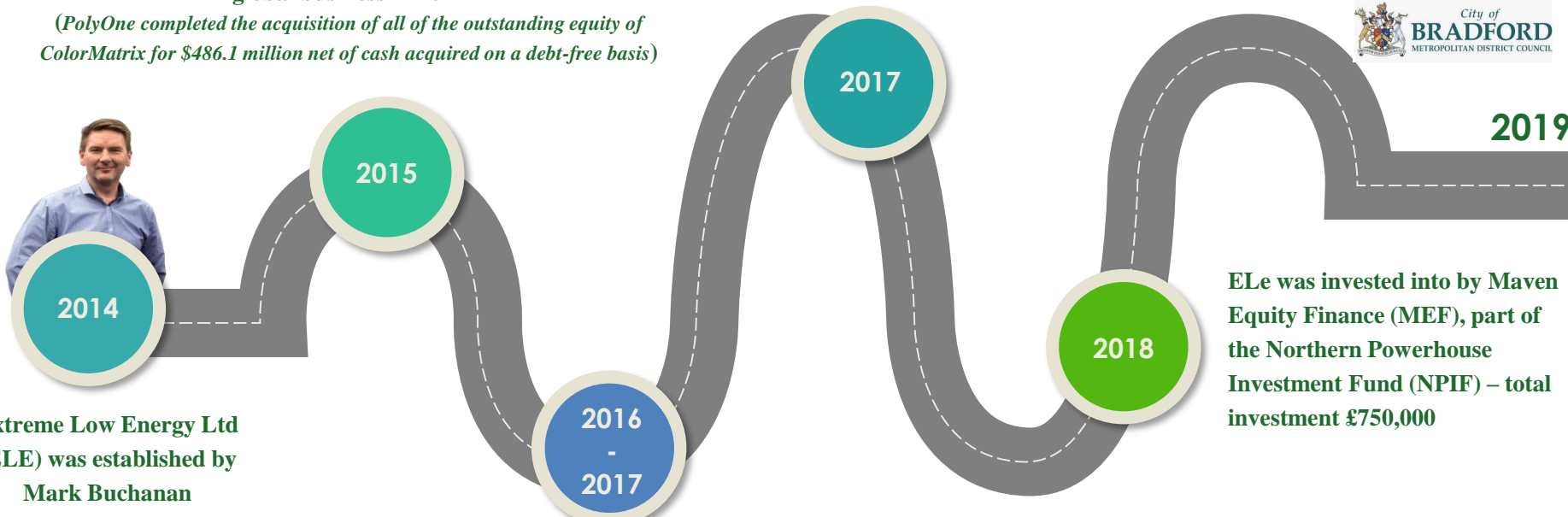
- David and Mark had previously founded (1993) & built up a plastics colorant business in Knowsley – ‘ColorMatrix’ and exited the global business in 2011

(PolyOne completed the acquisition of all of the outstanding equity of ColorMatrix for \$486.1 million net of cash acquired on a debt-free basis)

ELe’s first technology patent was granted in UK and has since gone on to be granted in Spain, France, Germany, Ireland, Poland and South Africa with other countries and patents to follow



Extreme Low Energy Ltd (ELE) was established by **Mark Buchanan** (25yrs exp in Computing, Telecoms & Power)



Low voltage technology developed and implemented at test/beta sites to measure performance and effectiveness in businesses, schools, universities, councils, houses, railway stations and Highways!

ELe was invested into by Maven Equity Finance (MEF), part of the Northern Powerhouse Investment Fund (NPIF) – total investment £750,000

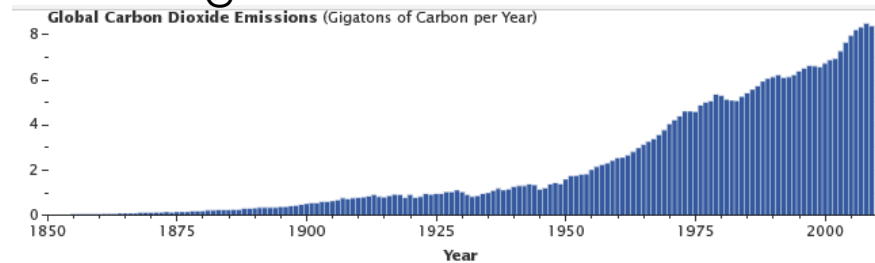
2019

The Low Energy Office of the Future – today

Our Collaborative Project with Innovative Bradford Council:

Bradford Council has agreed a target of 20% for energy for delivery of its own functions to come from renewable sources and for a 40% reduction in council CO₂ emissions by 2020.

It is within the Department of Corporate Resources that a pilot for an ELE 'Power over Ethernet office solution' has been deployed to demonstrate technology that will help them towards these targets.

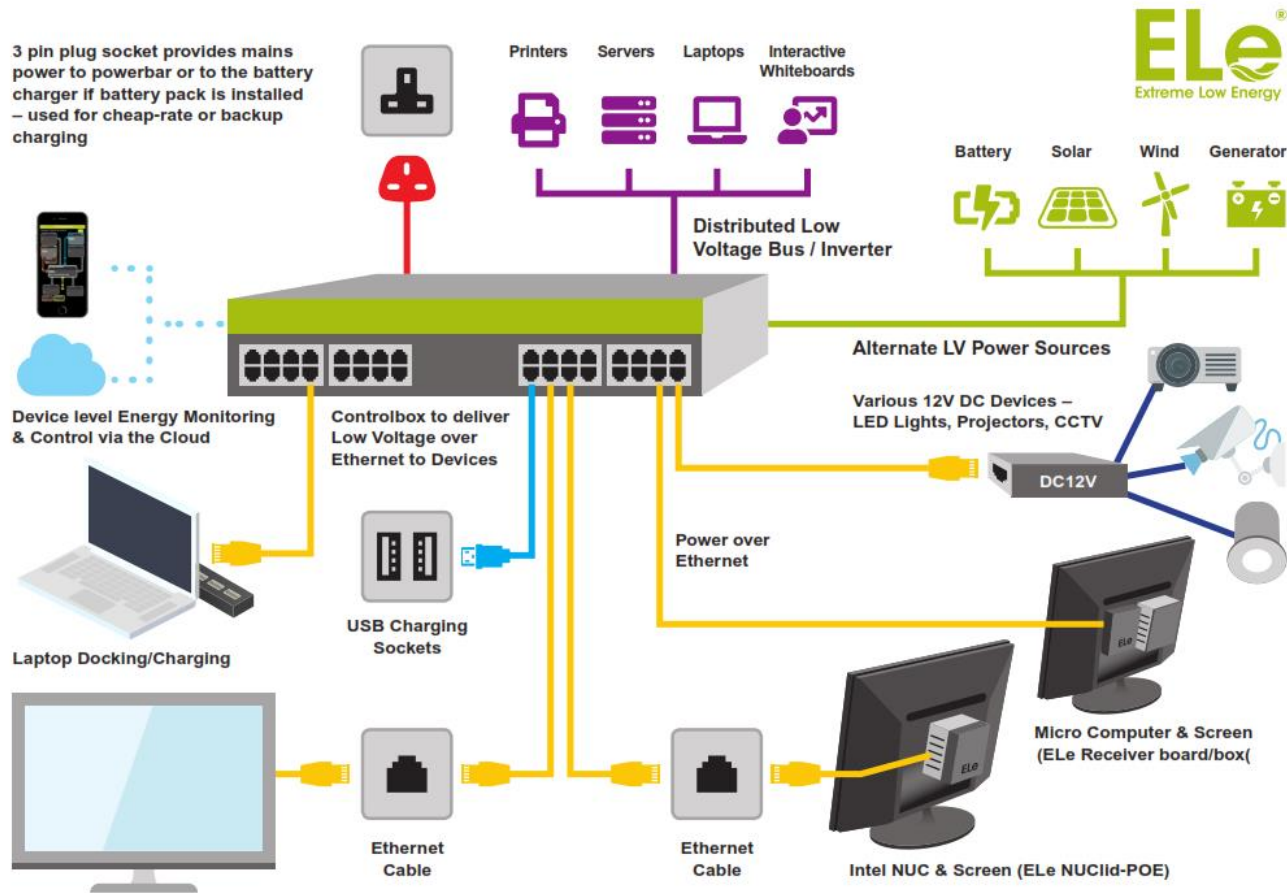


The Project will demonstrate to the Council and its stake holders how the Low Voltage / Low Energy Office solution:

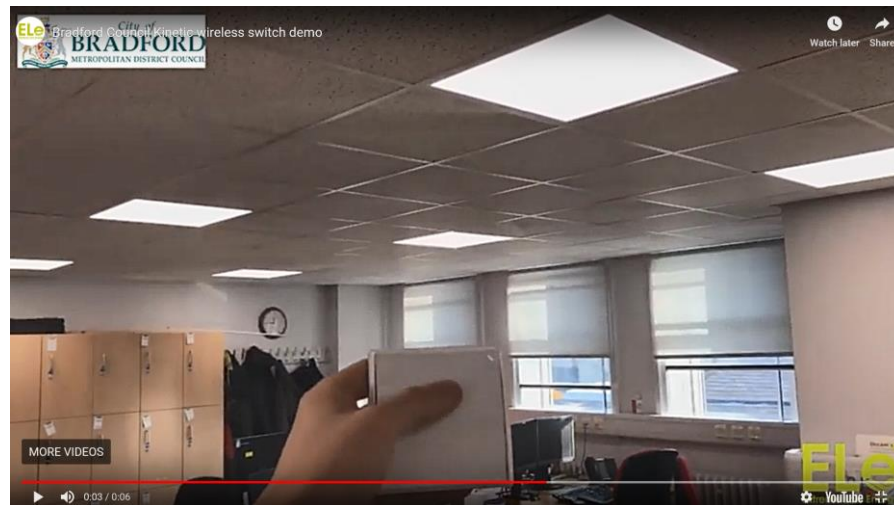
- Saves money off ongoing utility bills
- Reduces power usage at times of peak loads as the devices all run off stored energy
- Reduces heat output in the offices
- Reduces associated CO2 emissions
- Increases electronic device longevity
- Eases maintenance ongoing
- It will become a template for future office/infrastructure roll-outs
- Delivers centralised controls and energy monitoring for the office devices

Core Technology to deliver the solution:

- My team at ELE have designed and patented a method of distributing the DC power safely and efficiently through a building using Ethernet cabling to powerfully control and monitor electronic devices such as LED Lights and Computers/LED Screens.
- ELE has also developed a lithium-ion battery energy storage (independently tested by University of Manchester) to enable even greater energy savings to be achieved by avoiding energy usage in peak-rate periods, triad fines and levy avoidance along with the ability to store renewable energy and cheap-rate electricity.



- The ELE solution covered energy generation, energy storage, and low voltage Power over Ethernet distribution to electronic devices throughout the office.
 - Phillips 'PoE' Lights / Computers / Charging points / Phones etc..

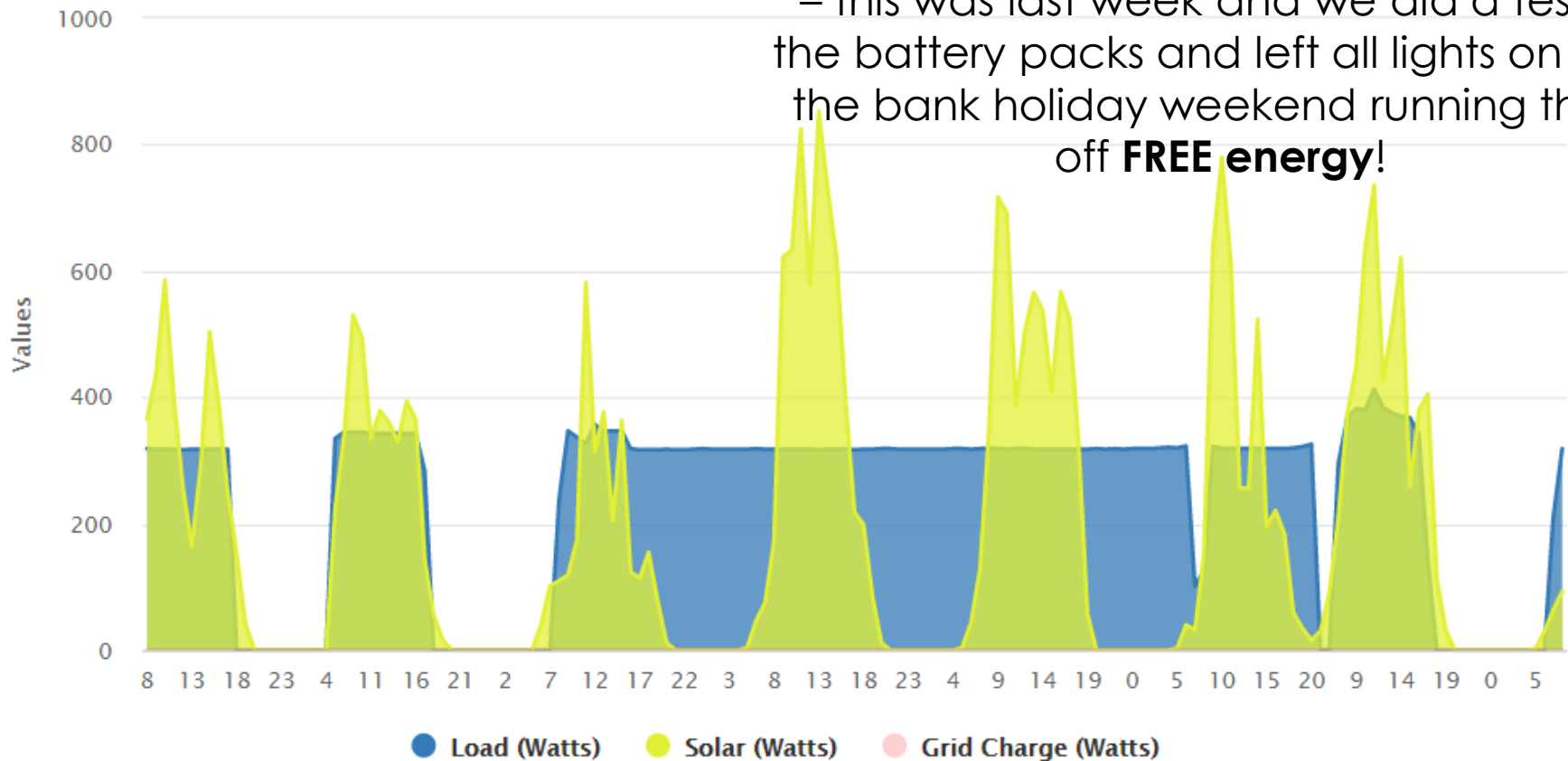




ELe installed 7kWp of Solar panels at Britannia House to charge straight into the 10kWh of Lithium battery packs and operate the whole office off-grid for at least 7 months of the year.



The Solar comfortably covers the baseload
– this was last week and we did a test of
the battery packs and left all lights on over
the bank holiday weekend running them
off **FREE energy!**



What were some key learning points of the Project?

- Sponsorship by a forward thinking and innovative Council team
- Essential Senior management buy in of the concept, through a simple but effective business case for the use of ELE technology
- Getting the FM and AM on-board at the beginning of the project, as this is a real game changer for them moving away from traditional electrical cabling to UTC cabling which does not require certification nor do you need to have an electrical background

What were some key learning points of the Project?

- We ran CPD sessions for the council's FM and AM teams so that they could see the benefits of DC current to AC current, but most of all enhancing their skills in installing UTC cabling whilst they carry out normal electrical cabling for more heavy duty appliances
- We delivered a real-time dashboard showing exactly what is being Used/Generated & Saved with the use of this new technology as vital data is collected so that in the future this can be enhanced by AI and machine learning for further efficiencies

Where to next?



- We have launched the Bradford University collaboration & development project to incorporate Artificial Intelligence (AI) / Machine Learning into the system to read weather patterns and automatically adapt charging cycles on the forecasted energy usage
- Phase 2 is to complete rest of the Office floor in Britannia House – eta July 2019

Then...

- The rest of the Building... the Estate....The World...!

Thank You

