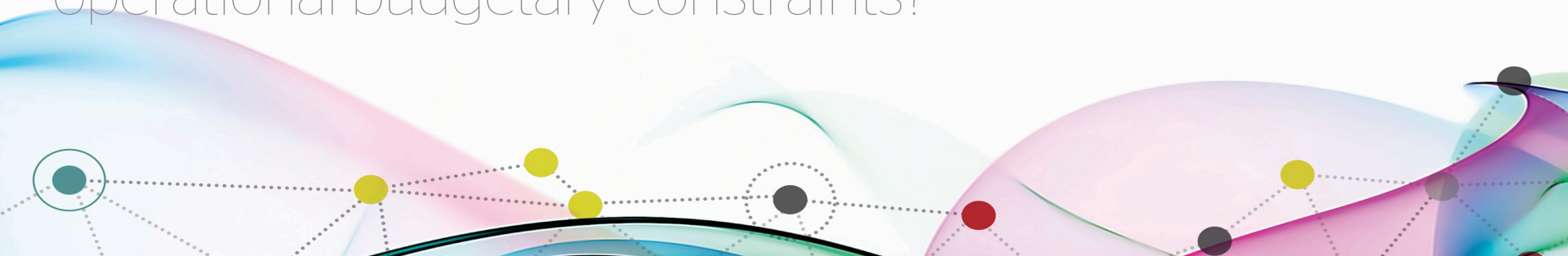


11.30-12.15

Going for the high hanging fruit – Bundling technologies and services to achieve better outcomes

Picking low hanging fruit can only achieve so much. How can organisations achieve more within capital and operational budgetary constraints?



Picking High Hanging Fruit

THE OPPORTUNITY FOR ENERGY SERVICES

Nick Keegan

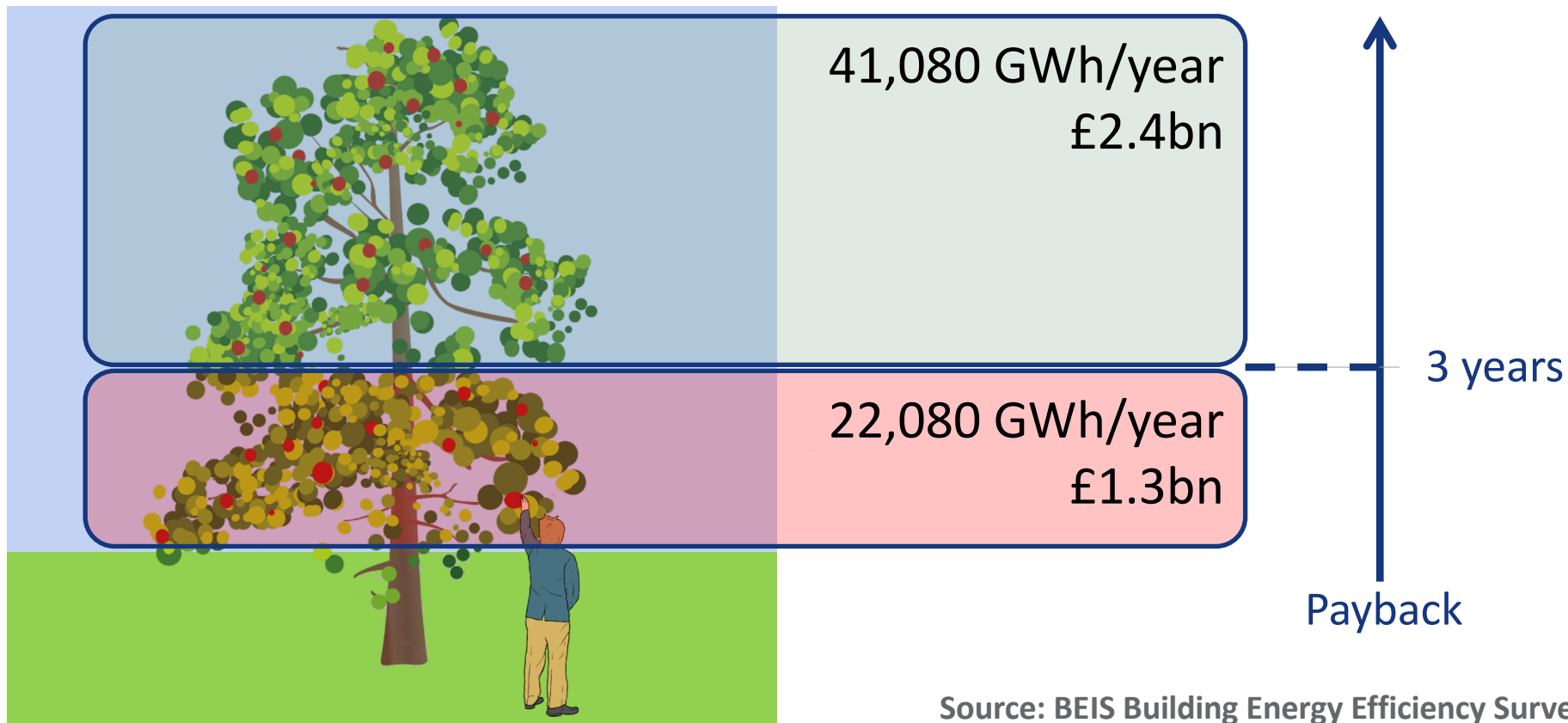
Senior Consultant, EEVS

Vice Chair, ESTA EPCg

UK Coordinator, *QualitEE*

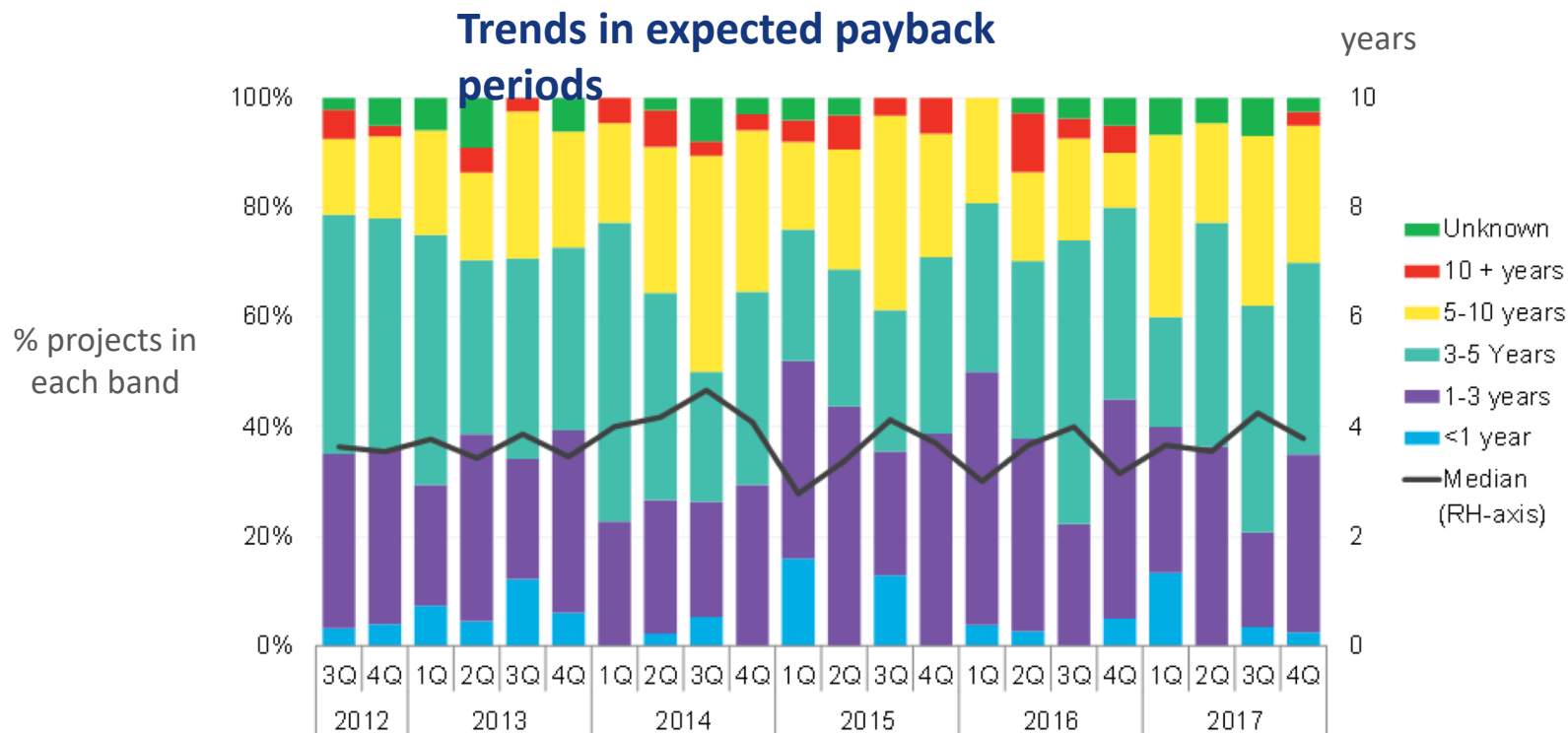


The Opportunity



Source: BEIS Building Energy Efficiency Survey

What's Low & What's High?



Why can't we reach the high fruit?

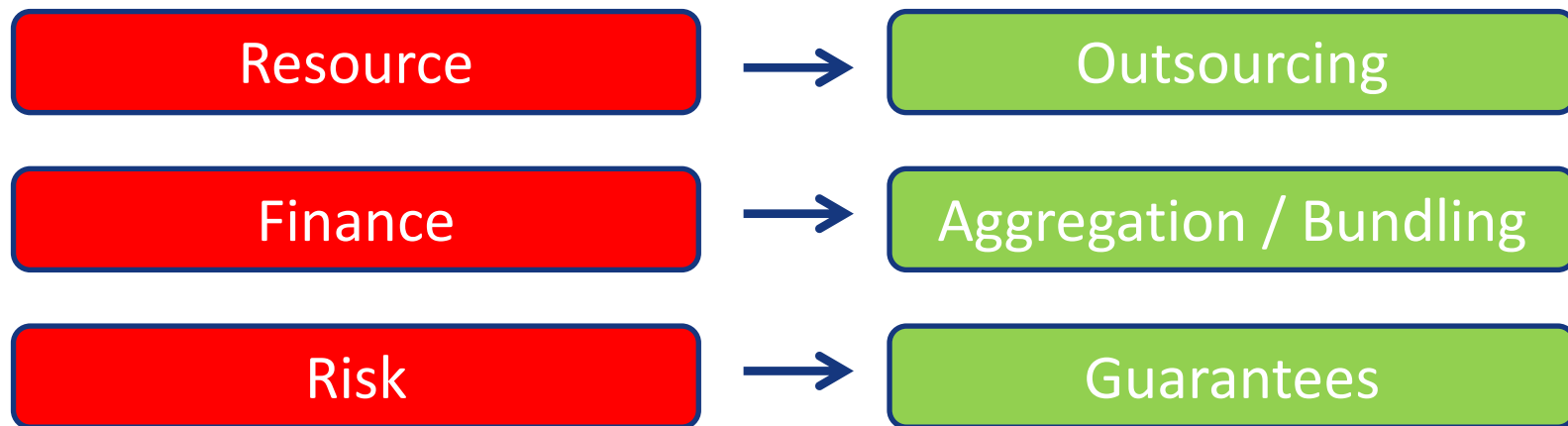


Resource

Finance

Risk

How can energy services help?



Typical U.K. Energy Performance Contract



- €1 – 5 million Capital Value
- 5 – 10 year Contract Length
- Public Sector (Local Authorities, Education, NHS)
- Guaranteed Savings Model

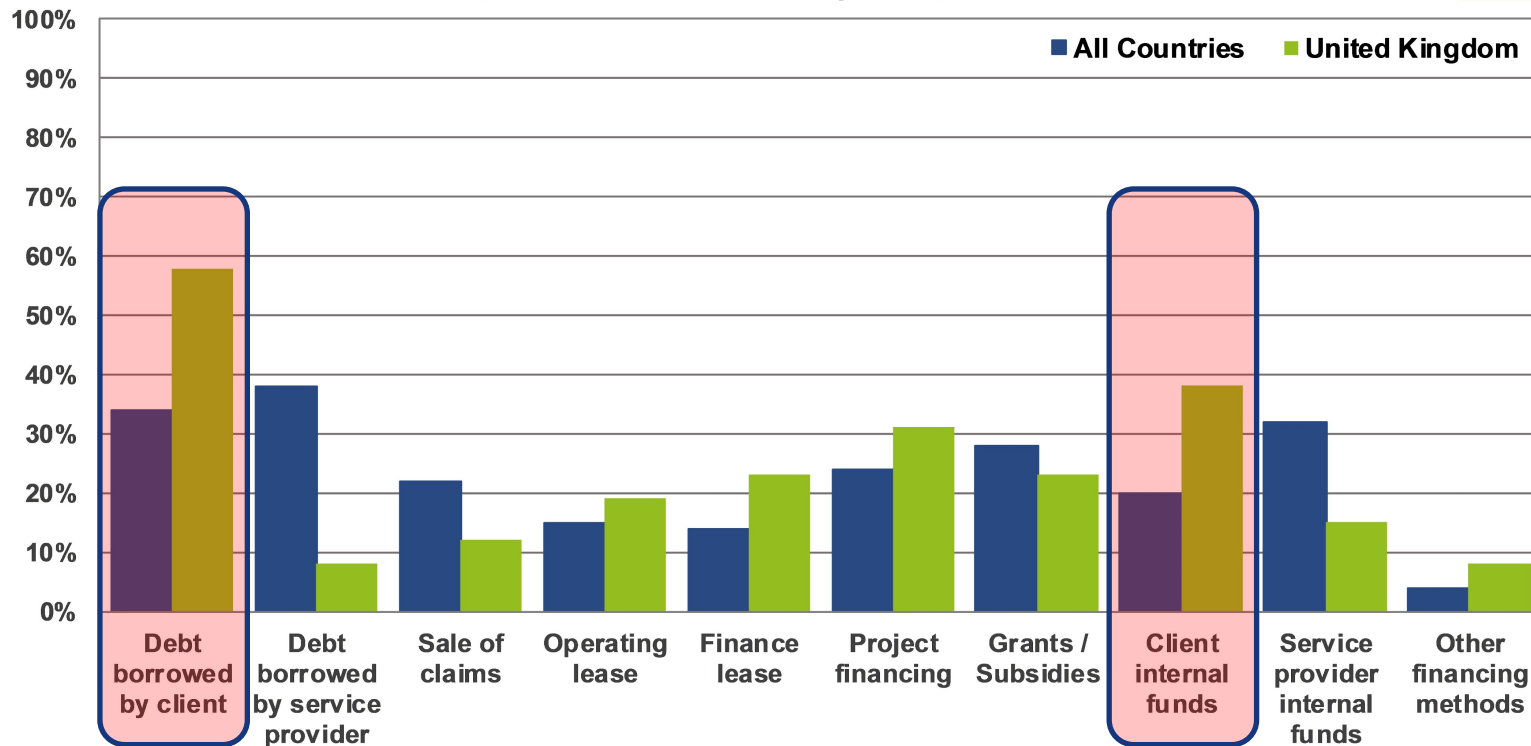


Source: *QualitEE* Energy Efficiency Services Survey 2017

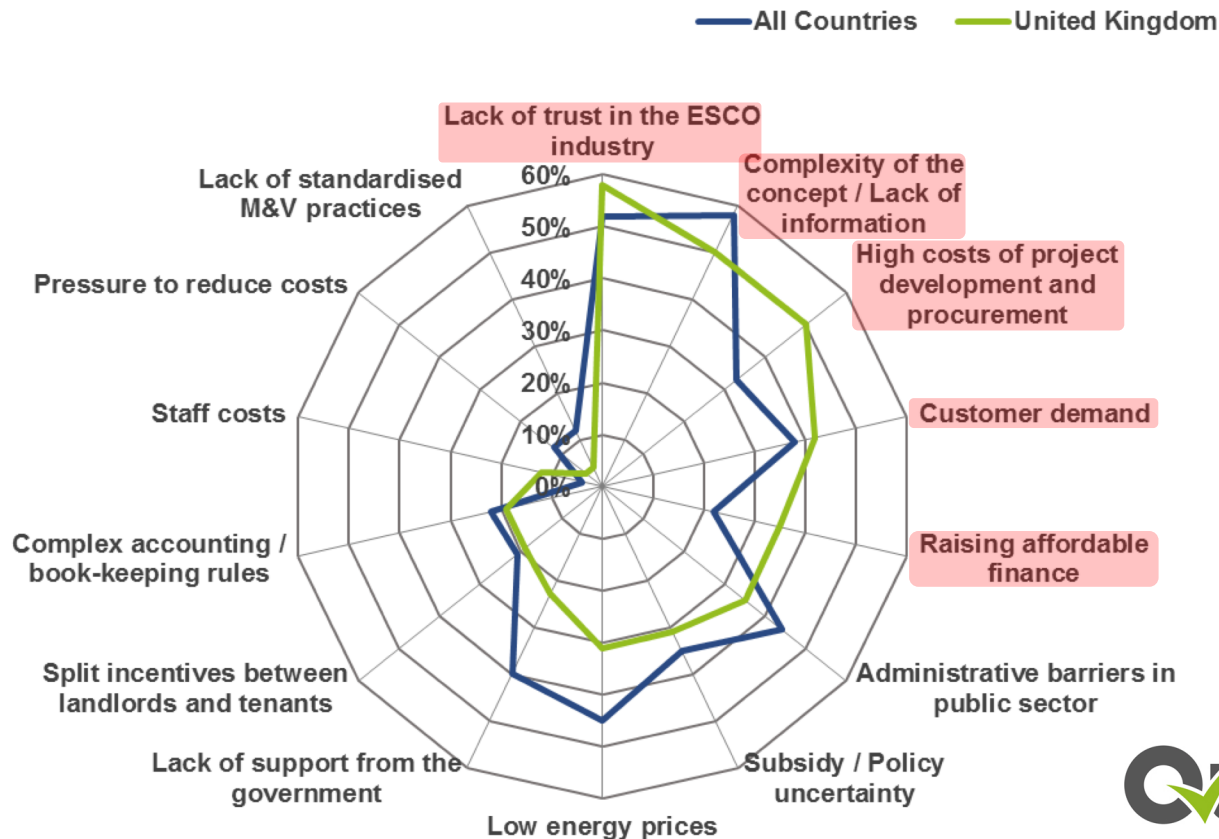
Typical U.K. Energy Performance Contract



How are the Energy Performance Contracting projects you are involved with financed? (Source: QualitEE survey 2017)



What are the barriers to EPC?



What's being done about it?



Quality Assurance for **Energy Efficiency Services**

Trust | Standardisation | Simplification

Working in the U.K. with:



Define Quality
Assessment
Criteria

Test in
Pilot
Projects

'Kick – Start'
Quality Assurance
Scheme

2018

2019

2020



Team work makes the dream work!



Thank you

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The Hospital Energy Project

Presented by Claire Hennessy
and Mark Bristow

17 April 2018

Background

- There are 4 hospitals in our Trust
- Our turnover in 2016/17 was £98 million
- 12,000 staff
- 1.5 million patient contacts a year
- 48 operating theatres
- 391,000 **square metres** of internal area on 73.8 hectares of land
- 131,166 emergency admissions in 2016/17
- And we delivered 8,000 babies

Our clinical areas are world class



But our infrastructure was not



The Vision

- To remove outdated power and heating infrastructure at the Trust's two acute hospitals, the John Radcliffe and Churchill, and replace it with an efficient, sustainable, adaptable and future-proof scheme.

The Requirements

- The John Radcliffe and the Churchill Hospitals are 2.2km apart in Oxford
- In 2016/2017, these sites had:
 - A combined energy bill of £5.9M
 - Annual Carbon emissions >29,000 tonnes.
- The JR alone has a peak electricity demand of 4.5 MW, this is approximately 1/1000th the design output of Hinkley C (3.5GW)

Programme

- **May 2013** - Invitation to tender signed
- **June 2015** - Agreement signed with partner Vital Energi
- **September 2015** - Construction work commenced
- **October 2017** - System fully commissioned and operational
- **September 2042** - Agreement with Vital Energi ends

Key Elements

- £14.8M investment by Aviva
- Vital Energi guaranteed annual savings
- Paid for over 25 years from the guaranteed savings.
- **This two year programme to remove and replace infrastructure had to be done without interrupting patientcare**

New boilers



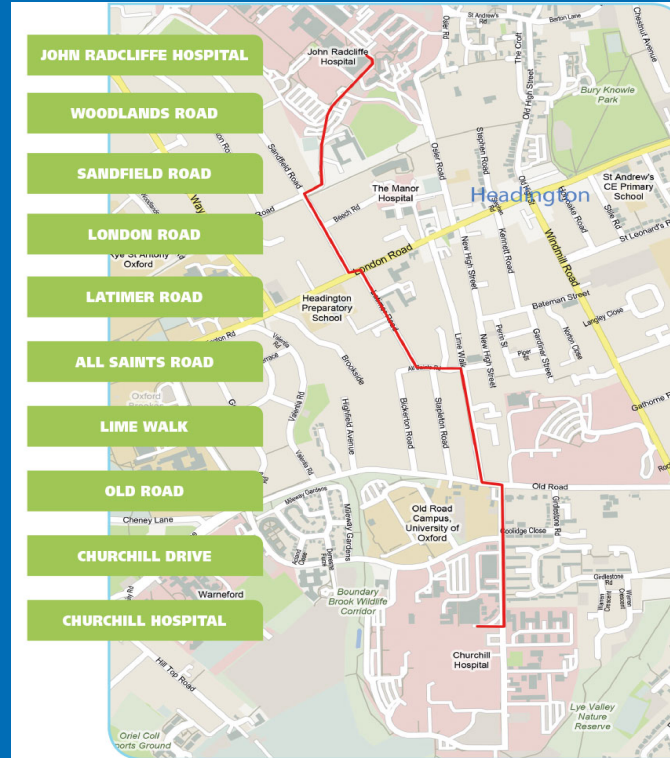
Heat Exchange Plates



4.5MWe CHP (Combined Heat & Power Generator)



2.2km underground Energy Link between the JR and CH



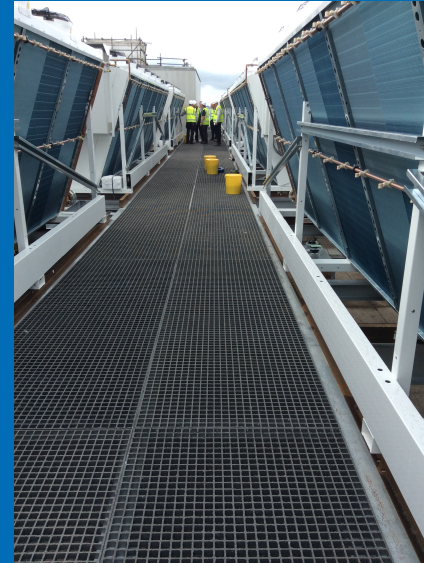
Plus 6,407 light fittings at the JR and Churchill



A new BMS



And chilling plant



Results – the figures

- £461,746/year guaranteed savings to the Trust.
However, already saved £1.5M in first six months
- Expected CO2 reduction of 10,000 tonnes (3,000 cars/year)
- £11M saved on backlog maintenance over 3 years
- Reduced dependence upon national grid – Churchill is completely grid free

Benefits today and for the future

- Reliable, modern electrical, heating and hot water supplies to support our acute hospitals
- Adaptable and future-proofed energy and heating provision
- Evidence based decision making with better data from the BMS
- Brighter lighting in public and clinical areas



John Radcliffe Hospital



Nuffield Orthopaedic Centre



Churchill Hospital



Horton General Hospital

FOUR HOSPITALS, ONE TRUST, ONE VISION

THANK YOU,
ANY QUESTIONS?