

LOCAL AUTHORITY
ENERGY



SPATEX 2016 – ENERGY EFFICIENCY

1st February 7th 2016

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BUILDINGS &
ENERGY EFFICIENCY AWARDS
WINNER 2015

Blue Sky
Green Energy

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Agenda

1. Introductions and roles
2. Overview of Energy
3. Honeywell Contract
4. Resourcing and skills sets
5. Latest products and options at Peterborough
6. Next steps

UK Environment City

to

UK Environment Capital



Peterborough City Council

THE UK'S
FASTEST
GROWING
CITY


A multicultural
population of over
183,000
people

Ranked
2nd
in the country
for private sector growth

£1billion
regeneration programme

Creating the
UK's Environment Capital,
with the country's
largest cluster of
environmental
businesses

**GIGABIT
CITY:**
access to the
d's fastest
business
internet
speeds

ONE OF
THE UK'S **4**
FUTURE CITY
DEMONSTRATORS

A diverse economy £
with world-leading
companies in advanced
manufacturing, finance
and agriculture

Welcome to
Peterborough...



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Energy Strategy

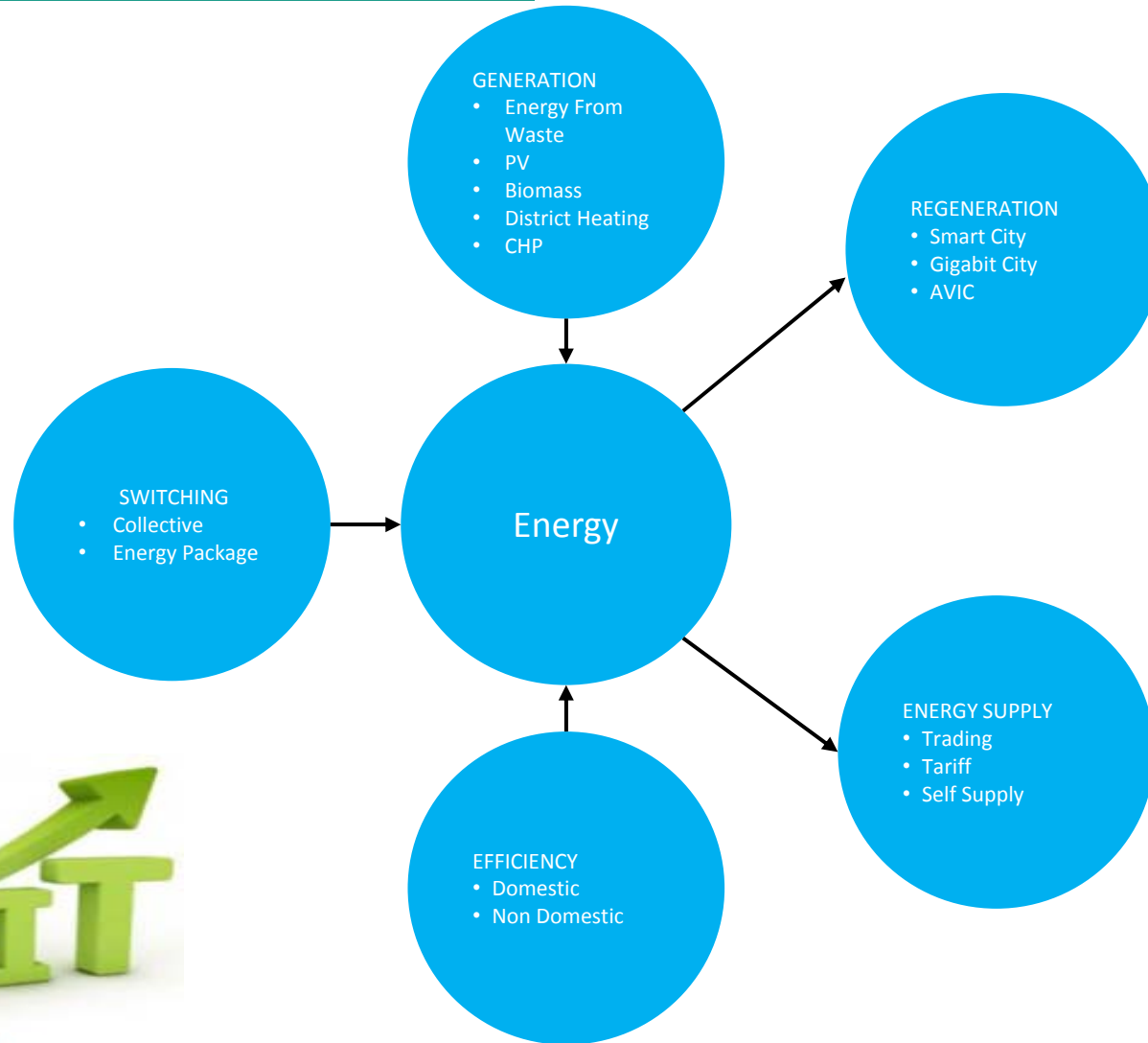
The Peterborough approach:

- Generate renewable energy
- Reduce energy consumption
- Enable regeneration
- Reduce carbon
- AND
- Get financial benefits to the city

- AND LAST BUT NOT LEAST!!!
- Make and save money!

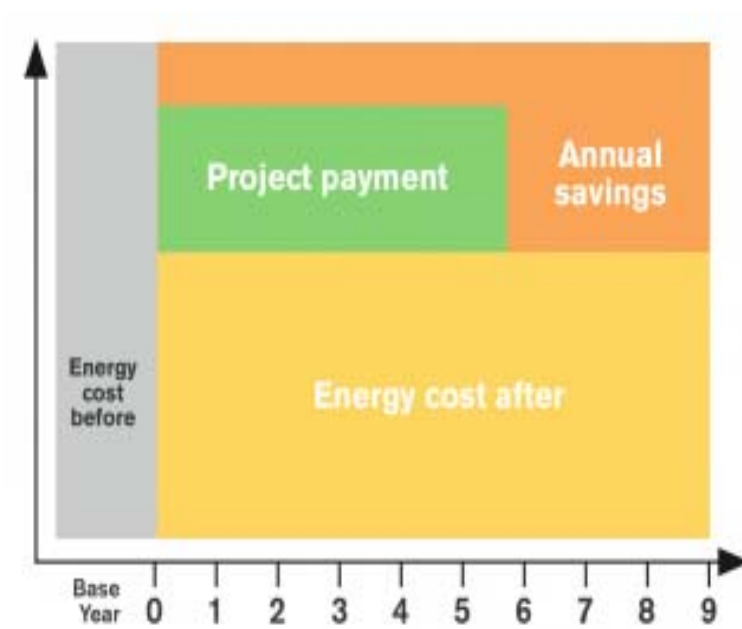
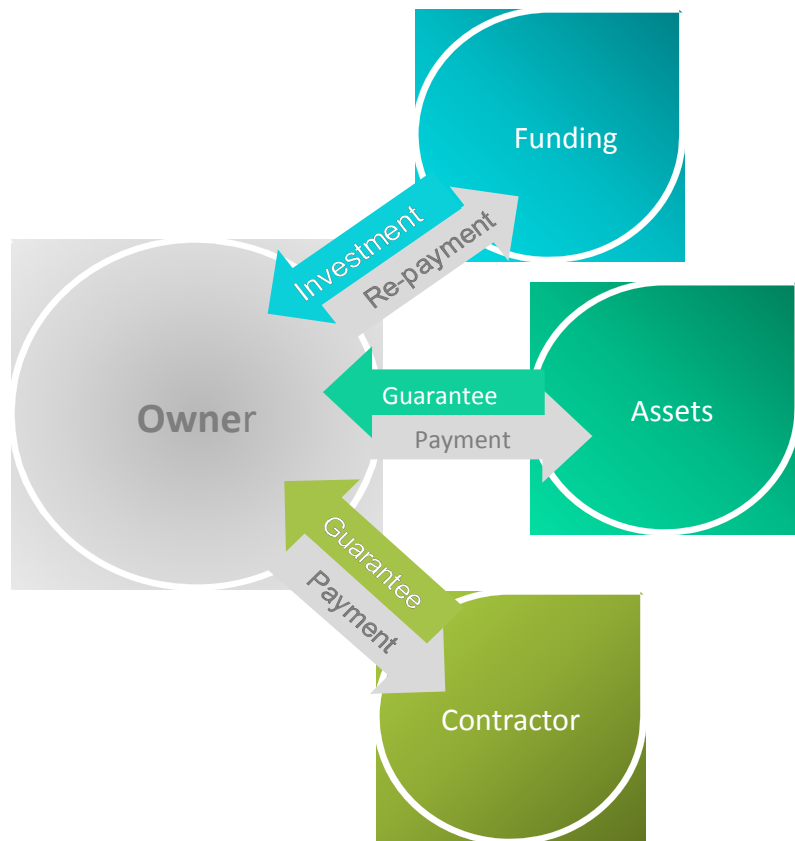


Energy : The drivers for the Council



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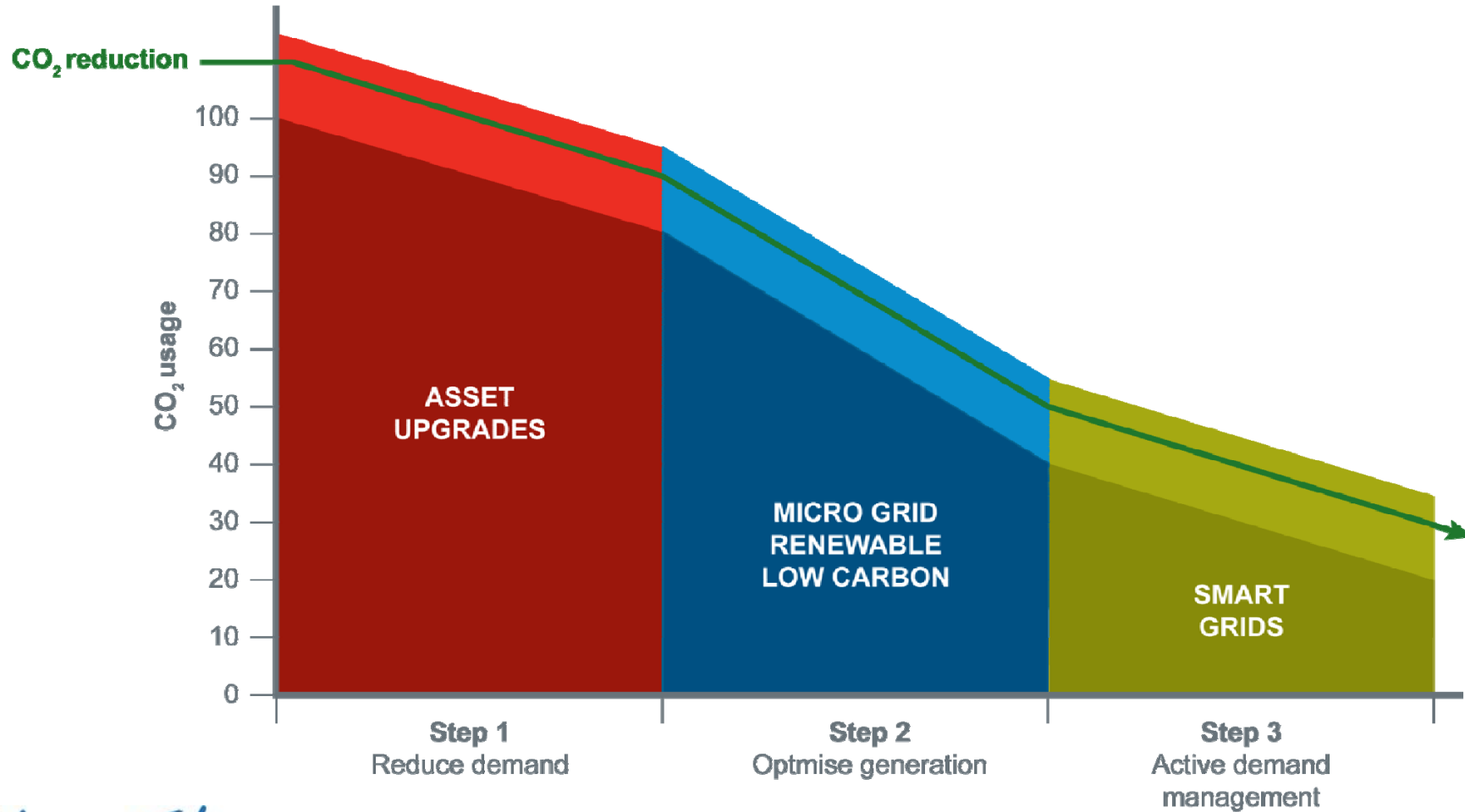
What is an energy performance contract?



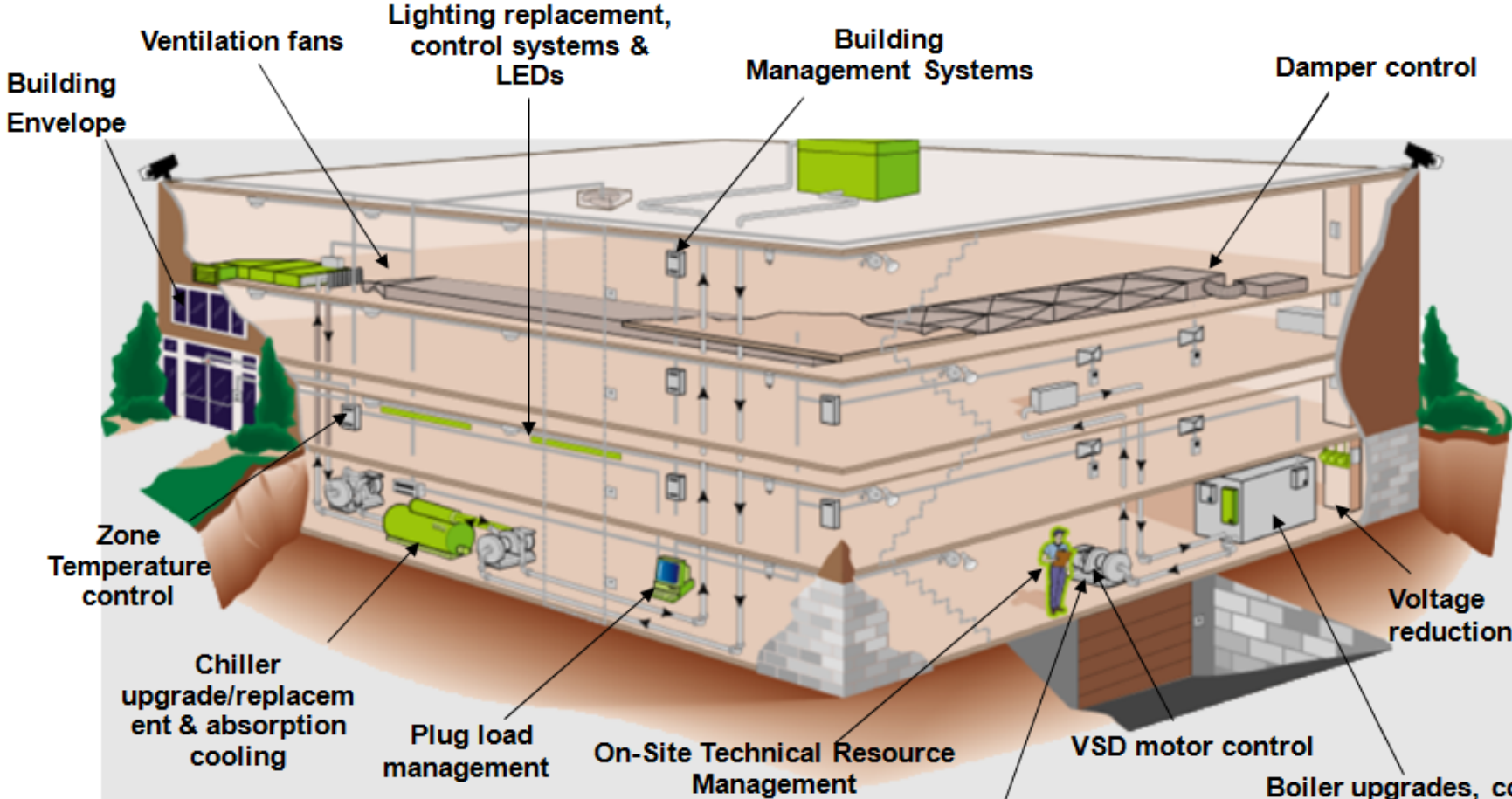
Capital investment paid out of guaranteed energy savings

- Efficiency & Building Improvements
- Renewable Generation
- Education – Act Earth – A detailed bespoke training programme
- Funding – Various solutions and pay back periods available
- Acting smart and joining it all up

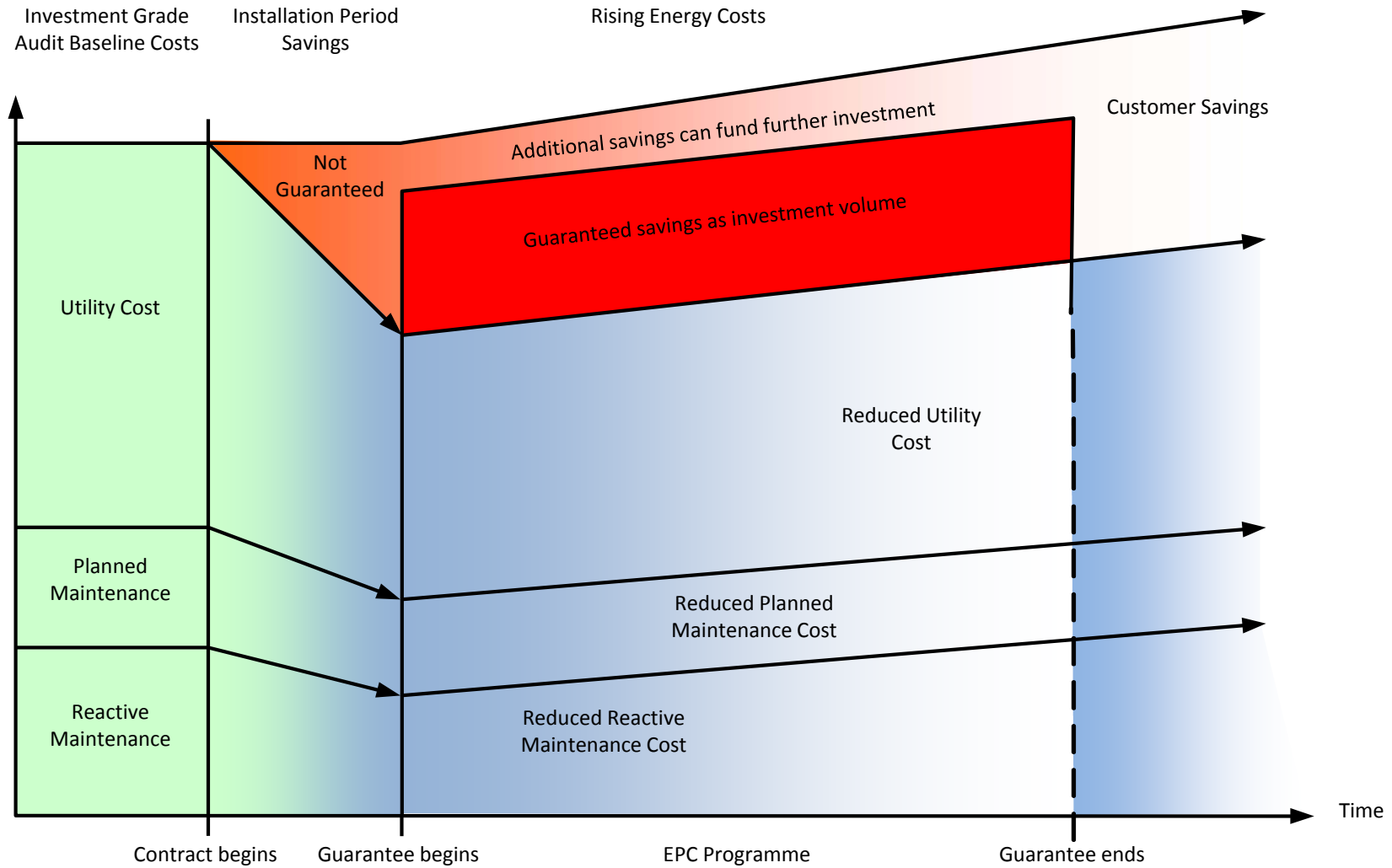
Honeywell's Low Carbon Roadmap



Honeywell's Technologies



Where do savings come from?



Energy Efficiency Summary

Honeywell

Scope

33 Schools, 3 Swimming Pools, Sports Centre, Multi Storey Car Park, Library, Market and Town Hall

Costs

Capital Investment £4.6 m

Operational & Funding Costs £2.8 m

Total Cost £7.4 m

Less

Savings at 80% £7.9 m

Cost Savings & Cost Avoidance £2.1 m

CO2 Saving 2052 Tonnes

Net Profit £2.6 m

Add

Energy Upside Year 1 to 6 £0.7 m

CO2 Savings upside, 80-100% 513 Tonnes, CRC Saving upside saving £40K

CRC Savings 2019/20 £280K

(80-100%) Year 7 to 15 £1.2 m

Maximum Profit £4.5 m

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Phase 1 & 2 intervention - The Works



	Lighting	Pool Cover	Air Handing Plant	Act Earth	Pool Filters	BMS Controls	Insulation	CHP	Boiler
Phase 1 & 2									
Regional Pool ECM (15 year)	Y	Y	Y	Y	Y	Y	Y	Y	
Jack Hunt Swimming Pool (15 year)	Y	Y			Y	Y	Y		
Town Hall - Civic Areas (15 year)	Y			Y		Y	Y		
Multi Storey Car Park (6 year)	Y								
City Market (6 year)	Y								
Central Library (6 year)	Y			Y		Y	Y		
Bushfield Sport Centre (15 year)	Y			Y		Y	Y		
Lido – Outdoor Pool (15 Year)					Y				
YMCA – Heating				Y		Y	Y		Y

Act Earth – This is a training program to educate staff on saving energy.

BMS Controls – Building Management Controls – i.e boilers and heating controls.



Phase 3-5 intervention - Schools Works



	Lighting	Act Earth	Boilers	BMS Controls	Insulation	PV Installation
33 Schools	X	X		X	X	
6 Schools New Boilers			X			
6 Schools Solar Installations						X

Act Earth – This is a training program to educate staff on saving energy.

BMS Controls – Building Management Controls – i.e boilers and heating controls.



- 1, Watergall Primary School
- 2, Regional Swimming Pool (Won BEE Non Domestic Retrofit Award)
- 3, Multi Storey Car Park

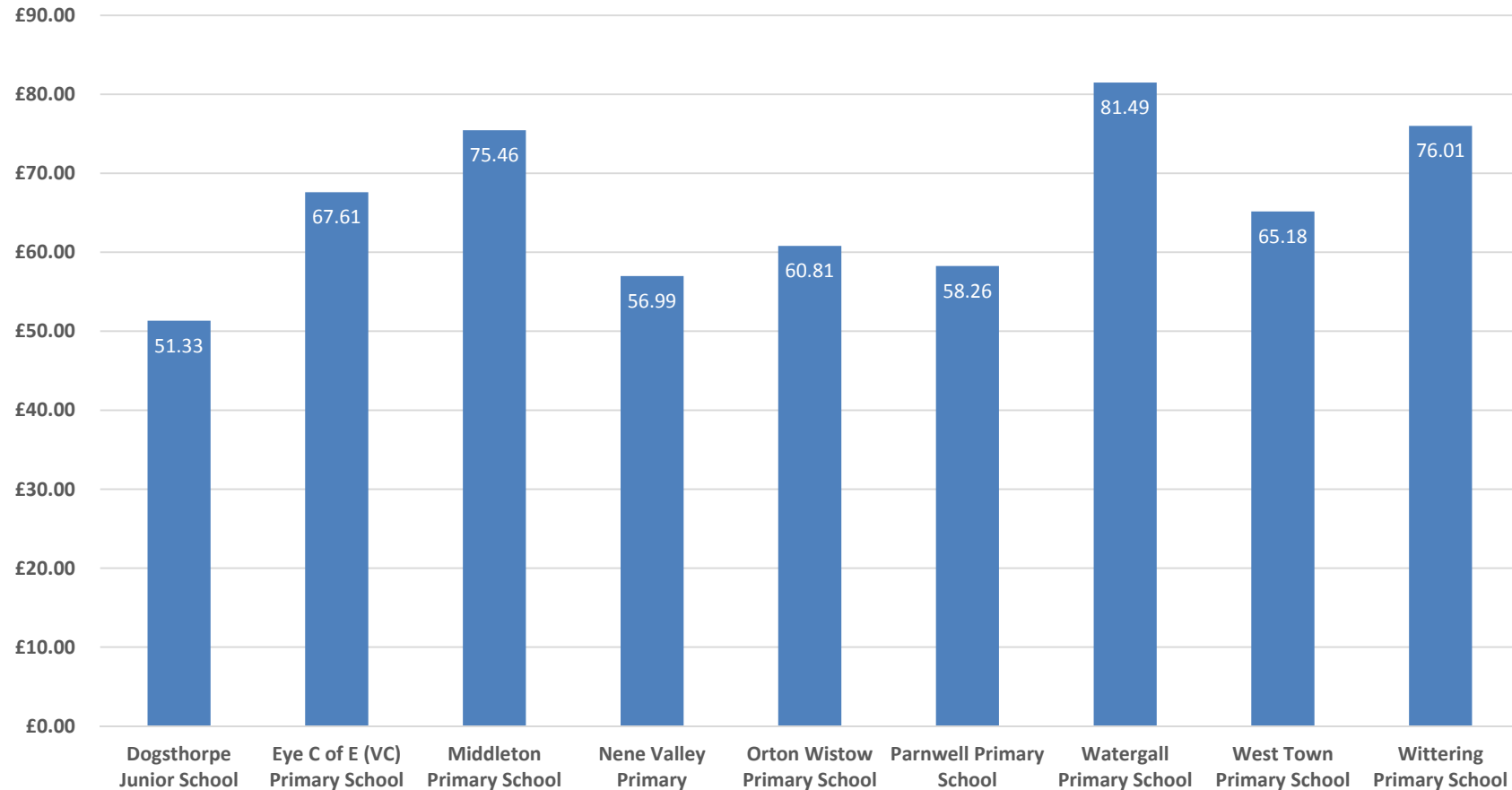
BUILDINGS &
ENERGY EFFICIENCY AWARDS
WINNER 2015

School Case Study - Watergall Primary School

- Built in 1967 as part of 'new town' development of Peterborough – poor design, flat roofs, asbestos, condition overall 'not great'.
- Rapidly improving school – historically satisfactory / inadequate but recently moved to good
- Property Data Survey from EFA / DfE suggested lighting systems were grade C = Exhibiting major defects and / or not operating as intended.
- Mechanical Services range from satisfactory too poor
- Little investment in fabric over life time of building.
- Highest spend per pupil on energy compared to all other PCC schools.



2013-14 Energy Spend per pupil (£)



- Building management systems have been upgraded – avoidance (no overriding)
- Lighting upgrade across the school – both internally and externally using latest technology and replacing original fitments
- Insulation throughout the school
- Act Earth – site manager trained in new systems. Behaviour programme for staff.

School EnPC Summary - Watergall	
Project Lifecycle Years	15
Energy Savings	£135k
Costs	
O & M	£5k
MV Attune Costs	£3k
Capital	£74k
Interest	£26k
Total Cost	£108k
Annual Saving (Net)	£2k

Honeywell guarantee at 80% - potential further savings of circa £33k

Regional Pool Retrofit

- Pipework insulation throughout.
- Installation of a 90kw Ener-g CHP Unit
- Installation of new pool filters – The new Perlite Filtrex Filters are substantially smaller than the old sand filters and use far less water to ‘backwash’. As such, less water is treated, heated and wasted.
- Installation of new daylight sensing LED pool lighting.
- Retrofitted T5 Light fittings in store areas.
- New air handing system for the pool with heat recovery. New ventilation system has made the atmospheric condition in the building far more pleasant for users of the facility.
- Installation of 50kW Solar PV system.
- Upgrades to the existing BMS system linking all systems together and regular monitoring.
- Introduction of a behavioural change program including a live energy platform for customers to see real time savings.
- Installation of a voltage optimisation unit.
- Works Cost £2.25m – Guaranteed Energy Savings £2.45m - Capital Cost Avoidance £800k – Net Saving to PCC £1m or £66k per annum
- CO2 Savings of 773 tonnes per annum

Honeywell



Summary

	Before	After	Saving %
GAS	4,275K Kwh	2,276K Kwh	46.8
ELECTRIC SAVING	985K Kwh	224K Kwh	77.3
WATER	28K L	13K L	53.2

Based on actual first year results

Regional Pool Retrofit (Shortlisted for BEE Awards – Non Domestic Retrofit) – Cont.



- The CHP was included as part of the Regional Pool retrofit.
- Honeywell will service and maintain the CHP for the duration of the 15 years

Honeywell

CHP Assessment	
ITEM	VALUE
Contract Sum	£323k
Life Time Operating Costs	£488k
Guaranteed Energy Saving	£986k
NET POSITION (+/-)	£175k
Potential upside based on guarantee of 80%	£247k
Potential profit	£422k

Phase 1 intervention - Multi Storey Car Park Before & After Photos



- Improved lighting levels through the car park
- Improved customer experience and safety
- Substantial energy, maintenance and carbon savings

Car Park Assessment – 6 years	
ITEM	VALUE
Overall project cost	£369k
Total energy savings	£388k
Total Operating Savings	£41k
NET POSITION (+/-)	£60k
Potential upside based on guarantee of 80%	£97k
Potential profit	£157k

How do YOU get your hands on this?

Honeywell

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How does it all work? – Initial Stages

Honeywell

Stage 1 - Engagement

- Initial explanation of contract and introduction to Honeywell

Stage 2 - Feasibility Check

- High level commitment to determine if saving opportunities exist

Sign Development Agreement

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Stage 3 - Opportunity Assessment

- Undertaken at Honeywell's risk and cost
- Defines the size of the opportunity
- Honeywell committee to savings identified at opportunity assessment +/- 15%
- Develop and agree Customer Brief

Enter into Call of Contract

Stage 4 - Investment Grade Audit

- Confirms Opportunity Assessment findings
- Confirms funding required and funding options
- If the Investment grade audit falls within the 15% tolerance then the client is on the hook to pay IGA costs if they don't produced with the works.
- If authority accepts IGA costs wrapped up into cost of funding the works
- Order raised for works

How does it all work?

Honeywell

Stage 5 - Installation

- Technical design is completed
- ECM are installed
- Practical completion testing is undertaken
- Energy Saving guarantee period begins

Stage 6 - Ongoing Maintenance

- Operation and Maintenance – Various Options Available
- Measurement and Verification
- Billing
- Continuous Improvement

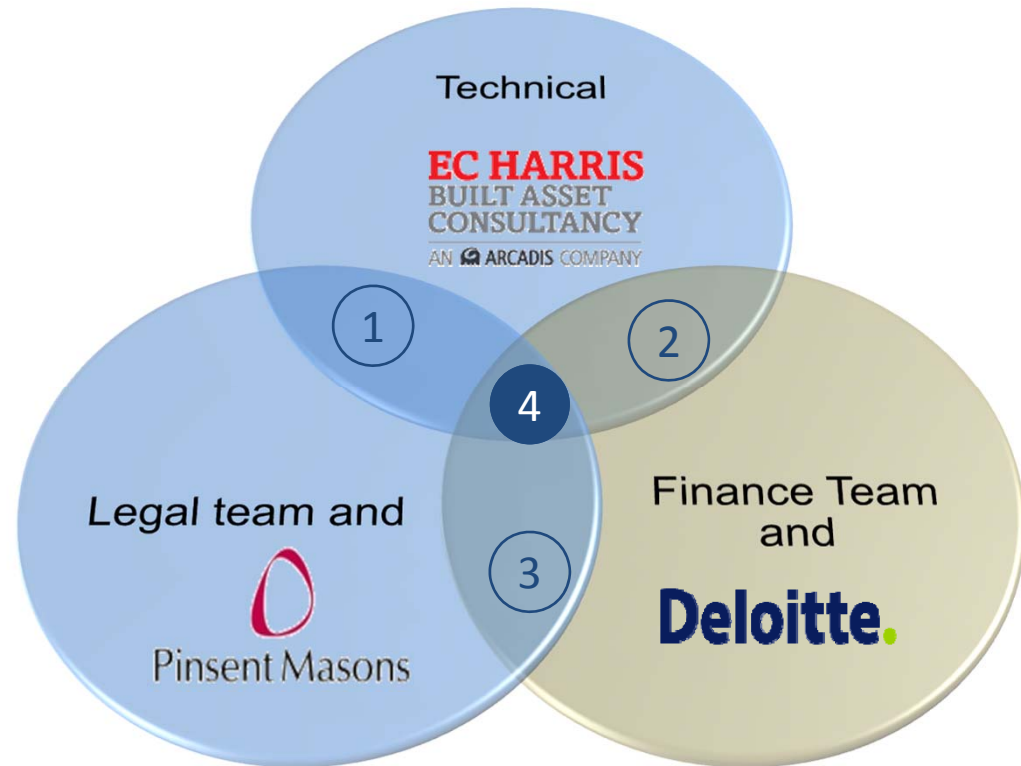
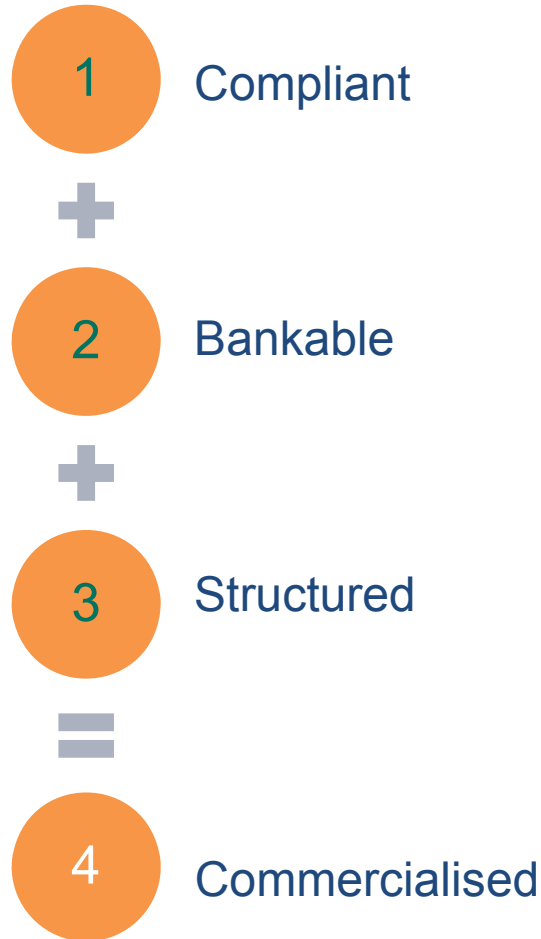
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Resourcing



Want to know more?



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