



LEARNING AND LEGACY THE ROLE OF EDUCATION IN CREATING HEALTHIER, HAPPIER CITIES

EAUC 20th Annual Conference 25th - 26th May 2016

Exchange A: Sustainable Funds for Energy-Efficiency Projects A Reflection on the Success of Revolving Green Fund 1

*Craig Mellis
Programme Manager
Salix Finance*

*Charlie Reith-Pert
Client Support Officer
Salix Finance*

*Mat Jane
Head of Energy&Environment
University of Winchester*

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Estates and
Operations



Who are Salix?



**Estates and
Operations**



- ✓ Established in 2004
- ✓ Independent, publicly funded, not-for-profit company
- ✓ We deliver interest-free capital finance to the public sector
- ✓ Funded by DECC, DfE, Scottish Govt, Welsh Govt
- ✓ Supporting Higher and Further Education Establishments, Local Authorities, Schools, NHS Trusts and Emergency Services throughout England, Scotland and Wales

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SOLVING ENERGY EFFICIENCY FINANCE IN THE PUBLIC SECTOR

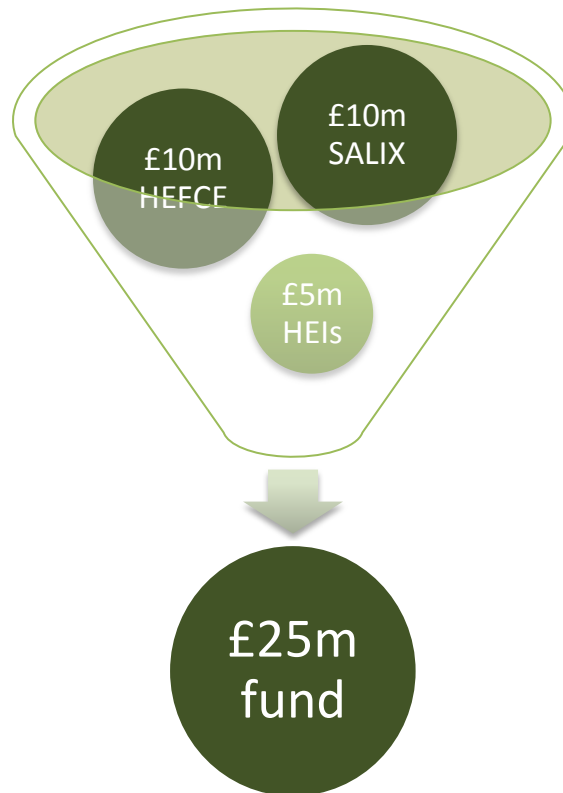
Revolving Green Fund 1



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- ✓ Salix established first Recycling Funds with HEIs in 2006 with 4 pilot clients, expanding to 11 by 2008
- ✓ Partnership formed with HEFCE in 2008 to expand into a larger programme
- ✓ 57 funds set up by 2009
- ✓ Fund sizes range from £62,500 to £1,400,000



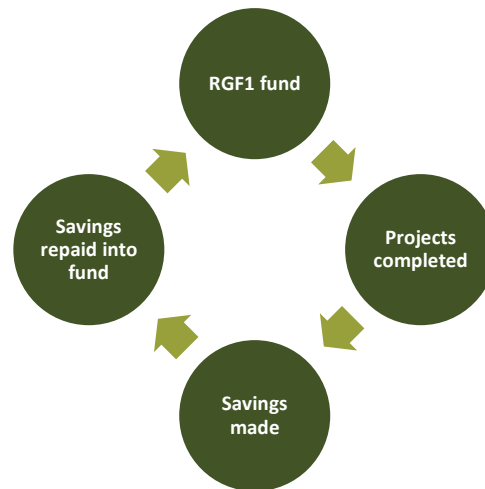
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How do the Funds Work?



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- ✓ The fund is held and managed by HEI
- ✓ Projects are undertaken and cost is repaid through the energy savings achieved
- ✓ This creates a sustainable revolving fund where savings are reinvested in new energy efficiency projects
- ✓ HEIs can plan ahead for future projects based on repayment schedules from previous projects



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Success of RGF 1: University of Winchester Case Study



A bit about the University of Winchester



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- Founded in 1862 (King Alfred's College)
- 6500 students (1700 in halls)
- 700 staff
- Courses - Arts, Humanities, Social Sciences, Business, Education
- 70,000 m² of estate - 50/50 split of residential and non-residential estate
- Rapidly growing campus
- Electricity – 5,000 mWh pa
- Gas – 6,400 mWh pa



Salix @ Winchester

SEELS 1



Estates and
Operations



Project	Value	tCO2 pa
Cavity wall insulation	£21,823.00	37
Loft insulation	£17,625.00	25
T12 to LED including new fitting	£9,225.00	10
T5 lighting retrofit using adaptors	£73,737.00	168
T12 to LED including new fitting	£9,600.00	18
Boilers - replacement condensing	£12,500.00	27
Boilers - replacement Oil to Gas	£350,442.00	163



Salix @ Winchester

RGF 1



Estates and
Operations



- Salix RGF 1 Fund of £189,000 in 2009/10
- Fund recycled 2.4 times to date

Project Type	# Projects	Loan Amount	Annual Financial Savings	Lifetime Savings (£)	Annual CO2 Savings	Lifetime CO2 Savings	Average Payback (yrs)
LED lighting	26	£212,074	£51,877	£784,648	303	4,646	4.1
Lighting - Controls	8	£72,672	£16,211	£144,116	110	974	4.5
Voltage Management	2	£38,689	£8,651	£127,341	41	596	4.5
Lighting - Upgrades	4	£28,870	£8,469	£130,622	53	801	3.4
Insulation - Pipework	2	£26,315	£14,596	£328,412	104	2,342	1.8
Motor Controls	2	£17,173	£5,742	£57,577	28	279	3.0
Insulation - draught proofing	1	£14,951	£7,386	£66,476	46	410	2.0
Building Management Systems	1	£13,668	£4,993	£34,153	24	167	2.7
Ventilation	2	£6,554	£4,149	£28,381	28	193	1.6
Heating	1	£5,088	£5,770	£39,465	31	209	0.9
Street lighting	3	£3,544	£950	£11,670	6	80	3.7
Time Switches	1	£3,042	£2,258	£15,444	11	75	1.3
Motor Replacement	1	£2,394	£543	£5,575	3	27	4.4
Grand Total	54	£445,035	£131,594	£1,773,881	787	10,798	3.4

Results – DEC Improvements



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	2009/10	Operational Rating	2010/11	Operational Rating	2011/12	Operational Rating	2012/13	Operational Rating	2013/14	Operational Rating	2014/15	Operational Rating	2015/16	Operational Rating
Alwyn Hall	114	E	114	E	110	E	41	B	44	B	48	B	38	B
Herbert Jarman Building	93	D	102	E	72	C	38	B	36	B	43	B	36	B
Bowers/Centre for Sport	64	C	59	C	53	C	31	B	27	B	25	A	26	B
Main Building	109	E	111	E	81	D	70	C	70	C	65	C	68	C
Martial Rose Library	89	D	88	D	77	D	57	C	57	C	64	C	46	B
Medecroft	76	D	70	C	55	C	51	C	39	B	44	B	32	B
Performing Arts Building	N/A	N/A	N/A	N/A	24	A	19	A	20	A	19	A	16	A
St Alphege	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	B	27	B	25	A
St Edburga's	200	G	84	D	74	C	33	B	32	B	26	B	40	B
St Elizabeth's Hall	91	D	67	C	71	C	46	B	43	B	42	B	38	B
St Grimbalds	73	C	90	D	83	D	59	C	60	C	59	C	52	C
TAB and FWB	73	C	72	C	63	C	53	C	54	C	56	C	48	B
The Stripe	97	D	101	E	91	D	50	B	57	C	56	C	42	B
University Centre	200	G	69	C	67	C	88	D	76	D	67	C	59	C
West Downs Centre	96	D	83	D	73	C	52	C	67	C	57	C	56	C
St Swithuns (500 m2)	N/A	N/A	N/A	N/A	N/A	N/A	51	C	N/A	N/A	N/A	N/A	54	C
St James Hall (500 m2)	N/A	N/A	N/A	N/A	N/A	N/A	77	D	N/A	N/A	N/A	N/A	79	D
Medecroft Annexe (500 m2)	N/A	N/A	N/A	N/A	N/A	N/A	57	C	N/A	N/A	N/A	N/A	46	B
Kenneth Kettle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	112	E
Holm Lodge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	B
Masters Lodge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	41	B
Bar End	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	104	E
Average Rating	105.769	E	85.3846	D	71	C	51.3529	C	47.4667	B	46.5333	B	49.4545	B

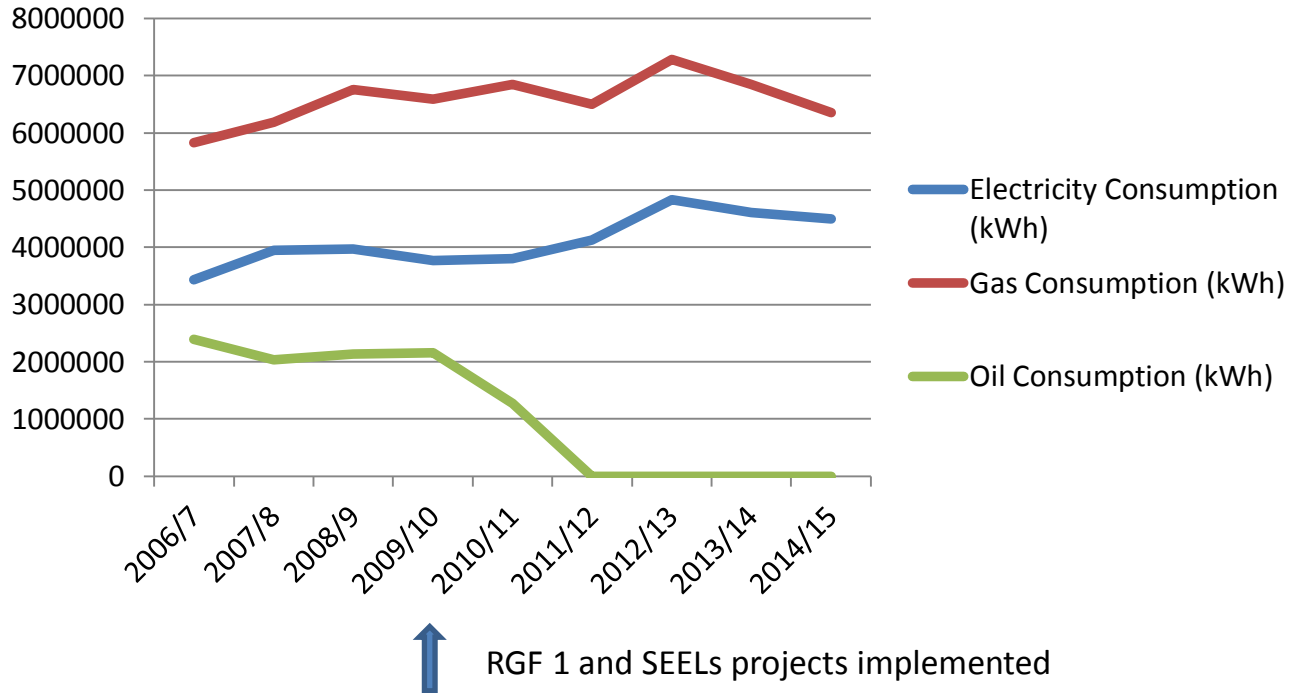
Results – Energy Reduction



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Building Energy Consumption



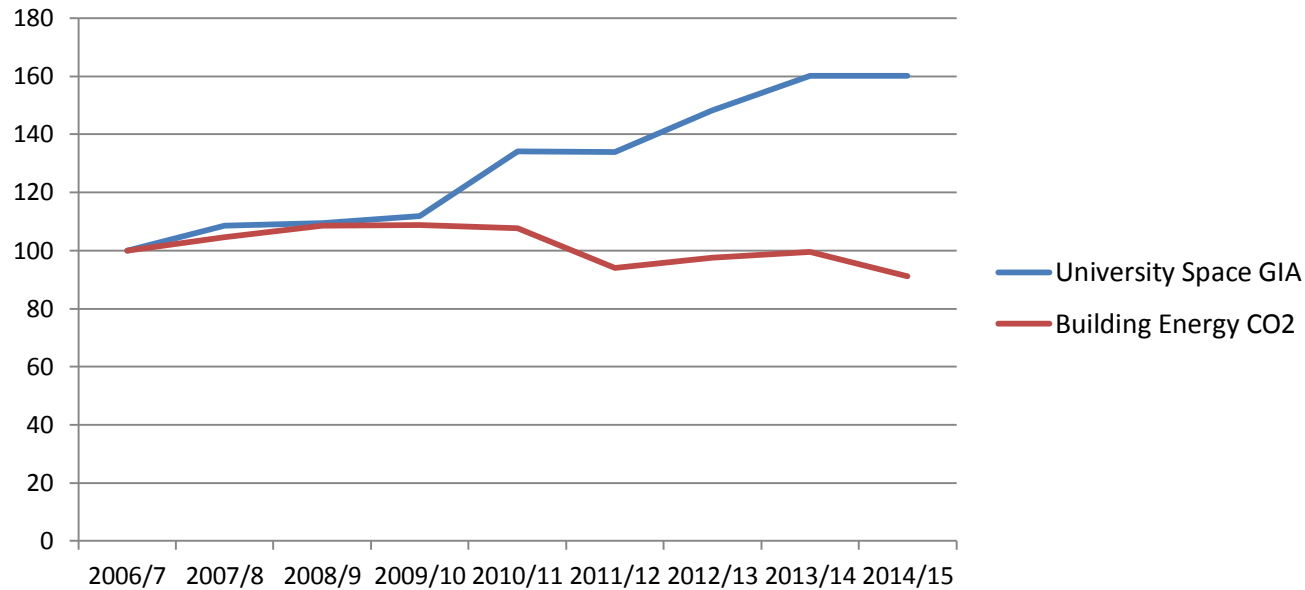
Results – CO₂ Scope 1 and 2



Estates and
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CO2 and GIA indexed to 2006/7



60% increase in size of estate

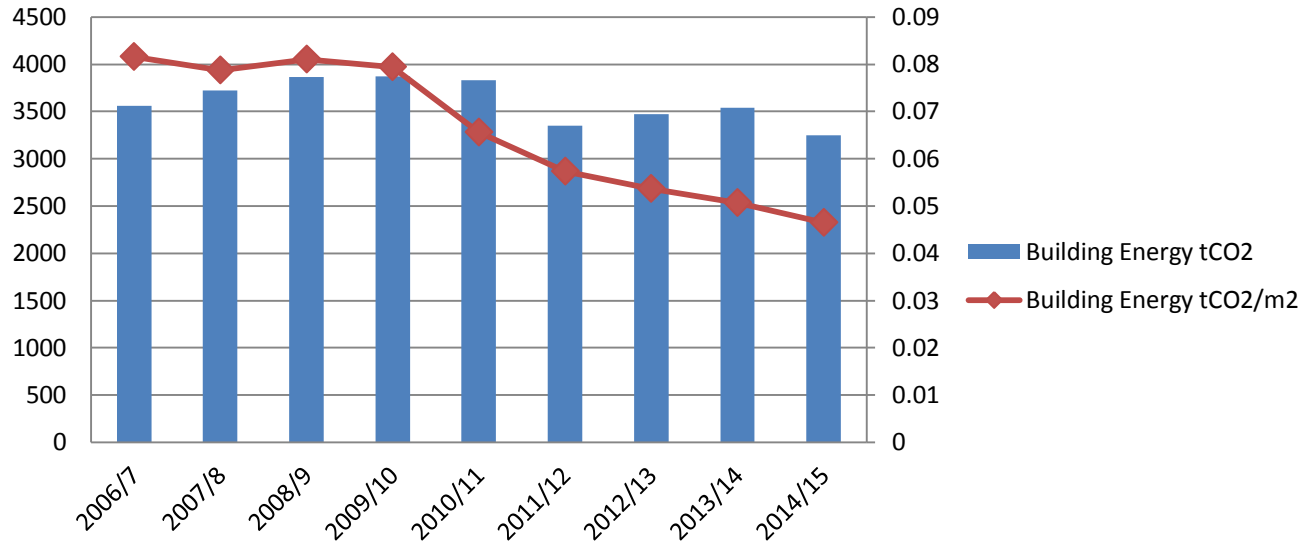
Results – CO₂ Scope 1 and 2



Estates and
Operations



University of Winchester - Scope 1&2 CO₂



8.7% reduction in building energy CO₂

43% reduction in CO₂ emissions intensity



Quintex Cheetah Demand controlled kitchen extract and supply

Salix – Project Before Implementation



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Before

- Uncontrolled single speed supply and extract hood
- Often left on 24/7 by kitchen staff
- Estimated Consumption – 98,316 kWh

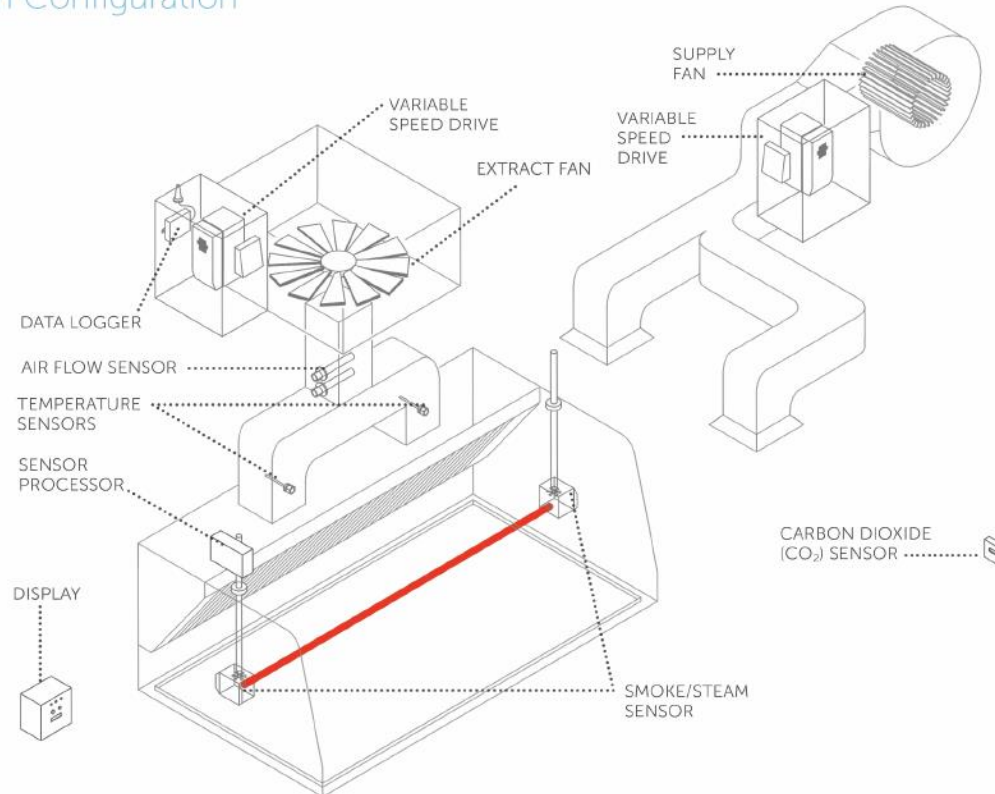
Salix – The System



Estates and
Operations



Typical System Configuration



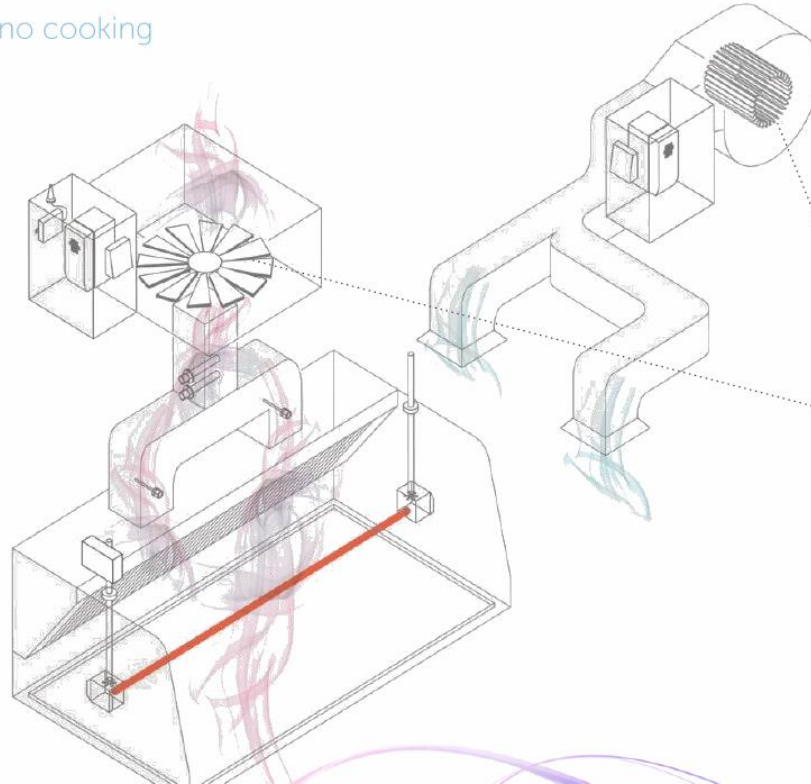
Salix – Project No Cooking



Estates and
Operations



Low or no cooking



Low or no cooking -
ramps down the
extract and supply
fan

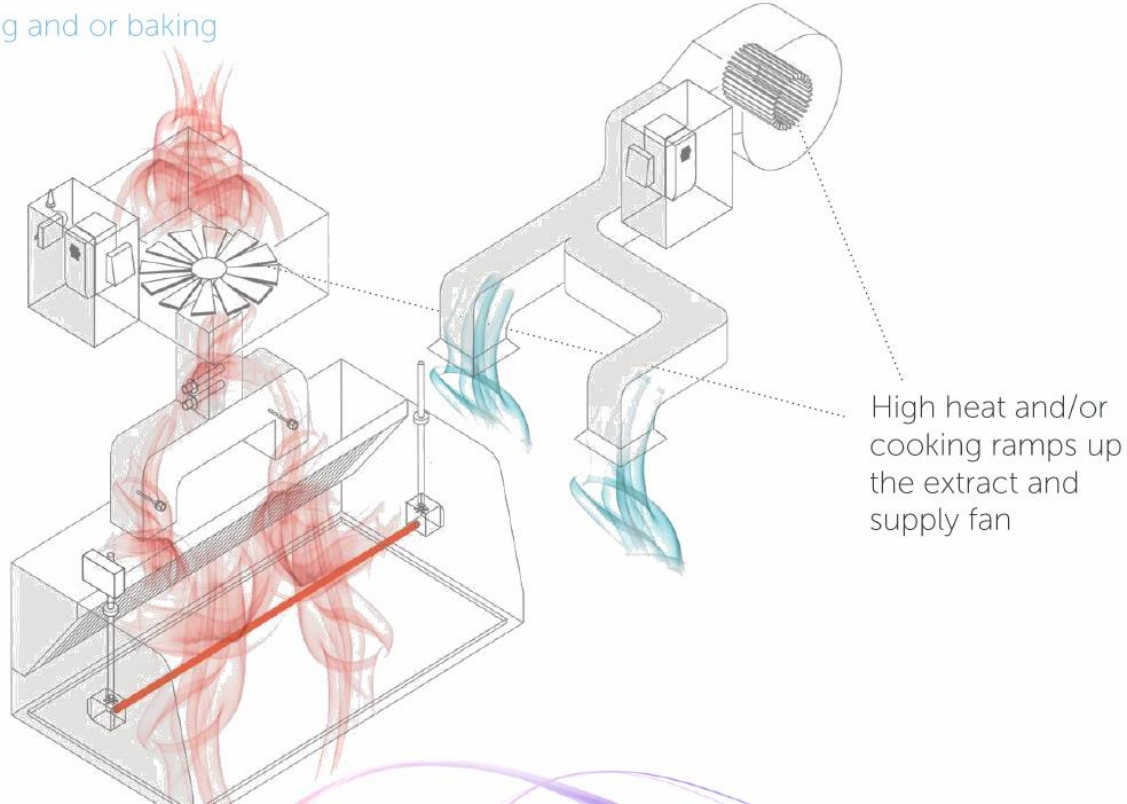
Salix – Project Cooking



**Estates and
Operations**



Cooking and or baking



Salix – Project Estimated Savings



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Operations



- Estimated annual reduction - 51,189 kWh's
- Cost of project - £14,623.20
- Payback 2.86 years @ £5,118.90 pa savings
- CO2 PA - 27.98t
- Installed January 2014

Salix – Project Actual Performance



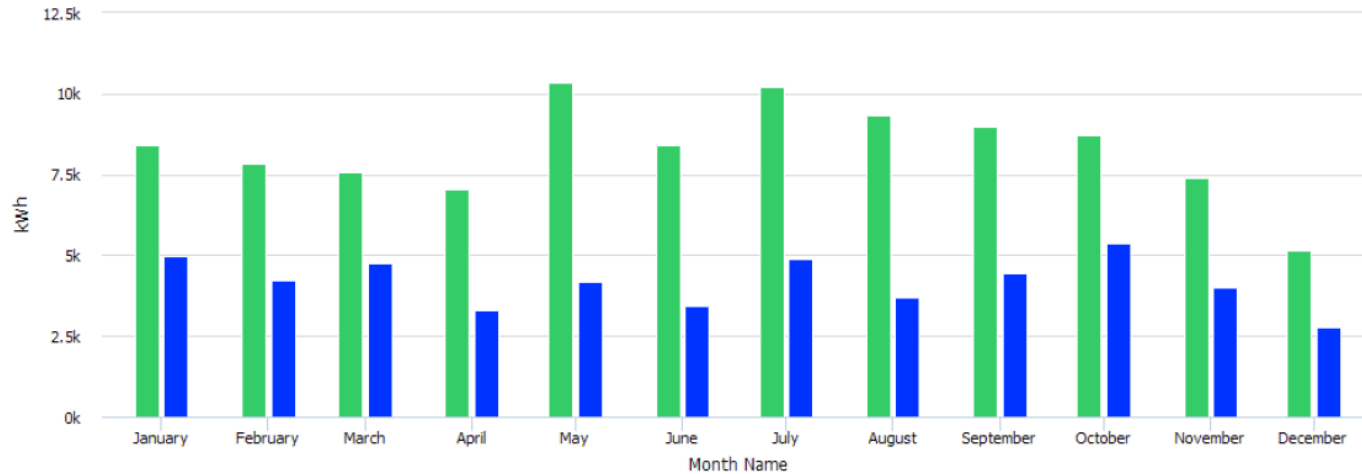
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Energy Analysis

eSight®

From:	01 January 2013	To:	31 December 2013	Interval	1 Month
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■ Compared From 2014-01-01

Summary



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- Salix RGF 1 has delivered significant carbon and cost savings at the University of Winchester
- Estimated savings = 760 tCO₂ pa
- SEELs Estimated savings = 448 tCO₂ pa
- Wide range of technologies funded and proven using RGF 1
- Low hanging fruit now picked
- Internal funding agreed to replace RGF 1
- We will be back!

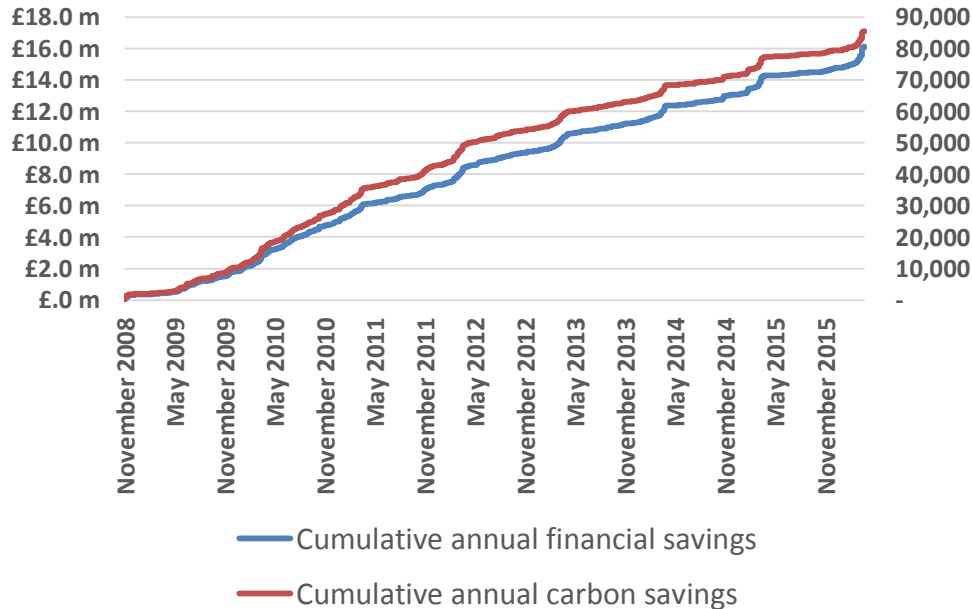
What Have the Funds Achieved so Far?



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- ✓ 2,800 projects, £56m of projects undertaken from the funds - double the initial fund value
- ✓ Values range from £66 to £550,000



- ✓ Over £50m of savings already made. Projects will go on to save over £250m over their lifespan

Popular Technologies



Estates and
Operations



- ✓ Lighting continues to be the most popular technology category – 50% of projects and 37% of funding
- ✓ Almost £7m spent on Labs and ICT projects which are to save £2.8m annually
- ✓ Project examples (over 300) available on our website:

Project Knowledge – Medical School Fume Cabinet Upgrade by the University of Warwick

BEFORE

- Constant Volume Fume Cabinets, no supply air.
- Project to add supply air during lab refurbishment.
- £5,000/year running cost



AFTER

- Full VAV System (schematic next page)
- SALIX contribution to upgrade whole system to VAV during project.
- Project cost £7,500
- Gas: 30,025kWh saving/ year
- 47% saving on existing gas consumption
- Electricity: 15,090kWh saving/ year
- 43% saving on existing electricity consumption
- £2,282 savings/ year
- 13.6tCO₂ saved/ year
- 3.3 year payback

Project completion date – October 2014

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Project Knowledge – Grand Hotel Card Entry Energy Controls by Newcastle University

BEFORE

- Electric heating and hot water not controlled
- Electricity 150,891 kWh consumed
- Gas 1,224,509 kWh consumed
- £51,824/ year running cost



AFTER

- Gas heating, card reader connected to power and heating (window sensors) and controlled by BMS (£94,606)
- Electricity 73,597 kWh consumed
- Gas 724,747 kWh consumed
- £29,102/ year savings
- Payback of 4.16 years
- 132.78 tCO₂ saved per year



Project completion date – January 2014

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Funds Continue to Deliver



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Operations



- ✓ RGF1 potential spend for existing funds for this year is £6.7m
- ✓ RGF1 clients among the best performing, committing over 80% of total potential funding in 2015/16
- ✓ Potential for funds to be 'topped up' with HEI funding to ring-fence budgets



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Other HEI Work with Salix Funding



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- ✓ HEIs have accessed over £50m of Salix loan funding – one off loans for energy efficiency projects
- ✓ Salix operates these funds as a large scale revolving fund – repayments reinvested in further loans
- ✓ Largest HEI application to date was for University of Liverpool's CHP – Salix funded £6.1m of the total £7.3m
- ✓ RGF 4 – joint funded programmed with HEFCE. Over £25m of projects will be complete by the end of this year

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Salix's Continued Support for HE/FE



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- ✓ Significant loan funding available for FE and HE over the coming years
- ✓ Looking to discuss how we can allocate funding over a number of years to enable large-scale investment
- ✓ We are happy to visit institutions to talk in more detail about how Salix can support your energy efficiency programme



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Thank you!



Questions?

craig.mellis@salixfinance.co.uk
charlie.reith-pert@salixfinance.co.uk

mat.jane@winchester.ac.uk

