Salix & Heritage Building Projects

Patrick Heron
Energy Projects Officer – Nottingham City Council

Energy Projects Service

Energy Services supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 01159 55 66 77 | www.energyservices-ncc.co.uk

Nottingham City Council

Energy Services

About Us

We are managing the delivery of energy projects, programmes and services across in Nottingham and across the UK:

- Energy and Climate Change Policy
- Renewable Energy
- Smart Technology – EEMonitor Prepayment
- Energy Efficiency
- Energy Compliance
- Energy Management
- Customer Services – Metering and Billing
- District Heating

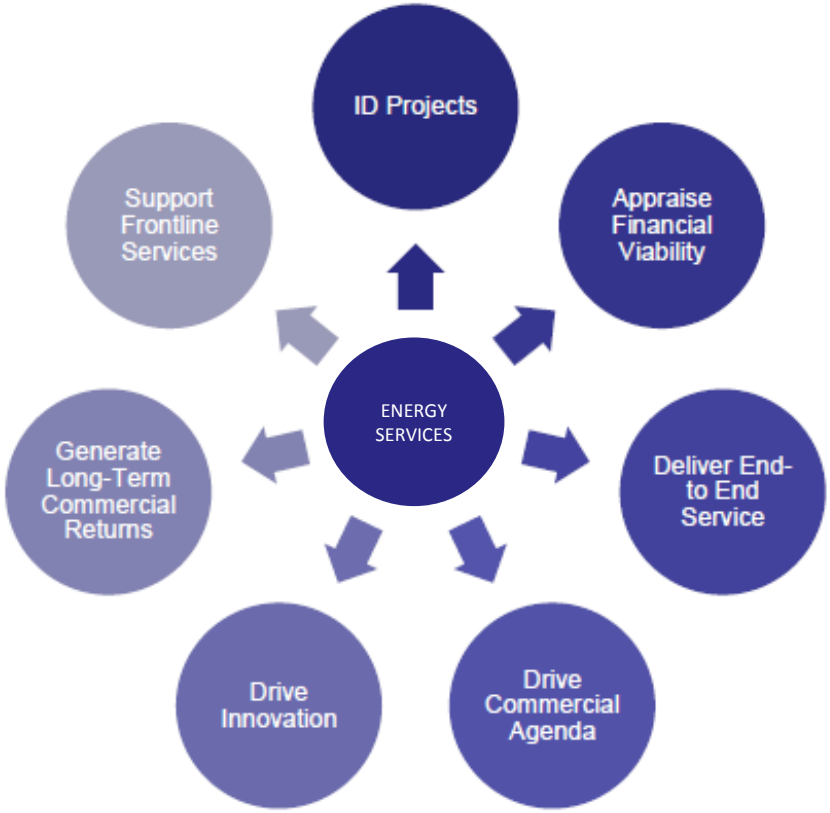
Energy Projects Team

• Policy & Performance	• Projects	• District Heating	• Energy Efficiency & Compliance
➢ Provide the policy and framework for NCC to improve environmental performance • Keep up to date with wider policy developments and how these impact upon us as well as promoting our successes and building our reputation • Secure funding to support delivery, as well as other resources (e.g. strategic partnerships)	• Deliver projects reduce our utility consumption • Demonstrate innovative technologies and working models	• Ensure that our district heat network runs as efficiently as possible • Grow the network through new connections and securing funding for extensions and innovative plots	• Deliver a range of compliance services both internally and externally. • Generate a sustainable and profitable income steam, leading on NCC's commercialism agenda

Energy Services - Projects

- Salix – Energy Efficiency Recycling Scheme
- Water Efficiency Loans Scheme
- Water Self Supply
- CleanMobilEnergy – V2G Demonstrator
- DREeM – Development of Energiesprong to commercial application
- SUDS – Business Centre Retrofit
- Innovation Gateway – Technology Sourcing
- Green Sky – Horizon Scanning
- Demand Side Response
- Stationary Fuel Cells

Aims and Objectives



Leading the way to a sustainable, low carbon future through support, collaboration and project delivery

Policy and Strategy

KEY
- Regional and local policies
- National policies
- International policies

2005

2008 – The Climate Change Act

2009 – Energy White Paper: The Low Carbon Transition Plan

2009 – The UK Renewable Energy Strategy

2010 – Nottingham City Council Energy Strategy 2010-2020

2012 – The Nottingham Community Climate Change Strategy

2013 – The Energy Act 2013

2013 – D2N2 Low Carbon Plan

2015 – The UN sustainable development goal

2015 – The Paris Agreement

2017 – The Clean Growth Strategy

2018 – IPCC 1.5°C special report

2018 – Minimum Energy Efficency Standard

2018 – 25 Year Environment Plan

2018 – Industrial Strategy

2018 – Nottingham City Council Fuel Poverty Strategy 2018-2025

2018 – Road to Zero

2018 – Resources and Waste Strategy

2019 – D2N2 Local Energy Strategy

2019 – Nottingham declares 2028 carbon neutral ambition

2019 – Clean Air Strategy

2019 – Committee on Climate Change

2019 – UK target to be net zero by 2050

2019 – Green Finance Strategy

2020

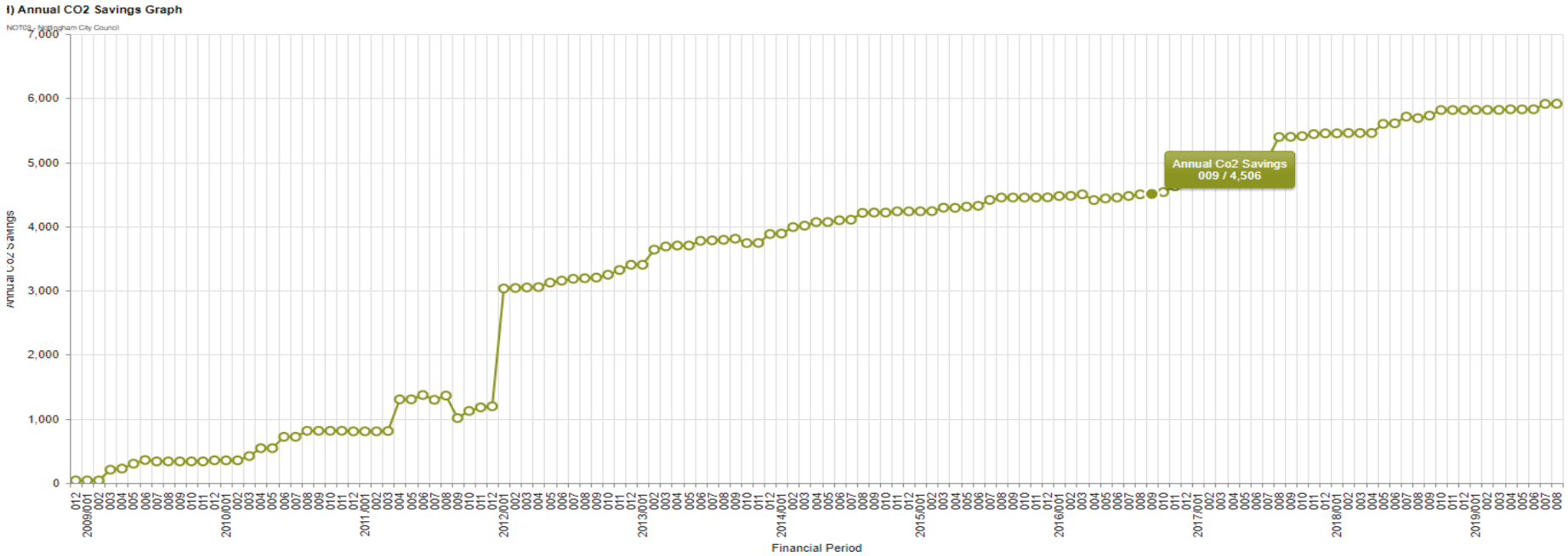
Nottingham Council – Salix

- Salix Provides Long Term Ring-fenced funding for energy efficiency projects
- Backed by a 50:50 input from Salix and the Council
- Funds over 100 types of technology
- Financial Savings reinvested year-on-year
- Once repaid, savings can be reinvested
- Compliance Criteria of maximum 10 year payback
- 15% Management Fee accounted for in loan

- Fund started in 2009 – Recycled 2.5 times
- 249 Projects Commissioned to Date
- £3.7M Invested
- Over 900k/year saved in energy expenditure
- Over 72,000 Tonnes of lifetime CO2 saved
- Over £11m in lifetime energy costs

SALIX
SOLVING ENERGY EFFICIENCY FINANCE IN THE PUBLIC SECTOR

Nottingham Council – Salix



Nottingham Council Heritage Buildings

Incorporating:

- Nottingham Castle – Currently undergoing a £28m transformation
- Greens Windmill
- Wollaton Hall & Park
- Newstead Abbey

Challenges:

- Adapting to give access to all
- Reducing energy demand
- Working on listed buildings to approved methods
- Listed status

Case Study: Wollaton Hall

- Grade I Elizabethan Country House
- Construction completed in 1588
- Home to 6 Galleries, including a Natural History Collection
- Attracts over 300,00 visitors/year
- Multiple Project site
- Featured in a certain Batman Film..

Case Study: Wollaton Hall

Heating Control Project

Situation Before

- Limited temperature control
- No zone control
- Cold spots
- Excessive consumption

Improvements Made

- 8 Thermostats with remote sensors with 4 set points
- 15% reduction in energy consumption
- Over 148 tonnes in lifetime CO2 savings
- Over £22,000 in lifetime savings
- Zone control to align with energy management policy
- Remote Access Control
- Changes influenced the majority of the publically accessible areas
- Lifespan of 25 years on control equipment
- Technical Payback in 4.88 years

Case Study: Wollaton Hall

Boiler Replacement

Situation Before

- Oversized Hamworthy Boilers
- Inefficient compared to modern systems
- Increasingly limited availability of serviceable parts
- Excessive consumption

Improvements Made

- Replaced with modern, efficient (~90%) Hamworthy ModuMax condensing units
- 22% reduction in energy consumption
- Over 211 tonnes in lifetime CO2 savings
- Over £40,000 in lifetime savings
- Additional control with remote access
- Technical Payback in less than 10 years

Case Study: Newstead Abbey

- Grade I Listed, former Augustinian Priory
- Ancestral Home of Lord Byron
- Works commenced prior to the 13th Century
- Gifted to Nottingham Corporation in 1931
- Attracts over 110,000 visitors a year
- Home to historic artefacts, a Gothic Revival library and expansive panelling in the Great Hall

Case Study: Newstead Abbey

Lighting Upgrade

Situation Before:

- Lamps running at reduced output
- Failing lamps & drivers
- Certain lamps had become unsuitable for the environment they were located
- Limited amount of LEDs adding to running costs

Improvements Made:

- Lamps replaced with LEDs throughout
- Suitable LUX levels to protect exhibits
- Increased life of lamps
- Greater visibility for the public & employees

Case Study: Newstead Abbey

Lighting Upgrade

- 82% reduction in energy consumption year on year
- Over £70,000 in lifetime running costs saved
- 0ver 280/tonnes of CO2 in lifetime saved
- Technical Payback in 4.85 Years

Heritage Building Works – Salix

Challenges:

- Working in and around historical listed buildings
- Removal or disturbance of artefacts
- Working in operational sites – public interface and closures
- Ensuring that technology is fit for purpose
- Limited knowledge of previous historic works – potential to add to costs
- Meeting current regulations with modern upgrades

Benefits:

- Ability to apply relatively basic technologies that give measurable reductions in energy, carbon and cost
- Simple technology can still have a place alongside innovation
- Gives exemplar cases of what can be done in a heritage setting
- Payback periods can be particularly low
- Ensures that historic assets are considered as significant as later builds with regards their scope for energy improvements

Q & A

For further information please contact:

customerservices@energyservices-ncc.gov.uk
patrick.heron@nottinghamcity.gov.uk

0115 9556677

www.energyservices-ncc.co.uk