



Nottingham
City Council

Carbon Reduction,
Energy and
Sustainability

CN28
Carbon Neutral Nottingham 2028

Salix & Heritage Building Projects

Patrick Heron - Patrick.Heron@nottinghamcity.gov.uk

Energy Projects Officer – Nottingham City Council



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Energy Projects Service



Managing delivery of energy projects, programmes and services in Nottingham and across the UK:



- Energy and Climate Change Policy
- Renewable Energy – Accredited PV design and installation team
- Smart Technology – EEMonitor Prepayment
- Energy Efficiency – Salix & WELs
- Energy Compliance – EPC & DECs
- Energy Management – NCC Estate Utilities
- Customer Services – Metering and Billing
- District Heating – Operation & New Connections

Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Our Projects Areas

- Salix – Energy Efficiency Recycling Scheme
- PSDS – Public Sector Decarbonisation Scheme
- WELs - Water Efficiency Loans Scheme
- CleanMobilEnergy – V2G Demonstrator
- DREeM – Development of Energiesprong (net zero energy retrofit) to a commercial building
- Innovation Gateway – Technology Sourcing
- Green Sky – Horizon Scanning
- Demand Side Response
- Stationary Fuel Cells



INNOVATION GATEWAY



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Team Awards

- Energy Awards 2019
 - Local Authority Initiative of the Year – through tackling fuel poverty & innovative retrofit models
- Guardian Public Service Awards 2019
 - Climate Champions and Overall Winners
- APSE 2020
 - Finalist for Best Climate Action Initiative
- East Midlands Energy Efficiency Awards 2020
 - Winners for Local Authority of the Year, Regional Vulnerable Customer Support and Campaigner of the Year
- East Midlands Chamber Business Awards and Sustainable Manufacturing Conference 2020
 - Finalist for Environmental Impact Award
- EDIE Awards 2021
 - Winners for Green Recovery Initiative of the Year



East Midlands Energy Efficiency Awards 2020



Nottingham City Council – Salix Recycling Fund

Salix Funding

- 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 fully repaid, savings can be reinvested
- Compliance Criteria of maximum 10 year payback

Nottingham Salix Impacts

- Fund started in 2009 – Recycled 2.5 times
- 260 Projects Commissioned to Date
- £4M Invested
- Over £1m/year saved in energy expenditure
- Over 80,000 Tonnes of lifetime CO2 saved
- Over £12.5m in lifetime energy costs



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

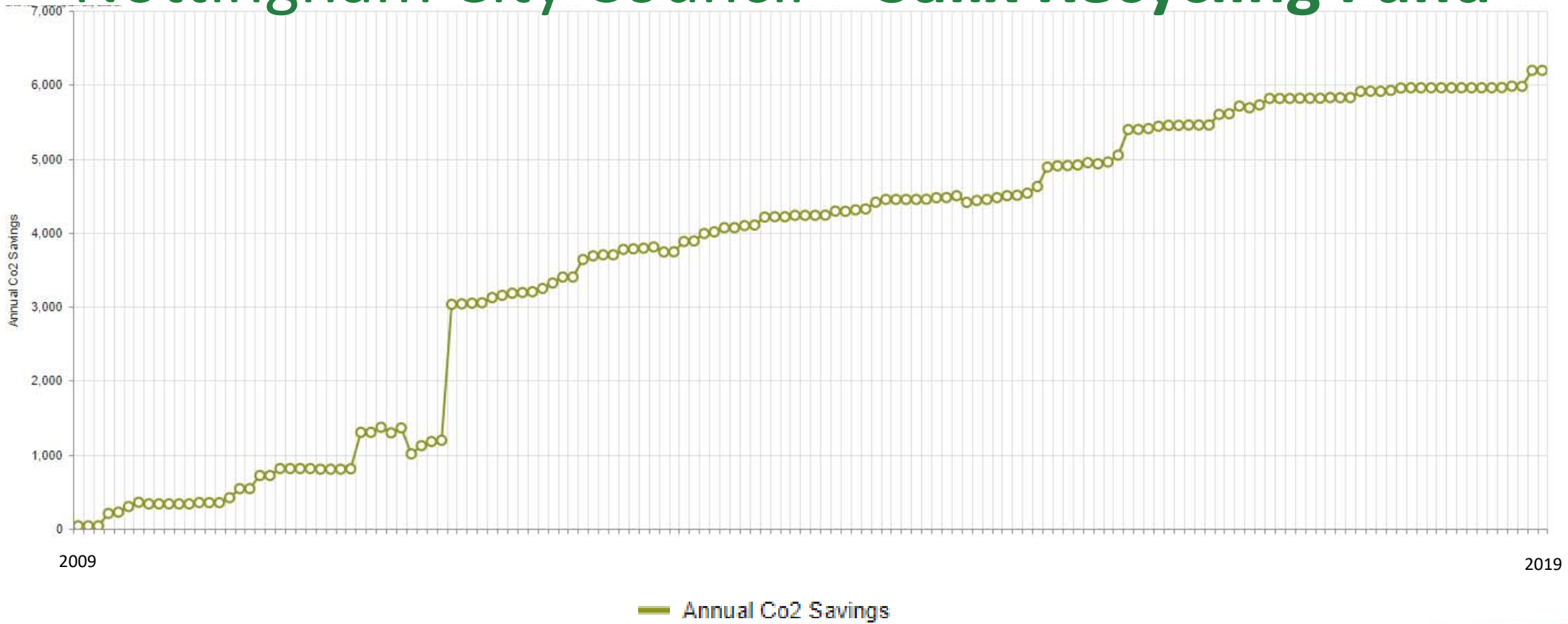
customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Nottingham City Council – Salix Recycling Fund



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Nottingham City Council - Heritage Buildings

Incorporating:

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

Challenges:

- Adapting to give access to all
- Reducing energy demand
- Listed status
- Modernising facilities



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Case Study: **Wollaton Hall**

- Grade I Elizabethan Country House
- Construction completed in 1588
- Home to 6 Galleries, including a Natural History Collection
- Attracts over 300,000 visitors/year
- Multiple Project site
- Featured in a certain Batman Film...



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Case Study: **Wollaton Hall**

Boiler Replacement - CNOT03P381

Situation Before

- Oversized legacy boilers
- Inefficient operation compared to modern condensing systems
- Increasingly limited availability of serviceable parts
- Excessive consumption

Improvements Made

- Replaced with modern, efficient (~90%)
- ModuMax condensing units
- 22% reduction in energy consumption
- Over 210 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: **Wollaton Hall**

Heating Control Project - CNOT03P270

Situation Before

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

Improvements Made

- Thermostats with remote sensors with variable 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 <5years



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



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Case Study: **Newstead Abbey**

Lighting Upgrade Project: CNOT03P359

Situation Before:

- Lamps running at reduced output/efficacy
- Failing lamps & drivers
- Some 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 & highlight exhibits
- Increased life of lamps
- Greater visibility for the public & employees



Case Study: **Newstead Abbey**

Lighting Upgrade Project: CNOT03P359

Improvements Made:

- 82% reduction in energy consumption year on year
- Over £70,000 in lifetime running costs saved
- Over 280/tonnes of CO2 in lifetime saved
- Technical Payback in <5Years



Carbon Reduction, Energy and Sustainability supports organisations to switch to renewable and low carbon energy solutions

customerservices@energyservices-ncc.gov.uk | 0115 955 6677 | www.energyservices-ncc.co.uk



**Nottingham
City Council**

**Carbon Reduction,
Energy and
Sustainability**

Salix - Heritage Building Works

Challenges:

- Listed historical buildings
- Removal or disturbance of artefacts
- Operational sites – public interface and closures
- Ensuring technology is fit for purpose
- Limited knowledge of previous historic works – costs
- Meeting current regulations with modern upgrades
- ACM – Surveys & Investigations
- Sympathetic installations - Specification is vital

Benefits:

- Relatively basic technologies give measurable reductions in energy, carbon and cost
- Simple technology have a place alongside innovation
- Exemplar cases of what can be achieved in heritage settings
- Payback periods can be particularly low
- Ensures historic assets are considered as significant as later builds in terms of scope for energy improvements
- Increased amenity value for visitors
- Reduced maintenance and protect the building

