

Strategic Property Energy Strategy 2020-2030



“Over the next 10 years, the Strategic Property Team will influence decision makers, empower staff and support communities working towards a cleaner, greener, low energy future for Leicestershire County Council”

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PURPOSE AND SCOPE OF THE STRATEGY

This strategy outlines the progress Leicestershire County Council (the Council) has achieved in property energy management. It sets new aims and targets for the Strategic Property Energy Team to save energy at Council properties and support County-wide carbon saving projects contributing towards the Council's 2030 Net Zero Carbon target. The report ends with an action plan detailing how these aims and targets will be achieved. This document sits as a sub-strategy of the Council's Environment Strategy 2018-2030. The scope of the strategy is Council buildings and land although the aims and action plan set out steps for expanding this scope and supporting County wide projects over the next 10 years.

BACKGROUND AND WHERE WE ARE NOW

The Council has a strong history of investing-to-save and a key area for this investment has focused on reducing energy consumption across the estate. Since the Council's first carbon targets were set in 2008, the Council's carbon emissions (this includes greenhouse gases as outlined in the Kyoto Protocol¹) - due to energy use in buildings - have reduced by 64.5%. This is a combination of reducing energy consumption from buildings, decarbonisation of buildings energy consumption and national grid decarbonisation.

The Council's building stock currently varies in terms of building size, age and efficiency. There are a few heritage buildings within the stock posing challenges for energy enhancements – namely Beaumanor Hall – as well as new builds and recently refurbished properties that are amongst the Council's most efficient. Display Energy Certificates (DECs) are a useful indicator of building efficiency as they measure building performance against benchmarks. They take energy usage into account as well as building fabric and infrastructure and currently the Council has no A rated buildings. The DEC ratings are listed in Table 1 below:

DEC Rating	Percentage of Buildings with Rating
B	6%
C	31%
D	25%
E	22%
F	5%
G	11%

Table 1: DEC Ratings 2020

Listed below is a brief history of Property Energy Management at the Council:

2014 - The Property Energy Master Report was adopted, identifying a number of opportunities for the Council to save energy and money across the property portfolio. By October 2016 all targets had been exceeded.

¹ Greenhouse gases: The Kyoto Protocol covers seven main gases; carbon dioxide (CO₂), methane (CH₄), hydrofluorocarbons (HFCs), nitrous oxide (N₂O), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and Nitrogen Trifluoride NF₃. Government emissions factors focus on carbon, methane and nitrous oxide – there are some LCC uses that involve others e.g. air conditioning

2017 – The Energy and Water Strategy was well received as a follow up to the 2014 Property Energy Master Report. Progress against targets are set out in Table 2 below:

Carbon Savings	Energy and Water Objectives to Achieve by April 2021 ²	Progress as of April 2020	Narrative
Saving carbon for the Council	Annual Energy and Water savings of £320,000	Avoided Costs of £402,000	The Council would have spent an additional £402k during financial year 2019/20 if energy consumption had not reduced. This figure includes £93k energy bill savings, £179k income from FITs and RHI ³ for renewable energy as well as a saving of £130k from the end of the CRC ⁴ scheme. CCL ⁵ is automatically included in energy bills now and despite this, the Council's overall bill is still lower. Electricity and gas consumption reduced by 10% and 9% respectively whereas the price rose by 13% and 19% respectively in this time. This equates to 1,335 tonnes Co2e saved since 2017/18.
	Continue to increase provision of renewable energy by 1% year on year ⁶	Now generating 15.6% which is ahead of the current 14% target.	This equates to 2,980 MWh generated from renewable sources, an offset of 582 tonnes Co2e. More efficient use of the biomass boiler at County Hall as well as additional solar PV has contributed towards this success.
	Increase provision of recycled and self-sourced water by 1% year on year	Not currently achieved.	Considering the climate emergency declaration and 2030 zero carbon target it was agreed to focus on electricity and gas reduction, as this has the potential to save more carbon than water, since water has lower levels of associated carbon emissions.

² Baseline data 2017/18 financial year.

³ Feed in Tariff (FIT) for electricity generation and Renewable Heat Incentive (RHI) for heat generation.

⁴ Carbon Reduction Commitment; a scheme for large energy users where required to submit and pay for annual carbon emissions; scheme ended in 2019.

⁵ Climate Change Levy which is the replacement scheme for CRC and automatically adds the levy to all bills.

⁶ Calculated as per Environment Strategy KPI C17 as percentage of annual building energy consumption generated by renewables on Council land and buildings. This KPI has since been updated and the new format will be used moving forward to report on new energy targets.

			However, projects are still being considered for water saving and recycling and water efficiency is a key part of the new Zero Carbon Construction Guidelines.
	Reduce annual water consumption by 10%	Not currently achieved.	As above.
Saving carbon for the County	Increase energy efficiency of schools and Academies and generate income	The Council has supported 4 schools and Academies to date.	Projects at Bosworth Academy, Winstanley College, Countesthorpe College and Hinckley Parks Primary School have contributed towards savings of 500 CO ² tonnes per year.
	Generate Income	Since we began selling solar electricity to farm and industrial tenants in 2016, we have cumulatively earned £27k to this date.	More tenants have recently signed up to Power Purchase Agreements (PPAs) including the new tenants at the LUSEP building which could earn up to £60k per year.

Table 2: Progress against previous Energy Targets

2018 – The Council signed up to the UK100 pledge; a commitment to switch to 100% Clean Energy⁷ by 2050.

2019 – In May the Council declared a ‘Climate Emergency’ and set a ‘Net Zero Carbon’ target for Council operations to achieve by 2030.

2020 - Zero Carbon Policy and Construction Guidelines agreed by the Chief Officer. The policy and guidelines set out targets and measurable conditions to be met for all new build and refurbishment projects. The guidelines specify key targets for operational energy performance, overheating, renewable energy generation, EV charging provision, BMS, metering, water saving, biodiversity, seasonal commissioning and handover processes.

Key Projects to date:

Since 2017, Property has delivered:

- ✓ 153kW of Solar PV installed at Beaumanor Hall, The Trees Respite Centre, Bosworth Battlefield Heritage Centre, Enderby Adult Learning Centre, Melton Short Breaks Centre, Loughborough Family and Wellbeing Centre.
- ✓ LED lighting upgrades delivered at Beaumanor Hall, Enderby Adult Learning Centre, Bosworth Battlefield Heritage Centre and more.
- ✓ Secured the grid connection and submitted the planning application for a 10MW solar farm near Quorn.

⁷ Energy purchased from renewable, zero-emission sources.

- ✓ 25 Electric Vehicle (EV) chargers installed at County Hall, Croft Highways Depot, Mountsorrel Highways Depot, Coalville Business Centre and Loughborough Technology Centre.
- ✓ In 2019, the Council switched to purchasing 100% clean electricity.
- ✓ SCORE+ (Schools Collaboration on Reducing Energy) - The SCORE+ service is an energy performance partnership for Leicestershire secondary schools and academies. By providing access to the Council's Energy Performance Contract secondary schools can install energy conservation measures to upgrade their assets, improve building conditions and reduce running costs. Table 3 below details the SCORE+ projects to date:

	Annual Energy savings guaranteed (kWh)	Annual Anticipate financial savings (Avoided costs)	CO2 savings /annum (tCo2)
Bosworth Academy	970,205	£53,740	253
The Winstanley College	411,767	£20,014	105
Countesthorpe Community College	215,511	£31,421	54
Hinckley Parks Primary School	20,902	£24,300	90

Table 3: Score+ Projects

Political Commitments and Legislation

The Property Energy Strategy also supports Government Policy and International commitments.

At **COP 21** (Conference of the Parties) in Paris, on 12 December 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. All Parties report regularly on their emissions and on their implementation efforts.

In **2017**, the **UK Clean Growth Strategy** set out proposals for decarbonising the UK economy through the 2020s.

The **2018 UK 25 Year Environment Plan** sets out a plan to improve the environment within a generation and leave it in a better state than it was found.

The **UK Climate Change Act 2008** originally set out a target to reduce carbon emissions by 80% by 2050 from a 1990 baseline. In 2019, this target was revised and now sets a 100% reduction.

The **Future Homes Standard** will require new build homes to be future-proofed with low carbon heating and world-leading levels of energy efficiency; it will be introduced by **2025**. It is expected that non-Domestic building standards will follow a similar course.

There are many other **construction guidelines** for buildings setting out ways to minimise impacts on the environment and reduce carbon emissions. These include BREEAM, Code for Sustainable Homes and Passivhaus. However, the only mandatory standards currently are Part L of the Building Regulations.

COVID GREEN RECOVERY

Covid-19 has presented an unexpected and accelerated change in the way that people work, live and travel and this inevitably changes the way the energy is used, and carbon is emitted. The Strategic Property Energy Team will work with Environment and Transport (E&T) and the Transformation Unit (TU) to adapt its energy reduction programme to changing needs. The Government has pledged funding for a 'Green Recovery' from the pandemic and the Council has set out its outline vision for driving a green recovery below:

Short term⁸

- ✓ Property will continue to collaborate with the Ways of Working programme to provide energy input to prioritise buildings to retain and buildings to vacate. The Strategy will inform future energy upgrade programmes.
- ✓ Tailor energy upgrades to new ways of working across sites through the use of ICT to support digital meetings and to make the workplace as efficient as possible to drive down the County Hall baseload. Examples include 'smarter' technologies such as smart office metering and online monitoring platforms to compliment desk booking systems reducing the need for large amounts of ICT equipment to be left on standby when not required.
- ✓ Continue to support switch to EV for Council fleet, staff and County residents by installing chargers at Council and public locations.
- ✓ Support energy efficiency for staff working from home.
- ✓ Apply for Public Sector Decarbonisation Scheme funding to realise projects delivering carbon savings.

Medium term

- ✓ Continue to identify energy generation schemes with the increasing likelihood of powering more homes through the grid.
- ✓ County Hall campus likely to continue expanding and developing therefore we will continue to pursue renewable heating methods on site.
- ✓ Research embedded carbon and build mitigation measures into Construction guidelines to reduce the impacts of the construction process and build this into strategic property reviews comparing renovation projects to new build projects.

Long term

- ✓ Work more on reducing County Carbon emissions in addition to Council buildings. This will include more work with Schools, Academies, District and Borough Councils,

⁸ Short Term - 1-2 years. Medium Term - 3-5 years, Long Term - 6-10 years.

Businesses, Residents and Communities to support the reduction in carbon across the County.

2020-2030 AIMS

The Strategic Property Energy Team has set out 3 main aims to work towards Net Zero Carbon by 2030:

Aim 1

Saving energy and generating renewable energy to work towards the Council's 2030 Net Zero Carbon target.

Aim 2

Ensure energy conservation is embedded into property processes and construction projects to further support the Council's 2030 Net Zero Carbon target.

Aim 3

To foster a carbon conscious culture at the Council and support projects saving carbon across the County.

AIM 1 - SAVING ENERGY AND GENERATING RENEWABLE ENERGY TO WORK TOWARDS THE COUNCIL'S 2030 NET ZERO CARBON TARGET

Targets

Council buildings accounted for 34% of the Council's direct measured Carbon Dioxide equivalent (CO₂e)⁹ emissions during 2019/20. Property therefore plays a key role in supporting the Council's Net Zero Carbon target and has set out new targets. Lower and higher targets have been set demonstrating the differing impact the Council could make by increasing investment in zero-carbon technology. The targets focus on reducing energy consumption and increasing the generation of renewable energy on Council buildings and land. To achieve Net Zero Carbon without off-setting or off-site renewable energy generation, the Council would need to build an entirely new portfolio of buildings built to zero carbon standards and generating renewable energy on site and being heated by renewable energy.

Measure	Lower Target April 2030	Higher Target April 2030
Reduce annual energy¹⁰ consumption from Council buildings compared to 2019/20¹¹ usage	30%	50%
On-site renewable or zero-carbon energy generation on Corporate Council Buildings as percentage of annual consumption by Corporate Council buildings.¹²		50%
Potential Annual Energy Savings	5,708 MWh	9,514 MWh
Potential Annual Carbon Savings¹³	2,431 tCO ₂ e	2,730 tCO ₂ e
Potential Annual Financial Savings¹⁴	£675k	£1.1m

⁹ Carbon Trust CO₂e definition: "A carbon footprint is measured in tonnes of carbon dioxide equivalent (tCO₂e). The carbon dioxide equivalent (CO₂e) allows the different greenhouse gases to be compared on a like-for-like basis relative to one unit of CO₂". [Accessed online at: <https://www.carbontrust.com/resources/guides/carbon-footprinting-and-reporting/carbon-footprinting/>].

¹⁰ % reduction based on 2019/20 gas, biomass, and electricity baseline.

¹¹ 2019/20 Energy consumption, generation and cost data is included in Appendix 1.

¹² Calculated as per Environment Strategy KPI C17a updated 2020.

¹³ Energy savings assumes same split between gas and electricity as 19/20. Of the remaining consumption a 50:50 split between gas and electricity has been assumed for the carbon savings from renewable energy.

¹⁴ Based on 3.7% annual increase ONS data.

Table 4: Energy Targets

The lower end (30% reduction in energy consumption) target is ambitious but realistic when considering the Council's existing building stock. Without significant shifts in funding or feasible and cost-effective low carbon energy sources and on-site generation; the Council will need to consider options such as off-setting to reach Net Zero Carbon. This is because current retrofit and new build technologies - that are currently feasible and cost effective - will not alone deliver enough carbon savings to achieve Net Zero Carbon by 2030.

The higher end (50% reduction in energy consumption) target demonstrates the more carbon and significantly more money could be saved by investing in energy saving technologies across the Council over the next 10 years. Reaching this target will require the Council to pursue newer and more innovative projects such as battery storage, renewable technologies, heat pumps and district heating.

The Strategic Property Energy Team will continue to pursue off-site renewable energy generation over the next 10 years. This will be reported through the Environment Strategy KPI C17b (updated 2020) which will monitor energy generated on Council land and properties that are not corporate, such as County Farms, Industrial Units and Schools. This will support the decarbonisation of the grid.

To support the reduction in CO₂^e emissions by 2030, the Council is likely to become more reliant on electricity rather than gas for heating - such as through heat pumps - as electricity has a lower carbon footprint than gas since it can be generated from clean and renewable sources. Where possible, the Strategic Property Energy Team will continue to pursue district heating and the use of biomass boilers as other forms of low-carbon heating.

Performance indicators such as kWh/m² will be used to benchmark and identify issues with energy performance. Day to day management including optimising heating control settings, visiting remote Council buildings and monitoring energy data to identify and mitigate changes in consumption are effective, low-cost ways of managing energy consumption and the team will continue to manage energy in this way.

No targets have been set for the reduction of water usage as the Council's usage is low and the carbon emissions from water are much lower than from gas or electricity. Property will however still install and upgrade water facilities to more efficient ones where possible as well as looking to source and recycle water.

Key Projects –

There are several key projects identified to work towards these targets:

- ✓ Increased solar PV at County Hall
- ✓ LED lighting upgrade at County Hall
- ✓ Solar PV and EV chargers at Snibston Colliery Park
- ✓ Collaborate with the Ways of Working programme to ensure that the most efficient properties are retained
- ✓ Produce Decarbonisation Plan

- ✓ Work with ICT to support energy efficient ways of working in light of changing work patterns following Covid 19
- ✓ Investigate low carbon heating solutions at Council Properties including heat pumps and district heating
- ✓ Applying for available funding for energy projects including the current Public Sector Decarbonisation Scheme
- ✓ Strengthening operational energy management and commission low-cost initiatives at buildings by optimising heating controls, increasing building insulation, identifying changes in energy use patterns and training staff involved in building management in energy conservation
- ✓ Participate in trials for innovative technologies such as battery storage and hydrogen fuel cells.
- ✓ Purchase clean energy.

Aim 2 - Ensure Energy Conservation is Embedded into Property Processes and Construction Projects to further support the Council's 2030 Net Zero Carbon target

Processes

The Council has several processes in place to ensure that energy is a key part of day to day decision making. The decisions have an impact on the Council's energy consumption and it is therefore crucial that energy does not operate as a silo but rather a key aspect of decision making. Over the duration of this strategy, the Strategic Property Energy Team will re-enforce and build on these processes by pursuing the following key areas:

- ✓ Achieve ISO 50001 certification for Energy Management to establish international standards for energy management. This will complement the ISO 14001 certification for Environmental management that the Council already upholds.
- ✓ Monitor and continually review the construction standards set out in the Council's 2020 Zero Carbon Construction Guidelines for Council Property and Construction Projects
- ✓ Ensure energy is factored into planned and reactive maintenance work
- ✓ Provide training for staff involved in property projects and building management
- ✓ Continue to integrate energy and carbon objectives into strategic decisions around building acquisitions, disposals and reviews
- ✓ Supporting the school and academy investment that the Council makes through supporting greater s106 claims.

AIM 3 - TO FOSTER A CARBON CONSCIOUS CULTURE AT THE COUNCIL AND SUPPORT PROJECTS SAVING CARBON ACROSS THE COUNTY

Collaborative Working

The Strategic Property Energy Team has historically focused on the delivery of Corporate projects delivering savings and/or income for the County Council. The team will still be focusing on the delivery of projects benefitting the County Council, however it recognises the importance of the environment for residents, communities and businesses in Leicestershire. Therefore, the team will begin to support schemes benefitting the County's carbon emissions and working in collaboration with departments including Communities, Policy and Resilience, E&T, the TU and the Growth Unit. It must be acknowledged that it will only be possible to achieve Aim 3 with additional resource in the Strategic Property Energy Team.

There are several ways the Property Department will support carbon emission reductions across the County:

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- ✓ Increase EV charging provision across Corporate Estate supporting the switch to electric fleet
 - ✓ Deliver 10MW solar farm in Quorn
 - ✓ Support EV charger delivery across the County working with partners
 - ✓ Generating low-carbon energy in the County through building additional solar farms or other energy generation schemes feeding energy into the grid or directly to neighbouring properties
 - ✓ Improving energy standards and generating renewable energy through the Corporate Asset Investment Fund (CAIF), Social Care Investment Programme (SCIP) and at industrial units, offices and County Farms.
 - ✓ Specifying contractually obliging energy targets when selling land to developers for housing and other developers subject to market conditions
 - ✓ Providing requirements and specifications for developers building new Schools and Academies
 - ✓ Explore viable ways to support partner organisations including existing Schools and Academies by utilising government funding or identifying gaps in government funding required to finance retro-fit energy upgrades such as through the existing Score+ scheme
 - ✓ Building relationships with key stakeholders including local authorities, the Midlands Energy Hub, APSE Energy, Western Power Distribution, the LLEP and many others
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FINAL COMMENTS

“Over the next 10 years, the Strategic Property Team will influence decision makers, empower staff and support communities working towards a cleaner, greener, low energy future for Leicestershire County Council”

This strategy has set out the Strategic Property Energy Team’s achievements to date and has set key aims and targets for 2030. The strategy will continually be reviewed, and work undertaken by the team will always be prioritised in the best interests of Leicestershire and the County Council. Net Zero Carbon is a very ambitious target but a hugely rewarding and important one too. Achieving this will take commitment and investment from Council decision makers.

ACTION PLAN - HOW WE WILL ACHIEVE OUR AIMS¹⁵

Aim	Project	Timescale ¹⁶
Aim 1 Saving energy and generating renewable energy to work towards the Council's 2030 Net Zero Carbon target	Increased solar PV at County Hall	Short Term
	LED lighting upgrade at County Hall	Short Term
	Solar PV and EV chargers at Snibston Colliery Park	Short Term
	Collaborate with the Ways of Working programme to ensure that the most efficient properties are retained	Short Term
	Produce Decarbonisation Plan	Short Term
	Work with ICT to support energy efficient ways of working in light of changing work patterns following Covid 19	Short Term
	Investigate low carbon heating solutions at Council Properties including heat pumps and district heating	Medium Term
	Applying for available funding for energy projects including the current Public Sector Decarbonisation Scheme	On-going
	Strengthening operational energy management and commission low-cost initiatives at buildings by optimising heating controls, increasing building insulation, identifying changes in energy use patterns and training staff involved in building management in energy conservation	On-going
	Participate in trials for innovative technologies such as battery storage and hydrogen fuel cells.	On-going
Purchase clean energy.	On-going	
Aim 2 Ensure energy conservation is embedded into property processes and construction projects to further support	Achieve ISO 50001 certification for Energy Management to establish international standards for energy management. This will complement the ISO 14001 certification for Environmental management that the Council already upholds.	Short Term
	Monitor and continually review the construction standards set out in the Council's 2020 Zero Carbon Construction Guidelines for Council Property and Construction Projects. The guidelines also set key requirements for biodiversity, water usage and recycling	On-going

¹⁵ This action plan will be driven and managed by the Strategic Property Energy Team.

¹⁶ Short Term - 1-2 years. Medium Term - 3-5 years, Long Term - 6-10 years.

the Council's 2030 Net Zero Carbon target.	Ensure energy is factored into planned and reactive maintenance work	On-going
	Provide training for staff involved in property projects and building management	On-going
	Continue to integrate energy and carbon objectives into strategic decisions around building acquisitions, disposals and reviews	On-going
	Supporting the school and academy investment that the Council makes through supporting greater s106 claims.	On-going
Aim 3 To foster a carbon conscious culture at the Council and supporting projects saving carbon across the County	Increase EV charging provision across Corporate Estate supporting the switch to electric fleet	Short Term
	Deliver 10MW solar farm in Quorn	Medium Term
	Support EV charger delivery across the County working with partners	Long Term
	Generating low-carbon energy in the County through building additional solar farms or other energy generation schemes feeding energy into the grid or directly to neighbouring properties	Long Term
	Improving energy standards and generating renewable energy through the Corporate Asset Investment Fund (CAIF), Social Care Investment Programme (SCIP) and at industrial units, offices and County Farms.	On-going
	Specifying contractually obliging energy targets when selling land to developers for housing and other developers subject to market conditions	On-going
	Providing requirements and specifications for developers building new Schools and Academies	On-going
	Explore viable ways to support partner organisations including existing Schools and Academies by utilising government funding or identifying gaps in government funding required to finance retro-fit energy upgrades such as through the existing Score+ scheme	On-going
	Building relationships with key stakeholders including local authorities, the Midlands Energy Hub, APSE Energy, Western Power Distribution, the LLEP and many others	On-going

Table 5: Action Plan

APPENDIX 1 – 2019/20 ENERGY DATA

Energy Consumption 2019/20		Renewable Energy Generation 2019/20		Energy Costs 2019/20 (Net, including CCL)	
Electricity (kWh)	7,936,468	Solar Generation (kWh)	99,931	Electricity	£1,034,934
Gas consumption (non-weather corrected) (kWh)	8,839,312	Heat Generation (kWh)	987,820	Gas	£251,464
Biomass (kWh)	2,254,090	Generation (% of annual consumption)	15.6%	Biomass	£105,760
Water (m3)	49,100			Water	£172,370
				Total	£ 1,564,528
				Renewable Income	£178,668

Table 6: 2019/20 Energy Data