

# Cambridgeshire and Peterborough Corporate Energy Strategy

June 2019



# Foreword

As a society we need to move towards energy sustainability and zero carbon emissions by 2050 to help tackle climate change but also if we wish to remain a competitive economy. It will require ambition and imagination so that our children can have a safe and secure future and we must take responsibility and work with Government and our communities to bring forward the changes. We have signed up to support UK100's pledge to deliver 100% clean energy before 2050, in line with the commitments made nationally and internationally at the Paris Summit. We want to lead all our communities through the changes ahead but in particular we must support our rural communities to find ways to benefit and contribute to a new energy system as it decarbonises. Crucially we must prevent our rural communities getting left behind.

Much has been achieved in recent years to decarbonise power infrastructure and produce energy locally from renewables but more work is still required. We need to work with our communities and businesses to support them to change the way they use and think about energy and to become part of an exciting smart new energy system. Energy must be supplied and used more efficiently and more renewable energy and battery storage integrated into our energy system to support the shift towards the electrification of transport and heat.

Cambridgeshire County Council has more than two hundred public buildings, over 250 schools and manages significant farm estates and over 2,700 road assets. We also run significant services across Cambridgeshire including transport, waste, street lighting, education, adult and family services and employ thousands of staff. Changing how we use, run and manage our services and assets can make a difference. For example, we can reduce energy demand in our buildings through insulation and better energy management, we can redesign services to reduce energy consumption and we can deliver low carbon energy generation on our land and other assets.

We are proud to have invested in developing staff skills across finance, legal, project development and contracts to have the confidence to develop and deliver energy projects that bring new innovations. Currently we have invested £19million into energy projects including 51 schools and a solar park and have an investment programme of a further £55million to deliver during the next few years which we hope will help towards the new energy system our future needs.

Cllr Steve Count and Cllr Josh Schumann  
Cambridgeshire County Council

Recognising the importance of sustainable energy and the benefits that this brings for all our futures, the Corporate Energy Strategy will help embed change. It illustrates the ambitions of the Council in this area, it provides a mandate to bring new innovations forward and creates a collaborative framework that will enable us to share knowledge with our colleagues.

Peterborough City Council already have a 2.3MW solar estate, an Energy Recovery Facility that generates 50GW and we have a number of ambitious and exciting plans for the future. The strategy challenges the Council to maximise its existing energy assets, generate new low carbon energy, grow the income potential from energy projects and reduce energy spending caused by excess consumption and waste. It highlights the need for renewables as part of a sustainable, energy security approach for City.

Clean growth is one of the grand challenges recognised in the Industrial Strategy, climate change is the biggest issue facing the planet and sustainable methods for Energy generation and usage are essential to protect our finite resources. A recognised leader in Circular Economics, Smart Cities and Environmental leadership, this strategy builds upon the existing achievements of Peterborough City Council and will enable it to drive further positive change for the benefit of our City.

Cllr Marco Cereste  
Cabinet Member for Waste and Street Scene  
Peterborough City Council

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# 1. Introduction and Context

## Our Vision

Our vision is to secure **renewable** and **resilient** energy supplies and infrastructure that can support **local** needs. We will do this whilst maximising commercial benefit for the Councils and our communities and making best use of our combined assets to reduce carbon emissions and environmental impacts.



## Why do we need a Corporate Energy Strategy?

Together, our two Councils paid electricity bills of in excess of **£9.5million** in 2017/18. This covers the costs of energy to heat and light our buildings and power the delivery of our services. But energy is an expensive resource and we need to manage our energy costs by reducing energy consumption, design out energy waste and maximise the use of our assets to generate low carbon supplies for us to use or sell.

The energy system in the UK is going through a significant transformation. Local Authorities are encouraged to support this transformation and benefit from the changes. For example, local energy generated on our assets can be sold and distributed on the local network. This can provide income to support Council services. Renewable energy and low carbon supplies generated on our buildings, farm estate and from waste collected from our communities can reduce our dependency on fossil fuels and build our community resilience.

The energy system transformation is bigger than both Councils. But we must play our part in supporting the changes by using our assets and services. Importantly we must collaborate with public and private sector stakeholders to ensure our Cambridgeshire and Peterborough growth agenda facilitates the changes to our energy system and recognises energy infrastructure as a key strategic priority for growth.

Innovation and new technologies are key to the Councils' investments into energy generation and energy efficiency. Battery storage, smart controls, data and digital infrastructure are driving the energy system changes and bringing new business models. The Councils must learn, share knowledge and support our communities to be engaged in the new energy system to help reduce costs and benefit from these innovations.

## Aims and Objectives

The aim of this strategy is to improve the efficiency and maximise the use of our assets, reduce energy consumption of its services and produce low carbon energy for local consumption. By doing this, we can bring greater policy and other benefits for our businesses and communities.

### The objectives of the strategy are to:

- Provide a joined up, corporate approach to energy investment on our assets to generate income and make savings for the Councils;
- Identify how we can reduce energy consumption through service delivery redesign and policy development;
- Attract investment into energy infrastructure on the Councils' assets which can benefit the Councils and the broader communities;
- Identify how the Councils' assets can facilitate the development of low carbon energy infrastructure to support transport, housing, waste management and smart community projects;
- Work with partners ( public and private sector) and local communities to identify and facilitate low carbon energy projects using the Councils' assets that bring benefits to all.

## Priority outcomes for Cambridgeshire and Peterborough citizens

### A good quality of life for everyone

- Using our public assets wisely and raising money in a fair and business like way to generate **social return** for all citizens of Cambridgeshire and Peterborough Thriving places for people to live

### Thriving places for people to live

- Continuing to invest in the environment, infrastructure and services that are a vital part of everyday life for everyone in the county and for a thriving local Economy

# The National Perspective

## Security of supply

The UK is increasingly dependent on imported energy, such as oil and gas. This is at a time when global demand for energy and prices are increasing, the UK is leaving the European Union and many of our coal and nuclear power stations are coming to the end of their useful lives. Without action to ensure reliable supplies to replace power plants, there will be a dramatic shortfall in our energy capacity and risks to our energy security.

## A changing market

There is also significant change taking place across the energy market, with decentralised and decarbonised energy, emerging technologies and the convergence of Smart City and Circular Economy thinking bringing change. Advances in battery storage, blockchain, internet of things and data analytics alongside smart meters and smart grids will help facilitate greater diversity of energy supply, better local balancing of supply and demand and create opportunities for consumers to participate in and benefit from both the buying and selling of energy.

## Policy and legislation

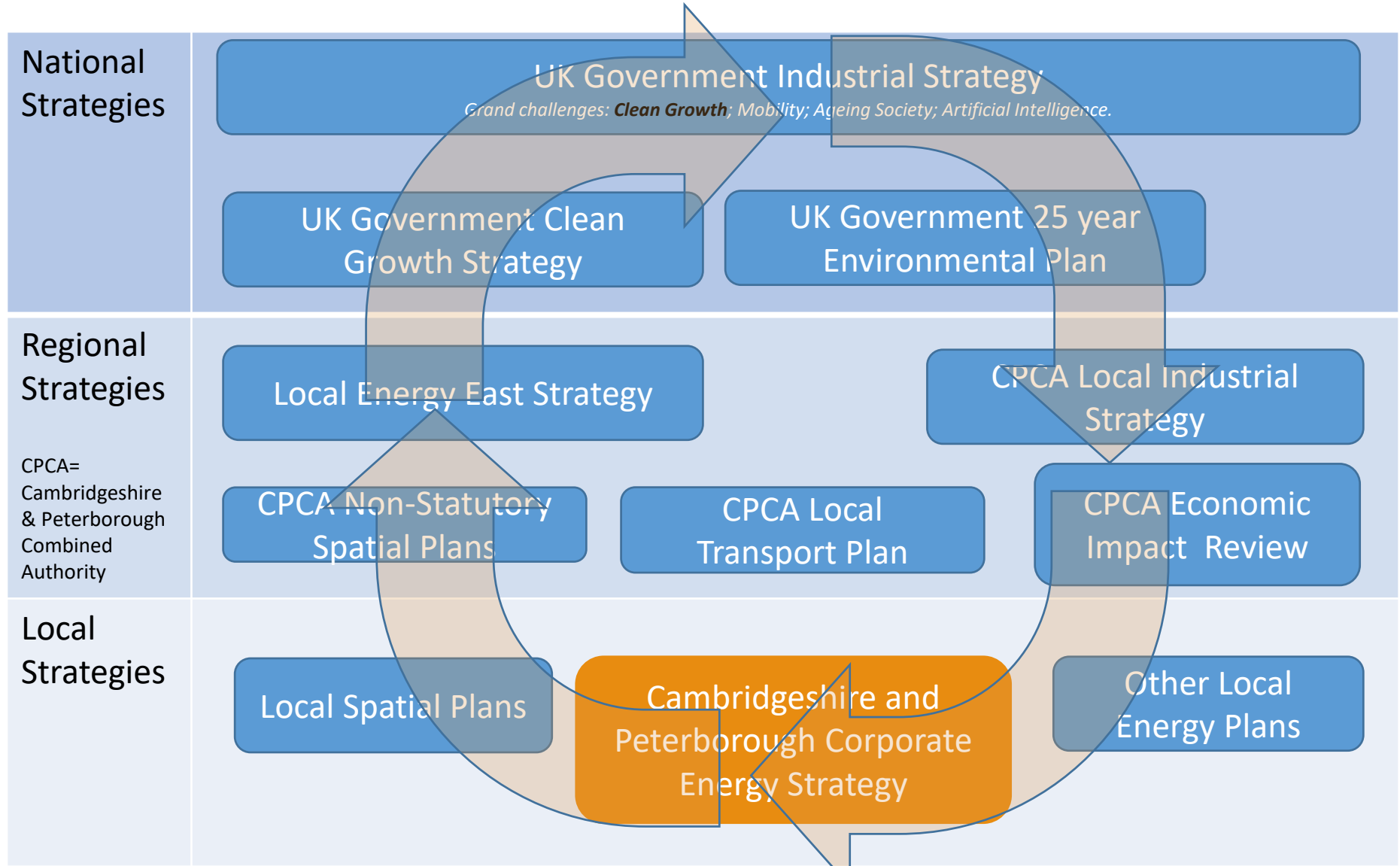
Through the UK Energy Efficiency Strategy, Industrial Strategy, and the BEIS Clean Growth Strategy, the Government is keen to promote clean, low carbon energy and sustainable growth. Government published the Energy Bill 2012 to deliver electricity market reform (EMR) and attract £110 billion investment to replace current generating capacity, upgrade the grid and cope with the rising demand for electricity.

The Climate Change Act places legally binding obligations on the UK to reduce its CO<sub>2</sub> emissions by 80% by 2050. The UK has also signed up to delivering 15% of its primary energy from renewable energy sources by 2020 and a series of market mechanisms have been introduced to stimulate investment into clean energy to meet these targets, including Contracts for Difference and the Renewable Heat Incentive. Current legislation also allows Local Authorities to sell electricity generated from renewable sources, so councils can gain financially (as well as environmentally) from developing local renewable energy projects, either on their own or in partnership.



The impacts of recent policy on the electrification of transport are still being worked through, but future energy demand is likely to rise significantly with the growth of electric vehicles. We need to plan carefully and manage this transition alongside the upgrade to our energy networks.

## Policy Context: Connected Strategies



## The Local Context



### A growing population

847,151 people live in Cambridgeshire and Peterborough<sup>(1)</sup>, and this is rising. Cambridgeshire County Council and Peterborough City Council have responsibilities to deliver a full range of services including transport, education, street lighting and waste, have over 4,500 miles of roads and employ over 5,000 people. As the population grows, energy demands also grow.

### Financial challenges

Financial conditions are currently very challenging for local authorities, making the need to generate income and make savings even more pressing. Costs of energy are rising so even if energy use stayed the same, expenditure would increase. Managing energy costs, driving efficiency and long term planning are therefore crucial to help save money as well as deliver sustainable growth.

### A new Smart Energy System

Our energy system is changing to include more renewables and battery storage and our transport is changing from fossil fuels to electricity. Our homes will be heated from electricity too. Work with the Greater Cambridge Partnership identified a tripling in network capacity was needed by 2030 in Greater Cambridge to accommodate growth. Cambridgeshire and Peterborough have one of the largest Cleantech sectors in the Country to help support the changes in our smart energy system.

### Local opportunities

The Peterborough Energy Recovery Facility generates 55.5 GWh of electricity, providing the potential to power 12,000 homes or all Council buildings and services<sup>(2)</sup>. Cambridgeshire's Solar Farm is generating more than £350,000 per annum to support frontline services. Cambridgeshire has the technical potential to deliver 28% of its energy needs (for buildings and services but excluding transport) through opportunities including solar, wind, micro-renewables and biomass via schools, offices, non-domestic buildings and land developments as well as through its obligations to manage waste, transport planning, street lighting and other services.

### Waste as a resource

Cambridgeshire and Peterborough Joint Municipal Waste Management Strategy 2008-2022 includes objectives to manage waste as a resource, ensuring energy is recovered where possible, putting outputs from waste treatment facilities to beneficial use. The Cambridgeshire Waste PFI contract is at a stage where there are enough years remaining within it to allow investment into an energy from waste facility.

1. ONS 2017
2. Based on the average usage of 4,648 kWh per year
3. Cambridgeshire Local Authorities adopted the Cambridgeshire Renewables Infrastructure Framework (CRIF) in 2012 as an evidence base for local plan and policy development.



## Facts and Figures

### Annual Energy Consumption

133GWh

Combined Cambridgeshire & Peterborough energy consumption including schools and street lighting. Covers gas and electricity but not oil or other fuels. Based on 2017-18 data.

### Renewable electricity generation

69GWh

Annual generation from Peterborough's Energy Recovery Facility plus estimated generation from CCC solar PV projects, 2018-19.

### Annual spend

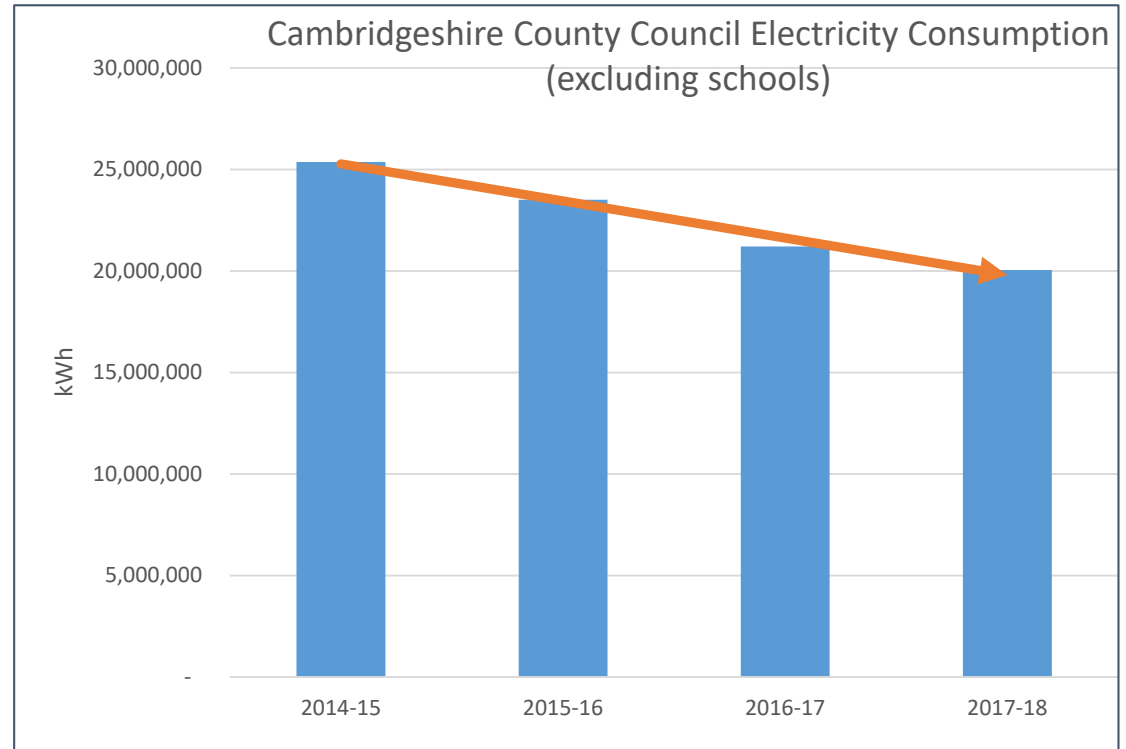
£10m

Combined Cambridgeshire and Peterborough expenditure on electricity and gas, 2017-18.

### Annual energy-related Greenhouse Gas Emissions

23,000 tonnes CO<sub>2</sub>e

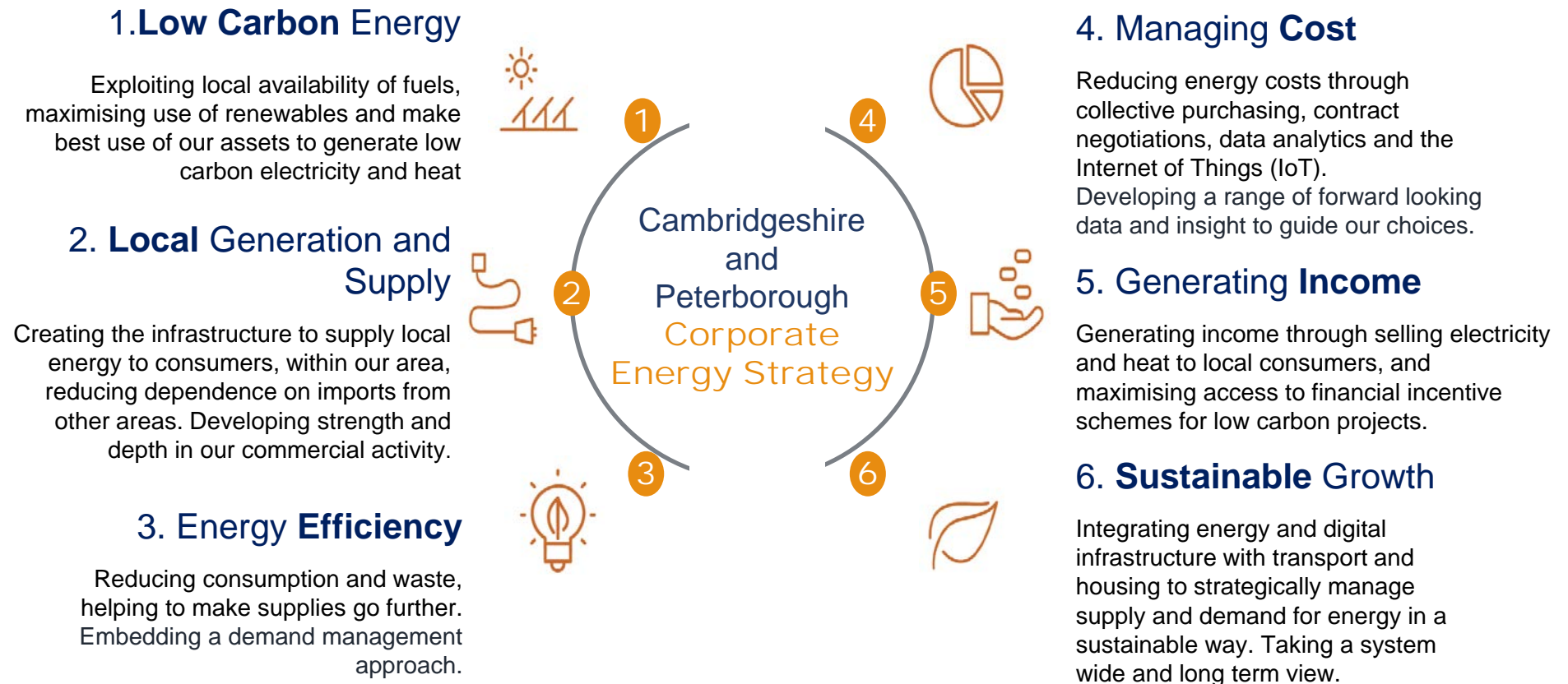
(Based on 2017-18 data. Cambridgeshire only. Includes schools. Includes gas and electricity but not oil or other fuels. Includes deduction for renewable energy generated. Excludes transport and other emissions.)



# 2. Strategy

The core of Cambridgeshire and Peterborough's Energy Strategy is to focus on these six areas. In addressing these focus areas, we will deliver several outcomes set out on the following page, recognising that each area is mutually supportive with many interdependencies.







## Our Six Strategic Focus Areas



# What this means in practice

Focus

Workstreams and Outcomes

 Low Carbon Energy	 Local Generation and Supply	 Energy Efficiency	 Managing Costs	 Generating Income	 Sustainable Growth
<p><b>Make best use of our assets</b> through energy generation on our schools, offices, non-domestic buildings and land assets to reduce energy bills and generate income</p> <p>Attract investment to help <b>upgrade local energy infrastructure</b></p> <p><b>Developing the Low carbon economy</b> by using local renewable and waste fuels to shift from dependence on fossil fuels</p> <p><b>Improve air quality</b> for new developments through access to local clean energy supplies for transport and housing.</p>	<p><b>Build resilient communities</b> through developing local energy supplies outside of the influence of global market changes</p> <p><b>Supporting vulnerable people</b> through continuity of local energy supplies to support critical local services</p> <p><b>Supporting a prosperous economy</b> by creating local energy related jobs and sharing our learning</p> <p>Supporting local ownership and investment in energy infrastructure to keep financial returns local <b>benefitting our local economy.</b></p>	<p><b>Reducing costs and waste</b> by reducing energy consumption</p> <p><b>Supporting vulnerable people</b> to keep warm, improve health and reduce costs</p> <p><b>Reduce energy consumption</b> through service redesign and policy development</p> <p><b>Making best use of our assets</b> by reducing energy consumption and bringing down service costs</p>	<p><b>Supporting vulnerable people</b> by collective purchasing and negotiation on energy to reduce bills</p> <p><b>Working in partnership</b> to procure low carbon energy and reduce costs</p> <p><b>Amend contracts</b> such as Street Lighting, Waste and Highways to include new technologies to save or generate low carbon energy</p> <p><b>Attracting investment</b> by equipping councillors and officers with the skills and knowledge to negotiate and attract energy investments</p>	<p><b>Make best use of our assets</b> by integrating energy schemes into what we already do, for example electric vehicle charging for park and ride, and then sell energy to customers.</p> <p><b>Create a sustainable and prosperous local economy</b> through selling locally produced energy to <b>generate income.</b></p> <p><b>Exploiting digital infrastructure</b> to meter, control and sell energy to local customers</p> <p><b>Generating income</b> through attracting finance incentives and selling energy to cover costs.</p>	<p>Manage energy supply and demand by integrating new technologies to <b>create smart energy communities.</b></p> <p>Collect and <b>analyse data</b> to improve decision making on life cycle carbon emissions and energy projects.</p> <p><b>Supporting growth</b> of new technologies and integrated design for communities to balance energy demand and supply more efficiently</p>

## Supporting our Local Economy

In 2017, the energy industry contributed 2.9% of GDP, created 83.7bn in economic activity, with 181,000 directly employed (6.3% of all industrial employment) nationally and supported a total of 682,000 jobs across the UK (equivalent to 1 in every 51 jobs), showing growth of 2.8% on the previous year.

Peterborough has the largest Environmental Cluster in the UK and Cambridge has a small but growing clean tech sector and an enviable reputation in academic research. The convergence of industrial segments, coupled with the development of research and the emergence of technologies, provides a unique opportunity for innovation and growth within the energy sector.

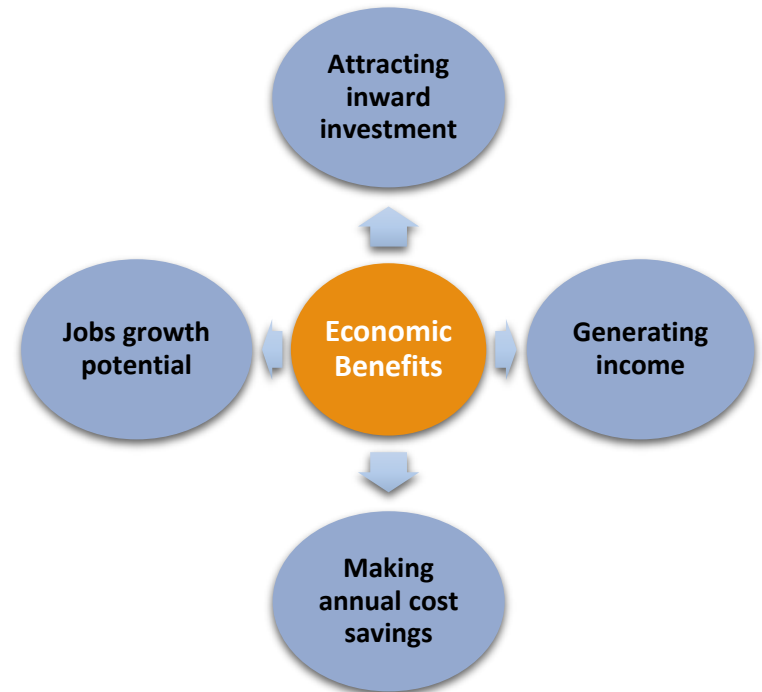
The energy sector plays an important role in our local economy with an estimated 7,700 people employed in the energy sector across the East of England generating GVA of nearly £1bn. It is also one of the most productive, with GVA per job averaging £129,000.

Through the Devolution Deal, the Cambridge and Peterborough Combined Authority is committed to doubling the area's economic output by 2030. It is the strongly held view, supported by the Cambridge and Peterborough Independent Economic Review (CPIER), that energy infrastructure is a key strategic priority for growth. Aside from clear environmental and community benefits, energy infrastructure is required to support the growing population, new housing developments, business growth and to provide high quality jobs for the region.

This Strategy is focused on supporting and delivering economic benefits through the use of its assets to realise commercialisation for the region.

*"We believe the government should recognise that energy infrastructure in high-growth regions qualifies as "strategic", and that key upgrades required to allow growth to continue should not be viewed as "speculative", even if the particular development they are tied to may be... We urge local government, Ofgem, and UKPN to start seriously planning for the new energy future, where individuals will buy and sell energy from one another in local grid systems independent of the main grid."*

CPIER – Final Report



## Two of Our Successes

Peterborough

The Energy Recovery Facility is located on the Eastern edge of the Fengate Resource Recovery Park in Peterborough. Viridor runs the facility and handles approximately 80,000 tonnes of waste per annum. In 2017/18, 79,768 ton was processed and enabled the Council to create 55.5GWh of electricity.

The scheme makes a significant contribution to both waste policy and to energy policy.



A £10million investment by the Authority and a 'Contract for Difference' with the Low Carbon Contracts finance company generating income for the Authority.

Soham Solar Park generates 12 MW of electricity, enough to power the equivalent of 3000 homes whilst also providing an income to Cambridgeshire County Council, which benefits the community.

Cambridgeshire

# 3. Collaboration

## Working with partners and stakeholders

Delivery of the strategy requires strong collaboration across a range of professional disciplines, services and stakeholders.

Early engagement with government is needed to understand and guide their plans for supporting local energy schemes. In particular we need to provide Government with the evidence from our experience developing and delivering energy projects to help to new powers, responsibilities and funding.

Our area has a significant challenge with the local grid network having reached its capacity in many parts of Cambridgeshire and Peterborough. Connections to the grid to export electricity or to expand demand can be difficult to obtain and costly. It will be important to work closely with Ofgem, (the regulator), the network operator (UK Power Networks) and National Grid to work through new opportunities to connect and export electricity or to establish new partnerships, projects or models where supply and demand for decentralised energy can be facilitated in other ways such as smart grids, private wire, energy storage or other new innovations. We need to lead by example.

Our public sector partners, including The Business Board of the Cambridgeshire and Peterborough Combined Authority, the Greater Cambridge Partnership and its City Deal and individual authorities are key collaborators on the big picture of energy system changes. We must work together to deliver this change. Colleagues in Cambridgeshire Local Authorities and Peterborough City Council are also key to our success. We will draw on the skills and experiences across organisations to identify and deliver projects as well as ensuring a joined-up approach to delivery and resource sharing to bring benefits to the communities we serve.



### Stakeholders and our community

Fundamental to the successful delivery of the strategy will be strong engagement with the community. Cambridgeshire and Peterborough will look to collaborate with its communities to achieve sustainable energy schemes on its assets that generate income for the Council or that help our communities to shift from fossil fuels onto renewables or clean energy.

Through early engagement with communities we hope to influence design and thinking on a project and bring additional benefits for the community where possible. Engagement plans will need to facilitate constructive dialogue with different sectors in a community to seek views on how best to mitigate any issues or challenges. We will need to explore a range of communication techniques, including social media, to secure as broad a range of engagement as possible.

## How Will Our Communities Benefit?

The UK Climate Change Act 2008 along with global agreements to reduce carbon emissions means that investors such as university pension funds are increasingly moving away from investing in fossil fuels and supporting low carbon investments. Energy bills have more than doubled in the last 10 years and further price increases are expected. More than 40% of the UK's energy is imported and global demand for energy continues to grow.

Buying energy on the global market is competitive. Becoming more energy **self-sufficient** through generating local energy on buildings, car parks and other land assets reduces the amount of energy we have to import and provides **greater certainty** around energy bills whilst also helping the local economy. Building our community energy **resilience** is important should global energy supplies become restricted due to rising demand. Energy pricing will direct how our communities, businesses and households use energy in the future. It is important that we help equip our communities with the opportunities and knowledge to interact in the future energy market in a way that can benefit our communities.

**Key benefits to Cambridgeshire and Peterborough communities** will include:

- **Improved air quality**
- **Reduced cost of energy**
- **Reduced consumption of energy**
- **Increased security of energy supply**
- **Greater resilience**
- **Reduction in carbon footprint**
- **Investment in the local economy**

### Sustainable

- Helping to secure renewable and low carbon energy supplies and infrastructure to help support the needs of our communities

### Resilient

- Building energy resilient communities through aligning assets and potential generation with local needs

### Smart

- Exploiting new and emerging technologies and advances in data analytics to make better use of resources

### Economic

- Attracting inward investment from third parties to upgrade energy infrastructure assets for the benefit of the wider community

### Commercial

- Maximising commercialism, income generation and making best use of assets to reduce carbon emissions and environmental impacts

### Innovative

- Integrating energy solutions with work on waste, transport, housing and digital infrastructure to bring new solutions to the growth agenda

# 4. Funding and Resources

## Finance incentives and grant funding

Government has implemented a range of financial incentives to support delivery of renewable energy projects. These incentives are subject to regular change as the energy market evolves. Cambridgeshire and Peterborough have successfully accessed some of these incentives and are exploring new opportunities as they emerge.

### Feed in Tariff (FiT)

This scheme has provided good returns for renewable energy investments but ended for new installations on 31 March 2019.

### Renewable Heat Incentive (RHI)

The Renewable Heat Incentive (RHI) is available for biomass, ground source heat pumps and combined heat and power. Some Cambridgeshire schools are already accessing RHI through the installation of biomass boilers.

### Contracts for Difference (CFD)

The Government runs annual auctions to apply for 'Contracts for Difference'. This is aimed at larger projects and is an opportunity for projects to compete for finance incentive ensuring that competition drives down prices. Cambridgeshire County Council has signed a Contract for Difference for its 12MW solar park.

### Capacity Market (CM)

The Capacity Market is designed to ensure sufficient reliable capacity is available on the grid by providing payments to encourage investment in new capacity or for existing capacity to remain open. This mechanism is subject to review.

### Balancing Mechanism

The balancing mechanism is used to balance supply and demand in each half hour trading period of every day. Electricity cannot currently be stored at scale and must be manufactured at the time of demand. Where National Grid predicts a discrepancy between electricity production and demand payments are offered.

### Government Grants & Competitions

Government is keen to incentivise heat networks, electric vehicles, smart meters and other technologies. There are also opportunities to apply for government grants to support projects and schemes to apply for support for change or innovation, such as through Innovate UK.

## Investments

### Cambridgeshire County Council Energy Investment Fund

Cambridgeshire has invested directly in projects through borrowing from Public Works Loan Board (PWLb). A set of investment principles has been agreed by Cambridgeshire County Council Members to guide the development of business cases.

### Co-investment

Cambridgeshire and Peterborough are supportive of co-investment into projects, for example, Peterborough's Energy Recovery Facility. At a small scale, co-investment has worked through schools and academies contributing funds towards energy performance contracting and attracting other grants such as Salix Finance.



## Resources

### Energy Management in Cambridgeshire

Cambridgeshire County Council formed the Energy Investment Unit to develop and deliver energy projects that save money for the public sector and generate income for the authority. The unit is funded through income generated by projects and it works with asset managers and service managers to identify potential projects, access existing and new procurements, and brings forward the engineering, financial and legal skills to deliver projects on the ground. Working closely with finance and legal colleagues over the last three years, the unit has built a solid base of skills and knowledge to bring forward energy projects, assess complex business cases, identify benefit share arrangements and advise on contracting arrangements.

### Energy Management in Peterborough

Peterborough City Council does not currently have a single Energy Unit. Energy Procurement, Carbon Management, Smart City Development, Energy projects and Energy From Waste management are spread across the organisation or with separate organisations such as Opportunity Peterborough and Peterborough Environment City Trust (PECT).

### Collaboration

This strategy is a first step to exploring a holistic approach to our Corporate Energy across Cambridgeshire and Peterborough. It will provide a co-ordinated approach as well as the ability to share skills, knowledge and resources to benefit of both Cambridgeshire and Peterborough's communities and future needs.

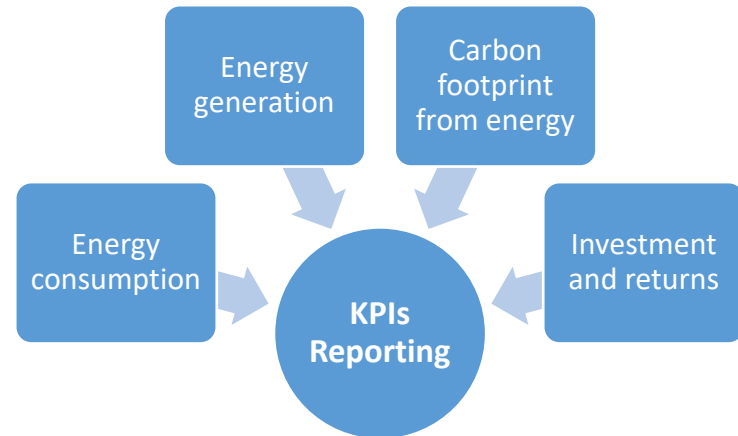
## Data collection and analysis

Data is key for managing energy demand and how to make efficiencies. It is critical to ensure that data collection is in place and that it is analysed to inform decisions to aid projects and manage costs. There are two data platforms in place. Systems Link - an energy management system and K2 -an asset management system. Both important tools to inform our work.

## Approval and Monitoring

The strategy and accompanying Action Plan will be approved by Cambridgeshire and Peterborough Councils. This strategy and action plan will be one of the mechanisms that can support transformation of our councils' services.

Annual monitoring reports will inform progress on the delivery of the Action Plan, which will be a dynamic document and will have the ability to add or delete projects dependent on deliverability. Key Performance Indicators (KPIs) will be reported to monitor progress.



## Summary of Local Renewable Energy Opportunities

Here is a summary of the main renewable energy opportunities and how they might be applied in Cambridgeshire and Peterborough.

Technology	Main Opportunities	Main Challenges	Income potential
Solar PV	Renewable electricity generation. Panel prices have fallen in principle solar farms can be delivered subsidy free. Electricity can be sold to the grid or local consumers through private wire or Power Purchase Agreements. Local planning policy generally supportive.	The costs connecting to a constrained distribution network can significantly impact business cases. Closure of the FIT March 2019 and Solar PV is not eligible for future CfD. but panels costs have substantially reduced.	Contracts for Difference price was £79 / MWh in 2015. Triangle Farm generates £350k net revenue per annum.
Bioenergy / biomass	Low carbon heat and electricity. Wood can be sourced locally. Household green waste can be used for larger schemes.	Planning permission. Design and delivery challenges. Local air quality and smells.	Renewable Heat Incentive, 2.14-3.05p/ kWth (Jan 2019). School projects access RHI approximately £23-£25k per annum.
Biomethane / biogas / anaerobic digestion	Farm estates e.g. energy beet crops.	Planning permission. Some land not suitable. Sourcing sufficient organic material. Transportation impacts on local communities.	Attracts Renewable Heat Incentive for smaller schemes at 1.16-4.76p/kWth. Larger schemes can attract Contracts for Difference. Max strike price was £75/MWh in 2017 CfD auction for biomass with CHP.
Waste	Organic and black bin waste can produce both heat and electricity.	Planning permission. Local perception of air quality / health impacts. Environmental permit required. Grid reinforcement costs.	Combined Heat and Power and district heating networks. RHI. CfD max strike price estimated £80 / MWh 2017-18. Cost savings on waste disposal via landfill.
Wind	Cheapest form of renewable electricity generation. Significant land development opportunities e.g. guided busway and rural estate.	Planning permission. National and local planning policy less supportive. Local perception can be negative. Grid connection barriers.	Good commercial returns. CfD Strike price was £82/MWh in 2015 but onshore wind not currently eligible for CfD in 2017 or 2019. Debate nationally on whether energy bills increase if the UK continues to prevent onshore wind farms.

## Summary of Local Renewable Energy Opportunities - continued

Technology	Main Opportunities	Main Challenges	Income potential
Hydro electricity	Small opportunities on the river and canal systems could be developed.	Low lying, flat geography. Economics of scale still to be tested.	Unknown.
Geothermal / heat pumps	Ground source or air source pumps. Low level heat for building and communities.	Ground source pumps can have archaeological consequences, which can be costly if applies.	CfD max strike price estimated £140 / MWh. RHI 5.38-9.36p/ kWth.
Energy storage	Store excess energy produced when renewables working, to supply when needed. Helps balance supply and demand.	Min 3MW needed for National Grid's STOR programme.	Capacity Market, Balancing Mechanism, Firm Frequency Response (FFOR) or Power Purchase Agreements.
Demand response	IT control systems. Smart meters. Smart grid development. DC micro grids.	Empowering individuals to become active energy consumers to manage energy better.	Greater efficiency and reduced costs.
Nuclear	None at present.	Not in line with UK planning policy. Large scale investment would be required. Unlikely to be suitable for this region.	Unknown.
Fracking	None at present.	Very limited geographical locations. Not suitable for this region. NB. Fracking is not a renewable energy source.	Unknown.

# Further Information

If you would like to discuss the contents of the strategy or you have an idea for a project, please contact:

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