

EnergySouth2East

Companion Document - Strategy and Action Plan

Version 8.0

Appendix A: The tri-LEP partners

Appendix A1: South East LEP



A snapshot of the economy

Population	4.2 million
Working age population	2,552,400
GVA	£85,794 million
GVA per head	£20,427
Employment rate	80.2%
Unemployment rate	4.1%
Number of jobs	1,873,000
Number of businesses	169,545

Our commitment to sustainable growth

Since late 2017, South East LEP (SELEP) has carried out extensive consultation with businesses and local authority partners on a refresh of the Strategic Economic Plan. We are keenly aware of the grand challenges set out in the government's Industrial Strategy, in particular that of Clean Growth. We know from this engagement work, driven by the Industrial Strategy Clean Growth Grand Challenge, that the UK is entering into an essential transition period to ensure affordable and sustainable energy supplies into the future that at the same reduce our carbon emissions for a healthier and safer environment. This holistic trajectory will underpin many aspects of successful economic growth - we rely on energy for our power supply, heat provision and transport, and the low carbon sector is predicted to grow at four times the rate of the rest of the economy. Supply chains will be created and extended, skills will be developed and jobs created, new technologies will be advanced and implemented, and our industries, businesses and communities will benefit financially from reliable and affordable energy supplies.

In the last twelve months, SELEP has gone from a standing start on the clean growth agenda, to having a large community of stakeholders proactive in the production of a Local Energy Strategy and Action Plan, with associated evidence and intelligence base.

Our Strategic Economic Plan is set to recognise this agenda and will look to this Local Energy Strategy and Action Plan to act as a delivery mechanism to access domestic funding and private investment for LEP and multi-LEP collaborative projects.

Appendix A2: Coast to Capital LEP

The Coast to Capital area boasts a strong economy worth £50.7 billion gross value added (GVA), making it the seventh largest local economy in England in 2016. The area is a network of functional economic hubs – Croydon, East Surrey, West Sussex and Greater Brighton. Each has its own distinct sense of identity, offering a powerful draw for businesses, entrepreneurs and visitors from London, across the UK and the rest of the world.

A snapshot of the economy

Population	2.0 million
Working age population	1,464,159
GVA	£50,753 million
GVA per head	£26,202
Employment rate	80.7%
Unemployment rate	4.1%
Number of jobs	1,026,000
Number of businesses	90,340



Coast to Capital published its current Strategic Economic Plan, *Gatwick 360°*, in July 2018. The vision by 2030 is for the towns and cities in the area to be known around the world as fantastic places to live, to grow and to succeed. It will become the most dynamic non-city region in England, centred around a highly successful Gatwick airport. *Gatwick 360°* sets out eight economic priorities that make up Coast to Capital's programme for growth.

Our commitment to sustainable growth

One of the eight economic priorities is investment in sustainable growth. The ambition is to develop a model of sustainable growth for the area, where all new development will come with an equivalent investment in natural capital, prioritise the production and use of renewable energy, reduce the demand on water and minimise the amount of waste generated. Production of the Energy South2East strategy and support to the Greater South East Local Energy Hub is central to this priority.

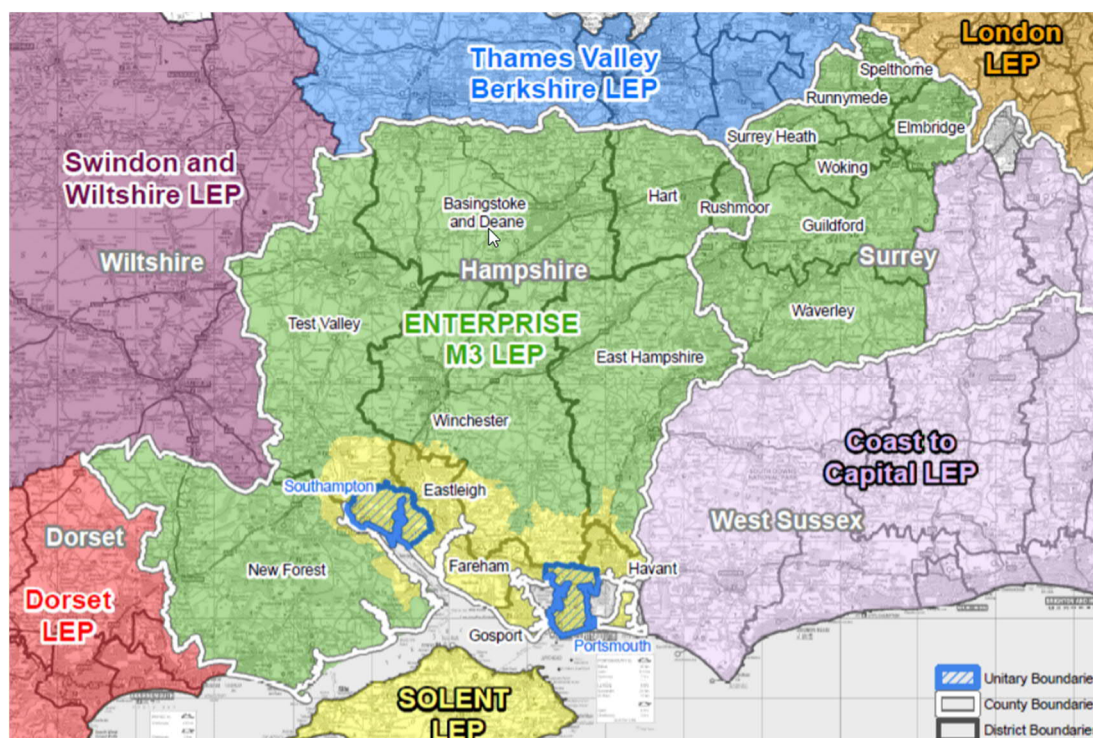
Appendix A3: Enterprise M3 LEP

A snapshot of the economy

Population	1.5 million
Working age population	1,038,000
GVA	£49 billion
GVA per head	£32,232 (2015)
Employment rate	81.3%
Unemployment rate	3.4% (2016)
Number of jobs	752,023
Number of businesses	86,500

Enterprise M3 is an inclusive and authoritative catalyst for enterprise. The LEP operates within a network of existing business support provided by the private sector, the public sector, and a range of membership and not-for-profit sector bodies. It also co-operates closely with the network of adjacent Local Enterprise Partnerships on issues of shared interest.

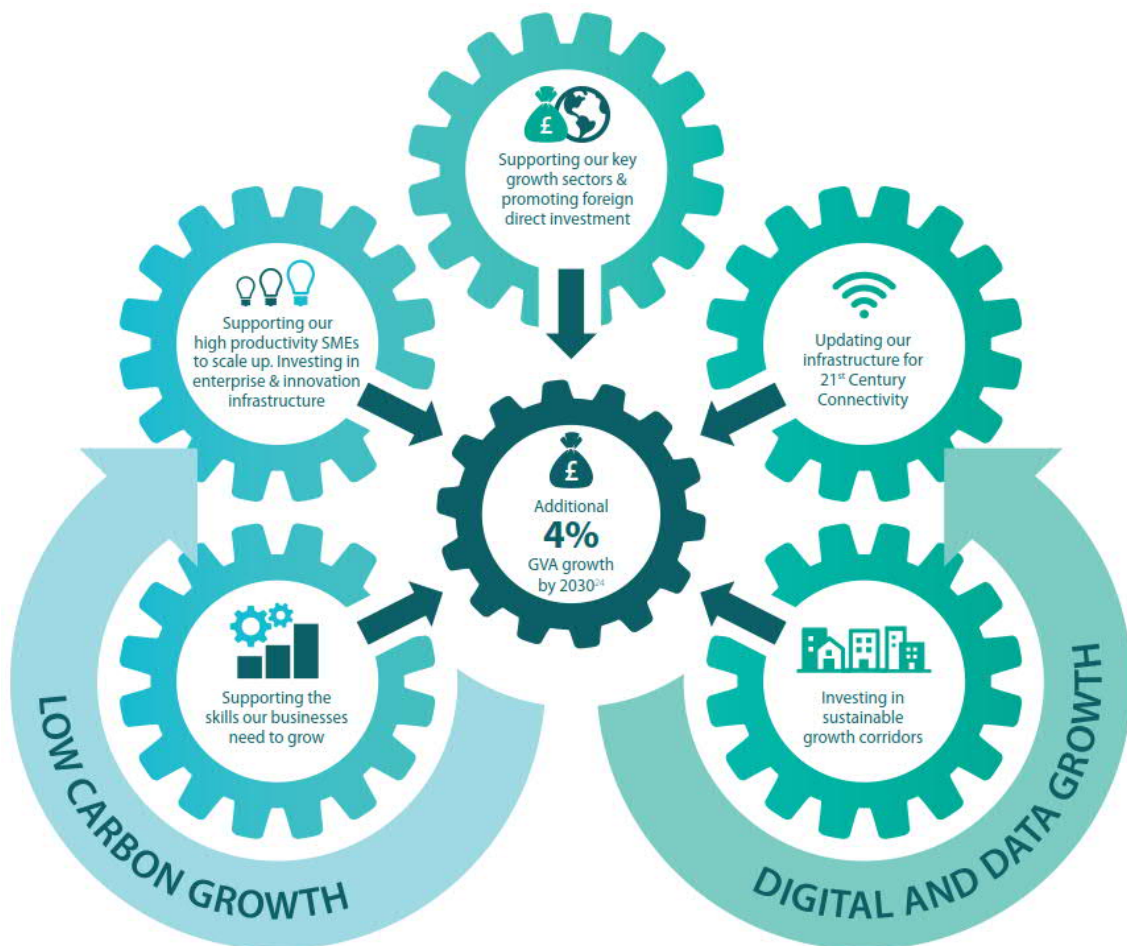
The Enterprise M3 area sits at the heart of the Innovation South region and stretches from south and west Surrey to the New Forest, taking in much of Hampshire. Surrey and Hampshire are known for their rich natural environment. They are characterised by many rural towns and villages, two national parks and sites of outstanding natural beauty and heritage. Our vision for the Enterprise M3 area is to be the premier location in the country for enterprise and economic growth, balanced with an excellent environment and quality of life.



The Enterprise M3 area is a national asset: it is an economic powerhouse and a significant net contributor to the UK economy, with over 2.9% of the UK's annual economic output. Enterprise M3

has the fourth highest GVA per head of population and is among the four fastest growing LEPs in England.

We see Clean Growth as a key opportunity for places to succeed without putting pressures on the environment. Importantly, a focus on Clean Growth will showcase market and product opportunities for businesses to grasp.



Appendix B: Stakeholder Interventions

Technical Interventions

During the development of the Local Energy Strategy and Action Plan, we engaged over 500 people representing over 100 organisations from across the South East region. A significant aspect was to identify and capture energy interventions, projects and ideas for the tri-LEP area. Where these can be unlocked by implementation of the Project Models is shown within the detail of each Project Model in the Action Plan.

Non-Technical Interventions

Often, technology is the least-restrictive factor in providing a solution that meets objectives or rises to a particular challenge. For instance, a study by the University of Loughborough found that⁵⁹:

"The main non-technical barriers were not necessarily financial, as is often believed; governance barriers, such as out-of-date regulations or unreliable partners, can also play a critical role in a project's success or failure. Social barriers such as public apathy and misinformation often affect a project's operation."

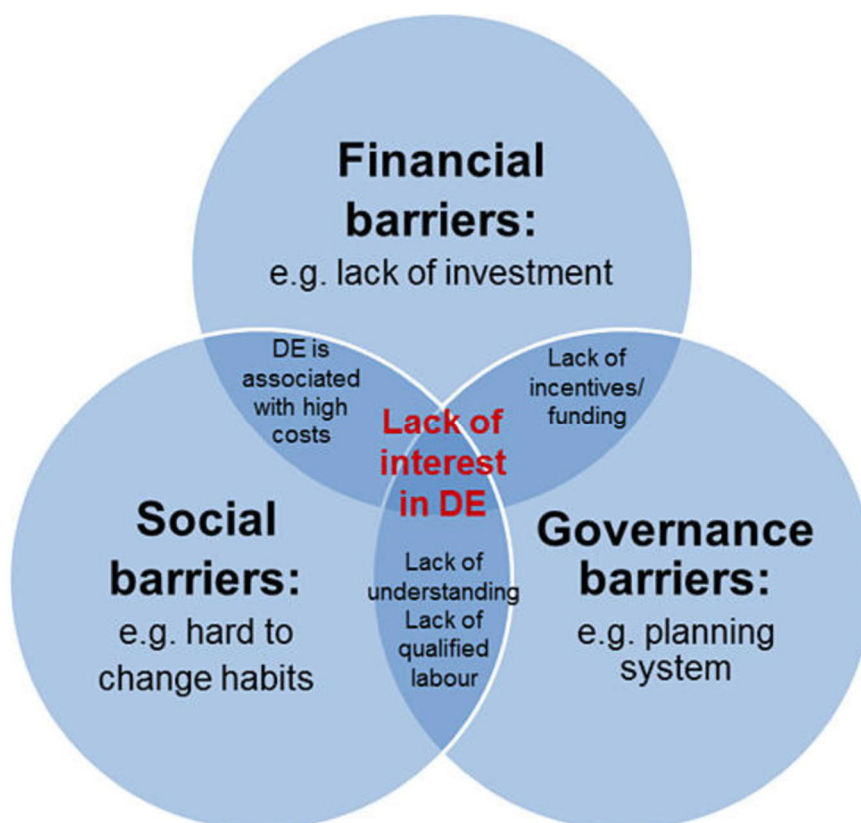


Figure 15: Identification and interaction between non-technical project barriers for Decentralised Energy (DE)

⁵⁹ C. I. Goodier and K. Chmutina, "Non-technical barriers for decentralised energy and energy efficient buildings," *International Journal of Energy Sector Management*, vol. 8, no. 4, pp. 544-561, 2014

Finance is of course a key component of any Project Model, moving from outline business case (as presented within the accompanying Action Plan) through detailed Feasibility and Due Diligence for an investment case. But without considering the social impact and whether the regulatory or legislative framework is in place and supportive of a project, it will almost undoubtedly fail. We must also consider whether a project may become overtaken by Social or Governance factors during its lifetime. The requirement therefore is for non-technical activities to unblock barriers to Clean Growth in the form of the Project Models: these include pushing for changes to the planning policy and national planning framework, raising awareness and behavioural change, support the skills and training agendas for the energy sector, and growing the supply chain. Key examples identified by stakeholders are presented below:

What is the Intervention?

- Collaboration / communication between public & private bodies; better collaboration within public bodies
- Local Authorities to "lead by example"
- Link CECAN ("The Centre for the Evaluation of Complexity Across the Nexus") at Surrey University to employment / skills board + invest plans
- Link investment decisions to both energy / zero carbon and skills boards
- Link to zero carbon / net zero investment plans in each local council
- Alliance of LEPs to lobby Government to coordinate law policy + regulation; e.g. OFGEM - priority to reduce bills - should balance that with need to decarbonise system
- Better Planning Policy - supports district heat, environment standards in new homes, etc.
- Consistent Gov't Policy - lobby, key recommendations from strategy
- Strategic Integration - Energy is in all infrastructure
- Education and training
- Influence local plans - needs to happen ASAP
- Leadership - leading by example; council, universities, blue light, anchor institutions; LZC operations
- Different local plans @ different local stages -> solution an officer / sub-group to share information across different LA areas
- Library of documents in the strategy - the strategy will add weight to local planning decisions
- Expand the retrofit works model
- Dilemma of joining-up need for investment for economic growth and environment benefit / impact
- Consumer benefit education - what are the real-life benefits?
- Lack of national policies that support local plans for development / infrastructure / projects e.g. that influences / secures land
- Building Regulations are not tight enough to enable the kind of sustainability that we want
- LoCASE 2
- Strategies / hubs need to identify, and not leave behind, multiples of projects that are held up at planning stage - make it easy for LPAs to include new projects
- Commercial / funding - or lack of it and ability to have enough time for proposals to be considered
- Impacts of state aid rules on LA funded projects
- Building Regs governing energy efficiency are years behind the curve
- Gov't must drive changes requires as part of their National Planning policy framework review to enable Local Plans to facilitate new interventions

Where should it be implemented?

- Schools, colleges and Uni's
- Being green is prosperous for the economy

Why - what is the benefit?

- Public sector leadership - so varies, needs to come from central Gov't
- To develop understanding
- Local centres (colleges) link to businesses to provide skills needed @ levels 2 to 6
- Political buy-in - follow the money + ensure alignment to energy strategy vision
- Need to create skills to match new jobs needed to deliver this transition at technical + installer level
- Impact on vehicle movements from online shopping - needs reflection under impact
- Communities clubbing together to buy groceries - co-op principle... can apply to energy purchasing / activity / usage
- Provision of grant funding from Gov't not readily accessible to LA officers who don't have time / resource to do this!
- Government + house building sector
- Need a more educated consumer - a consumer revolution
- Transparency and accurate story telling
- Advisory Group (LEP / BEIS) to guide local officers (+ politicians / members) on the opportunities / types of projects that are out there. We need a system to share examples of where this is / can happen.
- LGA's role in this?
- UKPN perspective is that those interventions can be done.

Priority

- More 'do' and less 'talk'
- This needs to be developed for buy-in
- Educational
- Community engagement & planning officer buy-in
- Town & Country planning association (TCPA) new planning guidance for policy makers
- Behavioural change needed to create demand for new interventions - awareness will increase as energy prices increase
- Association of Local Energy Officers
- Bringing together Building Regulation i.e. Code for Sustainable Homes
- Skills gap in LA's in assessing planning documents - can we provide training?
- Planning meetings across the geography - needs to be wider than just planners - Planners themselves not engaged in this process!!!

Details on Specific Interventions

We conducted extensive meetings and workshops across the tri-LEP area during the development of the Local Energy Strategy. From this, a number of project ideas and interventions were collected that either did not fit with a Project Model, or detailed information was only obtained later in the process.

- **Heat Network potential in Hastings – Bohemia Area**

Hastings Borough Council are considering a bid to HNDU to consider the options for a scheme in the Bohemia area linked to a large scale regeneration/ redevelopment of the area, see https://www.hastings.gov.uk/planning/policy/emergingpolicy_guidance/action/

- **Solar panels on churches - can be done on historical buildings!**

Within the district of Dover, St Anthony's can claim to have been the first carbon-neutral church in Kent, with solar panels installed out of sight on the roof in 2012. <http://church-alkham-capel-hougham.org.uk/st-anthonys-church-alkham>

- **Work on taxi companies to changeover to EV / Hybrid - use changes in licensing arrangements to incentivise this**

Each Local Authority has its own Carriage and Private Hire Licensing Policy. Dover District Council provides a link to their policy (<https://www.dover.gov.uk/Business/Licensing/PDF/Taxi/Hackney-Carriage-and-Private-Hire-Licensing-Policy.pdf>) which sets out vehicle requirements which would need to be amended to take into account any EV requirement/ incentive.

Dover District Council identify the fact that a lot of taxis operate 24 hours a day would have to be taken into account in any EV roll out. Vehicles not ready to pick up a fare would have an adverse impact on the economical viability to the trade.

- **Ports - sea transport opportunity?**

Dover District Council notes that ports do not have any authority over ships that dock as they are owned by different operators and ships are registered in many different countries. They question how would environmental restrictions or other requirements be imposed on ships passing through GB waters?

- **Cavity-Wall Insulation (CWI) poorly fitted – extraction needs to be funded. As well, CWI inappropriately installed e.g. flood areas**

Dover District Council note that this is likely to become an increasing issue in the future as previously unsuitable cavity wall insulation has been installed in properties that are in designated flood areas. More suitable insulation technology is now on the market, therefore would be more cost effective to extract unsuitable insulation before the property floods in order to decrease damage to the fabric of the building should flooding occur.

Extraction and re-insulation would not attract any carbon credits, therefore unlikely to receive funding and this would be a costly exercise for the householder. However by not addressing the problem, heat loss through walls would increase adding to the carbon emissions, a decrease in thermal efficiency rating (EPC) and exposing occupiers to higher energy costs, as well as living in a cold home.

- **LED roll-out for all LA offices**

Dover District Council Offices in Whitfield have had low-energy LED lights fitted and PIR sensors installed to all corridors and toilet light fittings. This reduces the energy consumed, as well as turning lights off when they are not needed. The chandeliers at Dover Town Hall have also been refurbished and the existing 60 and 100W lamps replaced with 7W and 13W LED lamps. The change in the loading will save 17.32kW.

- **Association of Local Energy Officers (ALEO) – regional fuel poverty networks.**

There are several groups that have members whose part of their role focuses on fuel poverty, improving the energy efficiency and thermal comfort of domestic properties. Therefore it is imperative that there is a clear link between Strategy and the ability to deliver measures and actions by liaising with those who deliver/organise projects on the ground. The Association of Local Energy Officers is a not-for-profit organisation supporting local government officers and housing professionals with a remit for reducing all aspects of the UK's domestic-sector carbon footprint and tackling fuel poverty. The ALEO SE forum is setup among Local Authorities in the South East for the sharing of information with the aim of facilitating a reduction in carbon emissions, alleviating fuel poverty in the region and encouraging sustainable energy measures.

- **Kent Energy Efficiency Partnership**

The partnership is open to all Kent Local Authority officers' whose work has a relevance to the group's aims and objectives. The partnership will also welcome any other partner organisation that has future project-based links. The group's key aim will be to look at new and existing ways to reduce fuel poverty and improve people's quality of life by assisting residents to achieve affordable warmth.

The group will also look at ways of adapting to/mitigating the effects of adverse climate change, by assisting residents to reduce their energy consumption, by increasing domestic energy efficiency and the installation of renewable energy technologies in accordance with the Home Energy Conservation Act 1995 (HECA), Climate Act 2008 and Energy Act 2011. The group will focus on working together on joint projects to maximise resource and funding opportunities, sharing best practice and learning to aid the achievement of the above goals. These projects/schemes will be developed in line with changing legislation and local commitments, and where necessary seek the relevant Authorities' cabinet/management approval

- **Kent and Medway Sustainable Partnership**

The Kent and Medway Sustainable Energy Partnership will be a broad group reflecting the multifaceted nature of the retrofitting market. In addition to the partnership, smaller working groups may be established to oversee day-to-day delivery of specific work packages within the Action Plan, for example around supporting the local economy, working with registered housing providers and communicating key messages.

The Kent and Medway Sustainable Energy Partnership is an executive level group providing overall direction to the establishment of a coordinated programme of energy efficiency and sustainability retrofitting for Kent and Medway. Its overarching purpose is to support opportunities that can be developed collaboratively to agree shared priorities, and to identify and resolve risks and barriers that could jeopardise the best ECO, Green Deal or other funding offers being obtained by Kent and Medway residents and businesses.

- **Kent Car Club**

The Local Authority car club in Kent is CoWheels (www.cowheels.org.uk). It is currently used by KCC (2 cars based in Maidstone) and Tunbridge Wells (6 cars). Council pool cars are replaced with electric or hybrid options. By putting them near public transport hubs or offices, the idea is that people can walk/cycle/public transport to work and then still have access to a low emission vehicle during the day if they need to visit clients/meetings. It is also available to the public, so the cars can be used at evenings and weekends. It would be good if this scheme could be extended across Kent, so there is consistency in the car-club offer to residents/employees. Also, if there were a lot of cars available, then it would encourage more people to reduce their number of personal cars and this in turn is likely to reduce the number of trips made.

tri-LEP Non-technical Interventions proposals

LEP Source	Topic	Potential Action
C2C	Education	Smaller businesses and landlords need to be supported in what renewable they could invest in & incentivised
C2C	Education	Increase walking + cycling levels hugely - cycle lanes, electric bikes and drivers safety awareness
EM3	Education	Integrated consultancy training in saving / building / heating
EM3	Education	Education and training
SELEP	Education	LEP to run workshops(?) for sustainable business models e.g. "River Simple" hydrogen car maker "to pursue and systematically eliminate the environmental impact of personal transport". Every investment takes us closer to our goal!
SELEP	Education	Upskill renovation + building industry
SELEP	Education	Education on what is Smart Energy + a Smart City
SELEP	Education	Consumer benefit education - what are the real-life benefits?
C2C	Funding	Gov't should explore 0% Green Deal - pay as you save model
EM3	Funding	Link investment decisions to both energy / zero carbon and skills boards
SELEP	Funding	Emissions based lending
SELEP	Funding	Local authorities & the low finance that they can bring offer an opportunity but can be risk averse
SELEP	Funding	Canterbury Christchurch & Green Growth Platform both provide academic leads to tap into for projects that might co-finance SME support for interventions.
SELEP	Funding	Green Deal sort of system - gov't scheme
C2C	Policy	Policy - more ambitious than national policy e.g. 10% better than Part L Building Regs
C2C	Policy	Reduce Public Transport costs - to make a viable alternative to cars
C2C	Policy	Make parking cost time + £
C2C	Policy	Bus lanes everywhere!
C2C	Policy	More demanding Building Regs re: energy efficiency
C2C	Policy	Give Planning Authorities powers to demand higher energy efficiency standards (e.g. Brighton + Hove Local actions 19% improvement)
C2C	Policy	Higher planning targets for property conversions (end permitted development)
C2C	Policy	Zero carbon homes - all new build
C2C	Policy	MEES (?) don't go far enough, hard enough
C2C	Policy	Developers resist incorporating EE because they don't have any skin in the game. How to change that? Quality encouragement.
C2C	Policy	Smart Homes - opportunity to link energy with E_Health
EM3	Policy	Revisit concept of Green Deal
EM3	Policy	Re-instate renewable support FIT by March 2019.

LEP Source	Topic	Potential Action
EM3	Policy	All new developments should incorporate renewable + microgrid as a planning condition
EM3	Policy	Shift investment away from increasing transport infrastructure capacity (e.g. as in Missing Links report for the South East) to managing demand - more sustainable, local, shared transport solutions
EM3	Policy	Free / subsidised public transport
EM3	Policy	Shift away from 'traditional' transport models - smarter; move investment in green infrastructure to get people out of cars
EM3	Policy	Code Level 6 for all new build throughout the region
EM3	Policy	Better Env't standards in new build.
EM3	Policy	All new developments required to be built to smart standards - but make sure existing homes not left behind
EM3	Policy	Link CECAN(?) at Surrey University to employment / skills board + invest plans
SELEP	Policy	Replicate "Medtech Accelerator Concept" for new energy initiatives / solutions -> concept investment
SELEP	Policy	Wind - onshore - policy change needed - national -> local plans
SELEP	Policy	Links to air quality & health
SELEP	Policy	National EV infrastructure - can charge your vehicle anywhere - one national scheme
SELEP	Policy	Work on taxi companies to incentivise changeover to EV / Hybrid - use changes in licensing arrangements to incentivise this - (Dundee example?)
SELEP	Policy	Use of bus lanes - free-up to HGVs (or EVs?) at certain times?
SELEP	Policy	Canal and river systems for transport - and water source heat pumps?
SELEP	Policy	Reinstate Gov't targets for homes + buildings
SELEP	Policy	EPC ratings + SAD ratings too low to drive forward EE fast enough!
SELEP	Policy	Smart City as a policy
SELEP	Policy	LoCASE 2
SELEP	Policy	Building Regs governing energy efficiency are years behind the curve
C2C	Procedure	Need to consider other renewable (i.e. tidal & wave as part of the mix) not just nationally but locally
C2C	Procedure	Roll-out bikeshare scheme to other towns and cities
C2C	Procedure	Renewed push on workplace travel plans to reduce single car occupancy journeys to work
C2C	Procedure	SE Hub should focus on providing EE guidance for projects
C2C	Procedure	Develop market for Demand Side Management (DSM)
C2C	Procedure	Home Smart Solutions: pilots / roll-out of best practice - home solar PV / battery storage + EV charging; see Worthing to Open Home for examples
EM3	Procedure	Revisit major solar farm planning rejections (10 - 50MWp)
EM3	Procedure	Link EE to sharing / public spaces. Programme to start by retrofit workplaces and community facilities.
EM3	Procedure	Most challenge is for existing assets. Focus on these. Private-rented homes.
EM3	Procedure	All councils in the region publicise and incentivise 270mm min loft insulation
EM3	Procedure	Hampshire - build on 'Insulate Hampshire'
EM3	Procedure	New Business Models and thinking
EM3	Procedure	Link to zero carbon / net zero investment plans in each local council
SELEP	Procedure	Engage with Orbis who do public sector procurement as a shared service across 3 local authorities in East Sussex and Surrey to share best practice e.g. can we write energy requirements into procurement frameworks

LEP Source	Topic	Potential Action
SELEP	Procedure	Courier / empty mileage schemes (like pallet network)
SELEP	Procedure	Bus companies - there is a disconnect between routes and local employment centres
SELEP	Procedure	Speak to ALEO - regional fuel poverty networks
SELEP	Procedure	Different local plans @ different local stages -> solution an officer / sub-group to share information across different LA areas
SELEP	Procedure	Library of documents in the strategy - the strategy will add weight to local planning decisions
SELEP	Procedure	Strategies / hubs need to identify, and not leave behind, multiples of projects that are held up at planning stage - make it easy for LPAs to include new projects
SELEP	Procedure	Commercial / funding - or lack of it and ability to have enough time for proposals to be considered
C2C	Strategy	Encourage active transport, public transport + car sharing; fewer cars not just Evs
C2C	Strategy	Key institutions with large estates e.g. Councils, N Trust, Hsg Associations
C2C	Strategy	Joined-up strategic approach between LEPS, Regional bodies + Central Gov't so that Renewable Distribution is provided most effectively overall
C2C	Strategy	Develop plan for region-wide smart energy management (technical & economic)
EM3	Strategy	Rural Villages - meet target to eliminate oil heating by 2030 in clean energy strategy
EM3	Strategy	Rural Villages - place based targets to create zero carbon communities
EM3	Strategy	Reduction in commuting / change commuting and travel patterns
EM3	Strategy	Flexible working - home hubs
EM3	Strategy	Alliance of LEPs to lobby Government to coordinate law policy + regulation; e.g. OFGEM - priority to reduce bills - should balance that with need to decarbonise system
EM3	Strategy	Leadership - leading by example; council, universities, blue light, anchor institutions; LZC operations
SELEP	Strategy	Clustering of projects into very large scale projects to share and reduce risk and enable access to finance by small-scale projects. We need to be able to engage closely with the finance sector to give them confidence to invest in low income projects at the same time as high return projects
SELEP	Strategy	Large scale investment opportunities e.g. BioEnergy
SELEP	Strategy	Make innovation cost-effective / affordable e.g. DSR or solar tiles
SELEP	Strategy	Car sharing / community car schemes
SELEP	Strategy	Kent-wide (each LA) running a car pool
SELEP	Strategy	Gov't must drive changes requires as part of their National Planning policy framework review to enable Local Plans to facilitate new interventions

Appendix C: National Context

On 26th November 2008 the **Climate Change Act** received Royal Assent and the UK became the first country in the world to set a long-term, legally binding target for emission reduction. The Climate Change Act commits the UK to reduce emissions by at least 80% of 1990 levels by 2050, and sets a framework for the setting of rolling five-year carbon budgets⁶⁰. Parliament has recently approved the Fifth Carbon Budget, for the period 2028–32, at a 57% reduction on 1990 levels⁶¹.

In the context of the UK's legal requirements under the Climate Change Act, the UK's approach to reducing emissions has two aims:

- To meet our domestic commitments at the lowest possible net cost to UK taxpayers, consumers and businesses; and
- To maximise the social and economic benefits for the UK from this transition²¹.

In the current decade, the UK sealed its commitment to tackling climate change by becoming the 111th country to sign the landmark Paris Agreement, which provides a framework for governments as well as business and investors to keep global warming well below 2°C.

The UK's **Industrial Strategy**, launched in 2017, sets out plans for how government and businesses can work together to shape a stronger, fairer economy. Energy forms one of the six priority sectors that need to be addressed in order that the country can successfully transition to a low carbon economy and deliver its legally binding climate change obligations.

The macro trend towards clean power was cited within the Strategy as a key signifier of the transformation we are witnessing in the energy industry. Clean power investment represented around 70% of total global power investment between 2012 and 2016, with this figure set to rise to approximately 90% over the next three decades⁶².

However, the Strategy recognises the challenges the country faces in order to integrate these new, distributed sources of energy: "A national electricity grid was a great British technical achievement. Now we are setting ourselves the challenge of remodelling it so it can handle many different sources of clean energy, and use new technologies to store energy and manage demand²."

But the changes aren't restricted to sources of generation - the rise of the low carbon transport revolution, much of which is centred on the electrification of motor vehicles, has profound implications for our energy system. Global market share of electric vehicles was just 1% in 2015, however by 2040 it is projected to increase to 65%⁶³.

⁶⁰ Climate Change Act 2008, <https://www.legislation.gov.uk/ukpga/2008/27/contents>

⁶¹ Statutory Instrument 2016 No. 785, "Climate Change - The Carbon Budget Order 2016", <http://www.legislation.gov.uk/ukSI/2016/785/made>

⁶² Frankfurt School - UNEP Collaborating Centre (2017) Global Trends in Renewable Energy Investment 2017, Bloomberg New Energy Finance (2017), New Energy Outlook 2017

⁶³ Bloomberg New Energy Finance (2017) "New Energy Outlook 2017"

The drivers for this transition are clear - around 40 per cent of the UK's total final energy use comes from transport, both personal and business related² and the emissions this sector generates are significant, accounting for 41 per cent of the UK's emissions⁶⁴.

The economic potential of the low carbon transition forms a central theme within the Industrial Strategy: "The move to cleaner economic growth – through low carbon technologies and the efficient use of resources – is one of the greatest industrial opportunities of our time. Whole new industries will be created and existing industries transformed as we move towards a low carbon, more resource-efficient economy²."

The benefits that will come from the emerging low carbon economy are not restricted to new business – companies that operate in 'traditional' sectors must also realise the benefits on offer. Up to £6 billion could be saved by 2030 through investment in cost effective energy saving technologies in the industrial and commercial sector⁶⁵. The government has a stated commitment to minimising energy costs for businesses, to ensure the British economy remains strong and competitive.

The **Clean Growth Strategy** was released in October 2017 and details what the nation will do to cut emissions, increase efficiency and help lower the amount consumers and businesses spend on energy across the country. It sets out how over £2.5 billion will be invested by the Government to support low carbon innovation from 2015 to 2021. This, in addition to the National Productivity Investment Fund that will provide an additional £4.7 billion, represents the largest increase in public spending on UK science, research and innovation since 1979⁶⁶.

Clean electricity is cited as a key focus area for both government and business. Power sector emissions have fallen 49 per cent since 1990 as we have switched from coal to gas and renewable power such as wind and solar, with biomass conversions also playing an important transitional role, alongside improvements in the efficiency of our economy⁶⁴. But the importance of clean power for the UK isn't just an environmental imperative, it is a huge opportunity for economic growth. In 2015, the low carbon electricity sector generated over £12 billion in turnover and directly supported 47,000 jobs, with more in supply chains⁶⁷.

The transport revolution also presents a clear opportunity; whilst new cars in the UK are up to 16 per cent more efficient than they were in 2000⁶⁸, to meet our 2050 carbon target, almost every car and van will need to be zero emission by 2050⁶⁵. The Government has allocated an additional £80 million to support charging infrastructure deployment, alongside £15 million from Highways England to ensure rapid charge points every 20 miles across 95 per cent of England's Strategic Road Network⁶⁹.

⁶⁴ Department for Business, Energy and Industrial Strategy, "Final UK greenhouse gas emissions statistics 1990-2015" [online]

⁶⁵ Department for Business, Energy and Industrial Strategy, "The Clean Growth Strategy (2017)", <https://www.gov.uk/government/publications/clean-growth-strategy>

⁶⁶ HM Treasury, Autumn Statement 2016, <https://www.gov.uk/government/topical-events/autumn-statement-2016>

⁶⁷ Office for National Statistics, "Low Carbon Economy and Renewable Energy Economy Survey", <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2015results>

⁶⁸ Fuel efficiencies are from DfT modelling using DfT (2017) Vehicle statistics; ICCT (2015) From Laboratory to Road: A 2015 update <http://www.theicct.org/laboratory-road-2015-update>

⁶⁹ UK Parliament, "Electric Vehicles: Written question – 59924", 2017, <http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2017-01-13/59924/>

The other key area of focus is the need to reduce the emissions created by heating our homes and businesses, which account for almost a third of UK emissions. To do this the government plans to phase out the installation of high carbon forms of fossil fuel heating in new and existing businesses off the gas grid during the 2020s, starting with new builds. It also wants to see more recycling of heat produced in industrial processes, to reduce business energy bills and benefit local communities

The Clean Growth Strategy is clear evidence for why the low carbon transition is so critical to the future of our region. The UK low carbon economy could grow by an estimated 11 per cent per year between 2015 and 2030 – four times faster than the rest of the economy - meaning that the low carbon economy would increase from around two per cent of the UK's total output at present to around eight per cent by 2030⁷⁰. Some regions of the UK are already taking a position of leadership: the low carbon economy in Oxfordshire for example has a turnover of £1.15 billion supporting 8,800 jobs throughout the supply chain, and represents over 7 per cent of the local economy. It is estimated that UK exports of low carbon goods and services could be worth between £60 billion and £170 billion by 2030⁷⁰.

⁷⁰ Ricardo Energy and Environment for the Committee on Climate Change, "UK business opportunities of moving to a low carbon economy", 2017, <https://www.theccc.org.uk/publication/uk-energy-prices-and-bills-2017-report-supporting-research/>

Appendix D: Funding the Energy Strategy and Action Plan

Appendix D1: UK Public Funding

Appendix D1-1: Public Works Loans Board

The Public Works Loan Board (PWLB) is a statutory body that issues loans to local authorities and other specified bodies from the National Loans Fund. The PWLB's interest rates are determined by HM Treasury and are generally substantially cheaper than market rates.

Local authorities are able to borrow (mainly for capital projects) without Government consent, provided they can afford the borrowing costs. The PWLB does not require information on the purpose for a loan. Responsibility for local authority spending and borrowing decisions lies with the locally-elected members of the council, who are democratically accountable to their electorates.

One option for local authority partners is to set up innovative delivery structures such as a MUSCO using funding from the PWLB to cover the capital outlay for energy infrastructure.

Appendix D1-2: Salix

Salix Finance Ltd. provides interest-free Government funding to the public sector to improve their energy efficiency, reduce carbon emissions and lower energy bills. Salix is funded by the Department for Business, Energy and Industrial Strategy, the Department for Education, the Welsh Government and the Scottish Government. It was established in 2004 as an independent, publicly funded company, dedicated to providing the public sector with loans for energy efficiency projects. Salix currently have funding available which can be used by organisations like councils and universities to fund energy projects for improvements to car parks, social housing, offices, depots and street lighting.

Appendix D1-3: Innovate UK

Innovate UK is the UK's innovation agency. They work with people, companies and partner organisations to find and drive the science and technology innovations that will grow the UK economy. Since 2007 it has invested over £1.5 billion in innovation, matched by a further £1.5 billion in partner and business funding. This has helped more than 5,000 innovative companies in projects estimated to add £7.5 billion to the UK economy and create 35,000 extra new jobs.

Innovate UK is keen to nurture small, high-growth potential firms in key market sectors, helping them to become high-growth mid-sized companies with strong productivity and export success. This makes it an excellent source of funding for some of the innovative, medium-term Project Models that are proposed within this strategy.

Appendix D2: Topic specific

Central Government has opened-up millions of pounds of funding for a wide range of topics ranging from industrial heat recovery to electric vehicles. Many of these are relevant to the proposed Project Models, such as the Heat Networks Delivery Unit (HNDU) which provides grant funding and guidance to local authorities in England and Wales for heat network project development. Since its inception, HNDU has run 7 funding rounds – awarding £17 million in total – and is currently running Round 8. Over 200 unique projects have so far been supported across 140 local authorities. But HNDU is just one of dozens of funding streams that are accessible to the public and private sector.

Appendix D2-1: FIT Scheme

The Feed-in Tariffs (FIT) scheme is a Government programme designed to promote the uptake of renewable and low-carbon electricity generation technologies. On 19th July 2018, BEIS published a consultation in which they state their intention to close the FIT scheme to new applicants from 1st April 2019, barring several exceptions.

FIT payments are made quarterly (at least) for the electricity an installation has generated and exported. Payments are made based on the meter reading submitted to the energy supplier (the 'FIT licensee'), who then implements the payments. The scheme requires participating licensed electricity suppliers to make payments on both generation and export from eligible installations.

Appendix D2-2: CFD Scheme

The Contracts for Difference (CFD) scheme is based on 15-year private law contracts between low carbon generators and the Low Carbon Contracts Company (LCCC), which is a Government-owned private limited company. CFDs are awarded in competitive allocation rounds.

The CFD scheme works by stabilising revenues for generators at a "strike price", set by the Government to attract a given level of investment in a particular technology. Generators receive revenue from selling their electricity into the market as usual. However, when the market price is below the strike price, they receive a top-up payment for the additional amount, guaranteeing a minimum return. However, if the market price is above the strike price, the generator must pay back the difference, effectively capping the return from the investment.

Appendix D2-3: Sustainability Loan Fund

A loan fund organised by the FSE Group on behalf of BEIS which is setup to support businesses in the South East that try to reduce carbon emissions. Providing £20,000 - £200,000 on a matched basis, the applicants don't have to be specific with the carbon reduction targets they will achieve and should ideally be high-growth companies that are developing or selling products or services that look to reduce carbon emissions in the South East of England.

Appendix D2-4: Energy Entrepreneurs Fund

This is a competitive funding scheme launched by BEIS in 2012 and has provided £51 million of grants in 111 projects. Currently at Phase 7, the purpose is to provide incubation support in addition to grant funding for the development of technologies, products and processes in energy efficiency, power generation and storage.

Appendix D2-5: KEEP+ Business Support

Organised by Anglia Ruskin University and underpinned by ERDF funding, this provides help for businesses in counties including Essex, Kent and East Sussex to develop new products and services by collaborating with the university sector. A number of aspects of support are available including access to academic experts and graduates, assistance with development and design of new products / services and otherwise capital, consultancy or internship grants through an application process.

Appendix D2-6: South East Business Boost

A BEIS scheme to provide support for SMEs and start-ups in the South East to grow and increase employment through support, guidance and grants of up-to £10,000. It can be used to fund up-to

30% of a range of capital items related to increasing sales, improving productivity and boosting profitability.

Appendix D3: Project financing

The European Investment Bank helps finance energy projects by providing companies with loans and other financial instruments. The EIB also provides advice and expertise on administration and project development. Energy projects financed by the EIB include renewable generation, infrastructure, and new technologies. In renewables alone, EIB lending increased from €0.5 billion per year in 2004 to €6.2 billion per year in 2010. Loans are the main source of the EIB's backing for energy projects and in the UK these are managed by two intermediaries - BNP Paribas Leasing Solutions UK and SG Equipment Finance UK.

Appendix D4: Private financing

Many private financing options exist that could be utilised to fund project investments. Options such as debt, equity and venture capital could be used to fund specific Project Models. One potential partner could be the Green Investment Group, formally known as the Green Investment Bank, which was the first institution of its type in the world – created and initially capitalised by the UK Government. It targets investments in green infrastructure projects across:

- established technologies like offshore wind, onshore wind, solar, hydro, inter-connectors, waste and biomass.
- emerging technologies like tidal, biofuels, energy efficiency, storage, low carbon transport, smart grid, district heating.
- 11 stages of the project lifecycle: development, construction and operations.
- the capital structure, from debt to equity.

In addition to the Green Investment Group, institutional investors could also provide capital funding to enable the realisation of Project Models. Institutional investment can be obtained in substantial volumes, for example UK institutional investors own more than £1,500 billion of assets – over half the quoted equity markets. The principal institutional investors are occupational pension funds, which account for £800 billion of assets; life insurance companies, with almost £1,000 billion; and pooled investment vehicles, which are a smaller category. Given the large aggregated value of the scaled-up portfolios from the Project Models, the institutional investment community should be engaged too. This could be achieved by holding an Investor Day to which investment fund managers are invited to help them understand the proposals in more detail and gain their support for investment.

Appendix D5: European Public Funding

The UK's decision to leave the EU will obviously have a long-term impact on the south east's ability to access European funding, however in the short term organisations still are still eligible to apply for funding to support projects that meet the necessary criteria. The Government has also confirmed that it will guarantee EU funding for structural and investment fund projects signed before the UK's departure from the EU, even when these projects continue after the country has left the EU.

Appendix D5-1: ESIF

The 5 European structural and investment funds (ESIF) are jointly managed by the European Commission and the EU countries. The purpose of all these funds is to invest in job creation and a sustainable and healthy European economy and environment.

The ESIF mainly focus on 5 areas:

- research and innovation
- digital technologies
- supporting the low-carbon economy
- sustainable management of natural resources
- small businesses

In England, for 2014 to 2020 the ESIF programmes are comprised of the European Regional Development Fund (ERDF), European Social Fund (ESF) and part of the European Agricultural Fund for Rural Development (EAFRD). These have been brought together into a single 'Growth Programme' with individual operational programmes aligned to maximise support for jobs and growth.

The Growth Programme is delivered across England's 39 Local Enterprise Partnership (LEP) areas, each of which has an ESIF Strategy to support local delivery. The £6 billion funds within the Growth Programme have been notionally allocated to LEP areas. ERDF can fund activity such as support to SMEs, ICT, Low Carbon and research and innovation. ESF supports employment, skills and social inclusion. Lots of organisations can apply for funding including local authorities, charities and higher education establishments.

Partners involved in Project Models could apply to the LEPs for funding in response to a particular call. The Ministry of Housing, Communities & Local Government has announced that the next funding call window for applications for ERDF in England is set to open on Friday 5th October 2018 and close on Friday 23rd November 2018.

Appendix D5-2: Horizon 2020

Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020)

Horizon 2020 is open to everyone, with a simple structure that reduces red tape and time so participants can focus on what is really important. This approach makes sure new projects get off the ground quickly – and achieve results faster.

Energy is recognised as of significant importance and funding is available for research and innovation into addressing the challenge of security of supply, delivering affordable and competitive prices, whilst at the same time combating climate change. Two year work programmes announce the specific areas that will be funded by Horizon 2020. Each call gives more precise information on the questions that the Commission would like you to address in your proposals. All calls can be found in the EU's Official Journal - the official source for all EU documents.

Appendix D5-3: Interreg

Interreg Europe helps regional and local governments across Europe to develop and deliver better policy. By creating an environment and opportunities for sharing solutions, it aims to ensure that government investment, innovation and implementation efforts all lead to integrated and sustainable impact for people and place. Interreg Europe has €359 million to invest covering all EU member states, plus Norway and Switzerland.

Priorities are to promote co-operation to improve policy and capacity in the field of:

- research and innovation
- SME competitiveness
- low carbon economy
- environment and resource efficiency

The most recent application period (known as the 'Fourth call') closed on 22 June 2018. The next call is expected to be announced in early 2019.

Appendix E: Data Sources

Data Requirement	Source
Electricity consumption data for residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	BEIS - Sub-national electricity sales and numbers of customers 2005 - 2016
Electricity consumption data for non-residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	BEIS - Sub-national electricity sales and numbers of customers 2005 - 2016
Electricity consumption data for EVs. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	Will be calculated from: BEIS - Sub-national road transport fuel consumption DFT - Plug-in cars, vans and quadricycles licensed at the end of quarter, UK, by local authority of registered keeper from 2011 Q4
Heat consumption data for residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	National Heat map http://nationalheatmap.cse.org.uk/ Assumption: Extrapolation of data based on population projections to 2050
Heat consumption data for non-residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	National Heat map http://nationalheatmap.cse.org.uk/ Assumption: Extrapolation of data based on population projections to 2050
How many people (%) use cars, local buses, trains, Evs per district	BEIS - Sub-national road transport fuel consumption Assumption: Trains and Planes are out-of-scope
Average miles of residential and non residential using a car per day.	BEIS - Sub-national road transport fuel consumption
Identify sources of small-scale Energy Center per district; as used for local DER both existing and planned	BEIS - Renewable electricity by local authority BEIS - Renewable Energy Planning Database
Identify sources of small-scale Local Heat Generation per district; as used for local DER; both existing and planned	BEIS - Renewable electricity by local authority BEIS - Renewable Energy Planning Database
Gas consumption data for residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	BEIS - Sub-national gas sales and numbers of customers
Gas consumption data for non-residential. This data includes consumption in kWh, (hourly demand profiles) and consumption forecasts up-to 2050.	BEIS - Sub-national gas sales and numbers of customers
Data from UKPN & SSE about capacity constraints and network nodal load data	UKPN Electricity Generation / Distributed Generation SSE data not identified yet
Population data	ONS - https://www.ons.gov.uk/peoplepopulationandcommunity/
domestic and non-domestic carbon emissions factors (tCO ₂ e)	BEIS / DEFRA
distribution network charges (red, amber, green) and time periods in Essex	UKPN Electricity Generation / Distributed Generation
wholesale market prices of 2018 and forecast up to 2040	BEIS 2017 Updated Energy & Emissions Projections
gas commercial price for 2018 and forecast up to 2040	BEIS 2017 Updated Energy & Emissions Projections