

Appendix 1

Scrutiny Review of Becoming a Carbon Neutral Council

Report by the Review Board:

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The report of the Scrutiny Review of Becoming a Carbon Neutral Council

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Recommendations

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2	The Council should keep the use of hydrogen gas heating technology under review and ensure all new or replacement boilers are capable of being 'hydrogen ready'.	13
3	<p>a) The Council consider through the RPPR process opportunities for capital funding within the core capital programme to carry out carbon reduction projects in its corporate buildings, notably building fabric improvements, and lobbies Government for additional funding in this area.</p> <p>b) In developing energy efficiency projects, the Council should take a whole building approach, which is based on whole life costings.</p> <p>c) The Council should explore installing solar panels on its buildings and energy storage where this is possible. In particular, the Council should explore the feasibility of installing solar panel canopies over the car parks at County Hall and use the resultant energy in the building and to power Electric Vehicle/electric bike charge points in the car parks.</p>	14
4	<p>a) The Council, in conjunction with maintained schools, publishes comparative data on energy efficiency (e.g. league tables and energy performance), sets a carbon reduction target and encourages engagement with pupils in learning projects and activities to reduce carbon emissions.</p> <p>b) The Council consider through the RPPR process providing capital funding for a pilot project to install heat pump technology in one of the County's maintained schools as a best practice case study.</p>	15
5	The Council lobbies the Department for Education to provide sufficient funding for new schools to be built to a carbon neutral standard and provide funding for major improvements to retrofit energy efficiency and carbon reduction measures to all school buildings.	15
6	The Council reviews the payback periods used for major building refurbishment projects and adjusts the provision of capital funding for carbon reduction projects to enable more work in this area to be carried out based on whole life costings.	16
	<i>Street Lighting Energy Use</i>	
7	<p>The Council:</p> <p>a) Explore the scope for further energy savings by reducing the amount of time street lights are on through ongoing maintenance and replacement programmes.</p> <p>b) Explore the use of alternative technologies such as solar and wind turbines for less essential lit signs and other street furniture.</p> <p>c) Keep the use of intelligent lighting systems for street lighting under review and install intelligent lighting in the car parks and campus at the County Hall campus as an example of best practice.</p>	17

	<i>Staff Travel & Commuting (including councillors) and Fleet Vehicles</i>	
8	<p>a) The Council explore more varied patterns of working to determine what is the best level of remote working from a staff perspective and for the Council to meet its business needs and reduce carbon emissions.</p> <p>b) Work is undertaken to support cultural change to embed changes in working practices that reduce the need to travel, or encourages less travel, such as the use of technology to hold meetings remotely and provide training using remote meeting technology.</p> <p>c) The Council explores the provision of more capacity for drop-in centres / hot desking and collaboration space in regional offices so staff do not always need to travel into the main office buildings, including County Hall, as part of the future workplace planning arrangements.</p> <p>d) The Council investigate the introduction of hybrid committee meetings where councillors can either attend remotely or in person.</p>	18
9	<p>a) The Staff Travel Plan is revised to encourage, and where appropriate consideration is given to the potential for incentivising, the use of other travel modes (e.g. walking, cycling and public transport) and the uptake of Electric Vehicles to reduce carbon emissions.</p> <p>b) The Council considers lobbying the Department for Transport to make changes to season tickets for train and bus travel so they can be used flexibly by staff commuting to work.</p>	19
10	Electric Vehicle (EV) charging points are installed at the main office buildings, or at least County Hall, with a plan agreed by the end of March 2021.	19
11	<p>a) Smaller own fleet vehicles should be replaced by EV's in the short term when the leases expire.</p> <p>b) Review the car lease scheme to encourage staff to select low emission or zero emission vehicles.</p> <p>c) The Council considers specifying the early use of low emission vehicles in the procurement of major contracts (e.g. the Highways maintenance contract), where feasible.</p>	20
12	The Council should keep the market for larger hydrogen powered vehicles under review, with a view to undertaking early pilot schemes and eventually phasing out the diesel-powered larger vehicles in its fleet in line with Government policy.	21
	<i>Carbon Off-Setting and Renewables</i>	
13	The Council keeps opportunities for investing in natural habitats under review for inclusion in a carbon off-setting plan at the appropriate time when the science has been developed.	22
14	<p>a) The Council develops a carbon off-setting plan which includes investment in woodland creation, natural habitats and renewable energy generation.</p> <p>b) The Property Asset Disposal and Investment Strategy is reviewed to identify land availability and opportunities for carbon off-setting habitats and investment in the development of solar farms.</p>	23

	<i>Communications and Leadership</i>	
15	<p>a) The Council develops an interactive communication/information platform, which includes details on what the Council itself is doing on climate change and to discuss opportunities where residents may take an active role in lowering community carbon emissions.</p> <p>b) The Council uses its convening power to co-ordinate the actions it is taking on climate change with its partners, and in particular with the District and Borough Councils in East Sussex.</p>	24
	<i>Other Issues</i>	
16	<p>Corporate systems</p> <p>a) Business case evaluation and procurement decisions should include an assessment of the carbon impact of the proposal.</p> <p>b) Reports that go to the Executive and Council should include an assessment or statement of the carbon emissions impact of the proposals/decision in the report where relevant and material.</p>	24
17	<p>Planning</p> <p>The Council lobbies Government at a national level via ADEPT and the South East 7 partnership, to amend the planning system and building regulations so that the carbon performance of new buildings, including school buildings, can be taken into account in planning decisions.</p>	25
18	<p>Protecting trees</p> <p>a) ESCC build on the existing Dutch Elm Disease Strategy to develop a Strategic Tree Policy and action plan to manage Ash Dieback, Dutch Elm Disease and other tree diseases/pests which includes a programme to replace lost trees where possible (subject to safety issues) to mitigate the impact on carbon absorption.</p> <p>b) Both County and District/Borough Planning teams should be encouraged to attend the master class training provided by the Forestry Commission on the retention and protection of woodlands and trees.</p>	25

Introduction

1. The Place Scrutiny Committee established a Scoping Board in June 2019 to explore undertaking a scrutiny review of climate change, and in particular the actions the Council is taking to reduce its carbon dioxide (CO₂) and other greenhouse gas emissions. This was in response to increasing public concern linked to the publication of the 2018 report by the UN's Intergovernmental Panel on Climate Change (IPCC) which highlighted that urgent action is needed to address climate change.

2. On the 15 October 2019 East Sussex County Council unanimously agreed a Motion on climate change. In agreeing the Motion, the Council declared a climate emergency and agreed to:

- *set a target of achieving carbon neutrality from its activities as soon as possible and in any event by 2050, in line with the new target for the UK agreed by Parliament in 2019.*
- *build upon the work we have undertaken to date, will commit resources where possible and will align our policies to address the Climate Emergency.*
- *set out a clear plan of action to reduce our carbon emissions.*
- *report annually at the May County Council Meeting on its progress towards the target.*
- *investigate all possible sources of external funding and match funding to support this commitment, as well as writing to central government with respect to the emergency to request funding to implement swift appropriate actions”.*
- *use our Environment Strategy to provide a strong unified voice in lobbying for support to address this emergency, sharing best practice across East Sussex and more widely through other partners”.*

3. Climate change is a very wide topic and it was important for scrutiny to focus initially on areas where it could have the most impact. The Place Scrutiny Committee considered that it would be difficult for the Council to show leadership and to advise or influence others without addressing work to reduce its own carbon emissions. Therefore, the review focusses on how the Council is going to achieve carbon neutrality in its own operations.

4. At the meeting held on 20 November 2019, the Place Scrutiny Committee agreed to proceed with a Scrutiny Review of Becoming a Carbon Neutral Council. The scope of the review includes:

- Energy use in the Council's corporate buildings, maintained schools and street lighting;
- Staff business travel, staff commuting, electric charging points at council offices and the Council's fleet vehicles;
- The scope for using renewable energy sources (solar, wind, etc.) and carbon off-setting;
- Use of emerging and alternative technologies; and
- Communications and leadership, including co-ordination of the work on the climate emergency.

5. The scope of the review also includes acting as a reference group working with officers to comment on the development of a Climate Emergency Plan for the Council. The Council's [Climate Emergency Plan](#) was agreed by Cabinet on 2 June 2020 which sets the context for the work of the scrutiny review.

6. The aims of the Review Board in undertaking the review were to:

- To gain a better understanding of the actions, costs, benefits and timescales for achieving carbon neutrality, as well as the choices that may be involved.
- To contribute to the development of a plan of actions to reduce the Council's carbon emissions.

- To identify 'easy wins' and priorities for investment in carbon reduction in the next 5 years.

7. The emissions from the Councils supply chain have been excluded from the review because there is not enough information available at present on this category of emissions. This may be subject to a separate piece of work in the future. The Review Board supports the actions contained in the Climate Emergency Action Plan such as a requirement for the supplier to provide a carbon emissions footprint of their service or products in all new major contracts, and to include low carbon outcomes in new specifications and when scoring tenders.

Recommendations and funding considerations

8. The recommendations contained in this report aim to set a direction of travel for the Council in its ambition to become carbon neutral. The Review Board is aware that the Council faces considerable budget pressures and that consideration of the costs of implementing the recommendations will need to be undertaken through the Council's Reconciling Policy, Performance and Resources (RPPR) budget setting process. This will mean balancing the short and long term social, economic and environmental implications of all the proposals contained in this report, including the impact on carbon emissions they will have. In addition, these recommendations serve to augment and give momentum to the Action Plan agreed in the Climate Emergency Plan (February 2020).

Background

9. In common with East Sussex County Council (ESCC) all the District and Borough councils within East Sussex have declared a climate emergency and are taking action on climate change. Nationally almost all councils are working on this issue and those that have a scrutiny function are engaged in this work. Overall, ESCC has a target of reducing carbon emissions by 13% per annum.

10. ESCC's Climate Emergency Plan provides a framework for reducing its carbon emissions. The review and this report use the same terminology as that used within the Plan. In this context carbon emissions refers to the emissions of carbon dioxide (CO₂) and other greenhouse gases expressed in carbon dioxide equivalents (CO₂e) or tonnes of carbon dioxide equivalents (tCO₂e). The approach for measuring the Council's existing carbon emissions uses a widely accepted methodology, the Greenhouse Gas Protocol, which divides emissions into three categories referred to as Scope 1, Scope 2 and Scope 3 emissions.

11. Together, these categories represent the total greenhouse gas emissions related to an organisation and its activities. Each scope includes the following emissions:

- Scope 1 – emissions from the combustion of gas, oil, petrol, diesel, coal, or wood. For the Council this covers buildings and vehicles where the Council is responsible for paying for the fuel.
- Scope 2 – emissions from the electricity purchased by the Council.
- Scope 3 – emissions that result from all other activities of the Council.

12. The Scope 3 categories that apply to the Council include emissions from business travel, water usage, waste, procurement, staff commuting and investments. The table below, taken from Climate Emergency Plan, provides an indication of the scale of current emissions.

Scope	What's covered	Emissions (tCO ₂ e)
Scope 1	Gas consumption for heating and hot water in buildings	4,664
	Oil & propane for heating & hot water in buildings	897
	ESCC owned transport	139
Scope 2	Electricity usage in buildings	5,115
	Electricity usage in street lighting	2,645
Scope 3	Transmission & distribution	661
	Business travel	1,628
	Employee and elected Members commuting	3,120
	Waste disposal	115
	Water usage	68
	Supply chain	54,888
	Total emissions:	73,940

13. With the exception of emissions from the Council's supply chain (procurement), the review concentrates on the main sources of emissions in these categories and the actions agreed in the Climate Emergency Plan action plan for these areas. It also looks at how alternative and emerging technologies might be able to help the Council reduce its emissions and the use carbon off-setting to balance the unavoidable emissions, once all the carbon reduction measures have been taken into account.

14. This is a high level, cross-cutting review as carbon emissions are present in all the Council's activities. A thematic approach has been taken to examining evidence for the review, which has involved discussions with, and taking evidence from, a wide range of officers and external expert witnesses.

Impact of the Coronavirus Pandemic.

15. Since the review started, the Coronavirus pandemic has had a major impact on the way the Council operates and delivers services. It has meant staff working from home to a much larger extent than would otherwise have been the case. As a consequence, carbon emissions from staff business travel and staff commuting have been reduced, and the amount of office space being used has declined. Overall, this has had a positive effect on carbon emissions although it is recognised this is not a 'business as usual' pattern of working. The Review Board is interested to see whether it might be possible to retain some of these benefits in the way the Council operates in future, and this issue is explored further in the sections of the report covering staff travel and staff commuting.

Review Board Findings

Building Energy Use

16. A lot of work has been undertaken to date on projects to improve energy efficiency and reduce energy use and carbon emissions. Such projects have been integrated with maintenance programmes in corporate buildings and schools which have included improving the building insulation; replacing boilers and boiler controls; lighting replacements and core energy loading improvements (cabling and distribution systems). The Council has also signed up to a green energy tariff which means the electricity supply to all corporate buildings (e.g. libraries, register offices and office buildings) is provided from renewable sources, and is thereby having a lower carbon impact.

17. Currently the standard heating solution in most buildings is gas. Reducing emissions means moving away from gas and oil-fired heating and using alternative systems. However, not all of the alternative heating options, such as using hydrogen gas, are available at present. Using electricity is currently more expensive than gas based on unit cost so there will be a cost implication in moving away from gas heating.

18. In the longer term the de-carbonisation of the electricity supply for heating systems will be important as the technologies develop. In the shorter term the main areas for further carbon savings are:

- Awareness raising to reduce energy use (e.g. energy saving campaigns)
- Improvements in building fabric – insulation (loft & cavity wall), windows (longer payback) etc.¹
- Changes to lighting systems (e.g. through the use of LED lighting and intelligent controls)

19. In order to make the step change needed to achieve the Council's target of reducing carbon emissions by 13% per annum, more of these sorts of projects will need to be undertaken in the future. It is important to emphasise the importance of building fabric as a constraint on many carbon reduction options. For example, many of ESCC's buildings and notably some schools, have relatively poor building fabric, which means that it would not be possible to use technologies such as heat pumps because they do not currently provide enough heat for poorly insulated buildings. Some of the main measures to improve building fabric are costly (e.g. solid wall insulation) and have long payback periods, which has made them difficult to fund. Bearing in mind these constraints, the Board assessed the potential options for further reducing carbon emissions from buildings.

20. The Review Board acknowledges that in order to establish detailed costings and the carbon benefits of energy efficiency projects, an approach will need to be taken which examines each corporate building individually. An appraisal can then be made of whether energy efficiency projects, or a different set of measures would be the best way of achieving the Council's carbon reduction target. The costs and benefits will need to be considered through the Council's RPPR process, in order to balance the social, economic and environmental implications of carbon reduction initiatives.

¹ traditional building fabric insulation like loft and cavity wall insulation or flat roof when being replaced or refurbished has a shorter payback compared to solid wall or underfloor insulation, or glazing projects which have longer paybacks

21. The review has been unable to carry out this detailed technical and costing work within the timescales available but wishes to establish some principles in the way the Council evaluates the future options for building energy use. In some cases, it may not be possible or the best time to use alternative technologies due to the cost and complexity of using them in existing buildings for the reasons outlined above, but the Council should keep their use under active consideration.

Alternative Technologies for Heating

Heat Pumps

22. Heat pumps (ground source and air source) are commercially available now and they are best used in new build projects and where buildings are well insulated. Air source heat pumps are particularly suited to being retrofitted into existing and older buildings. The Board heard that although the capital cost of heat pumps is higher than conventional boilers, they are at least 2.5 to 3 times more efficient. However, they may need supplementing with other heating sources during periods of peak demand, particularly if retrofitted in older, less well insulated buildings.

23. Heat pumps use electricity but have a lower carbon footprint due to their efficiency and will have lower carbon emissions as the national electricity grid de-carbonises and switches to more renewable energy generation. The Board sees the use of heat pumps as the next step for the Council to take in the near future when opportunities arise. This should be on a building by building basis, with more energy efficient ground source heat pumps used in newly commissioned buildings where the capital costs and civil engineering works can be accommodated. For existing buildings, the review Board heard air source heat pumps are more suitable but may need supplementing with other sources of heating if building insulation is poor. It is likely that the cost of heat pumps will become more affordable as they are more widely implemented in buildings and the market and technology develops.

Recommendation 1

Priority consideration should be given to the implementation of low carbon heating systems, e.g. the use of ground source and air source heat pumps, in all newly commissioned buildings and when renewing systems in existing buildings. The most energy efficient type of heat pump currently available should be used where possible (e.g. ground source, then air source heat pumps).

Infrared Radiant Heating

24. Infrared radiant heating is another alternative heating technology which is commercially available which uses electricity. It has benefits in certain applications but requires careful design which is different from conventional heating systems. It is best used to heat people rather than spaces and parts or larger spaces (e.g. workstations in large warehouses, reception areas etc.) or where heating is required intermittently. It is certainly something that could be considered in conjunction with other technologies.

Hydrogen Gas

25. Hydrogen gas can be used as a heating system fuel just like natural gas. If hydrogen is produced using electricity from renewable sources ('green' hydrogen) it can reduce carbon emissions. There are two possible ways hydrogen gas can be used in heating systems, either as a mixture with natural gas (e.g. 20% hydrogen, 80% natural gas) or as 100% hydrogen gas. The gas distribution network would need upgrading and regulations would need to be amended in order to use hydrogen in the gas network.

26. Modern conventional boilers can be adapted to run on a mixture of natural gas and hydrogen, and most manufacturers have developed prototype hydrogen boilers that use a mix of natural gas and hydrogen. The technology is not yet commercially available, but is not far away. It would be worth the Council ensuring any new or replacement boilers are 'hydrogen ready' to run on a mixture of natural gas and hydrogen if this becomes available.

27. The use of 100% hydrogen is some way off, but there are technical trials taking place. There are also challenges around converting other appliances that run on natural gas if the whole gas network is converted to use hydrogen (e.g. cookers, gas fires etc.) and the logistics of a change over from one fuel to another.

28. One of the main issues about hydrogen is the process used to generate it and where the electricity comes from. Currently most of the hydrogen gas is 'grey hydrogen' produced either from fossil fuels or other energy intensive processes which have higher carbon emissions. For this to change, more hydrogen needs to be generated using electricity from renewable sources. The other main issue is driving down the cost of hydrogen which will be key. The cost of natural gas is one tenth of the cost of hydrogen. Consequently, the economics of hydrogen do not currently make it attractive as hydrogen boilers are more expensive and the fuel is more expensive.

Recommendation 2

The Council should keep the use of hydrogen gas heating technology under review and ensure all new or replacement boilers are capable of being 'hydrogen ready'.

Renewable Energy and Energy Storage

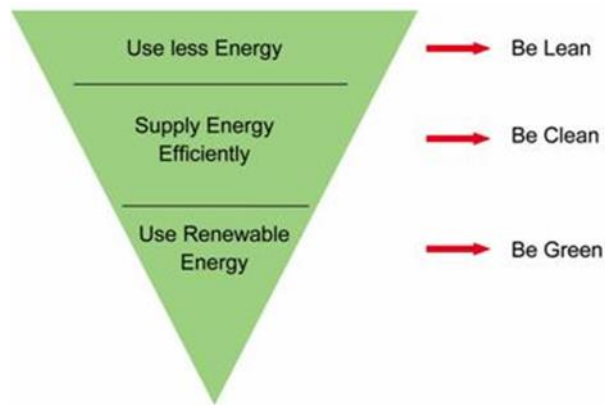
29. Another way to reduce carbon emissions from building energy use is to use on-site renewable energy generation. The two main forms of this are solar panels (photovoltaic - PV) and wind turbines, although the latter is less widely used. The Board heard that when considering renewable energy solutions, it is advisable always to use them in conjunction with energy storage (e.g. battery storage). They can also be used to power other on-site services such as Electric Vehicle (EV) charging points.

30. The Review Board understands that work is underway to look at installing solar panels (PV) and battery storage at 12 sites. The Board heard expert evidence that installing solar panels is an effective way of lowering emissions and that many councils are also taking this approach. The Board supports the investment in on-site renewable energy sources and storage for use in schools and corporate buildings.

Corporate Buildings

31. The Council has four main corporate office buildings which are County Hall in Lewes, St. Mary's House and St Mark's House in Eastbourne and Ocean House in Hastings. It also has a number of smaller offices and operational buildings used for providing particular services across the County (e.g. Libraries, Register Offices, Children's Homes etc.). Many of the buildings are of older construction types and were not built to be carbon neutral. In many cases they may require improvements in the building fabric insulation, heating and energy systems to lower carbon emissions. Options for reducing emissions will also need to take into account the leasehold arrangements, where the Council does not own buildings.

32. In considering which emission reduction measures to use, the Council should use the energy hierarchy in the figure below, with the most effective option being to use less energy in the first place and then working down the hierarchy.



33. Previously individual projects have been carried out to make improvements such as window replacements, boiler and heating controls and changes to lighting. In order to make a step change, the Review Board heard that a different ‘whole building’ approach may be needed where a package of measures that looks at all aspects of the building is undertaken rather than an approach based on separate energy efficiency projects. A whole building approach should include whole life costings which will range from shorter to longer term pay back periods (see below), and it may be possible to use short term savings to subsidise longer term improvements.

Recommendation 3

a) The Council consider through the RPPR process opportunities for capital funding within the core capital programme to carry out carbon reduction projects in its corporate buildings, notably building fabric improvements, and lobbies Government for additional funding in this area.

b) In developing energy efficiency projects, the Council should take a whole building approach, which is based on whole life costings.

c) The Council should explore installing solar panels on its buildings and energy storage where this is possible. In particular, the Council should explore the feasibility of installing solar panel canopies over the car parks at County Hall and use the resultant energy in the building and to power Electric Vehicle/electric bike charge points in the car parks.

Maintained Schools

34. Maintained schools (i.e. those that are not Academies) are included in the Council’s carbon footprint and represent over half of the Council’s scope 1 and 2 emissions for heating and use of electricity. Working with schools and school leaders is therefore important in reducing the Council’s carbon emissions. The review heard that a lot of good work has already been undertaken by Schools with the help of the Orbis Energy Team to reduce energy use and costs (e.g. through the Salix programme), thereby reducing carbon emissions. However, there is more that needs to be done.

35. Schools are managed independently from the Council and are currently under a great deal of financial pressure. A range of measures needs to be developed to encourage schools to reduce their carbon emissions further and to support them in achieving this. The Review Board considers that schools need to be aware of the role they can play in achieving carbon neutrality and contributing to the new Council target of reducing carbon emissions by 13% per annum.

36. Many schools have taken up the offer of using the renewable energy tariff negotiated by the Council and have smart meters that produce detailed information about energy use. The Review Board heard evidence that it would be beneficial to make more use of this information, for example, by publishing comparative data with other schools and establishing carbon reduction targets. It is also important to provide case studies of what can be achieved and to share information, building on the existing energy efficiency guide produced by the Orbis Energy Team, to encourage the uptake of carbon reduction measures. In many cases energy saving measures can also lead to cost savings for the schools involved.

37. Introducing energy efficiency measures and reducing carbon emissions provide great opportunities for learning and the teaching of the curriculum. Pupils, school councils and the Youth Cabinet should be encouraged to take part in carbon reduction projects and initiatives in schools.

38. Like corporate buildings, the main alternative to natural gas and oil-fired heating systems in schools is the use of heat pumps. At present there are very few examples of their use in schools and the Board believes it would be helpful to have a pilot scheme to establish best practice and share learning.

Recommendation 4

a) The Council, in conjunction with maintained schools, publishes comparative data on energy efficiency (e.g. league tables and energy performance), sets a carbon reduction target and encourages engagement with pupils in learning projects and activities to reduce carbon emissions.

b) The Council consider through the RPPR process providing capital funding for a pilot project to install heat pump technology in one of the County's maintained schools as a best practice case study.

School Building Programme

39. New school buildings and major improvements are generally funded by the Department for Education (DfE). The Council uses value engineering to incorporate as many energy efficiency and carbon saving measures in new school buildings as possible, but what is affordable via DfE funding is limited. The Board believes the Council needs to find a solution so that the best options are included in new buildings, so they are built to be carbon neutral in future given their anticipated long life. For example, timber frame construction buildings using locally sourced timber could be used in the construction of new school buildings and the extension of existing buildings or school campuses.

40. Additional funding and carbon neutral building standards for new schools and major improvement programmes could be part of the 'ask' from central Government on what is needed to achieve the target of becoming carbon neutral.

Recommendation 5

The Council lobbies the Department for Education to provide sufficient funding for new schools to be built to a carbon neutral standard and provide funding for major improvements to retrofit energy efficiency and carbon reduction measures to all school buildings.

Building Lifecycles and Payback Periods

41. The lifecycle of a building includes a number of phases which start with acquiring a site, through to construction of the building, maintenance and then disposing of the building (selling or demolition) at the end of its life. Each stage will have its own carbon footprint. In terms of maintenance activity, each element of a building (e.g. the heating system, windows, electrics, cladding etc.) has a different lifespan.

42. The evidence suggests that sometimes shorter pay back criteria are used on what appear to be longer lifespan improvements, particularly where this is needed to meet external funding criteria. It would be appropriate to use longer payback criteria depending on the lifecycle element of a building (e.g. the payback period could match the anticipated life of that element of the building). This issue can represent a barrier to the Council making the necessary improvements to its buildings, but taking a different approach may be a challenge for the Council in terms of funding.

43. For example, heat pumps due to the initial capital cost have a payback period which is typically over 10 years, whereas the Salix scheme requires a payback period of 10 years or less. This has led the Council to focus on improvements with a shorter payback period (e.g. LED lighting schemes) which can achieve this shorter payback period, when there may be other improvements that could be used to lower carbon emissions.

44. It is important to use whole life costings (also see paragraph 30 above) when developing and assessing projects, including the improvement and refurbishment of school buildings. Some technologies may cost more but have a lower overall cost, especially when carbon emissions are taken into account.

Recommendation 6

The Council reviews the payback periods used for major building refurbishment projects and adjusts the provision of capital funding for carbon reduction projects to enable more work in this area to be carried out based on whole life costings.

Street Lighting

45. The emissions from the electricity used for street lighting are around 2,645 tonnes of CO_{2e} per year. The Council has already completed phase one of a programme to replace street lights with more energy efficient LED (light emitting diode) lights. The second phase of the LED street light replacement programme will convert the remaining 14,019 lanterns to LEDs and will start shortly (this represents around a third of all the street lights in the County). The replacement programme is funded by the Salix scheme, which is a loan paid back with the energy cost savings that are made.

46. The Board reviewed further options for reducing emissions from street lighting and other highways infrastructure such as lit street signs. The main potential area for further savings in emissions is by reducing the amount of time street lights are on where it is safe to do so. For example, using part night settings where lights are switched off for a period of time (e.g. between midnight and 5.00am). At present the use of solar panels and mini wind turbines to power street lights is not feasible due to the limited reliability of these systems and the cost of the technology.

47. The Review Board examined the evidence on the impact of reduced street lighting and it is possible to do this without it having an impact on road safety and community safety if carefully designed. There is good evidence to suggest that it is possible to reduce street lighting levels without compromising community safety. There are locations such as lower speed residential streets where part night lighting could be safely introduced.

48. There are benefits from reducing street lighting levels such as the impact on climate change, better resource use and a reduction in light pollution which benefits people and wildlife. The Board considered that it is important to engage with stakeholders before any changes are made and a feasibility study should be undertaken to assess where changes may be possible.

49. The Board also discussed the use of dimming and intelligent lighting systems to make energy savings. These systems use lighting controls to adjust lighting levels and switch lights on when they are needed. Intelligent lighting systems could be examined in the future once the LED replacement programme has been completed and if the potential for savings warrant it. The Board observed that intelligent lighting could be installed in public sector car parks and should be installed in the car parks at County Hall as an example of what can be done.

Recommendation 7

The Council:

- a) Explore the scope for further energy savings by reducing the amount of time street lights are on through ongoing maintenance and replacement programmes.**
- b) Explore the use of alternative technologies such as solar and wind turbines for less essential lit signs and other street furniture.**
- c) Keep the use of intelligent lighting systems for street lighting under review and install intelligent lighting in the car parks and campus at the County Hall campus as an example of best practice.**

Staff Business Travel, Staff Commuting and Fleet Vehicles

Staff Travel and Commuting (including Elected Members)

50. The emissions from staff business travel and employee commuting (including Elected Members) contribute significantly to the Council's Scope 3 carbon emissions. Therefore, any measures or changes in working practices that reduce the need to travel will have an impact on carbon emissions. In this context it is useful to consider the concept of a Travel Hierarchy when considering measures to reduce emissions from transport.

1. Travel less
2. Travel using a lower emitting mode of transport (e.g. walking, cycling, bus or train)
3. Travel using Electric Vehicles (EV's)

51. The Council does not have direct control over the way in which staff travel to work. However, it has sought to introduce flexible and remote working through the Agile programme to enable employees to work from home and provide incentives through a Staff Travel Plan to use lower emitting modes of transport such as public transport and cycling. Policies regarding staff travel and travel expenses can also be used to reduce emissions. Increased working from home reduces the need for staff to commute and reduces the amount of office space needed by the organisation.

52. The Member ICT and Development Reference Group has also been looking at the use of remote meeting technology for councillors. The Council has recently passed a Motion to request Government to keep the flexibility in place to allow council meetings to be held remotely or in person (or a combination of both) in the future, which reduces the need to travel and makes best use of time and resources. The Review Board considers that the Council should investigate the introduction of hybrid committee meetings where councillors can either attend remotely or in person.

Impact of the Coronavirus Pandemic

53. The Coronavirus lockdown in March 2020 stopped most travel almost immediately, with the majority of staff working remotely from home. Staff travel claims for the first quarter from April – June 2020 showed a 77% decrease compared with the same quarter last year. Although this is an artificial situation, as normally there is a need for some staff travel, it has provided an opportunity to look at the business needs for travel in the future.

54. A Workplace Reset Programme is underway to move from the initial emergency response to a longer-term solution that balances the business needs of the Council with the needs of staff. There is an ambition to build a modern, flexible workplace where corporate spaces are used to better support residents, provide greater flexibility for employees and facilitate new ways of working across the Council's staff teams, its partners and the community. The Programme includes engagement with staff on new workstyles which builds on the 'Time to Talk' survey, and the cultural changes that will be needed to embed new ways of working such as the use of remote meeting technology.

55. The Review Board considers the Council should pursue a compromise position that meets these needs and enables a reduction in carbon emissions from reduced travelling and increased remote working to be retained. This will also have the benefit of reducing the amount of office space needed, which in turn may reduce building energy use and carbon emissions further. Work in this area should include a review of the costs and benefits of increased working from home for staff and councillors. The Board also believes it would be helpful if drop-in hot desk working facilities and collaboration spaces are expanded so staff can use the nearest corporate office to where they live when they do need to go into their normal office base.

Recommendation 8

a) The Council explore more varied patterns of working to determine what is the best level of remote working from a staff perspective and for the Council to meet its business needs and reduce carbon emissions.

b) Work is undertaken to support cultural change to embed changes in working practices that reduce the need to travel, or encourages less travel, such as the use of technology to hold meetings remotely and provide training using remote meeting technology.

c) The Council explores the provision of more capacity for drop-in centres / hot desking and collaboration space in regional offices so staff do not always need to travel into the main office buildings, including County Hall, as part of the future workplace planning arrangements.

d) The Council investigate the introduction of hybrid committee meetings where councillors can either attend remotely or in person.

Staff Travel Plan

56. The Board heard that work is being undertaken to revise the Staff Travel Plan which is an overarching approach to the Human Resources policies that relate to staff business travel and commuting. The staff travel policies which have the potential to make a difference in terms of climate change fall into three broad categories:

- Travel expenses - The travel expenses scheme could be amended to encourage the use of Electric Vehicles (EVs) through the use of the higher mileage rate for EV's and encourage other forms of transport.
- Loan schemes - The limits on loans for staff to purchase bikes could be increased to enable this scheme to cover the purchase of electric bikes, and season ticket loans for train and bus travel could be more widely promoted to encourage the use of public transport.

- Salary sacrifice schemes - Salary sacrifice schemes could be amended to enable the purchase of electric bikes and EV's, which are generally more expensive than conventional models.

57. The Review Board supports the work being undertaken on the Staff Travel Plan to encourage the use of other travel modes and the uptake of EV's. In particular, the Board supports the use of the higher mileage rate to encourage the use of EV's but acknowledges that for lower paid staff purchasing an EV may not be possible due to the higher costs involved. Providing encouragement and incentives in other ways should also be considered.

58. The Board noted that current arrangements for season tickets are not flexible and do not support the use of public transport for fewer journeys per week/per month. Therefore, staff are more likely to use other modes of transport if they are working from home more often. The Board suggests the Council lobbies Government for a more flexible season ticketing system.

Recommendation 9

a) The Staff Travel Plan is revised to encourage, and where appropriate consideration is given to the potential for incentivising, the use of other travel modes (e.g. walking, cycling and public transport) and the uptake of Electric Vehicles to reduce carbon emissions.

b) The Council considers lobbying the Department for Transport to make changes to season tickets for train and bus travel so they can be used flexibly by staff commuting to work.

Electric Vehicle (EV) Charging Points

59. The Board understands, based on the evidence, that providing Electric Vehicle charging points at the main offices or at least County Hall is essential to encouraging the uptake of Electric Vehicles by staff and should be actioned as soon as possible. This could be done in a number of ways depending on the providers and the way in which the charging facilities are paid for (there are a number of different ownership models).

Recommendation 10

Electric Vehicle (EV) charging points are installed at the main office buildings, or at least County Hall, with a plan agreed by the end of March 2021.

Council Fleet Vehicles

60. The Board looked at the work that is being done on fleet vehicle emissions which has been split into two parts:

- Grey Vehicle Fleet. These are individual cars that are used for staff business travel which are purchased by staff either privately or through ESCC's lease car scheme. The emissions from them represents 2% of the Council's scope 1, 2 and 3 carbon footprint. As such, emissions from grey fleet vehicles count for a small part of total emissions. Pre Covid19 the annual cost for vehicle mileage claims was around £2 million.
- Own Fleet (around 90 vehicles, both small and large specialised vehicles such as accessible buses). These are vehicles either owned or leased directly by the Council for use by various services e.g. Adult Social Care, Children's Services, and Communities, Economy & Transport. They represent less than 1% of total scope 1,2 and 3 emissions.

61. Two separate reports have been commissioned from the Energy Saving Trust on the options and ideas for reducing emissions from these two groups of vehicles. The Council usually leases vehicles rather than outright purchasing them. It would be possible to convert the smaller vehicles to Electric Vehicles (EVs) as this can be done with off the shelf models that are available now. The market for low emission alternatives for the larger vehicles such as Heavy Goods Vehicles (HGV's) and buses is less developed. The lease cost of larger custom-built vehicles is much higher and low emission versions can be as much as double the capital cost.

62. Depending on the outcome of the Energy Saving Trust reports, the Board considers it would be appropriate to convert all the smaller Own Fleet vehicles to EVs as soon as the current leases expire, prioritising any that use diesel fuel. The main challenge is finding low emission alternatives for larger vehicles and HGV's. This is likely to be where it would be best to use emerging hydrogen technology (see below). In the short-term action could be taken to replace small vehicles with EV's and look to replace or experiment with hydrogen powered larger vehicles when the technology is better developed.

63. Grey Fleet vehicles, which includes around 90 vehicles that are leased by staff under the current car lease scheme, are used for staff business travel. Members of staff pay the lease cost and can choose any type of vehicle they wish (subject to replacement costs). It may be desirable to review the scheme to encourage the selection of low emission or zero emission vehicles, especially as most mileage will be within the County.

64. In addition to its fleet vehicles, the Council could request the use of EVs and low emission vehicles in the Highways Maintenance Contract and other large contracts (e.g. Home to School Transport), although the Council would need to understand the potential effects on service delivery and costs.

Recommendation 11

a) Smaller own fleet vehicles should be replaced by EV's in the short term when the leases expire.

b) Review the car lease scheme to encourage staff to select low emission or zero emission vehicles.

c) The Council considers specifying the early use of low emission vehicles in the procurement of major contracts (e.g. the Highways maintenance contract), where feasible.

Alternative Technologies for Vehicles - Hydrogen

65. The use of hydrogen is the main direction for replacing the use of diesel for large vehicles such as buses and trucks. This is in part due to its energy density and the advantages it has in the time it takes to refuel vehicles that may be making longer journeys. There are two ways hydrogen can be used: direct combustion and producing electricity in fuel cells. It is commercially available now and there are a few examples locally (e.g. Brighton & Hove buses have 20 hydrogen powered buses). There are safety issues with using hydrogen, but these can be managed. The cost of hydrogen fuel cell powered trucks is more expensive compared with diesel (and electric). The solution is already there but the market needs to develop further in terms of costs and refuelling infrastructure.

66. Hydrogen vehicle technology for larger vehicles is becoming commercially available now and could be used as part of a phased replacement of the Councils Own Fleet vehicles. The development of the hydrogen powered vehicles market and the availability of 'green' hydrogen fuel should be monitored so the Council can judge the best time to convert the larger vehicles through the use of hydrogen technology.

Recommendation 12

The Council should keep the market for larger hydrogen powered vehicles under review, with a view to undertaking early pilot schemes and eventually phasing out the diesel-powered larger vehicles in its fleet in line with Government policy.

Carbon Off-Setting and Renewables

Carbon Off-Setting

67. The Review Board heard evidence that the use of carbon off-setting should be the very last option used, once all other carbon emission reduction measures have been taken. However, it is clear from the ESCC Climate Emergency Plan that there is a very strong likelihood that there will be a gap between all the measures the Council can take to reduce carbon emissions (taking into account the de-carbonisation of electricity grid) and the target the Council needs to reach to become carbon neutral. Therefore, some carbon off-setting measures will be needed for the Council to become carbon neutral.

68. The exact amount of carbon off-setting that will be required is difficult to calculate due to changing technology and other factors such as changes in policy. However, there will be a need for investment in some carbon off-setting. There are a number of options that the Council can take which include:

- tree planting and new woodland creation in suitable locations;
- the creation and management of other natural habitats by investing in natural capital; and
- the development of large-scale renewable energy generation schemes (e.g. solar farms or on-shore wind farms).

Tree Planting and Woodland Creation

69. The Forestry Commission has developed the Woodland Carbon Code and the science behind it to assess the carbon sequestration of different types of woodland (e.g. 1 hectare of mixed broadleaved woodland can absorb 310 tCO₂e after 30 years). This is well established way of off-setting carbon emissions and one of the cheapest ways of capturing carbon at around £10 per tonne CO₂e. The impact on carbon can be negative depending on how the resulting timber is used. The main issues with this technique are land acquisition for tree planting and the ongoing maintenance costs of the woodland.

70. When considering tree planting it is important to consider the multiple benefits of having woodlands and trees and how they function in the landscape. As well as delivering wood products such as wood for carbon lean building materials and fuel, woodlands and trees can be used to alleviate flooding, improve water quality, alleviate air pollution, provide green infrastructure in urban areas and links to the wider countryside. They are also seen as important for experiencing nature, recreation and wellbeing.

71. The Review Board heard there are opportunities for new woodlands in the Low Weald where the land is challenging to farm, and in areas of the High Weald that were cleared for farming some 20-30 years ago which may also join up areas of existing woodland.

72. The National Tree Strategy, which the Government has been consulting on, could mean 10,000 hectares of new woodland per year are planted in England and this could equate to around 200 hectares (roughly 500 acres) per year in East Sussex. It is estimated based on planting broadleaved woodland, which captures about 310 tonnes of CO₂ after 30 years, ESCC would have to plant and maintain about 545 hectares between now and 2050 to off-set all the estimated 169,000 tonnes of unavoidable CO₂ emissions that ESCC may not be able to cut over that period.

73. There are existing grant schemes such as the Woodland Carbon Guarantee Scheme which provides landowners with a guaranteed indication of what they will earn in grant dependent upon the amount of carbon the woodland saves. Work is also underway to review grants and regulations for new woodland creation, and the grants for planting new woodland will be attractive as part of the national targets for woodland creation.

Natural Habitats

74. As well as woodland there are four or five habitats that are important for carbon storage. Nationally peatland is an important habitat, but there is very little of this type of habitat in Sussex. The habitats that are present in addition to woodland are:

- Grassland/Downland.
- Heathland,
- Hedgerows
- Wetland; and
- Coastal

75. The soil is an important carbon store and is mainly where the carbon is stored in all of the terrestrial habits. In woodlands carbon is also stored in the trunks and branches of the trees, as well as the leaf litter on the woodland floor. Many of these habitats and plant communities have been there for a long time and longevity is important. Disturbing soil releases carbon into the atmosphere. So the more undisturbed the soil, the more carbon will remain locked into it.

76. Although the science base is not available yet, other habitats should be considered as part of a long-term carbon off-setting plan. There are many opportunities to build carbon storage into projects such a flood management and sediment capture. Improvement in the management of habitats, as with parks and open spaces, has multiple benefits for wildlife and people.

77. The Board heard that the Nature Recovery Network is a new national Government policy initiative. The idea is to create a network of habitats on the ground which will lead to an overall increase in nature across England. Where habitats will be created will be guided by a local map of habitats identifying where and how habitats can be created to provide benefits for people and wildlife. The Environment Bill will identify 'responsible authorities' to develop a Nature Recovery Strategy for their area.

78. The Sussex Local Nature Partnership has developed a Natural Capital Investment Strategy which has a series of maps to show where investment is needed in habitats in Sussex. The Council (and its partners) could use the Strategy to target investment in habitats as part of a carbon off-setting plan. This is a shared theme contained in the East Sussex Environment Strategy.

79. The Review Board noted that the loss of natural habitats and the impact on carbon is not factored into planning considerations at present, which will be important to councils as they strive to become carbon neutral.

Recommendation 13

The Council keeps opportunities for investing in natural habitats under review for inclusion in a carbon off-setting plan at the appropriate time when the science has been developed.

Renewable Energy Generation

80. The Board considers there is a case for the Council to invest in renewable energy generation. This will enable the Council to use renewable energy generation to off-set emissions and secure a number of other benefits. It may provide the opportunity to generate income by selling renewable electricity locally, support other local carbon reduction objectives and in the process contribute to the de-carbonisation of the electricity supply. Although onshore wind farms are the cheapest way of generating renewable energy there are a number of planning constraints which may prevent their development in East Sussex where there are large areas of protected landscapes (e.g. South Downs National Park and High Weald AONB).

81. The Review Board supports the principle of investment in renewables and in particular the Council should look for opportunities to invest in solar farms for electricity generation as part of the Council's suite of measures to offset carbon emissions.

Summary

82. The Review Board has examined the options for off-setting carbon emissions and believes that the Council should develop a carbon off-setting plan that includes a mix of all three techniques. Although new woodland creation is the most established of the carbon sequestration techniques, the Board considers investment in other natural habitats should be given equal weight. This reflects the fact that it might not be the right approach to add to tree cover significantly in the protected landscapes in East Sussex such as the South Downs National Park and the High Weald Area of Outstanding Natural Beauty (where the historic nature of the landscape is also important) by balancing tree planting with the use of other natural habitats.

83. Both tree planting/woodland creation and investment in natural habitats can deliver a range of other benefits (e.g. flood alleviation, improvement in air quality, protection and enhancement of biodiversity, and areas that can be used for recreation and the promotion of well-being). It will be important to take into account the views of stakeholders on tree planting and the other measures when developing the carbon off-setting plan.

Recommendation 14

a) The Council develops a carbon off-setting plan which includes investment in woodland creation, natural habitats and renewable energy generation.

b) The Property Asset Disposal and Investment Strategy is reviewed to identify land availability and opportunities for carbon off-setting habitats and investment in the development of solar farms.

Communications and Leadership

84. The climate emergency and climate change are a difficult area for communications as there are a vast range of opinions about it, from unbelievers through to campaigners. The ways in which people react to this issue can be very different. Expert advice from the Council's Communications Team suggests that it is probably best to adopt an approach that takes small steps which provides tailored messages for the various groups of people. There is a huge potential to involve staff and partners, who can also act as advocates.

85. The Council is the lead authority for many issues within East Sussex and is able to use its convening power to bring groups and organisations together on this issue. There are many examples of previous work where this has taken place in the past. All the Borough and District Council's in East Sussex have declared a climate emergency and are developing or implementing action plans. There is, in the Board's view, an important role for ESCC to co-ordinate action on some aspects of climate change work, particularly in areas such as transport where the Council has a key role. One option may be to produce a common set of tools and resources that can be used by all partners. In this respect ESCC does have a leadership role on this issue.

86. There is also a leadership role for ESCC as a fair and neutral arbiter in the provision of information on the action needed to tackle climate change. The public need information they can trust and understand, which is educative and informative. The message needs to be that yes there is a challenge, yes there is something we can do and here are the solutions. It is also important that the Council leads by example.

Recommendation 15

a) The Council develops an interactive communication/information platform, which includes details on what the Council itself is doing on climate change and to discuss opportunities where residents may take an active role in lowering community carbon emissions.

b) The Council uses its convening power to co-ordinate the actions it is taking on climate change with its partners, and in particular with the District and Borough Councils in East Sussex.

Other Issues

87. During the course of examining evidence for the review a number of other issues outside of the scope of the review came to light. The Review Board wishes to address some of them here as they link to topics discussed by the Review Board.

Corporate Systems

88. The Board considers that some changes may be needed to corporate systems in order to take into account the carbon impact of the provision of services. Business cases have ordinarily focussed on cost and benefits to the Council and a way needs to be found to incorporate the impact on carbon emissions in project and procurement decisions (e.g. what may be the most cost effective option, may not have the smallest carbon footprint). Similarly, it would be helpful for reports to include reference to the carbon impact of the proposal or decision where relevant when being presented to Lead Members, Cabinet and Full Council.

Recommendation 16

a) Business case evaluation and procurement decisions should include an assessment of the carbon impact of the proposal.

b) Reports that go to the Executive and Council should include an assessment or statement of the carbon emissions impact of the proposals/decision in the report where relevant and material.

Planning

89. During discussion of a recent planning application for a new school building at Planning Committee, the Committee was advised that it was not possible to add a planning condition that the building be carbon neutral or have measures to improve the carbon performance of the building due to the current planning framework. The Review Board considers that strategic new school projects should be carbon neutral going forward given the anticipated life of these buildings and their inclusion in the Council's carbon footprint.

90. The Board understands that it is not clear what will be included in the new National Planning Policy Framework on this issue. Building regulations could represent a real constraint on what might be possible in the future. The Review Board considers that the Council should lobby Government on this issue so that the carbon footprint or performance of new buildings can be taken into consideration in determining Planning applications.

Recommendation 17

The Council lobbies Government at a national level via ADEPT and the South East 7 partnership, to amend the planning system and building regulations so that the carbon performance of new buildings, including school buildings, can be taken into account in planning decisions.

Protecting Trees

91. The Board heard evidence that managing existing woodland sustainably is as important for climate benefits as planting new woodlands. Linked to this the Review Board considers that policies to protect trees and woodlands and replace lost trees such as those lost due to tree diseases (e.g. Ash dieback and Dutch Elm Disease), is also important. Wherever possible trees should be replaced in situ, but other tree species (e.g. smaller ones) and alternative locations should be considered where there are safety concerns. The Forestry Commission also provides master classes for Planning teams on how to design developments to fit in within existing woodland to avoid the loss of trees, especially ancient woodland.

Recommendation 18

- a) ESCC build on the existing Dutch Elm Disease Strategy to develop a Strategic Tree Policy and action plan to manage Ash Dieback, Dutch Elm Disease and other tree diseases/pests which includes a programme to replace lost trees where possible (subject to safety issues) to mitigate the impact on carbon absorption.**
- b) Both County and District/Borough Planning teams should be encouraged to attend the master class training provided by the Forestry Commission on the retention and protection of woodlands and trees.**

Conclusions

92. The Review Board recognises that the scope of this review focuses on the Council's own carbon emissions and to tackle climate change there are many other areas where the Council can use its influence to bring about change to reduce carbon emissions. However, it considered that it was important for the Council to start here before addressing wider issues.

93. The Council's Climate Emergency Plan represents an important starting point in the Council's work to become carbon neutral. This review makes a number of recommendations in support of the actions contained in the Plan, and the Place Scrutiny Committee will remain involved in this area of work as the action plan progresses (e.g. through an annual review of the action plan at Committee).

Appendix:

Scope and terms of reference of the review

The Review was established to consider and make recommendations on the actions that are needed to reduce greenhouse gas emissions and achieve carbon neutrality for all the Council's activities. The scope includes the following topics:

- Corporate Estate building energy use;
- Local authority-maintained schools energy use (as they make up over half of scope 2 emissions from electricity);
- Communications and leadership, including co-ordination of the work of the East Sussex local authorities on the Climate Emergency;
- Street lighting reduction in energy use;
- Staff commuting, staff business travel, electric charging points at council offices and own transport fleet vehicles;
- Use of emerging and alternative technologies, which can be applied throughout the review; and
- Use and scope for using renewables (solar, wind, etc.) and off-setting.

Board Membership and project support

Review Board Members: Councillors Martin Clarke (Chair), John Barnes, Bob Bowdler, Pat Rodohan and Stephen Shing.

The Project Manager was Martin Jenks, Senior democratic Services Officer with additional support provided by Simon Bailey, Democratic Services Officer.

Andy Arnold, Environment Team Manager and Jannette Ackroyd, Climate Change Officer provided ongoing support to the Board throughout the review.

Review Board meeting dates

Scoping meeting: 04 November 2019

Review Board meetings:

24 February 2020

14 September 2020

28 September 2020

7 October 2020

15 October 2020

4 November 2020

10 November 2020

Witnesses providing evidence

The Board would like to thank all the witnesses who provided evidence in person:

ESCC officers

Andy Arnold, Environment Team Manager

Jannette Ackroyd, Climate Change Officer

Dion D'Silva, Principal Energy Efficiency Officer
 Graham Glenn, Acquisitions and Disposals Manager, Property Services
 Sarah Mainwaring, Head of Human Resources & Organisational Development
 Brian Banks, Team Manager Road Safety
 Brian Bottomley, Senior Transport Officer
 Mathew Jasper, Team Manager Asset Management
 Warwick Smith, Head of Communications and Marketing

External expert witnesses

Matthew Woodcock, Partnership & Enterprise Manager SE, Forestry Commission
 Julie Middleton, Sussex Wildlife Trust
 Dr Marco Picco, Innovation Lead for Clean Growth UK, University of Brighton

East Sussex County Council Officers who submitted written evidence:

Paul Hasley, Orbis Energy Manager
 Louise Carter, Assistant Director (Communication, Planning and Performance), Children's Services
 Helen Bowman, Project Manager Funding and Partnerships, Children's Services
 Nick Early, Human Resources Consultant

Evidence papers

Item	Date considered
The Potential for Energy Efficiency and Renewable Energy. Local Government Association. January 2016.	14 September 2020
Energising Procurement. Local Government Association. Sept 2017.	14 September 2020
Energy Saving Guide: A guide to good energy housekeeping for schools in East Sussex. Orbis Energy Team.	14 September 2020
Clean, connected and in control – what tomorrow's transport technology could mean for councils. Local Government Association. May 2018	28 September 2020
Councils in Charge – making the case for electric charging investment. Local Government Association. Aug 2019.	28 September 2020
Steinbach et al (2015) 'The Effect of Reduced Street Lighting on Road Casualties and Crime in England and Wales: A Controlled Interrupted Time Series Analysis', <i>Journal of Epidemiology & Community Health</i> , 2015:1-7.	28 September 2020
Green et al (2015) Reduced street lighting at night and health: A rapid appraisal of public views in England and Wales.	28 September 2020
Road Safety Information: Street Lighting and Road Safety. ROPSA. March 2020.	28 September 2020
ESCC Street Lighting Policy PS 10/1. October 2017	28 September 2020

Responding to the Climate Emergency with New Trees and Woodlands: A guide to help local authorities and landowning businesses achieve net zero. Forestry Commission. 2020.	7 October 2020
West Sussex County Council (WSCC) – Draft Tree Plan. September 2020.	7 October 2020
Land use: Policies for a Net Zero UK. Committee on Climate Change. January 2020.	7 October 2020
Cleaning Up Transport - Driving Change: How Hydrogen Can Fuel A Transport Revolution. Centre for Policy Studies. 2020.	15 October 2020
Climate Action Plan for Councils – Friends of the Earth.	15 October 2020
Top Climate Actions for Councils. Ashden / Friends of the Earth.	15 October 2020
Clean Growth Policy Position. ADEPT. June 2020.	2 November 2020

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