Stockton-on-Tees
BOROUGH COUNCIL

SCRUTINY

Corporate and Social Inclusion Select Committee

Review of Energy Supply

7 February 2013

Corporate and Social Inclusion Select Committee, Stockton-on-Tees Borough Council, Municipal Buildings, Church Road, Stockton-on-Tees TS18 1LD

Select Committee – Membership

Councillor Mick Stoker (Chair)
Councillor Tracey Stott (Vice-Chair)

Councillor Derrick Brown
Councillor Mark Chatburn
Councillor Julia Cherrett
Councillor Michael Clark
Councillor Jean Kirby
Councillor Terry Laing
Councillor Norma Wilburn

ACKNOWLEDGEMENTS

The Committee thank the following contributors to this review:

Stephen Calvert, Carbon Reduction Officer
Mike Chicken, Built & Natural Environment Manager
Neil Ellison, Sustainability Manager
SITA UK

Foreword

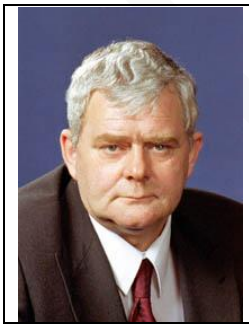
No one is immune from the increasing cost when purchasing gas and electricity and probably least of all local authorities considering the multitude of buildings occupied and services delivered. Additional pressure is placed on local authorities to also influence emissions reductions in their wider areas through the services they deliver, their role as social landlords, trusted community leaders and major employers, and their regulatory and strategic functions.

The government has stated that there is a crucial role for local authorities in reducing emissions to meet national carbon budgets to 20% in 2020 from 2010 levels by supporting energy efficiency improvement in residential buildings, but opportunities also exist in non-residential buildings, sustainable transport and waste management. Another important role involves supporting power sector decarbonisation as well as investment in electric vehicle charging infrastructure, which will result in longer term emissions benefits.

The government believes that there is a significant risk that local authorities will not develop and implement sufficiently ambitious low-carbon plans, following the removal of the national indicator framework and given the highly constrained fiscal situation. This Committee found that Stockton Council having implemented a Renewable Energy Strategy supported by the development of low carbon and sustainable energy supply procurement was beginning to provide security of supply to counter the anticipated rising costs of fossil fuel based energy supply.

The purpose of this review was to consider the long-term future of the Council's energy supply needs and carbon reduction requirements to support the work already undertaken. While the Committee formulated its report and recommendations work continued apace delivering photovoltaic panels to Municipal Buildings that will supply electricity that can power electric cars which can in turn help reduce the amount of the Council's travel costs.

The Committee wish to thank the officers involved in this review for their support, interest, and expertise and Members are particularly grateful to SITA UK for allowing the Committee to visit its Energy-from-Waste Facility in Billingham.



Councillor Stoker
Chair – CSI Select Committee

Councillor Stott
Vice-chair – CSI Select Committee

Original Brief

Which of our strategic corporate objectives does this topic address? Organisational and Operational Effectiveness - Deliver Value for Money Environment and Housing - Tackle climate change
What are the main issues and overall aim of this review? By taking a more detailed look at energy supply the Council is seeking to achieve the following key objectives: • Energy provision at a long term stable price • Security of supply over the long term • Reduction in carbon emissions in line with government targets (80% reduction from 1990 baseline by 2050) • Stimulate the renewable energy supplier and energy technology markets with the aim of increasing employment opportunities A route to procurement of energy over a period of around 20 to 25 years may therefore be required to provide the basis for any investment required to achieve these objectives on a commercial basis. • Should the Council begin to progress to provide its own energy supply / become energy self-sufficient? • Should the Council take the lead with other LAs or develop unilaterally? • Develop a portfolio of available energy resources to utilise? The Committee will take an overarching strategic view for the development of a sustainable energy supply.
Provide an initial view as to how this review could lead to efficiencies, improvements and/or transformation: A vision for energy supply in the 2030's could include: 1. A part Council owned (e.g. 50%) Energy Service's Company (ESCO) that owns energy generating plant (electricity & heat) for supply to the Council and other consumers thus generating a revenue stream. 2. Energy from waste, biomass/biofuel heat and Combined Heat and Power (CHP) energy supplies including district heating to large areas of the borough. 3. Possible 'ownership' of offshore wind and/or tidal current & wave energy electricity generation. 4. Solar electricity supply through PV panels on Council buildings.

Key Responsibilities

Chair / Member Sponsor	Councillor Mick Stoker
Scrutiny Officer	Graham Birtle, Scrutiny Officer
Link Officers	Mike Chicken, Built & Natural Environment Manager Neil Ellison, Sustainability Manager Stephen Calvert, Carbon Reduction Officer
Finance Officer	Andy Bryson, Finance Manager, Resources

1.0 Executive Summary and Recommendations

1.1 In December 2009 Stockton Council's Cabinet agreed a Renewable Energy Strategy as a delivery mechanism to reduce carbon emissions derived from the Council's energy consumption. Stockton Borough Council committed to a 25% reduction in carbon emissions by 2013 whilst central Government set greenhouse gas reduction targets of 34% by 2020 and 80% by 2050.

1.2 To implement the Renewable Energy Strategy and move towards long term security of supply it was recognised that obtaining energy from low carbon and renewable sources were required. In March 2011 Cabinet considered the procurement of sustainable energy supply as discussions with the Tees Valley local authority Directors of Environment secured interest in approaching a Tees Valley wide initiative to seek supplies of renewable or low carbon energy supply through a long term contractual arrangement.

1.3 A number of questions were formulated for this review to begin to identify a route to procurement of energy over a period of around 20 to 25 years that may provide the basis for any investment required to achieve these objectives on a commercial basis.

Should the Council begin to progress toward providing its own energy supply / becoming energy self-sufficient?

1.4 Reliance on current forms of energy supplies have a limited lifespan as there is a requirement to reduce carbon emissions substantially. The ability to benefit from renewable energy became a reality during the time of this review with the installation of photovoltaic (PV) cells on Council buildings.

R1 The Committee recommend the promotion of using photovoltaic cells wherever possible on Council owned properties and elsewhere.

1.5 Stockton Council has in place a Sustainable Construction Policy which sets out the framework through which it will meet the requirements of a number of national, regional and local polices that aim to achieve sustainable development. It also helps to reduce the Council's contribution to climate change and build in adaptation to the changing climate through good design. The policy has been in place since 2009 and the Committee was informed that the policy was due to be reviewed.

R2 The Committee recommend that the updated Sustainable Construction Policy reflect all advances in renewable energy technology to ensure buildings are as energy efficient as possible while delivering value for money.

1.6 A link between the PV cells and electric charging points provides the opportunity for 'free energy' to charge electric cars leased to Stockton Council from electricity generated 'by Stockton Council'.

R3 The Committee recommend that whenever possible officers/Members use the electric cars that have been leased to Stockton Council.

R4 The Committee recommend that Stockton Council ensure the cost of operation of pool cars is fully offset by reduction in business mileage. In the case of electric Peugeot cars used by Stockton Council this requires 5,000 miles travelled. A similar case can be made of the diesel pool cars which require a minimum of 10,000 miles per municipal year.

Should the Council take the lead with other LAs or develop unilaterally?

1.7 Current energy supply is delivered through natural gas and grid electricity that is purchased through supply contracts negotiated for the majority of North East Council's by NEPO. Flexible procurement has enabled the electricity and gas to be purchased using the futures market thus enabling optimum prices to be obtained. The Committee believe that Stockton Borough could benefit from exploring the opportunities provided by the industries in the vicinity.

1.8 One option is the establishment of a LA-controlled 'arm's length' Energy Service Company (ESCo) which would deliver energy projects on the LA's behalf. The benefit would provide the LA with an additional revenue stream and help it to meet its strategic objectives without being exposed to the associated risks.

R5 The Committee recommend that initiatives such as Energy Service Companies to aid future energy supply for the Council are considered regarding their positive contribution to meeting the Council's objective on future energy supply.

Develop a portfolio of available energy resources to utilise?

1.9 Renewable energy technologies to reduce the energy related carbon emissions include the following:

- Onshore Wind turbines – most available and affordable current technology but does require planning permission.
- Offshore Wind Turbines - The United Kingdom became the world leader of offshore wind power generation in October 2008.
- Solar Energy – in the form of heat through solar hot water panels.
- Solar Electricity – in the form of photo-voltaic (PV) panels and tiles.
- Biomass – typically wood and waste materials to provide heat with appropriate boiler plant.
- Hydro-electricity – limited opportunity but an Archimedes screw generator has been installed as part of the Tees Barrage white water course upgrade.
- Energy from Waste – Municipal waste is taken to the SITA plant where it provides fuel to generate electricity for the grid. At present there is no linkage between the waste stream and the electricity generated.
- District heating - under consideration with potential use of process heat from local industry being explored.

1.10 The Committee support the utilisation of a wide range of renewable energy sources as no single source could currently provide the whole of the Council's energy requirements.

1.11 Particular support was expressed for the possibilities offered by wind power, especially the projected amounts of energy available from offshore wind turbines when equated to what it could power within the borough.

R6 The Committee recommend that Stockton Council does not commit to a specific course of action thereby allowing the flexibility to work alone or with others to best benefit from renewable energy.

2.0 Background

2.1 Heat is the single biggest reason energy is used in our society. More energy is used for heating than for transport or the generation of electricity. Heat is the energy used to keep homes and offices warm whilst cooling them in hot weather. Heat provides the energy to cook our food and manufacture goods such as steel, iron, cement and chemicals, upon which our economy depends.

2.2 The vast majority of the UK's heat is produced by burning fossil fuels (around 80% from gas alone), and as a result heat is responsible for around a third of the UK's greenhouse gas emissions.

2.3 According to official Department of Energy figures, bills will go up by an estimated £178 a year by 2030 under the Government's green and fuel poverty policies, with the contribution to nuclear and renewables making up £95 by 2020.

2.4 Energy bills have more than doubled since 2004 to, on average, more than £1,300 a year per household, largely due to rising gas prices. Green policies have also added to the increasing costs of gas and electricity.

2.5 The 2011 Carbon Plan set out that if the UK is to play its part in the global effort to combat climate change, buildings will need to be virtually zero carbon by 2050. Achieving this can help reduce exposure to volatile fossil fuel prices which led to a 9.4% rise in average gas prices in 2010, driven overwhelmingly by the wholesale gas price on global markets.

2.6 The transformation of heat-generation and heat-use will create new markets and new opportunities with different solutions for different localities and geographies as households, businesses and local authorities choose the approach that will work best for them.

2.7 This review explored the more likely options available in Stockton Borough in order to make appropriate recommendations for future actions.

3.0 Evidence and Findings

3.1 In December 2009 Stockton Council's Cabinet agreed a Renewable Energy Strategy as a delivery mechanism to reduce carbon emissions derived from the Council's energy consumption.

3.2 The strategy was as a result of the stability of energy supplies derived from fossil fuels could no longer be relied upon due to price volatility, an overall substantive increase in grid electricity and gas prices and the requirement to contribute to Government carbon reduction budgets. The use of renewable energy supply therefore needed to become an important part of the Council's approach to meeting future energy demands.

3.3 Under the carbon management programme Stockton Borough Council committed to a 25% reduction in carbon emissions by 2013 whilst central Government set greenhouse gas reduction targets of 34% by 2020 and 80% by 2050. These levels of carbon emission reduction will only be achieved by a move away from carbon rich fossil fuels towards renewable and other sustainable energy supplies

3.4 Stockton Council's Renewable Energy Strategy was concerned with energy use in buildings identifying potential means of delivering both renewable electricity and renewable heat by a variety of means including significant input from off-site renewable energy generation.

3.5 To implement the Renewable Energy Strategy and move towards long term security of supply it was recognised that obtaining energy from low carbon and renewable sources were required.

3.6 In March 2011 Cabinet considered the procurement of sustainable energy supply as discussions with the Tees Valley local authority Directors of Environment secured interest in approaching a Tees Valley wide initiative to seek supplies of renewable or low carbon energy supply through a long term contractual arrangement. In addition the Tees Valley local authorities received a detailed report from Parsons Brinkerhoff, commissioned by Tees Valley Unlimited, that described five potential district heating schemes, one for each local authority using a Combined Heat and Power plant for maximum efficiency.

3.7 The principle of a 'joint venture' approach to procurement of sustainable energy supply for the five Tees Valley authorities was agreed with further work to be carried out to explore the options for delivery mechanisms for the sustainable energy supply.

3.8 Meanwhile, the North East Purchasing Organisation (NEPO) manages the procurement of energy supplies for local authorities in the region. Discussions with the other Tees Valley local authorities secured interest in developing a Tees Valley wide initiative to seek supplies of renewable or low carbon energy supply through a long term contractual arrangement which would not conflict with the arrangements of NEPO.

3.9 This review was to build on the previous work undertaken and determine whether any or all of the following could lead to efficiencies, improvements and/or transformation:

1. A part Council owned (e.g. 50%) Energy Service's Company (ESCO) that owns energy generating plant (electricity & heat) for supply to the Council and other consumers thus generating a revenue stream.
2. Energy from waste, biomass/biofuel heat and Combined Heat and Power (CHP) energy supplies including district heating to large areas of the borough.
3. Possible 'ownership' of offshore wind and/or tidal current & wave energy electricity generation.
4. Solar electricity supply through PV panels on Council buildings.

3.10 A number of questions were formulated to begin to identify a route to procurement of energy over a period of around 20 to 25 years that may provide the basis for any investment required to achieve these objectives on a commercial basis.

Should the Council begin to progress toward providing its own energy supply / becoming energy self-sufficient?

3.11 The current Stockton Borough Council annual spend on electricity supply for buildings (including schools) and street lighting is around £3.3m, an additional £1.4m is spent on gas. With gas and electricity prices showing significant volatility and a longer term upward trend as fossil fuel supplies become more difficult to exploit or are sourced from Europe and further afield and as the home supply declines the Committee is eager to explore all possibilities for Stockton Council which could ultimately result in providing its own energy supply and self-sufficiency.

3.12 Reliance on current forms of energy supplies have a limited lifespan as there is a requirement to reduce carbon emissions substantially with the Stockton Borough Council Carbon Management programme requiring a 25% reduction over the 5 years to 2013 and government targets of a reduction of 34% by 2020 and 80% by 2050 from a 1990 baseline requiring strong action beyond energy efficiency improvements. Whilst the Renewable Energy Strategy has a focus on Council buildings there is also a benefit to transport, particularly electric vehicles that would be charged from a renewable electricity supply thus potentially providing zero carbon transport.

3.13 The ability to benefit from renewable energy became a reality during the time of this review with the installation of photovoltaic (PV) cells on Council buildings which will lead to savings of around £10,000 per annum in electricity costs as well as generating an income from Feed in Tariffs resulting in the PV solar panel costs being recouped within nine years or less dependent on the likely rise in energy costs.

R1 The Committee recommend the promotion of using photovoltaic cells wherever possible on Council owned properties and elsewhere.

3.14 Stockton Council has in place a Sustainable Construction Policy which sets out the framework through which it will meet the requirements of a number of national, regional and local polices that aim to achieve sustainable development. It also helps to reduce the Council's contribution to climate change and build in adaptation to the changing climate through good design. The policy has been in place since 2009 and the Committee was informed that the policy was due to be reviewed.

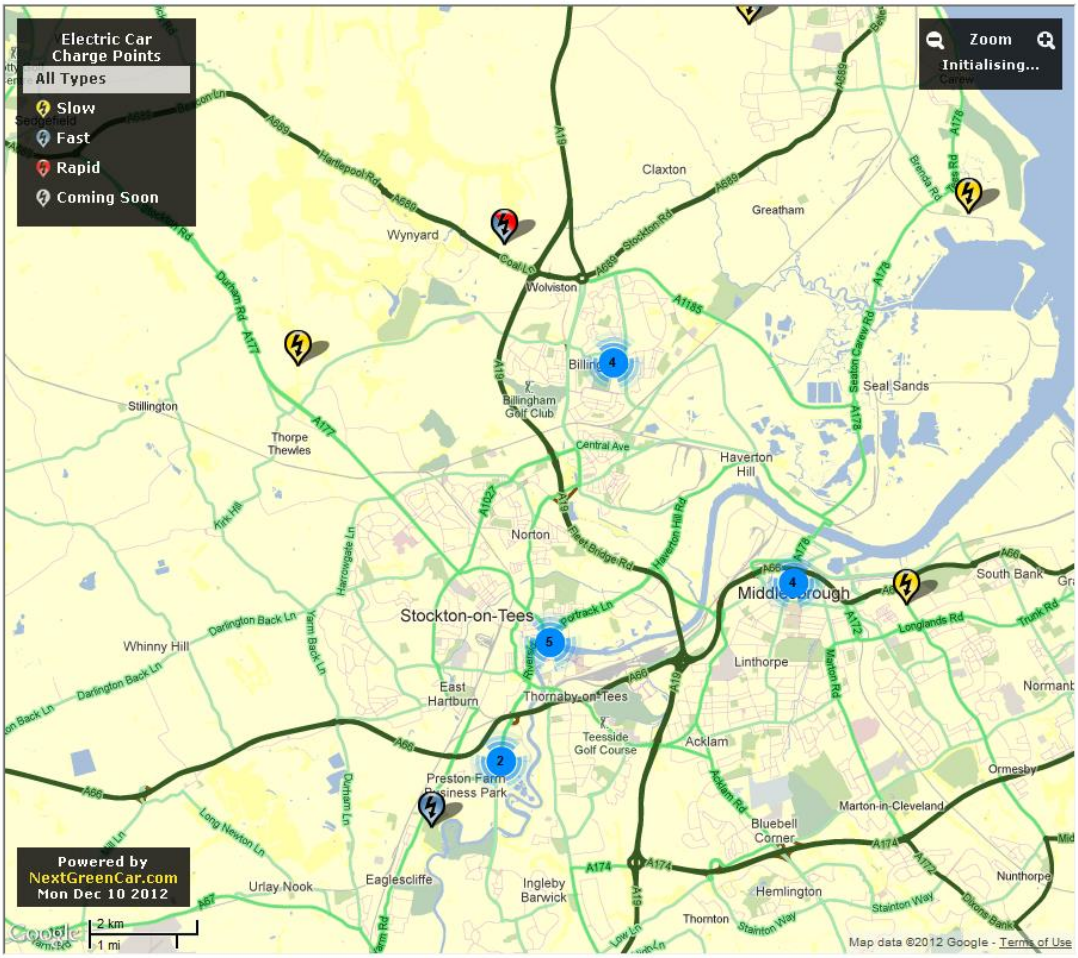
R2 The Committee recommend that the updated Sustainable Construction Policy reflect all advances in renewable energy technology to ensure buildings are as energy efficient as possible while delivering value for money.

3.15 A link between the PV cells and electric charging points provides the opportunity for 'free energy' to charge electric cars leased to Stockton Council from electricity generated 'by Stockton Council'.

3.16 While electric vehicles may be expensive to buy or lease, electric cars and vans are exempt from Vehicle Excise Duty ('car tax'). Owners of electric vehicles therefore save around £130 per year compared to an average conventional petrol or diesel car (VED Band F).

3.17 Fuel costs are also very low due to the competitive price of electricity (fuel duty is zero-rated) and to the high efficiency of the vehicles themselves. The AA calculates that electric cars can run for about 2.0p per mile (depending on tariff), against around 14.0p per mile for a similar sized petrol or diesel car. For an annual mileage of around 10,000 miles per year, switching from a conventional to an electric car or van can save around £800 in fuel costs alone.

3.18 The map below shows the location (and number) of charge points in Stockton Borough (and part of Middlesbrough Borough) as at 10 December 2012.



R3 **The Committee recommend that whenever possible officers/Members use the electric cars that have been leased to Stockton Council.** With cost saving critical to the Council a reduction in the annual budget of over £1m is, the Committee believes, prudent.

R4 **The Committee recommend that Stockton Council ensure the cost of operation of pool cars is fully offset by reduction in business mileage.** In the case of electric Peugeot cars used by Stockton Council this requires 5,000 miles travelled. A similar case can be made of the diesel pool cars which require a minimum of 10,000 miles per municipal year.

Should the Council take the lead with other LAs or develop unilaterally?

3.19 Current energy supply is delivered through natural gas and grid electricity that is purchased through supply contracts negotiated for the majority of North East Council's by NEPO. Flexible procurement has enabled the electricity and gas to be purchased using the futures market thus enabling optimum prices to be obtained.

3.20 The gas supply contract is for five years with the current contract starting in April 2011. The electricity supply contract going out to tender is to take effect from April 2014.

3.21 The Committee was informed that savings against the market for gas and electricity procurement between 2009 and 2012 for Stockton Council was £1.17m whilst saving against an agreed budget for electricity amounted to £139k.

3.22 NEPO is currently exploring working to develop a solution for longer term buying from sustainable sources. This would further spread the risk of buying by directly contracting with generators across time periods from 5-25 years. This will lock in prices during periods of uncertainty. NEPO will look to engage regionally to encourage generators to bid for this contract.

3.23 The current contracts allow purchasing directly from generators to be "sleeved in" against the current contract whereby if a better price is found than that being offered, a supplier will be required to provide that energy and honour the cheapest price found. This can be from contracts entered into on behalf of a single authorities or a wider initiative as detailed above.

3.24 NEPO is also developing a collective buying strategy for the wider community and is currently engaging with several organisations to develop this solution.

3.25 A number of central government policies are strengthening the case for local authorities to view energy as a strategic priority (see appendix 1 for example). In August 2010, a ban on local authorities selling surplus power generated from renewable energy to the National Grid was lifted (Department of Energy and Climate Change, 2010), thus enabling them to benefit from incentives (including the Feed in Tariff (FIT) and Renewable Obligation Certificates (ROCs) for small-scale and large-scale renewable generation, respectively) and raise revenue that could be reinvested in other projects.

3.26 The Renewable Heat Incentive (RHI), launched in mid-2011, provides a similar mechanism for generating revenue through renewable heat-provision schemes such as district heating. Even though much of the work that local authorities could undertake in the areas of energy efficiency and renewable or low-carbon energy generation is at this stage optional rather than mandated by government, these policies provide clear incentives for local government action.

3.27 The Committee believe that Stockton Borough could benefit from exploring the opportunities provided by the industries in the vicinity. As such it could follow Woking which is perhaps the best known from a group of local authorities – which include Milton Keynes, Kirklees, Leicester, Leeds and

Gateshead, for being active in the development of their own locally initiated Energy Service's Company.

3.28 One option is the establishment of a LA-controlled 'arm's length' Energy Service Company (ESCo) which would deliver energy projects on the LA's behalf. The benefit would provide the LA with an additional revenue stream and help it to meet its strategic objectives without being exposed to the associated risks. The ESCo would take responsibility for the financing, design, build, operation, and maintenance of the project. The establishment of an 'arms-length' ESCo, which is responsible for both the delivery and management of energy projects would enable the strategic energy body to focus its limited resources on its main objectives of project facilitation and coordination, as opposed to project delivery, management or underwriting. It would also provide the local authority with the opportunity to obtain and involve appropriate expertise in the delivery of the schemes, which may lie outside of its core remit and understanding.

3.29 The ESCo's 'arm's length' status would also serve to insulate the local authority from much of the financial and legal risk associated with energy projects because it is considered a separate legal entity to the local authority. Furthermore, because an ESCo is relatively politically and financially autonomous, its energy projects are somewhat protected from any significant changes the council might make to its strategy, which could have an adverse impact on its development and/or funding. However, in order for the local authority to benefit from these advantages, it is likely to need to have a relatively large stake in the company, i.e. financial and technical resources invested in the ESCo. This could pose a problem if the local authority is unwilling or unable to invest these resources. An LA-affiliated ESCo can assume a number of different forms.

3.30 Firstly, the local authority may decide to own the ESCo outright, as with Aberdeen Heat & Power Ltd. Here, the LA assumes the majority of the financial risk associated with the ESCo's projects but will consequently receive the majority of any revenue generated by it.

3.31 Secondly, a local authority may decide to establish a joint-venture 'arm's length' ESCo, where ownership is shared with another public, private or third sector organisation, as with Thameswey Energy Ltd. (TEL), which was set up as a public– private venture by Woking Borough Council. Woking has pioneered the development of a network of over 60 local generators, including cogeneration and tri-generation plant, photovoltaic arrays and a hydrogen fuel cell station, to power, heat and cool municipal buildings and social housing. Many town centre businesses are also connected to this local energy supply. Although these joint ventures are often complex arrangements they can help the LA to pool resources and expertise, and reduce the legal and financial risk assumed by the local authority. It can also help LAs to secure the necessary project finance and investment from third-party investors, a valuable advantage in view of the recent public sector cutbacks in the UK. Investors may be inclined to invest in the ESCo due to the performance guarantees incorporated in its energy service contracts, representing a relatively low- risk investment, usually over a period of between 5 and 25 years.

3.32 Finally, the LA may opt against an 'arm's length' ESCo and instead contract with a private sector organisation to deliver the energy service project, often referred to as Energy Service Providers, as Birmingham City Council did for

the Birmingham District Energy Company (BDEC) Ltd. The local authority will be subject to less risk and will continue to benefit from many of the project outputs (e.g., reduction in fuel poverty and CO2 emissions), however, it is likely to receive either no, or limited, direct revenue from any of the projects the private sector ESCo delivers.

3.33 This type of approach receives the support of The Carbon Trust which discussed the need for, and benefits of decentralised energy networks (Public Sector Executive Nov/Dec 2012 pages 28-9).Working with Bristol City Council the Trust is helping to deliver district energy schemes that will reduce carbon emissions, energy costs and greater energy security. The Trust also believes that "…If every local authority in the UK with a potentially viable decentralised energy scheme found a way to bring that project to market then [the UK] would trounce all current targets and predictions."

R5 The Committee recommend that initiatives such as Energy Service Companies to aid future energy supply for the Council are considered regarding their positive contribution to meeting the Council's objective on future energy supply.

Develop a portfolio of available energy resources to utilise?

3.34 Renewable energy technologies to reduce the energy related carbon emissions include the following:

- Wind turbines – most available and affordable current technology but does require planning permission. There are a limited number of available sites within the Borough and whilst unlikely to have a significant impact from onshore wind in the Borough it may be an option to take a share in an offshore wind farm that could meet the street lighting electricity, i.e. 48% of electricity used.
- Solar Energy – in the form of heat through solar hot water panels this can provide around 60% of annual hot water demand but needs careful matching to Council buildings to be effective. By utilising school roofs and depots, subject to roof loadings, it may be possible to provide a further 1,900 kW of PV (£3.8m at today's prices) to support 10% of council building electrical energy.
- Solar Electricity – in the form of photo-voltaic (PV) panels and tiles provide a source of electricity but is costly though Feed In Tariffs encourage installation. Technology breakthroughs are expected over the next decade that could see current costs of this technology substantially reduced.
- Biomass – typically wood and waste materials to provide heat with appropriate boiler plant but requires fuel stores and regular delivery which can be problematic in urban areas, or using anaerobic digestion to produce a fuel oil or gas that could be used for transport as well as space heating of buildings.
- Hydro-electricity – limited opportunity but an Archimedes screw generator has been installed as part of the Tees Barrage white water course upgrade by Tees Active.
- Energy from Waste – Municipal waste is taken to the SITA plant where it provides fuel to generate electricity for the grid. We provide about 52,000 tonnes of waste per annum and this generates about 55% of our total electricity demand (including street lighting). At present there is no linkage between the waste stream and the electricity generated. In future linking the

Council's waste to generated electricity may provide an alternative supply to grid electricity. Also new energy from waste plants are coming on line that are more efficient and could provide a greater output per tonne of waste.

- District heating - under consideration with potential use of process heat from local industry being explored. This has the potential to serve a lot more than council properties so could meet the needs of other commercial users. The commercial viability of this is being explored.

3.35 To further its understanding the Committee visited the SITA Energy-from-Waste facility in Billingham where Members saw waste collection vehicles discharge their waste into bunkers where it is mixed to ensure an even burn in the furnace. They then learned that after water sprays and induction fans are used in the reception hall to reduce levels of dust and smell the waste is loaded by crane into a feed hopper before travelling down the feed chute into the furnace. Inside the furnace, a series of grate bars move the waste through the furnace where it is dried and burned at temperatures of around 1000°C. Burning waste in the furnace creates hot flue gas which is then used to create energy. The hot flue gases travel through a boiler transferring the heat to water which is run through the boiler pipes. The hot water creates steam and the steam drives turbines which then generate electricity.

3.36 The Committee is aware that no linkage currently exists to determine the energy output from the amount of waste provided and would hope that future arrangements will provide such measures.

3.37 A SWOT (strength, weakness, opportunities, threats) analysis has been used to assist the Committee's approach to recommendations from the evidence provided for this review.

Strengths	**Weaknesses**
• Electricity & gas via NEPO contract • Renewable energy provides local control • District heating/CHP yields high efficiency • Energy from waste may help two high cost items • Future diversity keeps options open • Potential revenue generation from surplus energy	• Electricity & gas show volatile & rising prices • Renewable energy can be costly • District heating/CHP requires high infrastructure spend • Energy from waste dependent on new technologies for best outcome • Long term contracts could inhibit future change • Energy supply requires compliance with Ofgem rules
Opportunities	**Threats**
• Move from grid electricity & gas gives greater predictability & price stability • Renewables help deliver the 'green vision' • Carbon reduction reduces CRC costs • Waste collection costs reduce • Diverse energy supply helps local employment • Long term budget planning eased	• Potentially lose 'trader' buying expertise from NEPO • Capital cost and long term supply contracts • Finance • Regulatory/subsidy/incentive uncertainty

3.38 The Committee support the utilisation of a wide range of renewable energy sources as no single source could currently provide the whole of the Council's energy requirements.

3.39 Particular support was expressed for the possibilities offered by wind power, especially the projected amounts from offshore wind turbines especially when equated to what it could power within the borough.

R6 Members also believe that flexibility is required and **recommend that Stockton Council does not commit to a specific course of action thereby allowing the flexibility to work alone or with others to best benefit from renewable energy**.

4.0 Conclusion

4.1 The Committee's objective was to reduce the cost of energy supply to the Council where possible or at least achieve greater stability. In addition many of the approaches under consideration would deliver carbon emissions savings that would reduce the cost of the CRC Energy Efficiency Scheme.

4.2 In an ever changing political and environmental landscape it is difficult to accurately predict what the future of energy supply will look like in 2050 when government targets have to be met. The Committee has therefore utilised the available information and expertise of officers to arrive at the recommendations contained in this report.

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Appendix 1

How local authorities can reduce emissions and manage climate risk I Committee on Climate Change (May 2012)

Key messages for local authorities:

- **Local authorities play an important role in delivering national carbon targets** by driving and influencing emissions reductions through the services they deliver, their role as social landlords, community leaders and major employers, and their regulatory and strategic functions.
- **Action on climate change**. Carbon reduction programmes can bring a range of benefits such as lower energy bills, economic regeneration and creation of local jobs, and improved health. Increasing resilience to climate change risks can result in avoided costs from flood damage to buildings, infrastructure and services, enhanced green spaces and improved health.
- **Improving energy efficiency in buildings**. Local authorities can assist the residential buildings sector through implementing home insulation measures in the context of national energy efficiency programmes.
- **Planning**. Local authorities' planning functions are a key lever in reducing emissions and adapting localities to a changing climate. It is particularly important that local authorities fully utilise their plan making and development management/building control functions.
- **District heating**. Developing and making district heating schemes commercially viable, only low-carbon district heating (e.g. supplied by waste-to-energy plants or low-carbon power stations) should be pursued in the longer term as gas-fired combined heat and power (CHP) will eventually become incompatible with national carbon budgets.
- **Transport**. The important role local authorities can play in reducing transport emissions is through implementing sustainable travel programmes (e.g. encouraging 'Smarter Choices' through car clubs, travel plans, cycling infrastructure etc., and providing better public transport) and promoting low-carbon vehicles (e.g. electric vehicle charging infrastructure, providing incentives for drivers of low-carbon vehicles, and purchasing low-carbon buses.
- **Waste**. Local authorities have an important role in waste prevention and sustainable waste management through awareness-raising campaigns, providing separate collection for recycling and food waste, and implementing waste-to-energy schemes.
- **Low-carbon plans**. All local authority areas should develop a low-carbon plan that includes a high level of ambition for emissions reductions and focuses on emissions drivers over which local authorities have influence in buildings, transport, waste, renewable power generation and their own estates.
- **Own estate**. Reducing emissions from local authorities' own estate and operations is an important contribution to meeting carbon budgets by demonstrating leadership. The main opportunities are in own buildings, street lighting, transport and procurement.
- **Adaptation**. Local authorities have a crucial role in increasing the resilience of buildings and infrastructure in their localities, managing and extending natural resources to promote biodiversity and reduce the risk of flooding, as well as protecting their populations from the health impacts of a changing climate.