

# Corporate Energy Strategy

## 2018-2021



**Corporate Landlord Services  
Final Draft January 2018**



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# Corporate Energy Strategy 2018-2021

## Where we are now

During 2016/17 the council spent approximately £5.7 million on utilities supplied to our corporate buildings and for activities such as street lighting. Energy costs are set to increase significantly in coming years. Without proactive management and investment; utility budgets will also need to increase.

A number of initiatives to reduce energy use and costs have already been undertaken. Projects with the shortest pay-back have been prioritised, meaning remaining projects are likely to have medium to long-term paybacks.

Excluding schools, the council has 950 metered electricity supplies and 176 gas supplies. Bills are often estimated causing large bills/ credits to be generated when meter readings are taken.

Sites are individually billed for water charges with some sites receiving separate bills for their fresh and waste water.

Little has been done to assess the impact of, and opportunities around increasing electric vehicle ownership

## Where we want to be

We'll aim to maintain utility budgets at 2016/17 levels.

We'll ensure that energy is a key consideration in all corporate estate decisions and when investing in new plant and equipment.

Gas and electric bills based on accurate monthly readings will help bench-mark site- usage and target unnecessary energy use and highlight opportunities for savings.

The Council's water supplies and related services will be billed electronically, on a consolidated basis. This will lead to financial savings from reduced administration and enhanced bill validation checks.

We want to ensure that vehicle charging infrastructure keeps pace with increasing levels of electric vehicle ownership – ensuring that our employees can get around the borough.

## How we'll get there

We'll continue to proactively manage the utility contracts, exploring opportunities to realise savings through different tariff structures or demand-side response initiatives.

We will continue to monitor opportunities for external funding, and where appropriate, use this funding for energy efficiency improvements.

We will work with our supplier to install 'advanced metering' at all corporate and housing sites. This will ensure that monthly readings are automatically sent and accurate bills received.

During 2018 we'll tender for a new water retailer. In addition to the financial savings likely from a competitively procured contract, consolidated/ electronic billing will be specified.

We will work with the Energy Saving Trust to review our fleet operations and explore the business case for alternative technologies and pool vehicles.

We will review our processes to ensure that new and alternative technologies are given due consideration.

## Energy Strategy: an overview and its interface with the Council Plan and Estate Strategy

### 1.0 Key principles and objectives of the Council plan; community strategy and estate strategy

The council plan outlines the philosophy for the council and sets a clear ambition to be at the forefront of new ideas and to be one of the most innovative local authorities in Britain. A central priority within the council plan is to “**reduce the cost of doing business**”, whilst also ensuring we create a **cleaner and greener place**. Both the council plan and community strategy recognise the need to reduce carbon emissions and address climate change. The estate strategy recognises that good asset management will help the council in delivering on its ambition to reduce carbon emissions and improve environmental sustainability.

### 2.0 Purpose of the Energy Strategy

This Energy Strategy is a three year plan that sits within the context of the corporate Estate Strategy and council plan. The strategy establishes how the council can build upon previous work to reduce energy use, costs, and carbon emissions.

The primary objective of this strategy is to minimise the cost of utilities in delivering council services by:

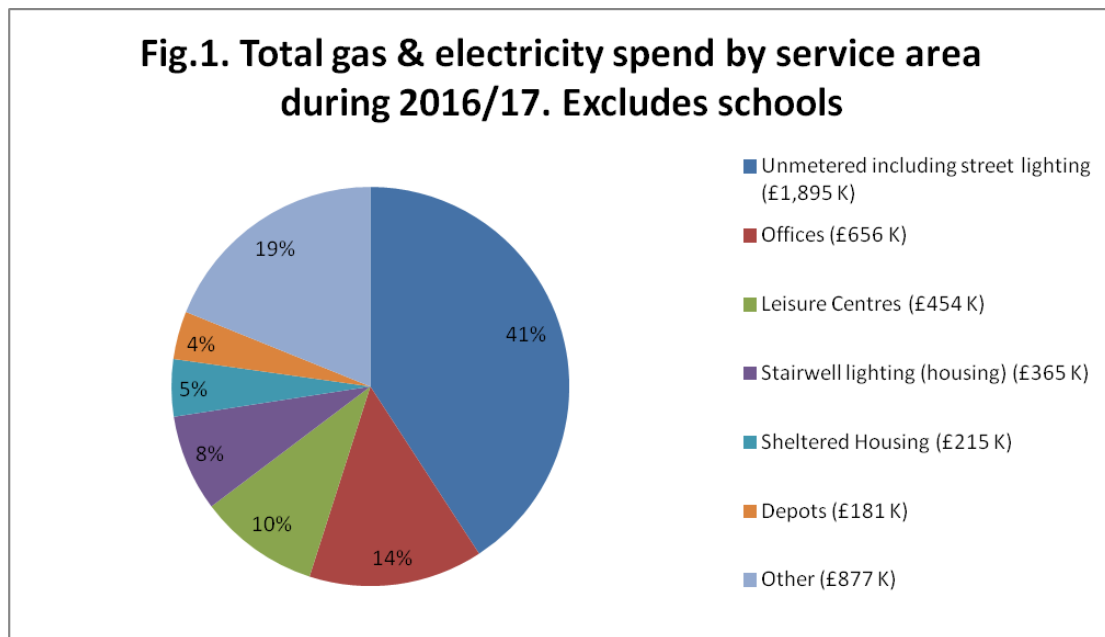
- Investing in more energy efficient plant and equipment which will cost less to run and result in fewer carbon emissions.
- Exploring any new opportunities for reducing costs or generating revenue through government or industry initiatives, grants or funding.
- Using good quality utility data to benchmark sites and target excessive consumption.

## Part 1 – Where we are now

### 3.0 Current Situation

Dudley Council is a major consumer of gas, electricity and water. During 2016/17 we spent approximately £5.7 million on utilities for our corporate buildings and activities such as street lighting. This energy use resulted in the emissions of more than 23,000 tonnes of carbon. The need for action to reduce energy is clear. Gas and electricity costs are set to increase, as are the ‘carbon taxes’ associated with those fuels. The Council uses a Public Buying Organisation (PBO) to procure gas and electricity across the majority of sites, this approach ensures compliance with procurement law, helps to ensure best value is achieved (as volumes are aggregated with other public sector customers); and risk is reduced through a flexible purchasing strategy. However, proactive management of the portfolio is still needed in order to prevent significant increases in utility budgets and to fully explore

opportunities for cost savings and revenue generation. The council uses energy for a diverse number of functions and across a large number of sites (Fig. 1).



The most significant uses of energy are for street lighting, lighting stairwells within blocks of council housing, at council offices such as 4 Ednam Road and 3-5 St James's Road, the Council's three leisure centres and depots such as Lister Road. A large amount of energy is also supplied to the various sheltered housing schemes, although this is ultimately re-charged to residents.

A number of projects have been undertaken to reduce the amount of energy used by the council and there has been significant progress, thereby delivering both financial savings and reductions to carbon emissions.

### 3.1 Summary of progress to date

- The council has employed a full time energy manager to oversee energy projects and deal with day-to-day queries, resulting in annual revenue savings of more than £250K to date.
- All residential streets now have energy efficient lighting which is remotely controlled via a Central Management System (CMS). Further energy savings are being achieved by dimming these lights during the early morning;
- A number of LED lighting projects have been undertaken, including a major investment in Pool Road multi storey car park which has halved electricity consumption, delivering annual savings of around £13,000;
- Crystal leisure centre has a 225KWe Combined Heat and Power Unit (CHP) generating electricity and heat in a single efficient process;

- The majority of pumps and motors are controlled by Variable Speed Drives (VSDs), significantly reducing the energy used during operation;
- A 60KWp array of solar panels has been installed on the council's new archive centre (Fig. 2), helping the building to achieve a BREAM excellent rating. The Council is receiving annual payments for generation (through the Feed In Tariff) of approximately £4,700;
- Dudley and Halesowen leisure centres now use pool covers to minimise the amount of heat lost overnight (Fig. 3), *pool covers were not feasible at Crystal leisure centre*;
- The majority of the borough's schools have had detailed energy assessments completed (as part of the Collaborative Low Carbon Schools Programme) which highlighted opportunities to save energy. As a result, several schools have installed LED lighting and are now realising financial savings;
- The rationalisation of buildings and assets along with a move to agile working is helping to deliver energy savings.

Fig. 2. Solar panels at the Archive Centre



Fig. 3. Swimming pool cover at Dudley



## Areas of specific progress

### 3.2 Street lighting

The council is responsible for maintaining approximately 32,000 street lighting columns across the borough, split between residential areas and main roads. The annual spend on electricity for street lighting is approximately £1.7million, with an additional carbon tax in excess of £150,000 (resulting from the production of some 7,600 tonnes of CO<sub>2</sub>).

A number of steps have already been taken to reduce energy and realise financial savings. The council recently finished upgrading the street lights on

all residential roads with more efficient alternatives. Additionally, the lights have been linked to a Central Management System (CMS) that allows for remote adjustment to dimming levels and times. In order to reduce electricity use, street lights are currently dimmed between midnight and 5am. Further savings have also been achieved by a process known as ‘trimming’, this involves waiting longer before street lights switch on in the evening and switching them off earlier in the morning.

In February 2016 the council was successful in the Government’s Electricity Demand Reduction Auction (EDR), gaining a grant of £30,000 to part-fund the replacement of the most inefficient main road lights with LEDs.

### 3.3 Corporate buildings

Over recent years, there have been significant changes to the way in which back-office functions are delivered. As a result of the ‘Transforming Our Workplace’ initiative and a move to agile working, a number of large offices have been vacated, leading to a reduction in energy.

As part of a move to agile working, traditional PCs are being replaced with laptops which typically use 85% less electricity.

Office buildings being retained by the council as identified by the Corporate Estates Strategy, have also undergone significant renovation works, with new energy efficient lighting installed throughout the council’s two main civic centre’s - 4 Ednam and 3-5 St. James’s Road.

Large items of plant such as heating boilers, air handling and air conditioning all consume significant amounts of power. Despite the fact that many items of plant within our buildings are ageing and inefficient (Fig. 4), they are generally only replaced as a result of major transformation projects or as a result of break-downs.

Fig. 4. Gas boilers converted from burning coal



### **3.4 Energy data**

Significant progress has been made in other areas such as data quality. An energy management software package<sup>1</sup> is now used to validate gas and electricity bills, monitor and target energy reduction and for carbon reporting purposes. The software has led to the identification of a number of sites which were being erroneously billed, or over-billed.

A programme of 'advanced meter installations' at both corporate and housing sites is also well underway and once completed will virtually eliminate estimated bills. As advanced meters can be re-programmed remotely, there is greater potential to exploit a range of tariffs in order to realise financial savings.

### **3.5 Electric vehicles**

The introduction of Electric Vehicles (EVs) and other Ultra Low Emission Vehicles (ULEVs) is set to revolutionise both the way in which we travel and also the way we use and generate electricity. The UK government has introduced a ban on new petrol and diesel vehicles from 2040 (although this does exclude Heavy Goods Vehicles), and manufacturers Volvo and Jaguar Land Rover have announced that they will stop producing new models powered solely by internal combustion after 2019 and 2020 respectively. In urban areas such as the Dudley borough, vehicles emissions are the predominant source of air pollution causing recommended limits for nitrogen dioxide to be exceeded. ULEVs have the potential to significantly reduce air pollution, whilst also reducing carbon emissions.

An agreed priority for the West Midlands Combined Authority is to increase the uptake of EVs within Council fleets<sup>2</sup>. In order to facilitate the use of EVs, consideration will need to be given to the provision of charging infrastructure outside council buildings and on council car parks. Limited infrastructure currently exists within the borough. During 2015 the Council received grant funding to install three rapid charge points on council car-parks (Stafford Street, Level Street and Andrew Road); additionally a domestic type charge point is located at the Corbyn Road offices. A significant number of additional charging points will need to be installed between now and 2040. The use of so-called 'smart chargers' which avoid vehicles charging concurrently or at times of peak demand will need to be explored in order to avoid significant increases to electricity costs.

The council currently pays a mileage allowance for staff to use their personal vehicles for work purposes. However, it's possible that financial savings and environmental benefits could be realised by providing a fleet of pool vehicles (either electric or low-emission vehicles).

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<sup>1</sup> <https://energy.dudley.gov.uk>

<sup>2</sup> <http://www.sustainabilitywestmidlands.org.uk/wp-content/uploads/WMCA-Environmental-Portfolio-Priorities.pdf>



### 3.6 Water de-regulation

Since April 2017, most businesses and other non-household customers in England have been able to choose who provides their retail water services. Water is still supplied by the existing regional water companies (now known as wholesalers). However, account management, invoicing and other similar services are now provided by new companies known as 'Retailers'. At the present time Dudley's sites are sent paper bills for both supplied water and waste water services, these bills have to be manually checked and passed for payment.

## Part 2 – where we want to be

### 4.0 Estate strategy

One of the over-arching objectives of the estate strategy is **“to optimise all opportunities to save money and generate direct and indirect financial benefit from the Council's property estate.”**

In support of this, the primary aim of the energy strategy is to minimise utility costs by:

- Considering energy in all corporate estate decisions and when investing in major items of plant or equipment.
- Ensuring that accurate and reliable data is available for decision making purposes and also for targeting and reducing unnecessary or anomalous energy consumption.
- Reducing the administrative over-heads currently associated with processing paper water bills.
- Fully exploring the opportunities and challenges presented by electric vehicles.

## Part 3 – how we're going to get there

Implementation of the energy strategy will require investment, time and expertise.






### 5.0 Resource implications



As there is no specific budget associated with energy management, projects will be progressed based on the individual business case. This will involve either prudential borrowing or a Salix<sup>3</sup> interest free loan for capital costs, which will then be re-paid through savings on existing revenue budgets. Where those budgets are outside the control of corporate landlord services, buy-in from service managers will be critical in successfully delivering projects and also to the wider success of the strategy. Wherever possible, external grant/ loan funding will be used to enhance business cases.




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<sup>3</sup> <https://www.salixfinance.co.uk/>

## 6.0 Action Plan

<b>Action Plan</b>		The action plan is the heart of the plan. It identifies the programme of goals, objectives and measures that are the plan of action - what the Strategy sets out to "do". This section serves as a guide for operational monitoring and a reference for evaluation.						<b>Priority Rating</b>  High Priority  Medium Priority  Low Priority	
<b>Council Plan Priority:</b>	One council, building an effective and dynamic organisation – growing the economy and creating jobs.								
<b>Aim:</b>	<i>a leaner Council estate that facilitates delivery of efficient services working collaboratively across the public sector.</i>								
<b>Objective:</b>	To minimise utility costs								
Project type	Priority Rating	Key Supporting Actions / Initiatives	Start Date	Finish Date	Linkages to Other Plans / Services	Lead Officer/s	Current Position		
Street lighting		<p>Following a trial of LED lighting on main roads, a 'spend-to-save' initiative to upgrade the remaining main-road street lights commenced at the end of 2017.</p> <p>The potential for delivering additional savings by 'dynamic dimming', whereby light levels are adjusted depending on traffic volumes, will be considered.</p>	Dec 17	Ongoing	Capital programme/ Street lighting policy	Melvyn Harwood	In progress		
Corporate buildings		An asset register detailing all major items of plant within Council buildings will be collated from existing	Apr 18	Jun 18	Directorate Strategies and Policies	Christopher Jenkins	Pending		

<b>Council Plan Priority:</b>	<b>One council, building an effective and dynamic organisation – growing the economy and creating jobs.</b>						
<b>Aim:</b>	<b><i>a leaner Council estate that facilitates delivery of efficient services working collaboratively across the public sector.</i></b>						
		information held. Where a business case exists, the most inefficient plant and equipment will be replaced on a proactive basis.					
<b>Corporate buildings</b>		We will update our processes in relation to the design of new heating systems, giving consideration to technologies such as heat pumps or Combined Heat and Power (CHP) as alternatives to traditional gas boilers. <i>Whilst it's accepted that these technologies are likely to have higher capital costs, they often have lower running costs over the lifetime of the plant.</i>	<b>Jan 18</b>	<b>On going</b>	<b>Capital programme &amp; Asset Decision Proforma / Repairs and maintenance policy</b>	<b>Fay Hayward / Helen Coldicott</b>	<b>In progress</b>
<b>Energy data</b>		We will continue to install advanced metering for gas and electricity at all corporate and housing sites. In addition we'll maintain a list of sites where it's not been possible to install this metering (e.g. due to a lack of mobile signal) and ensure that manual meter readings are taken.	<b>Feb 17</b>	<b>Mar 18</b>	<b>Corporate Estate Strategy</b>	<b>Christopher Jenkins / Debbie Cartwright</b>	<b>In progress</b>

<b>Council Plan Priority:</b>	<b>One council, building an effective and dynamic organisation – growing the economy and creating jobs.</b>						
<b>Aim:</b>	<b><i>a leaner Council estate that facilitates delivery of efficient services working collaboratively across the public sector.</i></b>						
<b>Energy data</b>		The majority of meters supplying stairway lighting in council housing are setup to be billed at a single flat rate, regardless of when the electricity is actually used. In reality most of this electricity will be used during the off-peak period when electricity is cheaper. All of these meters will therefore be reprogrammed, allowing them to be billed at the off-peak rate.	<b>Feb 18</b>	<b>Mar 18</b>	<b>n/a</b>	<b>Christopher Jenkins</b>	<b>In progress</b>
<b>Energy data</b>		The introduction of any new 'Time of Use Tariffs' will be monitored and the potential for savings at other council sites evaluated.	<b>Jan 18</b>	<b>On going</b>	<b>n/a</b>	<b>Christopher Jenkins</b>	<b>In progress</b>
<b>Electric vehicles</b>		We will work with the Energy Saving Trust to review the council's existing fleet operations, investigate the business case for alternative technologies (such as ULEVs/ EVs), and whether a financial and carbon saving could be achieved through the use of pool vehicles.	<b>Jan 18</b>	<b>On going</b>	<b>Casual car user policy/ waste management strategy/ fleet policy</b>	<b>Christopher Jenkins / Jennie Webb/ Pete Cooper</b>	<b>In progress</b>

<b>Council Plan Priority:</b>	<b>One council, building an effective and dynamic organisation – growing the economy and creating jobs.</b>						
<b>Aim:</b>	<b><i>a leaner Council estate that facilitates delivery of efficient services working collaboratively across the public sector.</i></b>						
<b>Water de-regulation</b>		The Council will continue to collate information regarding the various water accounts with a view to tendering for a new water retailer who will provide a consolidated, electronic bill, for both water and waste water services. In addition to delivering an administrative saving, better visibility of data should allow more comprehensive checks and bench-marking of water usage, leading to additional savings.	<b>Jan 18</b>	<b>Oct 18</b>	<b>Traded services</b>	<b>Christopher Jenkins</b>	<b>In progress</b>

## 7.0 Risk Management

The assessment of risk will be an ongoing task throughout the life of the strategy. Criteria for assessing the likelihood and impact of a risk are:

- Impact

The impact of a risk is assessed using the matrix below. The description should also be taken, where appropriate, to include the lost opportunity e.g. where an opportunity to realise a capital receipt might also lead to a lost opportunity to provide a positive news story for the Council which leads to reputational damage.

Main Categories	Impact Description				
	1 - Insignificant	2 - Minor	3 - Moderate	4 - Significant	5 – Major
<b>Operational – service, legal, contractual partnerships, project delivery</b>	Minor errors handled with normal daily project routine	Short term disruption/action required. Managed by intervention by Project Manager	Noticeable disruption affecting public. Intervention escalated to Head of Service	Disruption of core activity and key targets missed/compromised. Escalation to senior management	Loss of core activity/project. Intervention by Council leadership
<b>Financial</b>	Losses (under £10k) or negative variance against annual revenue / capital budget	Losses (£11-50K) or negative variance against annual revenue / capital budget	Losses (£51-250K) or negative variance against annual revenue / capital budget	Losses (£251-750K) or negative variance against annual revenue / capital budget	Losses (over £750K) or negative variance against annual revenue / capital budget
<b>Political – policy, reputational</b>	Event or decision not in the public domain that has little impact outside Council	Event or decision in public domain receives minimal or no negative coverage by local media	Event or decision in public domain receives some negative coverage by local media and/or pressure group	Event or decision in public domain receives significant negative coverage by national media and/or pressure group	Event decision in public domain receives extensive coverage by national media and or pressure group

- Likelihood/Probability

The likelihood of a risk materialising is assessed against the simple matrix below.

Probability over next 12 months	<b>Almost Certain &gt;90%</b>	5	5 Minor	10 Moderate	15 Significant	20 Major	25 Major
	<b>Likely 50 - 90%</b>	4	4 Minor	8 Moderate	12 Significant	16 Major	20 Major
	<b>Moderate 30 - 50%</b>	3	3 insignificant	6 Minor	9 Moderate	12 Significant	15 Significant
	<b>Unlikely 10 - 30%</b>	2	2 insignificant	4 Minor	6 Minor	8 Moderate	10 Significant
	<b>Rare &lt; 10%</b>	1	1 insignificant	2 insignificant	3 insignificant	4 Minor	5 Minor
			1 Insignificant	2 Minor	3 Moderate	4 Significant	5 Major

Appendix 1 shows the high level risk register as it currently stands - this is a live document managed through Corporate Landlord Services. The same

process of assessing risk will also be applied to all potential projects that are delivered as part of this strategy.

Risk	Assessment of Risk (assuming current controls in place)			Mitigating Actions
	Impact (Severity)	Likelihood (Probability)	Risk Rating	
Future staffing changes impact on the Council's ability to deliver the strategy	Minor (2)	Moderate (3)	Minor (6)	<ul style="list-style-type: none"> <li>The Council's energy manager is required to give three months notice</li> </ul>
Increased obligations in relation to environmental reporting diverts staff time from activities with potential to deliver savings	Insignificant (1)	Likely (4)	Minor (4)	<ul style="list-style-type: none"> <li>The council uses an energy management software package from which various standard and/ or bespoke reports could be run.</li> <li>Any reporting requirement that cannot be met in-house could be outsourced an energy consultancy firm</li> </ul>
Lack of specific energy budget and difficulty in gaining 'buy-in' from budget holders may prevent projects from proceeding	Moderate (3)	Moderate (3)	Moderate (9)	<ul style="list-style-type: none"> <li>Progressing projects on the basis of shared financial savings helps gain buy-in.</li> </ul>
Increases to either the wholesale or the regulatory unit charges outstrip the potential for savings in other areas	Significant (4)	Moderate (3)	Significant (12)	<ul style="list-style-type: none"> <li>The council uses a Public Buying Organisation (PBO) to help ensure energy charges are competitive.</li> <li>A proportion of the council's energy is hedged in order to mitigate against market volatility</li> </ul>
The cost of energy saving technologies significantly increase due to the falling value of sterling, or the UKs withdraw from Europe.	Moderate (3)	Unlikely (2)	Minor (6)	<ul style="list-style-type: none"> <li>Business case will be evaluated based on current quotes/ tenders for technology</li> </ul>
Re-balancing of Climate Change Levy (CCL) significantly adds to the cost of gas and causes utility budgets to increase	Moderate (3)	Moderate (3)	Moderate (9)	<ul style="list-style-type: none"> <li>A programme of replacing the oldest and most inefficient gas boilers and heating control systems will help to reduce excessive gas consumption.</li> </ul>
Indecision regarding asset retention/ disposal prevents investment in energy efficient equipment causing energy costs to increase.	Moderate (3)	Moderate (3)	Moderate (9)	<ul style="list-style-type: none"> <li>Adoption of the corporate estate strategy is likely to streamline decision making in relation to property.</li> </ul>
Oil / gas/ electricity prices increase due to circumstances beyond our control (OPEC cuts, geopolitical issues, terrorism, war, safety concerns)	Moderate (3)	Likely (4)	Significant (12)	<ul style="list-style-type: none"> <li>The council uses a Public Buying Organisation (PBO) to help ensure energy charges are competitive.</li> <li>A proportion of the council's energy is</li> </ul>

Risk	Assessment of Risk (assuming current controls in place)			Mitigating Actions
	Impact (Severity)	Likelihood (Probability)	Risk Rating	
				hedged in order to mitigate against market volatility
Inflation outstrips potential to realise savings in other areas.	Minor (2)	Moderate (3)	Minor (6)	<ul style="list-style-type: none"> <li>A pipeline of projects will help to ensure that energy savings continue to be delivered</li> </ul>
Cyber attacks result in advanced meters being temporarily turned off	Major (5)	Rare (1)	Minor (5)	<ul style="list-style-type: none"> <li>Industry passwords and security measures are in place</li> </ul>
Colder winters result in additional gas being used which leads to costs increasing.	Minor (2)	Likely (4)	Moderate (8)	<ul style="list-style-type: none"> <li>A programme of replacing the oldest and most inefficient gas boilers and heating control systems will help to reduce excessive gas consumption.</li> </ul>
The cost of electric vehicle charging and associated infrastructure is greater than the potential for revenue generation/ cost savings.	Moderate (3)	Moderate (3)	Moderate (9)	<ul style="list-style-type: none"> <li>A full and comprehensive review of the various options is to be undertaken by the Energy Saving Trust.</li> </ul>

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