

20 March 2017**Agenda Item: 6****REPORT OF SERVICE DIRECTOR ENVIRONMENT, TRANSPORT &
PROPERTY****ENERGY COSTS AND PROCUREMENT****Purpose of the Report**

1. The purpose of this report is to:
 - appraise Committee with regard to the procurement of energy for the Council's buildings and street lighting;
 - appraise Committee on projected costs of energy for this financial year and advise on estimated costs for the 2017-18 financial year;
 - report on the Council's carbon emissions and costs associated with mandatory participation in the Carbon Reduction Commitment Energy Efficiency Scheme; and
 - provide a brief summary of current carbon and energy cost saving measures.

Information and Advice**Energy procurement**

2. This report updates information reported to this Committee on 21 March 2016 and relates to energy and carbon management performance reported to Environment and Sustainability Committee on 3 November 2016.
3. Some of the Council's energy supplies, covering about 70% of its consumption for street lighting and buildings, are purchased under a flexible, variable procurement model, whereby energy is purchased in advance of and during the supply period (financial year), hence creating added in-year uncertainty regarding price, but also the opportunity to benefit from favourable wholesale market conditions during the year. The remaining 30% is purchased prior to the supply period. This should be borne in mind when noting the predicted energy costs in the following section.
4. Procurement of gas and electricity takes place through the Council's appointed central purchasing body, Crown Commercial Service (CCS). The supply contracts for gas and electricity are also made available to state schools in Nottinghamshire through a participation agreement, which most schools take advantage of. The CCS performance review for 2015-16 shows that for the energy baskets from which the Council's supplies are procured, CCS continues to achieve better than average wholesale market prices,

outperforming the market average by about 7% for gas, by about 4% for Half Hourly electricity, and matching the market average for Non Half Hourly electricity.

Energy costs

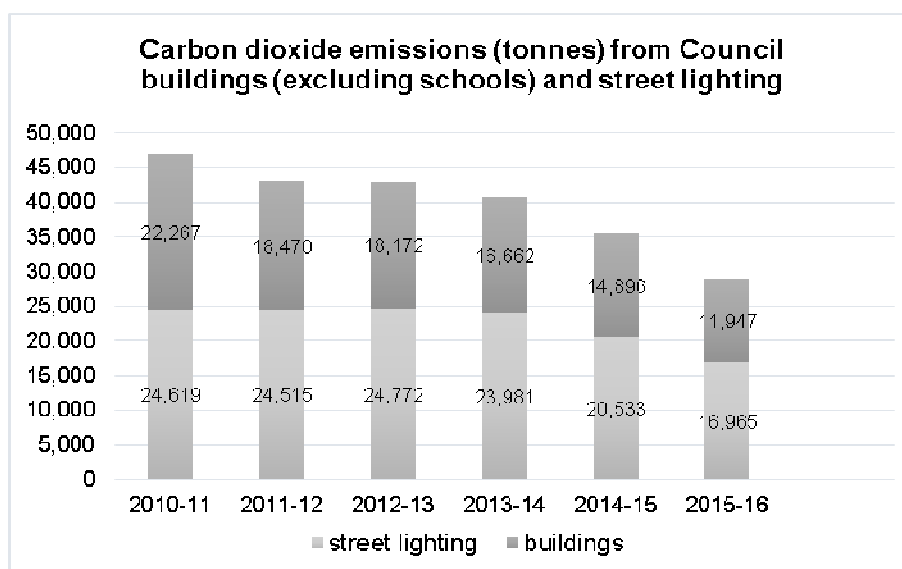
5. Table 1, below, shows the predicted energy costs (electricity and gas combined) for this and next financial year, compared to actual costs for 2014-15 and 2015-16 for County Council buildings and street lighting. Schools are excluded as they meet their own energy costs, which are estimated to total about £9m for 2017-18 (about a 10% increase) for those utilising the Council's supply contracts.
6. Budget predictions provided by CCS in January for 2017-18 show a wide variation in changes across different commodities. These range from a 2.6% decrease in final delivered charges for gas, through increases of 5.1% for our Half Hourly (HH) electricity, 6.8% for our Unmetered electricity (which covers most of our street lighting), and 23.2% for our Non Half Hourly (NHH) electricity. The significant increase in the latter is largely a reflection of the way energy is purchased in this basket, which only has a six month buying window prior to the supply period; a window that has coincided with relatively higher prices compared to the same period last year.
7. The final delivered charge for electricity and gas incorporates both the energy cost of procuring energy in the wholesale markets, plus the non-energy pass through costs. There is a general trend of a rising percentage of the final bill being due to non-energy costs, with electricity costs having 55% of the final bill attributable to non-energy costs, such as transmission and distribution charges, compared to 28% for gas. EDF Energy is currently forecasting a 30:70 split between energy and non-energy electricity costs by 2018/19.
8. For street lighting and traffic signals the predicted costs in Table 1 allow for estimated portfolio growth as well as predicted price increases. So whilst significant investment is being made in saving energy, predicted increases in energy prices and numbers of street lights are expected to outweigh the impact of energy efficiency measures.

Table 1 Summary of predicted energy costs (gas and electricity combined)					
	2014-15 actual (£)	2015-16 actual (£)	2016-17 Predicted (£)	2017-18 Predicted (£)	Difference compared to 2016-17 (£) (% change in brackets)
Traffic signals	317,155	293,212	272,152	286,000	13,848 (+5.1)
Street lighting	4,111,757	3,929,905	3,508,581	3,730,673	222,092 (+6.3)
Council buildings	2,359,015	2,310,677	2,141,228	2,345,987	204,759 (+9.6)
Total cost	6,787,927	6,533,794	5,921,961	6,362,660	440,699 (+7.4)

9. Members should be aware that these predicted costs are very much best estimate figures based on anticipated consumption, predicted prices and the limited amount of energy purchased in advance, with many variable factors that can influence actual costs. Street lighting and traffic signals comprise around 60% of the Council's combined electricity and gas costs, whilst the split between electricity and gas costs for buildings is roughly 3:1, with consumption being about equal.
10. For those sites which have HH electricity supplies, the Council's supplier, EDF, is now splitting out pass through costs so that such items appear separately on bills and are no longer wrapped into the unit price. This has provided added impetus to saving energy in times when distribution charges are highest. Between 4pm and 7pm Mondays to Fridays is the 'red band' zone, during which time an additional rate is applied, which can be more than double the normal metered rate. Across the Council's portfolio of 17 non-school HH supplies, the 2016-17 forecast spend was £854,625, of which an estimated 9.1% was from additional charges applied during red band periods.

Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES)

11. Reducing emissions of carbon dioxide, including those from the Council's own estate and operations, is one of the Council's Strategic Plan priorities. Carbon emissions for the financial year 2015-16 arising from the use of energy in Council buildings (excluding schools) and street lighting, as reported under the Government's Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES), amounted to 28,912 tonnes of carbon dioxide, representing a total cost of £451,027 (taking advantage of the advanced purchase price of £15.60). Total emissions from all Council buildings and street lighting fell 8.7% from 80,804 tonnes in 2014-15 to 73,805 in 2015-16.
12. The chart below shows the total emissions from Council buildings, excluding schools, and street lighting over the past six years. Over this time these emissions have decreased by 38%, reducing the total by 17,974 tonnes - equivalent to the average annual emissions from energy use in around 2,500 households. This sustained improvement in performance is most likely due to a combination of Council investment in energy efficiency and renewable energy; changes to the Council's building portfolio; and, for Phase 2 of the CRCEES, favourable changes to the conversion factors used to convert energy consumption figures into tonnes of carbon dioxide, arising from the reduced carbon intensity of energy generation.



13. More detail is provided in the table in Appendix 1, which also shows the emissions from schools and those from buildings corrected to take account of the effect of warmer or colder than usual weather on energy consumption, making year on year comparisons more meaningful. This shows that when the effect of weather is taken into account (which the CRCEES does not do), a year on year decrease in emissions from the Council's combined buildings portfolio has been achieved.
14. Table 2 summarises predicted costs of CRCEES up until the Scheme ends in 2018-19, assuming emissions remain at 2015-16 levels. Under Phase 2 of this Scheme the Council has been able to take advantage of a discounted advanced purchase price for buying its annual allowances, representing a saving of £37,586 (28,912 tonnes @ £1.30) for 2015-16 compared to paying the 'buy to comply' price based on reported annual emissions. Any surplus allowances beyond those that subsequently need to be surrendered to meet the reported emissions can be 'banked' for use in future years.

Table 2. Predicted costs under CRCEES (Based on 2015-16 emissions, assuming these remain constant)					
	2015-16 emissions (tCO ₂)	Year and cost per tonne			
		2015 -16 £15.60 (forward purchase)	2016-17 £17.20 (compliance sale price)	2017-18 £17.70 (compliance sale price)	2018-19 £18.30 (compliance sale price)
Corporate buildings	10,980	£171,288	£188,856	£194,346	£200,934
Street lighting	16,965	£264,654	£291,798	£300,281	£310,460
Pensions portfolio	967	£15,085	£16,632	£17,116	£17,696
Total	28,912	£451,027	£497,286	£511,743	£529,090

Measures to reduce energy costs and carbon emissions

15. The Council has a number of key programmes in place to tackle energy consumption and reduce its carbon emissions. These include:

- (i) A revolving loan fund of £1.3million for investment in energy efficiency measures, of which £0.55million of funding has been provided by the Carbon Trust, via Salix Finance: – Local Authority Energy Fund (LAEF) .

Up to the end of September 2016 this fund had invested just under £2.5million in the Council's schools and other buildings, saving over 3,000 tonnes of carbon dioxide and £580,000 in energy costs per year. Measures funded include low energy lighting, energy management systems, improved heating controls and voltage optimisation, with the lifetime savings from investment in such measures amounting to over £6.7million and 37,000 tonnes of carbon dioxide.

- (ii) A substantial street lighting energy saving project approved by Policy Committee in September 2013.

This on-going project has so far seen around 33,000 LED lights installed county-wide, plus areas of part-night dimming, with plans for a further 8,000-10,000 LED lanterns for Newark and Sherwood during 2017/18 and the same again for Mansfield during 2018/19. Interest-free funding to support this programme has been secured from Salix Finance over a number of years, totalling £7.8million. The programme has exceeded its £1.5 million savings commitment and has so far reduced the annual street lighting energy budget by over 10million kWh, worth about £1.2m. This project has improved street lighting infrastructure and reduced faults as well as bringing significant reductions in energy use and carbon emissions, whilst future proofing lighting stock to be more easily adaptable to developing technologies.

- (iii) Investment in photovoltaic (PV) panels on the roofs of various Council properties.

Income received through Feed in Tariff (FiT) payments for electricity generated by solar (PV) arrays on Council buildings for 2015-16, as part of the Council's SunVolt programme, amounted to £118,973 - almost double that received in 2014-15 (£65,401). Savings estimated from on-site consumed electricity from these panels amounted to a further £57,547, giving a total annual benefit of £176,520. The Council now has 36 roof-mounted PV arrays receiving FiT payments, which are generating in total about 0.7MWh of electricity each year.

- (iv) An Additional Capital for Energy (ACE) fund of £3million over 3 years to support energy efficiency measures and renewable energy projects in non-school buildings that fall outside of the funding criteria set for the Council's revolving loan fund.

As well as supporting typical energy measures that fall short of meeting LAEF scheme criteria, the ACE scheme has also enabled consideration of new types of projects. A good example of this is provided by the Mill Adventure Base, where a combination of LAEF and ACE funding enabled installation last March of efficient air source heat pumps to replace costly and inflexible night storage heaters. This followed on from the installation of a large 75kW solar array at the end of 2015. Comparing electricity costs and consumption for the first 9 months of 2016-17 with the same period in 2015-16 shows monthly reductions in consumption of between 40 -70% and an average monthly cost saving of 60% or £721 per month. This gives an estimated payback period of about 7 years.

Other projects supported by ACE or a combination of ACE and LAEF include lighting upgrades at Piazza House and offices at Sherwood Energy Village, and upgrading the Building Energy Management System and lighting as part of the major refurbishment of Sir John Robinson House.

16. The Council will also be limiting its energy costs and carbon emissions through its continuing programme of property rationalisation and the creation of more energy efficient working environments, which has included the integration of energy efficiency measures into office refurbishments.

17. All Council new build projects are designed to meet current building regulations and incorporate, where possible, daylight sensitive lighting controls, natural ventilation,

sustainable drainage, rainwater harvesting, and other measures that save energy and reduce running costs. Use is increasingly being made of modular construction methods, which reduce time on site, help minimise waste and meet requirements for improved air tightness.

18. As part of the Council's review of the property portfolio, there is consideration of the suitability of a property that covers aspects such as outgoings and running costs including energy usage. While this is only one aspect of the overall determination of suitability it will help identify whether a property should be retained and further investment made in energy efficiency measures or alternatively the property is considered for disposal. The Council is also progressing with the 'One Property' central government initiative that seeks to promote the shared use of property. One of the direct effects of this is to reduce the carbon footprint of each sharing organisation. On-going and accelerating work to rationalise the property portfolio will continue to have a significant effect on reducing energy consumption and resultant costs.

Other Options Considered

19. Not applicable.

Reason/s for Recommendation/s

20. This report is for noting only.

Statutory and Policy Implications

21. This report has been compiled after consideration of implications in respect of finance, the public sector equality duty, human resources, crime and disorder, human rights, the safeguarding of children, sustainability and the environment and those using the service and where such implications are material they are described below. Appropriate consultation has been undertaken and advice sought on these issues as required.

Financial Implications

22. Energy costs to the Council are predicted to rise by about 7.4% on average in 2016-17. The Council has a number of programmes in place to reduce energy consumption and carbon emissions, and these will help limit the impact of price increases, but it is vital that the Council continues to encourage all staff, particularly service managers, budget holders and site managers to make their contribution to saving energy in order to help safeguard services.

RECOMMENDATIONS

- 1) Committee is recommended to note the contents of this report and in particular that:
- Overall energy costs for buildings and street lighting are predicted to increase by just over 7% in 2017-18.
 - Non-energy costs are contributing an ever increasing percentage of final delivered energy costs.

- The Council has made significant reductions over the last 5 years in its emissions of carbon dioxide from energy use in its buildings and street lighting.
- The Council has a number of key programmes in place to support energy efficiency measures and carbon savings in its buildings (including schools) and street lighting, which will help limit the impact of energy price increases.

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Constitutional Comments (EP 23/2/17)

23. This report is for noting only.

Financial Comments (SES 08/03/17)

24. There are no specific financial implications arising directly from this report.

Background Papers and Published Documents

25. None.

Electoral Division(s) and Member(s) Affected

26. None

File ref.: /SB/SB/-
 Ward(s): Other
 Member(s): n/a Outside Nottinghamshire
 SP: 3196
 Properties affected: 09998 - Various NCC Properties/non-property item