



3 SEPTEMBER 2015

Agenda Item: 5

REPORT OF THE SERVICE DIRECTOR FOR TRANSPORT, PROPERTY AND ENVIRONMENT

ENERGY OPPORTUNITIES UPDATE

Purpose of the Report

1. This report updates the “Energy Management Principles and Opportunities” report considered by Environment and Sustainability Committee in June 2014, and advises on the development of a long term energy strategy for the County Council and a number of key energy projects with financial and environmental benefits.

Information and Advice

2. In June 2014 Committee resolved to support a set of energy management principles and associated actions to become an “Energy Smart” council, as set out in Appendix 1.
3. Also detailed in the report were a wide range of potential energy opportunities, including investment in energy efficiency and renewable energy across the Council's estate. Committee approved further appraisals be undertaken, where funding allows, on these options for action and investment, and that subject to business case justification and additional funding approval from the relevant Committees, new initiatives and projects be brought forward for implementation.
4. In support of this it was further resolved that a cross-party energy working group be convened to consider all new initiatives.

Cross-party energy working group

5. The cross-party energy group has been established as an informal sub-group of this Committee under the chairmanship of Councillor Creamer, with Councillors Butler, Calvert, Heptinstall, Jackson, Skelding, and Wilkinson, and support provided by officers drawn from across the Council. The group has agreed that it should look to:
 - inculcate energy efficiency and renewable generation opportunities across council committees
 - drive progress on the energy agenda with ambition, balanced with realism and regard to risk (to be risk aware but not risk averse)
 - be alive to new and developing opportunities
 - cover the range of opportunities from the cumulative benefits of small individual actions, to large scale renewable energy generation.

6. The group has now met on four occasions, which have included a presentation from APSE Energy, a new collaboration of 50 or so local authorities committed to progressing the energy agenda for local benefit, of which the County Council is a founding member. The group has encouraged progress across a range of energy initiatives and received regular updates on the options identified in the June '14 report.
7. Members of the group have agreed at this stage to keep all options open, but in terms of renewable energy opportunities on the Council's estate, the initial focus, guided by advice from APSE Energy and Council officers, has been on renewable heat and solar energy. A brief summary of progress is provided below.

Update on options for further action and investment

8. The following priorities for action and investment were identified in the report in June 2014.

A. Behavioural change programmes and awareness campaigns

9. Emphasis so far has been on working with County Council site managers and budget holders to make them more aware of energy consumption patterns and costs at their buildings, and promoting the Council's on-line resource available to monitor this information and use it to proactively manage energy use.
10. For schools, the twice yearly Carbon Copy e-news continues to be produced, which provides practical information to assist with saving energy, managing bills and introducing renewable energy.
11. Unfortunately the EU funding bid, led by the University of Nottingham, to help research innovative ways of using ICT to engage office staff in adopting and supporting energy saving behaviours, was unsuccessful.

B. Energy efficiency

12. Investment in energy efficiency measures, such as boiler controls, low energy lighting, and insulation continues to be supported by the Council's £1.3m revolving Local Authority Energy Finance (LAEF) fund. Up to the end of March 2015, this fund has invested over £2.2m in Council buildings (including schools) and street lighting, yielding annual savings of over £0.5m and 3,000 tonnes of carbon dioxide. The fund has £478,320 available to invest in further quick payback energy efficiency measures in 2015-16 and a promising pipeline of projects in place.
13. Arising from last year's Options for Change process, additional capital for energy (ACE) investment amounting to £3m over 3 years was approved as part of the budget setting process in February. An indicative programme for investment, which will complement the LAEF scheme by supporting measures with slightly longer paybacks, was considered by Corporate Asset Management Group (CAMG) at its meeting on 3 August 2015, where a prioritisation mechanism for appropriate projects was agreed.
14. In addition to supporting Strategic Plan commitments and reducing energy consumption, this investment will add value to existing property maintenance programmes by enabling additional or enhanced energy and water saving measures to be installed, which don't meet the criteria for a LAEF loan, to help deliver long term financial and environmental sustainability, ensuring that existing capital monies are able to go further and achieve more.

C. Small scale renewable electricity

15. The SunVolt programme of photovoltaic (PV) panel installations on non-school buildings continues to progress well, with the total installed capacity across 26 sites (up from 16 in January 2015) now at about 0.7MW. These arrays are estimated to generate about 573,000 kWh p.a., and yield £143,000 in annual savings resulting from Feed in Tariff (FiT) payments combined with the value of consumed 'free' electricity. A further £392,000 is available to invest in 2015-16 (including accrual from 2014-15) most of which is now committed. A further (and final) £250,000 remains in the capital allocation for 2016-17.
16. Further to this, over 60 Nottinghamshire schools and Academies have had PV panels installed on their roofs, predominantly under a scheme offered by British Gas, which enables the schools to benefit from free electricity generated by the panels. This represents a total of about 1MW of installed capacity (roughly equivalent to a couple of 75m high wind turbines).
17. The Council is currently investigating the opportunities presented by investing in PVs on roofs at schools and other sites where the County Council itself does not benefit from consuming solar generated electricity. This would most likely require a Power Purchase Agreement (PPA) with the school or building user to support the business case for the investment, and although a more complex business model, this would widen the potential investment portfolio, whilst allowing schools or partner organisations to benefit from the security of electricity pricing.
18. The Council's estate presents limited opportunity to exploit the potential for hydropower. However, feasibility work is currently being undertaken to explore the business case for a small hydroelectric scheme at Rufford Mill, utilising a redundant turbine from an earlier unsuccessful installation to reduce costs.

D. Large scale renewable electricity – solar farms

19. In spring 2015 the Council commissioned an assessment of its land holdings by APSE Energy for their suitability to accommodate ground-mounted solar arrays, as well as taking part in an APSE Energy procurement collaboration with around 10 other local authorities to develop a framework contract for the delivery of ground mounted solar projects.
20. In parallel, a comprehensive financial model was developed by APSE Energy, which can be used to develop site specific business cases to give an idea of the value of individual sites under current market conditions. This financial model can be adapted for various parameters including planning fees, capital costs and off site works, together with various potential incentive payment scenarios.
21. Unfortunately, prior to the study being completed, the Department for Energy and Climate Change (DECC) commenced a "Consultation on changes to financial support for solar PV" on 22 July 2015. This consultation is not only likely to lead to significant reductions in the incentives available to solar farms from 1 April 2016, but effectively removes "grandfather" rights to current subsidies from the date of the consultation.
22. As a result of this, the business case to support the development of any of the potential sites is no longer robust enough to achieve support from CAMG at this stage (a funding request was considered and rejected on 3 August 2015 following the DECC announcement). However, alternative funding options are currently being investigated as it is assumed that,

as has proven the case with roof mounted PV, reduction/removal of subsidies will eventually result in reduced capital costs, restoring the overall affordability/return on investment position. As it stands, solar farms still appear to provide a potential long term (20 year plus) return, which may remain attractive to some investors.

23. The collaborative framework contract is currently out to market, and it is possible that potential providers will respond to the DECC consultation with significantly reduced pricing, though this seems unlikely at this stage, given the uncertainty around the incentive regime. Time will tell, once the framework is established in October 2015.

E. Renewable heat

24. The £2m programme to install new biomass boilers on Council sites to replace ageing fossil fuel plant, making use of the Government's Renewable Heat Incentive (RHI), has now completed. Switching to biomass represents a highly effective method of reducing carbon emissions and the RHI payments, guaranteed and index-linked for 20 years, will provide a reasonable return to the Council. The Council in turn charges schools for the heat supplied by these boilers to cover the cost of the wood pellet fuel.
25. The Council has also been able to benefit from a small number of previously installed biomass boilers being eligible for RHI payments, once certain conditions set by Ofgem were satisfied. RHI payments received from the Council's RHI eligible installations since the first site registration now totals just over £188,000 and is summarised in the table below.

Table showing RHI payments received by the Council			
RHI site	First payment	End date	Total received to date, £
Bilsthorpe Depot	11/12/13	11/09/2033	27,828.48
Worksop Library	26/11/13	26/08/2033	34,091.34
Stanhope Upper	29/09/14	29/06/2034	10,657.00
Stanhope Lower	24/10/14	24/07/2034	6,710.81
Healdswood	27/10/14	26/07/2034	8,074.23
Hollywell	03/11/14	03/08/2034	6,840.73
Westfield Folk House	About 1 year's income due pending completion of registration		
5 other sites, all recent school installations, are still to be registered with Ofgem			

26. A new contract for the supply of wood pellets to be used in the Council's RHI-accredited boilers has recently been awarded to High Park Industries (the parent company of Rainworth Fencing) in Blidworth. This new contract will ensure that these boilers continue to be fed suitable feedstock to ensure their reliability and that RHI payments can continue to be claimed from Ofgem.
27. In addition to biomass, other forms of renewable heat also qualify for RHI payments, including ground source heat pumps, water source heat pumps, geothermal energy, solar thermal and bio-methane. Although DECC are also considering the future shape of this incentive regime it is not likely to result in changes as drastic as currently being proposed for ground mounted solar. The Council has been active in exploring opportunities presented by these technologies and associated renewable energy incentives.

28. This includes commissioning feasibility work for utilising water source heat from the lake at Rufford Country Park and from the River Trent at County Hall. Such a system would use proven energy-efficient heat pump technology to extract heat from the water and transfer it to the site's heating system, displacing existing fossil fuel use for heating. Should the feasibility work prove a suitable business case, then the proposals will be brought to the cross-party energy group for consideration, with funding sourced from ACE monies, described in para 13.

F. Combined heat and power

29. Gas (and other fossil fuels) and renewable energy can be utilised to generate both heat and power at the same time – combined heat and power (CHP), and whilst this approach can work at a smaller scale it tends to be limited to larger installations. Feasibility work has been undertaken to assess the potential for use of wood chip fuelled bio gasification CHP at Council sites. Such an installation looks to be feasible at County Hall, but needs to be compared with the work to assess the potential for utilising water source heat, mentioned above, and also considered in the light of the planned demolition of the CLASP block.

G. Energy from waste

30. Where it is not possible to recycle waste, the next most sustainable option is to recover energy from it. This can also provide a local source of heat or power for other nearby development, helping to meet the Government's aims of decentralising energy supplies and providing alternative forms of renewable or low carbon energy to offset the need for fossil fuels. There are many different forms of energy recovery ranging from thermal methods such as incineration, pyrolysis or gasification, to biological methods, such as anaerobic digestion and Mechanical Biological Treatment.
31. The Council has a long term contract with Fomento de Construcciones y Contratas (FCC) for the use of the existing Eastcroft Energy from Waste (EfW) plant, and through a sub contract with Veolia for the use of the Sheffield Energy Recovery Facility (ERF) and is keen to use additional EfW capacity to divert waste away from landfill, recognising the importance of such technologies in respect of both waste disposal and energy production.
32. In particular, EfW with Combined Heat and Power (CHP), as employed in Nottingham and Sheffield, can provide excellent opportunities to minimise carbon emission and provide affordable heating, whilst delivering cost effective waste treatment solutions.

H. Energy crops

33. The Council has initiated a pilot exercise by planting miscanthus (elephant grass) at the former landfill site at Fiskerton, a site that is difficult to let for grazing and unsuitable for growing food or trees. The miscanthus is grown and harvested under a contract with a specialist company and should generate c. £2k per annum income for up to 10 years before needing replanting. This is in comparison to c. £400 per year from rent for grazing.
34. In addition to miscanthus, the Council has trialled growing eucalyptus as a short rotation energy crop at Daneshill. This has met with mixed success, with the trees proving more susceptible to periods of intense cold than envisaged. The crop is still growing but the trial has demonstrated that it is unlikely to be economic to roll out to other sites. There is potential

to grow other crops such as willow and other quick growing trees, and other non-woody energy crops, such as hemp, but no wide ranging feasibility work has been undertaken.

35. Growing energy crops on land unsuitable for other purposes may prove to be a viable long term option for the council, and could subsequently lead to self-sufficiency in the production of wood pellets for the minority of biomass boilers (the majority of which will still need much higher quality fuels), however the investment required, and the long term nature of the investment will likely make this a low priority for the council.

I. Supporting community action – energy smart communities

36. Nottinghamshire County Council currently supports sustainable energy action in the wider community in a number of ways, in line with the aims of the Government's new Community Energy Strategy.
37. These include its continued support for the Nottinghamshire and Derbyshire Local Authorities Energy Partnership (LAEP) and its economic development work to support the local low carbon economy. The LAEP was awarded £163,900 from DECC's Fuel Poverty and Health Booster Fund in March, which includes support for staff resource in Nottinghamshire to co-ordinate a 'healthy homes on prescription' pilot project, due to start this autumn. Further to this, an Expression of Interest, supported by Public Health, Nottinghamshire, has recently been submitted to the Warm and Healthy Homes Fund being run by National Energy Action, seeking to add value to this project by securing an additional £325k of capital to support measures in fuel poor, cold sensitive households across the two counties.
38. In addition, the Council continues to engage with D2N2 directly and through colleagues in economic development to feed into work to promote investment in green industries and the development of a Combined Authority for the D2N2 area.

Energy Strategy

39. At a briefing of the Chief Executive in June 2015, and in order to cement long term commitment, engender cross-council and cross-party support, and make further progress in delivering financial and carbon savings, it has been agreed that an energy strategy be developed for consideration by Policy Committee in late 2015, and that the cross-party energy group acts as a reference group for its development.
40. The energy strategy will concentrate on our own energy use, and will be based around the energy smart council principles approved in June 2014, and repeated at Appendix 1.

Other Options Considered

41. None – This report builds on and updates the principles agreed at Environment and Sustainability Committee in June 2014.

Reasons for Recommendations

42. The report identifies a number of actions currently being undertaken by the council to deliver savings on energy spend, including a range of potential invest to save opportunities which will may require further capital allocations to deliver in due course. Members are asked to

note the content of the report in order to build the knowledge base of decision makers within the council as to the work currently underway and the further opportunities which may become available in due course.

Statutory and Policy Implications

43. This report has been compiled after consideration of implications in respect of finance, equal opportunities, 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.

Implications for Service Users

44. Energy is a significant area of spend for the Council, and as such effective energy and carbon management can protect or enhance budgets available for service delivery, by limiting, or reducing energy spend, generating income, and reducing maintenance costs, as well as contributing to the comfort and well-being of building users and occupiers.

Recommendations

45. That Committee:
1. Notes the contents of the report and the progress which has been made in the development and implementation of suitable energy projects, and
 2. Notes the role of the cross party energy group in the development of an energy strategy for the Council.

Constitutional Comments

46. This report is for noting only.

Financial Comments

47. This report is for noting only.

Background Papers

48. Environment and Sustainability Committee report on “Energy Management Principles and Opportunities” dated 05 June 2014.

Electoral Divisions

All

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Any queries on this report should be directed to:

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Appendix 1. An Energy Smart Council

The term 'energy smart' embraces both the aim to drive down energy costs and the desire to make the most of energy opportunities for the benefit of the Council. To become an energy smart council, further reduce the environmental impact of County Council services and limit the impact of increasing energy costs, it is recommended that the Council adopts the following energy management principles:

- **Avoid needless costs** - by ensuring best value from energy procurement, compliance with energy-related legislation and the inclusion of energy cost considerations in procurement and major decision making.
- **Reduce energy demand** - through engagement with staff to promulgate energy saving behaviours, and through the management, refurbishment and design of Council buildings.
- **Use energy more efficiently** - through continued investment in quick payback energy efficiency measures in Council buildings.
- **Increase the use of renewable energy** - where appropriate opportunities exist for energy cost savings and income generation.

In pursuit of the above the Council will:

- Monitor the performance of its energy supply arrangements through its appointed central purchasing body.
- Comply with relevant energy-related legislation, including the current requirement to comply with the EU Energy Performance in Buildings Directive and the CRCEES.
- Include energy considerations in property-related design and refurbishment briefs, in property asset management and in procurement and other decisions that will affect energy use in buildings, beyond requirements essential to meet building regulations.
- Target energy audits and efficiency measures in buildings to maximise savings.
- Monitor, record and communicate energy costs and consumption data for Council buildings to appropriate managers and budget holders.
- Encourage service areas, property managers and utility budget holders to pursue improvements in the energy performance of their buildings.
- Encourage all staff to contribute to saving energy in Council buildings.
- Continue to support its revolving loan fund for investment in energy efficiency measures in its buildings and exploit other appropriate funding to become more energy efficient.
- Continue to explore and consider further opportunities to invest in renewable energy generation and use on its buildings and land.
- Set targets to improve the average Display Energy Certificate ratings of its buildings and reduce their combined weather corrected carbon emissions by 3% or more each year.
- Commit to the Council's own developments being in line with the Government's proposed timetable for achieving zero carbon emissions for new non-residential buildings by 2019.
- Consider the whole life costs of major contracts (above £50,000), as part the Council's 2014-17 Procurement Strategy, which will include the implications for energy costs and consumption.
- Consider and review the energy and carbon implications of its decisions as part of the Committee reporting process.