REPORT TO CORPORATE SERVICES SCRUTINY
Date of Meeting: 28 June 2018
Report of: Corporate Manager Property
Title: An Energy Neutral Council – A Renewables and Energy Efficiency Programme Update

Is this a Key Decision?

No

Is this an Executive or Council Function?

Executive

1. What is the report about?

The report provides an update on the Renewables and Energy Efficiency Programme, including income generation, energy and carbon savings, as well as feasibility work for new projects to commence in 2018/19.

2. Recommendations:

That Corporate Services Scrutiny note energy saving progress made to date, income generated up to April 2018, and projects planned for the Renewables and Energy Efficiency Programme.

3. Reasons for the recommendation:

This is an update report to Corporate Services Scrutiny Committee.

4. What are the resource implications including non-financial resources.

The programme is delivered by the existing Corporate Property Energy Team, which is made up of two full-time posts with this level of resource continuing to be supported.

The Renewables and Energy Efficiency Programme commenced in 2014 after which key solar PV projects were successfully delivered before the reduction of the government subsidy (FIT tariff) and introduction of local grid restrictions. The installation of over 2MW of Solar PV in such a short time period was the result of the Energy Team's commitment and focus to ensure the best possible outcome for the Council.

Exeter's first standalone Energy Strategy was approved by Executive in February 2017 and includes an Action Plan to accomplish key milestones. An update on energy saving projects and progress made in relation to the Action Plan is reported annually using the Scrutiny Bulletin to Corporate Services Scrutiny, which commenced on 4 January 2018.

In terms of the financial benefits from the Renewables and Energy Efficiency programme, income and savings across the corporate estate can be seen in table format at the end of this report. Income from Solar PV includes FIT payments, export to the grid, as well as a third income stream from the sale of renewable energy generated by the Council via PPA agreements, to Good Energy or direct to Council business leaseholders, make up a combined total income figure. As new schemes within the programme are rolled out, it is anticipated that they will continue to provide similar energy savings and additional income streams.

5. Section 151 Officer Comments:

The project is positive for the Council's financial position. Councillors should note that the rest of the budget is now committed to the ERDF project and as such any further opportunities will require a further report to Council to request additional funding.

6. What are the legal aspects?

This report provides an update on Exeter City Council's Renewables and Energy and Efficiency Programme. It does not raise any legal issues.

7. Monitoring Officer Comments:

This report raises no issues for the Monitoring Officer.

8. Report details:

The report provides details of the latest LED project to be completed at Boardwalk House Car Park, on-going feasibility work and the European Regional Development Fund (ERDF) Battery Storage and Solar PV project. In addition, the latest Green House Gas Emission data for Exeter's Corporate Estate in 2017.

Projects and Feasibility

Below is a summary of projects separated into the following technologies that are at feasibility stage, approved or recently completed.

Solar PV and Battery Storage

ERDF Clapperbrook Lane and Livestock Centre Project
An ERDF bid was submitted last year to explore smart grid systems and demonstrate the benefits of battery storage. In December 2017, Executive Council approved match funding to support a 1.2 MW Solar PV and 2 MW Battery Storage project at two Council sites, Clapperbrook Lane and the Livestock Centre. In May, the Ministry of Housing, Communities and Local Government confirmed support for the ERDF grant but with a new condition requiring full planning consent at Clapperbrook Lane. Once planning consent is secured the funding agreement can be executed, and both projects can commence.

Guildhall Car Park
The Guildhall redevelopment removed previous grid constraint which prevented the Car park from being included in the earlier Solar PV Canopy project. Following feasibility to connect 200kW of Solar PV at the Guildhall Car Park and a number of options were established to supply renewable energy direct to the RAMM and Guildhall Centre, as well as the Car Park. An agreement from the Guildhall owner is required to progress but is not obtainable at present and the project is on-hold whilst they consider their own proposals for the shopping centre.

Riverside Leisure Centre
The Riverside Leisure Centre is the highest energy consumer of all Council Leisure sites, and one where approval has been received from WPD to connect a sizeable 100kW array. The project includes the sale of renewable energy generated to the building operator via a Power Purchase Agreement (PPA).

The project is supported by the findings in the 2017 Leisure Centre Energy Survey, and provides for a viable business case subject to agreement with the Leisure Operator. The project is pending the outcome of roof repairs following last year's fire.

Exeter City Football Club

Feasibility work has been carried out to develop a small solar array at the Football Club which would involve the sale of renewable energy generated to the building operator via a Power Purchase Agreement (PPA). There is no business case at present but the project is on hold, until such time advances in battery storage will assist.

Battery Storage

Battery storage can be used in two ways, to both store renewable energy to be self-sufficient but also to make financial savings by changing the time when you purchase electricity from the grid. A number of sites where both or either system can be applied include high energy users such as the RAMM and Civic Centre. Benefits could also be realised at Mary Arches and John Lewis Car Park, the excess energy from the Solar PV arrays could be stored to power lighting at night, providing an energy bill saving and independence. A business case for the above is currently being evaluated.

LED Replacement Lighting

LED has the potential to make for a robust business case where electricity use is high, reducing consumption and carbon, maintenance costs and providing improved lighting. Recently new LED lights have been installed at the Guildhall and Princesshay3 (previously Boardwalk House) Car Park. Princesshay2 Car Park will be completed once the outcome of a full condition survey is known.

Energy Monitoring – SMART Controls

Improved and new methods of energy and data monitoring will control energy usage through advanced scheduling, optimising management of corporate buildings and in return providing for lower energy bills. Advances in technology and communications are facilitating a move away from traditional Building Management Systems by using smart controls that will better engage building managers, reduce consumption and minimise costs. A capital budget to upgrade the Council's current BMS has been secured and work is underway for upgrade/replacement of the system.

Consumption and Emission Data

The Council's Annual Greenhouse Gas Emission data for 2017 has recently been completed and further reductions in energy consumption and total carbon emissions are shown in Appendix A.

Exeter City Council Consumption by Fuel Type (Graph 1) clearly displays a reduction in oil and electricity consumption. Total CO2 emissions (Graph 2) illustrates a 25% reduction in emissions from buildings and 34% reduction in emissions from transport since 2012. The decrease in transport emissions is due to reduced staff business mileage, as a result of the introduction of Electric Vehicle Pool Cars. The Civic Centre Electricity Consumption (Graph 3) reflects an overall reduction of 36%, and clear endorsement of the benefits of Solar PV, energy saving LED lights, hand dryers and efficient gas boilers.

The Energy Strategy sets a target for 50% renewable generation, and a 50% reduction in energy consumption and carbon emissions by 2022. The work of the Renewables

and Energy Saving Programme is essential if this target is to be met and to achieve energy neutrality for our corporate estate.

9. How does the decision contribute to the Council's Corporate Plan?

The delivery of the programme is an essential part of the Council's capital programme over the coming years. The energy savings and income generated will assist us in our overall efficiency and income generating agenda, as well as contributing to the reduction of our carbon footprint, and making the city a more pleasant place to live and work.

10. What risks are there and how can they be reduced?

The programme has been approved and resourced in order to secure delivery of viable schemes. There will always be challenges to viability in this area as a result of changes in energy costs, the Feed in Tariff, structural building condition, etc. The mechanism we have put in place to approve business cases and their viability should ensure we do not embark on schemes that will not perform in accordance with our requirements.

Recent price increases in the energy market spell out the importance of renewable production and reduced energy consumption to protect Council budgets. To clarify the extent of this an independent view from the Council's energy broker is sought. The following updated guidance is given below:
Wholesale costs (commodity charges) have continued to increase as geopolitical issues pressurise fossil fuel costs. Rises in crude oil, natural gas and coal prices have all played a part in this. Since last year we have seen the successful implementation of OPEC and Russian supply cuts which have pushed oil prices skyward. Additionally, the commodity proportion of energy costs, currently at 44% will reduce to 31%, demonstrating a large increase in non-commodity charges (no-negotiable elements within electricity). Both natural gas and crude oil reacted sharply with the bulls dominating proceedings across all forms of tradeable energy. Annual contract prices have seen the biggest increases, over 7% since the beginning of April, to leave pricing at its highest point since 2015.

11. What is the impact of the decision on equality and diversity; health and wellbeing; safeguarding children, young people and vulnerable adults, community safety and the environment?

No decision is sought, but it should be noted that the reduction in the City Council's carbon footprint does go some way to improving, or at least mitigating, the adverse impacts of energy use on the environment.

12. Are there any other options?

The nature of the programme appraisal and approval arrangements are that the Energy Team is constantly considering alternative approaches and other avenues of investment in this area.

Michael Carson
City Surveyor

Corporate Property

Local Government (Access to Information) Act 1972 (as amended)
Background papers used in compiling this report:
None

Contact for enquires:
Democratic Services (Committees)
Room 2.3

Savings 2012 - 2017

2012/2013	**Generation Income**	**Total Gross Saving**
Water Saving Project		
2012/13 Savings		£23,025
TOTAL SAVING 2012/13		**£23,025**
2013/2014	**Generation Income**	**Total Gross Saving**
Water Saving Project		
2013/14 Savings		£20,420
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)		
Income & Savings	£24,512	£47,984
TOTAL SAVING 2013/14		**£68,404**
2014/2015	**Generation Income**	**Total Gross Saving**
Water Saving Project		
2014/15 Savings		£21,000
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle) Income & Savings	£24,325	£50,728
Civic Centre LED Project		
Civic Centre (part)		£7,684
Hand Dryer Project		
Installation of efficient hand dryers & removal of paper towels		£5,200
Car Park LED Project		
LED bulb replacement - Cathedral & Quay Car Park		£14,720
LED bulb replacement - Harlequins Car Park		£5,450
LED light replacement - Mary Arches Car Park		£14,940
Car Park Total		£35,110
TOTAL SAVING 2014/15		**£119,722**
2015/2016	**Generation Income**	**Total Gross Saving**

Water Saving Project		£21,000
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)	£18,851	£37,851
John Lewis and Mary Arches Car Park PV (part)	£5596	£14387
Livestock Centre PV (part)	£4,175	£4,175
RAMM PV (part)	£677	£1,505
Quay Climb Centre PPA (part)	£602	£1,197
Wat Tyler House PPA (part)	£444	£802
2015/2016	**Generation Income**	**Total Gross Saving**
PV Total		
Civic Centre		
LED lighting Project		£25,335
Hand Dryer Project		£5,200
Boiler Replacement		£22,832
Car Park LED Project		
LED bulb replacement - Cathedral & Quay Car Park		£14,720
LED bulb replacement - Harlequins Car Park		£5,450
LED light replacement - Mary Arches Car Park		£14,940
Car Park Total		£35,110
TOTAL SAVING 2015/16		**£169,394**

Savings for 2016/2017	**Total Gross Saving and income (FIT Export and PPA)***
Water Saving Project	£21,000
Solar PV	
Early PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)	£41,013
John Lewis and Mary Arches Car Park PV	£54,209
Livestock Centre PV	£119,275
RAMM PV	£5,468
Quay Climb Centre PPA	£6,181
Wat Tyler House PPA	£3,773
PV Total	£229,919
Civic Centre	
LED lighting Project	£36,960
Hand Dryer Project	£5,200

Boiler Replacement	£23,609
Car Park LED Project	
LED bulb replacement - Cathedral & Quay Car Park	£14,720
LED bulb replacement - Harlequins Car Park	£5,450
LED light replacement - Mary Arches Car Park	£14,940
TOTAL SAVING 2016/17	**£351,798**

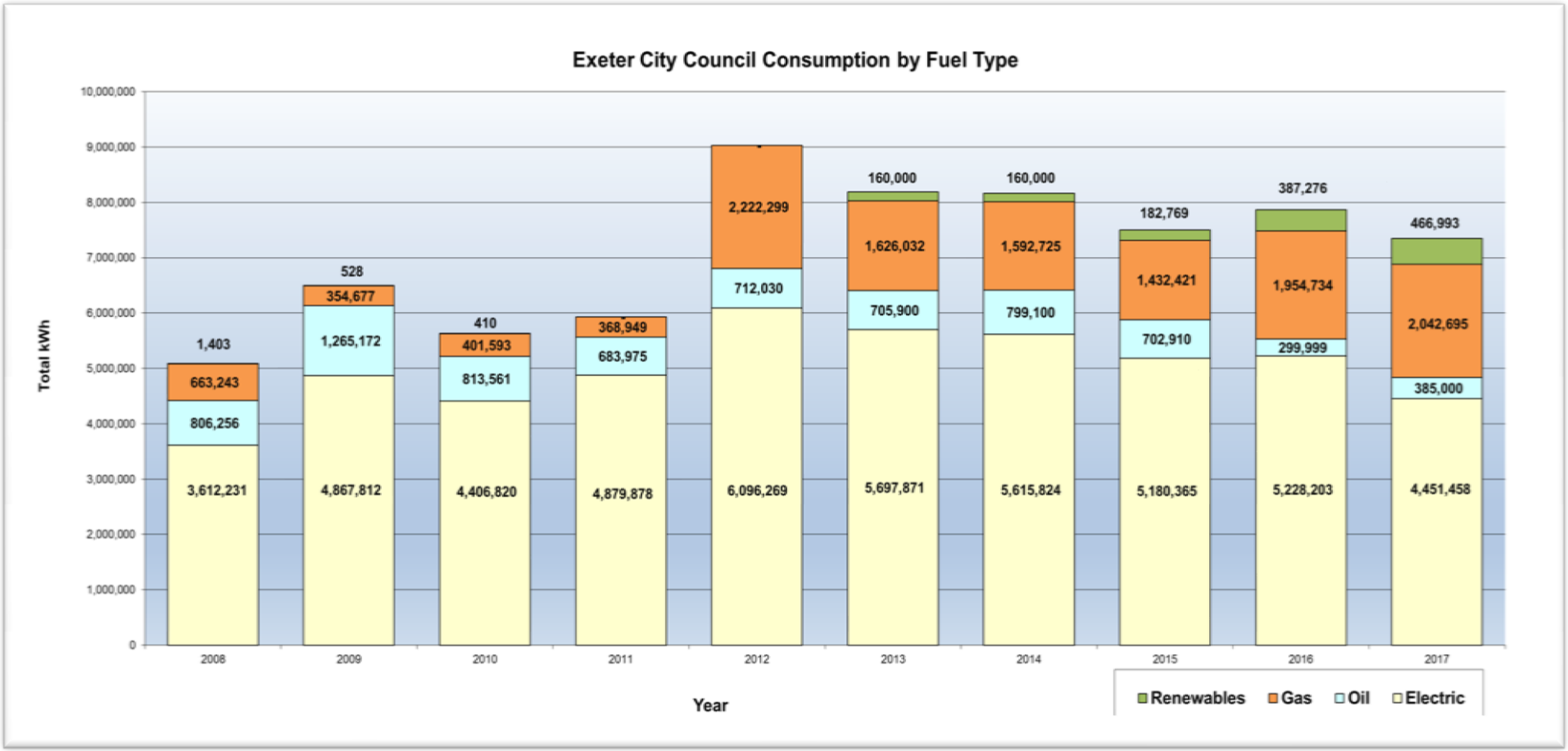
Savings for 2017/2018	**Total Gross Saving and income (FIT Export and PPA)***
Water Saving Project (reduced number of public toilets)	£11,000
Solar PV	
Early PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)	£37,285
John Lewis and Mary Arches Car Park PV	£60,158
Livestock Centre PV	£164,638
RAMM PV	£6,265
Quay Climb Centre PPA	£5,531
Wat Tyler House PPA	£4,033
PV Total	£277,910
Civic Centre	
LED lighting Project	£35,460
Hand Dryer Project	£5,000
Boiler Replacement	£28,159
Car Park LED Project	
LED bulb replacement - Cathedral & Quay	£14,720
LED bulb replacement - Harlequins	£5,450
LED light replacement - Mary Arches	£14,940
LED light replacement - Guildhall	£8,750
TOTAL SAVING 2017/18	**£401,389**

*__FIT__ Government Feed in Tariff, __Export__ to Grid, __PPA__ Power Purchase Agreement

Total Savings 2012 - 2018 **£1,535,121**

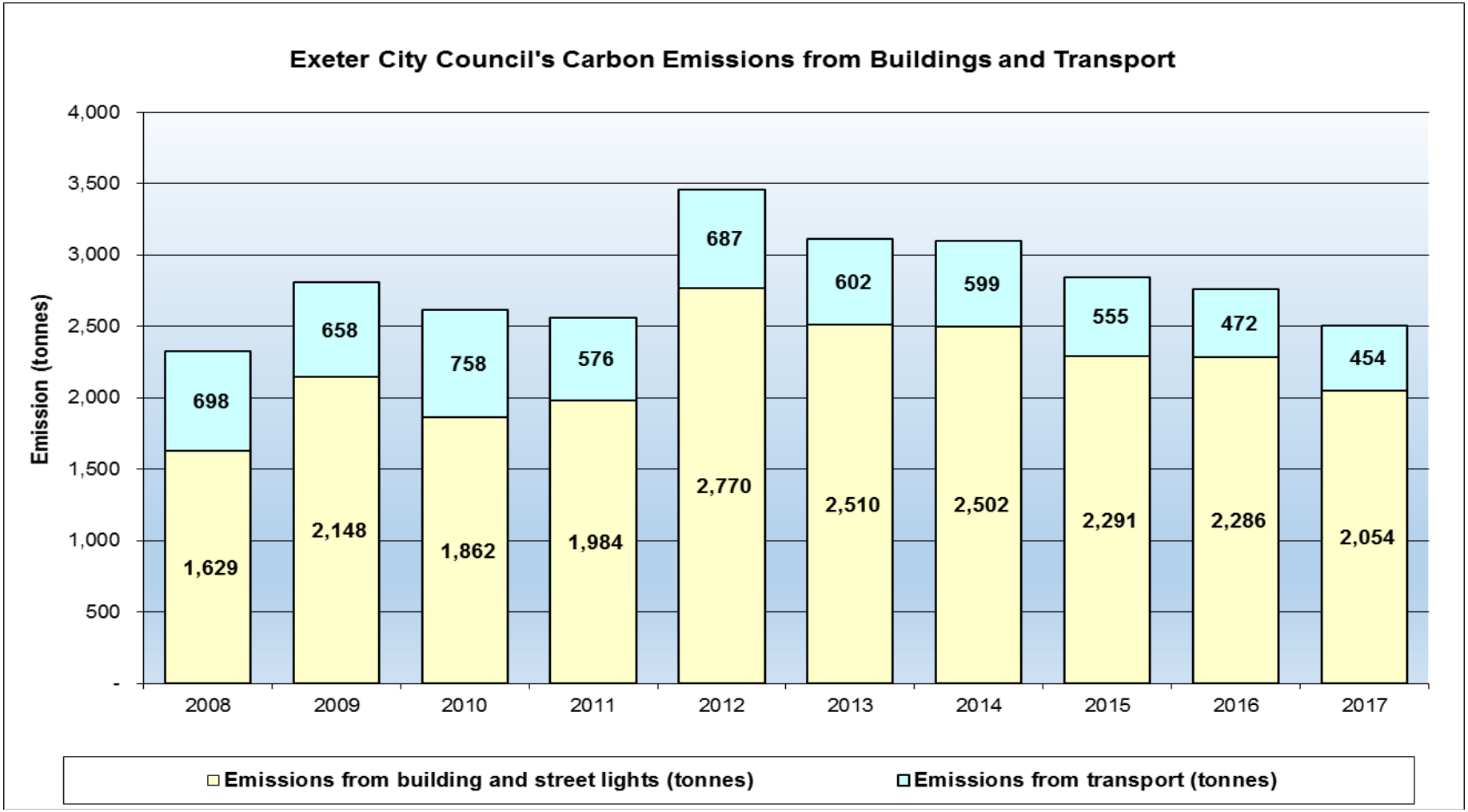
Appendix A

Graph 1

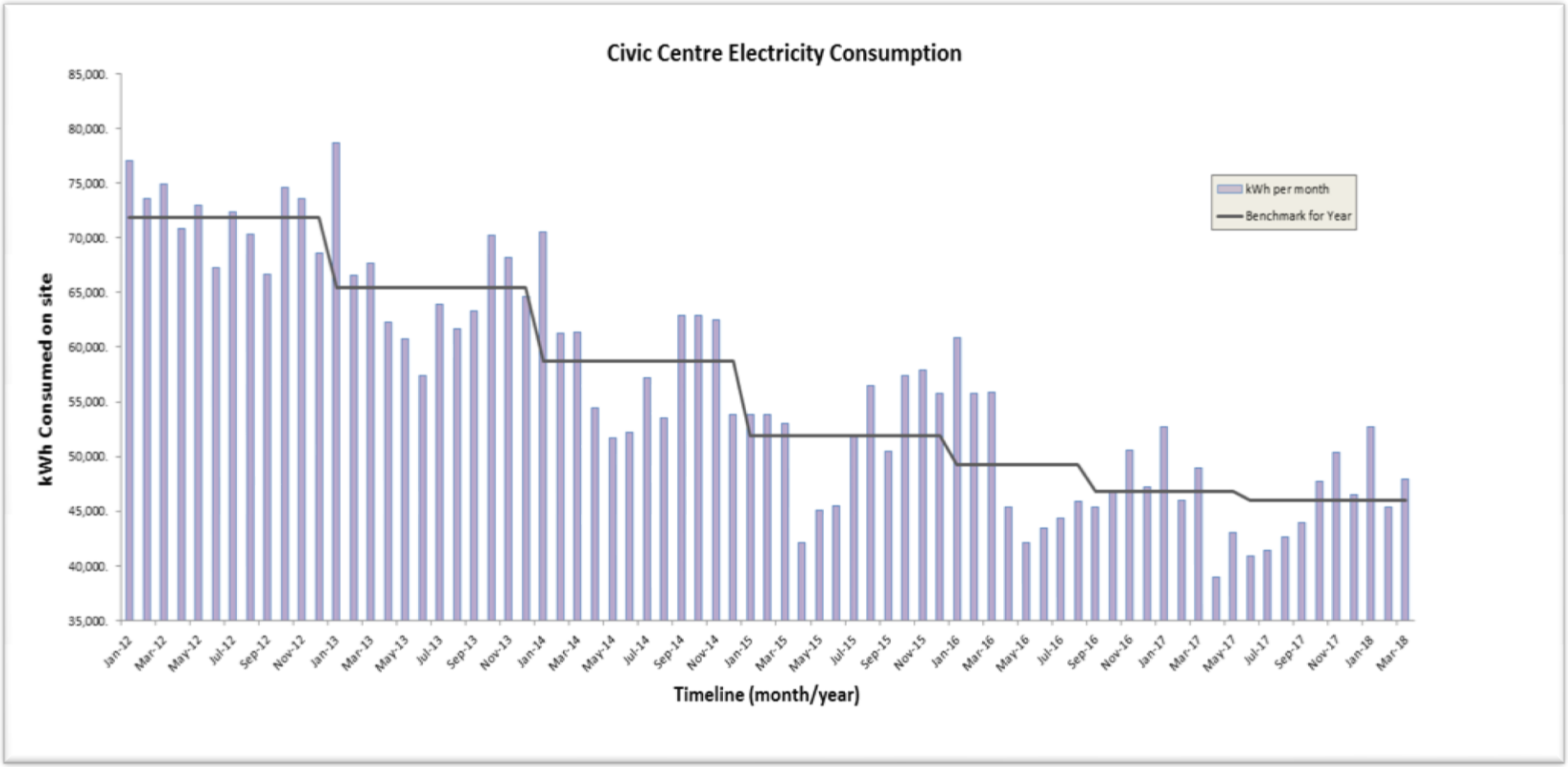


Note The above data does not include Leisure Centres, an increase in 2012 is when the RAMM reopened, and Renewables is onsite Consumption only and this does not include generation that is exported.

Graph 2


Exeter City Council's Carbon Emissions from Buildings and Transport
Emission (tonnes)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
698
658
758
576
687
602
599
555
472
454
1,629
2,148
1,862
1,984
2,770
2,510
2,502
2,291
2,286
2,054
Emissions from building and street lights (tonnes)
Emissions from transport (tonnes)

Graph 3


Civic Centre Electricity Consumption
kWh Consumed on site
85,000.
80,000.
75,000.
70,000.
65,000.
60,000.
55,000.
50,000.
45,000.
40,000.
35,000.
kWh per month
Benchmark for Year
Jan-12
Mar-12
May-12
Jul-12
Sep-12
Nov-12
Jan-13
Mar-13
May-13
Jul-13
Sep-13
Nov-13
Jan-14
Mar-14
May-14
Jul-14
Sep-14
Nov-14
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
Mar-17
May-17
Jul-17
Sep-17
Nov-17
Jan-18
Mar-18
Timeline (month/year)