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## **SCRUTINY COMMITTEE REPORT**

Date Written	15 <sup>th</sup> November 2019
Report Author	Iain Goldsworthy
Service Area	Neighbourhood Services
Committee Date	25 <sup>th</sup> November 2019

*To: Chair, Ladies and Gentlemen*

# **Update on Carbon and Energy Management Activities in Schools**

## **1.0 SUMMARY OF THE REPORT**

1.1 This report provides an update on some of the Carbon and Energy Management activities in schools over the past 12 months.

## **2.0 RECOMMENDATIONS**

2.1 Scrutiny Committee Members to provide officers feedback on the content of the report.

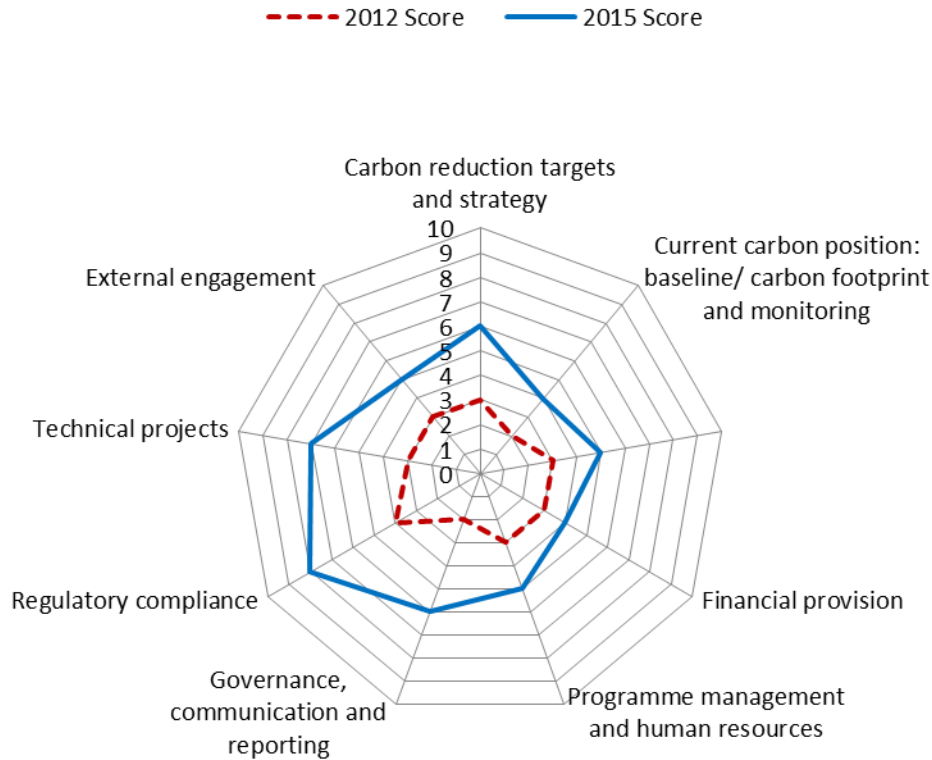
## **3.0 INTRODUCTION AND BACKGROUND**

3.1 In 2012 Merthyr Tydfil County Borough Council along with other Local Authorities in Wales were the subject of a sector specific Carbon Management Review conducted by the Carbon Trust in Wales on behalf of the Welsh Government.

3.2 This review ranked Merthyr Tydfil County Borough Council 21st out of the 22 Local Authorities in Wales and identified that the Council needed to improve in all aspects of Carbon and Energy management.

## **4.0 WHERE WE WERE**

4.1 In early 2015, the Authority commissioned an independent Carbon Management Review by Carbon Trust accredited Consultants to measure progress made to date and to provide further strategic direction.



4.2 Although the report showed that good progress had been made in some areas with little funding available, it also identified the main challenges faced by the Authority in relation to Carbon Management which were:

- Scarce internal funding.
- Limited physical resources with competing priorities.
- An urgent need to improve engagement with staff to change behaviour.
- The lack of a formal Energy Policy and Carbon Management Plan.
- A need to increase engagement with staff to change behaviour.
- Poor data management processes - No Energy Management Software.
- Inadequate metering capabilities for gas and water.

## 5.0 WHERE WE ARE NOW

### 5.1 Resources

An Energy Engineer was appointed in November 2018 to provide additional resource and support.

Between November 2018 and April 2019 the Energy Engineer was working on progressing Stage 1 and 2 of the REFIT programme, developing the Carbon Management Plan, reducing avoidable energy waste, carrying out targeted energy surveys and increasing energy awareness and better housekeeping in corporate buildings and schools.

Resources are still an issue in relation to Energy and Carbon Management as the Energy Officer and Engineer spend large amounts of their time managing responsive repairs and mechanical maintenance contracts therefore less time is spent on energy management.

## 5.2 **REFIT**

In November 2018 we signed up to Stage 1 and 2 of the REFIT Energy Efficiency Programme.

The programme supports energy efficiency and renewable energy measures, resulting in cash savings from lower energy use and reduced carbon emissions. Public bodies can save time and resources procuring REFIT services and works. As it is an energy performance contracting framework energy and cost savings are guaranteed.

Phase 1 involved a high level energy assessment and benchmarking of MTCBC buildings including schools.

High level estimates suggest that the project value will be in the region of £1 million with estimated annual energy savings of £140,000 and paybacks of around 7-8 years. Buildings involved in the project include schools, corporate accommodation, care homes and leisure centres.

The RE:FIT programme will not be able to proceed unless there is financial investment from MTCBC.

A Salix Interest Free loan will need to be obtained by MTCBC to pay for the works. Initially energy cost savings will be used to pay back the interest free loan. Once the loan is paid off the authority will benefit fully from the energy cost savings of the technologies installed. With the large proportion of buildings involved in REFIT being schools, it is essential Finance and Education create a mechanism to payback the loans taking into account the delegated school budgets.

We are now coming towards the end of Stage 3 and are aiming to award the contract in early December. The Energy Services Provider will carry out Investment Grade Proposal Surveys of each building, which will detail the work to be carried out, the energy conservation measures that will be installed and provide a binding price and energy, cost and carbon savings.

Pending MTCBC approval of the Salix Loan, Stage 3 will involve installing the energy saving measures which will increase total project costs and savings.

## 5.3 **Getting our House in Order - Energy Data and Systems - Introduction of Systemslink Energy Management Software**

In 2015 an independent Carbon Management Review recommended that the MTCBC needed to urgently invest in Energy and Carbon Management Software.

The availability of accurate data is essential to pro-active energy management, reporting, ability to measure progress against targets and streamlined budgeting.

It also provides ultimate portfolio transparency in the mission to drive down consumption. This requires an extensive network of utility meters and an effective system for manipulating the data collected. Such a system is commonly referred to as Energy and Carbon management software.

We are currently in the process of installing Systemslink Energy Management Software. The powerful market-leading software offers a full suite of tools suitable for all levels of expertise and is suitable for every multi-site organisation wishing to monitor and, therefore, control energy usage and costs.

The initial set up process will take between 12-18 months and will involve populating the software with all of MTCBC utility data.

The main benefits of the software are as follows:

- Automatic Validation of Energy Invoices saving staff time.
- All energy, cost, meter and site information will be kept in a central database instead of being stored in thousands of different documents.
- The Energy team have clear information which can be provided to schools with tools to help reduce consumption.
- Improved monitoring of Energy and Costs.
- Use of Web Module to give schools quick and easy access to utility data where energy information can be communicated clearly using clear, user friendly graphical dashboards.
- Gives schools the opportunities to identify energy waste and take actions to reduce the waste.

#### **5.4 Technical Projects**

With limited funding at its disposal, the Property Services/ Energy Team have carried out a limited number of Energy and Cost Saving Projects since 2015, financed by utilising existing budgets and Welsh Government Grants.

More recently Cost and Carbon saving LED Lighting has been installed in Cyfarthfa High School and Bedlinog Primary School. The benefits to the schools are considerable. Electricity Running Costs have reduced by approximately 20%-30%. In some areas intelligent lighting controls ensure lights are automatically switched off when rooms are unoccupied while in other areas lights dim down to save energy and costs dependent on the amount of daylight. The quality of light is much improved and the difference in lighting levels has made considerable difference to the learning environment to both staff and pupils. Greenfields and Edwardsville Primary Schools recently benefitted from Energy Efficient boilers and Trend controls upgrades. These projects were completed in the Summer of 2019 and give Property Services the ability to optimise the systems remotely and ensure the plant is shut down over the school holidays thus saving Energy and Costs.

Historically, due to lack of resources, low engagement from schools and no formal repayment and funding model for Energy Efficiency projects between education and finance, Merthyr Tydfil Council are behind the majority of other local authorities in installing Energy Efficiency Measures and Renewables in buildings.

With diminished budgets and no further grants from Welsh Government it is essential that MTCBC is able to access Salix Loans and repayment mechanisms within Finance and Education departments are created to ensure we can benefit from the Cost and Carbon savings Energy Reduction Projects will bring.

## **5.5 Operational Management/ Behaviour Change**

The behaviour of all staff and users of MTCBC Schools has an impact on energy performance and utility costs. When resource is available, the Energy Engineer has been promoting simple changes schools can make to cut energy costs via emails that focus on good energy saving housekeeping in schools and council buildings.

The results of this have been positive. We saw a 10% reduction in electricity use in Primary and Secondary schools over the Easter Holidays. During the Summer Holidays two Secondary Schools achieved a 66% and 34% reduction in electricity use as a result of a targeted switch off campaign saving approximately £4,000.

The Energy Engineer has also been carrying out targeted Energy Audits in schools, optimising BMS Systems, and carrying out training to building managers on how they can minimise their buildings running costs. Afon Taf School is estimated to save £5000 on their electricity and gas costs this year. Coed Y Dderwen Primary School will save approximately £2300 as a result of reprogramming the Boiler Management System (see background paper).

## **5.6 Energy Invoice Audit - Edit**

Industry guidance states that approximately 1% of energy invoices are incorrect leading to organisations to overspend on their utilities. Taking this into account the Energy Engineer has carried out a high level Energy Invoice Audit for MTCBC school accounts to ensure we are being charged correctly for our Energy. The Audit discovered that MTCBC has been getting incorrectly charged for the Climate Change Levy on some sites for over 4 years. Other findings included MTCBC sites getting charged for electricity capacity that was not required. As a result the Energy Engineer has been working with the Energy Suppliers to claim back financial rebates while also making cost saving amendments to energy supply contracts. The audit will save approximately £21,000 for the financial year 2019/20. Over a 5 year period we can expect to save an estimated £31,000 on energy invoice payments.

## **5.7 Gas and Water Metering**

Historically it has very difficult to manage gas and water consumption within the authority due to the existing metering and data systems. Half hourly metering is required to enable us to understand our operational energy use and take actions to reduce costs and consumption, with particular benefits to schools.

We are now in the process of installing over 30 smart gas meters into our schools. This will give us the ability to identify avoidable waste and help us take action to reduce gas running costs and carbon emissions.

Managing water is especially difficult as we do not have access to water usage data/invoices for a large number of sites such as schools. Also, systems are not in place to capture water consumption data which will allow us to identify excess consumption. It would be beneficial to trial a smart water meter on one of our high water using sites to see the level of savings achievable. This is an area that will need to be looked into in greater detail over the next 12 months.

## **5.8 Draft Carbon Management Plan**

A draft CMP (Carbon Management Plan) was produced in 2017. Due to a lack of resources, sign off of the document by Cabinet was delayed. The Plan outlines Merthyr Tydfil County Borough Council's (MTCBC's) aspirational strategy to reduce CO2 emissions arising from its' buildings (and the Leisure Trust's), street lighting, fleet and business travel by 15% by 2025. In November, the plan was formally approved by Council. Part of the plan involves supporting schools to reduce energy costs and emissions. Although, this is already taking place if resources allow we would like to formalise this approach with the production of a formal schools energy policy.

## **5.9 Savings Tracker**

The Energy savings tracker (Appendix 1) highlights some of the energy, carbon and cost savings achieved in the authority since 2015. The savings tracker is broken down into the following 4 areas 1) Technical Projects 2) Operational Management and Behaviour Change 3) Design and Asset Management and 4) Energy Invoice Audit.

## **6.0 WHERE WE WANT TO BE**

- 6.1 The majority of our schools will have Energy Efficiency Measures (LED Lighting, BMS Systems, Renewables) installed which will lower running costs and carbon emissions.
- 6.2 Water and Gas meters have AMR (Automatic Meter Read) capability which will give access to half hourly data. Enabling us to carry out pro-active energy management of Gas and Water Supplies. Financial Investment will be required to achieve this.
- 6.3 The majority of schools to be connected to Trend 963 Building Management System allowing remote monitoring and optimisation of electrical and mechanical services within school buildings.
- 6.4 Implementation of Systemslink Web Reporting module which will allow schools access to half hourly energy data. Enabling users to better monitor energy use and costs in their buildings

## 7.0 WHAT WE NEED TO DO NEXT

- 7.1 Agree a financing model with the Schools Forum that will provide a sustainable approach to funding energy efficiency measures in schools, utilising Salix Finance, taking into account schools delegated budgets.
- 7.2 Continue progressing REFIT Cymru Energy Efficiency Scheme.
- 7.3 Dependent on funding, continue to increase the number of schools connected to Trend 963 building management system and linked back to property services.
- 7.4 We will ensure that only the most efficient equipment is used in replacement or new items for building services.
- 7.5 Explore Sytemslink Web Module further with the end goal being to have all schools connected and able to view and analyse energy/cost data electronically.
- 7.6 Explore costs and methods of water smart metering in schools.
- 7.7 Continue to carry out targeted Energy Cost Saving Audits of target school sites.

## 8.0 CONTRIBUTION TO WELLBEING OBJECTIVES

- 8.1 The carbon and energy management activities directly relate to the authorities Focus on the Future: Wellbeing in our Community Plan and is incorporated in the Environmental Wellbeing 1 scrutiny report in that the reduction in energy use will reduce the amount of CO2 produced by the authority therefore improving the air quality within the County Borough.

**SUE WALKER**  
**CHIEF OFFICER, LEARNING**

**COUNCILLOR LISA MYTTON**  
**CABINET MEMBER FOR LEARNING**

<b>BACKGROUND PAPERS</b>		
<b>Title of Document(s)</b>	<b>Document(s) Date</b>	<b>Document Location</b>
Heolgerrig Kick Off Meeting	05.11.2019	
<b>Does the report contain any issue that may impact the Council's Constitution?</b>		No