Town Clerk
Les Trigg

15 Station Road
Stone
ST15 8JP

Tel: 01785 619740
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8 August 2022

Dear Councillor,

A meeting of the **ENVIRONMENT SUB COMMITTEE** will be held in **the Council Chamber at 15 Station Road, Stone**, on **TUESDAY 16 AUGUST 2022** at **7:05pm**, or on the rising of the Tourism & Town Promotion Sub-Committee, if later.

Please find the agenda set out below.

Les Trigg
Town Clerk

Councillors: R. Townsend (Chairman), T. Kelt (Vice Chairman), K. Argyle, Mrs A. Burgess, Mrs K. Dawson, M. Hatton and P. Leason

AGENDA

1. **To receive apologies for absence**

2. **Declarations of Interest and Requests for Dispensations Received.**

3. **Representations from Members of the Public**

   To consider representations from members of the public on items to be considered at this meeting, in accordance with the Council's scheme of public participation.

4. **Minutes of Previous Meeting**

   a) To confirm as a correct record the minutes of the meeting of the Environment Sub-Committee held on 24 May 2022, Minute No's ENV23/001 – ENV23/010 (attached)

5. **Covid-19 Commemoration**

To receive an update.

6. **Crown Meadow Improvements**

To receive an update on the work being undertaken by the Council's Grounds Maintenance contractor (update attached).

7. **Energy and Carbon Review**

To consider an Energy and Carbon Review & Action Plan for:

- Stone Station Community Centre
- Frank Jordan Centre

The reports for both community centres are attached to the electronic version of the agenda.

8. **Speaker on Environmental Matters**

To consider the paper from Councillor T. Kelt (attached).

9. **Reports of Working Groups**

- Environmental Issues Working Group

Will any Councillors who wish to speak at this meeting, but are not members of the Sub-Committee, please inform the Chairman before the start of the meeting

Members of the public are welcome to attend the Environment Sub-Committee Meeting as observers and/or to make representations to the committee in accordance with the Council's scheme of public participation. Details of this scheme are displayed on the Town Council's notice boards and website.

Stone Town Council – Environment Sub-Committee

Minutes of the meeting held in the Council Chamber at 15 Station Road, Stone, on Tuesday 24 May 2022

PRESENT: Councillor R. Townsend in the Chair and
Councillors: K. Argyle, T. Kelt, R. Kenney and J. Powell

Officers: L Trigg and Mrs T. Williams

By Chairman's Invitation: Councillors Mrs J. Hood and S. Walley

ABSENT: Councillors: Mrs A. Burgess, Mrs K. Dawson, M. Hatton and P. Leason

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ENV23/001 Apologies

Councillors: Mrs K. Dawson and P. Leason

ENV23/002 Declarations of Interest and Requests for Dispensations

None received

ENV23/003 Representations from Members of the Public

None

ENV23/004 Minutes of Previous Meeting

a) The minutes of the Environment Sub-Committee meeting held on the 15 March 2022 (Minute Numbers ENV22/031 – ENV22/038), were approved as a correct record.

ENV23/005 Covid-19 Commemoration

The Chairman advised the Sub-Committee that as a new chairman he was getting up to speed with issues affecting the Sub-committee and understood that Councillor Mrs Hood and Councillor Leason had met on site to discuss the location of the commemoration area.

The Chairman invited an update from Councillor Mrs Hood who confirmed that the Grounds Maintenance contractor had agreed with the location of the tree planting and that he envisaged creating a horseshoe shape. The variety of tree was to be revisited due to an issue with the height of the variety chosen originally, and consideration given to the flooding that often occurs in the area chosen in the winter.

The Chairman said that planting of the Covid-19 Commemoration was scheduled from September to November 2022 as this is the best time.

The Sub-Committee believed that a plaque would be installed as part of the commemoration, but the Town Clerk would check this point in the records.

ENV23/006 Crown Meadow Improvements

The Sub-Committee noted the update on the work being undertaken by the Council's Grounds Maintenance Contractor.

The Chairman confirmed that all seemed to be in order.

The Chairman advised the Sub-Committee that he would in future be involved in the regular update meetings held between the Deputy Town Clerk and the Grounds Maintenance Contractor.

ENV23/007 Environmental Issues Checklist

The Chairman suggested that the Environmental Issues Working Group should prepare a policy checklist to support committees and sub-committees when they are considering environmental issues and ensuring compliance with Council Policy.

The checklist could also be used by the Town Council when commissioning services and in ascertaining a supplier's environmental credentials.

The Sub-Committee suggested a form of checklist had been produced when the Environment policy document was taken forward and that this could be used as a starting point.

RESOLVED: That the Environmental Issues Working Group prepares an Environment Policy Checklist to support the work of the Town Council's Committees and Sub-Committees.

ENV23/008 Environmental Issues Working Group

a) The Sub-Committee noted the resignation of co-opted Environmental Issues Working Group member, Tracy Lindop. The Chairman asked that the Sub-Committee's appreciation of her valuable contribution to the Working Group over the past two years be put on record and wished her well for the future.

b) The Chairman asked the Sub-Committee to consider a proposal that all Environment Sub-Committee members become members of the Environmental Issues Working Group to eliminate past difficulties in bringing some of the issues to a conclusion and to be able to tackle new and complex issues with focus in the future.

   The Chairman said he believed the Working Group should have specific

and defined rather than broad brush tasks which could be dealt with by circulation of information, communication by email and conversations, rather than just meetings.

The Sub-Committee suggested it was not always possible for people with limited financial resources to put the environment first as they had difficult choices to make and couldn't always afford the most environmentally friendly option.

RESOLVED: That all Environmental Sub-Committee Members become members of the Environmental Issues Working Group.

ENV23/009 <u>Updates</u>

a) The Chairman invited the Town Clerk to provide an update on Energy audits at the Frank Jordan Community Centre and the Stone Station Community Centre.

The Town Clerk advised the Sub-Committee that the contract had been awarded some time ago, but the work hadn't yet been undertaken. After chasing the company, he had been told that the work would be done by next week.

b) The Chairman invited the Town Clerk to provide an update on recycling and single use plastics audit at the Town Council office.

The Town Clerk advised on the following:

- Plastic pens and pencils – are difficult to replace as there is a limited range of non-plastic items. Whilst the item was difficult to deliver on, no new plastic pens had been purchased.
- Water cups in the office – eco cups have been purchased for the hot drinks machine and old stocks of plastic drinking cups were being used up. The eco cups are the only recyclable cups available and although not recycled by all authorities, had not been tested with Stafford Borough Council.
- Water bottles – three of the four water coolers had been eliminated leaving just the unit in the Town Council office which will stay until the contract ends.
- Ink Cartridges – no alternative was available at present. The Town Council is in the process of replacing the photocopier with a smaller refurbished/recycled model and there is a recycling program for ink cartridges.
- IT and telephony equipment – These have recently been replaced, but are not single use. The old equipment has not yet been disposed of.

ENV23/010 Reports of Working Groups

The Chairman invited Councillor Kelt to address the Sub-Committee.

Environmental Issues Working Group

Councillor Kelt reminded the Sub-Committee that he had approached the Stone & Eccleshall Gazette about the publication of an environmental article for the purpose of promoting the topic of the environment, gauging the level of interest from the people of Stone and possibly facilitating the setting up of town groups.

An accompanying paper* and draft article* (produced by Councillor Kelt) had been attached to the agenda for the meeting.

Councillor Kelt proposed (after receiving approval from the Environmental Issues Working Group) that the Sub-Committee recommend the article for approval by the General Purposes Committee.

Councillor Argyle expressed his strong view that a number of points needed further discussion and proposed an amendment that additional work be undertaken before submission to the General Purposes Committee. The amendment was not supported.

The Sub-Committee congratulated Councillor Kelt on his informative document which was intended to be advisory and general in nature with the opportunity to add detail as further articles are produced.

RECOMMENDED: That the Environmental article is recommended to the General Purposes Committee for publication in the Stone & Eccleshall Gazette.

Chairman

Stone Town Council - Works in Progress

Sub-Committee	Dept	Job Description	Contractor	Details	Current Status	Carry Over Budget	Approved Budget	Spend to Date	Total Forecast	Anticpated Date of Completion
Enviro	Allotments	Clear overgrown plots	MJ Plant	Clear 15/16, Rotavate 9	15/16 Completed	400		400	400	Completed
Enviro	Crown Meadow	Scrape 1	MJ Plant	Dig out area to create a shallow pond and plant wildflowers. Cut a new path around the scrape	Mick has suggested pollarding willows to avoid spread and make scrape deeper and wider. Digging out is quick, putting plants back takes time.	2,200		0	2,200	Sep - Nov 22
Enviro	Crown Meadow	Tree Re-planting	MJ Plant	Remove four trees from the middle of the field and re-plant to form a hedgerow to shield the M&S building	A grant applications of £500 to SCC Climate Change Fund has been received. Needs to be spent by June. Mick ordering plants	750	500	0	1,250	Full planting Sep - Oct 22
Enviro	Crown Meadow	Amphitheatre Path	MJ Plant	Provide an 80m path with a ramp rather than steps	To be completed. Supply issues with stones	1,425		0	1,425	Ongoing. Completion date Oct 22
Enviro	Crown Meadow	Plant Remembrance Orchard	MJ Plant	Plant 8 cherry trees on Crown Wharf Meadow	Meeting held to agree location. Supply issue with recommended trees. Need futher advice on suitable varieties. MP will discuss with his suppliers to avoid varieties that are too large. Bench also required		1800	0	1800	Sep - Oct 22
Enviro	Crown Meadow	Purchase and install info board	MJ Plant		Original artwork to be reviewed by Enviro Committee. Quotes to be obtained for metal boards as per Common Plot		1500	0	1500	Oct 2022
Enviro	Crown Meadow	Amphitheatre split tree	MJ Plant		Unless it becomes dangerous, leave until after birds have nested		640	0	640	Aug 2022
Enviro	Grounds Maint	Walton Roundabout - re-planting	MJ Plant		Too dry at moment		600	0	600	Sep onwards
Enviro	Grounds Maint	Town Borders - re-planting	MJ Plant		Too dry at moment		600	0	600	Sep onwards
Enviro	Grounds Maint	Repair Lock Gate	MJ Plant		Canals Trust contacted about lockgate to refurb		400	0	400	TBC when lockgate available
Enviro	Grounds Maint	Contingency					1,000	0	1,000	
Enviro	Crown Meadow		MJ Plant	River erosion resulting in a meadow bench very close to river. Another bench in wooded area to be re-sited due to unsociable behaviour	Move river bench back. Re-site bench to Commemoration Orchard					Sep onwards

Stone Town Council

Stone Station Community Centre

Station Approach

Staffordshire

ST15 8ER

Energy and Carbon Review & Action Plan

V2

Client: Stone Town Council	***Report prepared by:*** Anthony Horsley LCIBSE LCEA Maryam Qureshi BSc (Hons) ***Reviewed by:*** Stephen Bayfield BA(Hons) ***Approved By-Lead Consultant:*** Keith Maloney BEng (Hons) LCC LCEA CMVP

Version	Document Changes	Date	Reviewed By
V1	Draft Report	15/06/2022	MQ
V2	Internal Peer Review	23/06/2022	LE

Maloney Associates Ltd
211 Pearl House
Anson Court, Staffordshire Technology Park
Beaconside, Staffordshire

1.0 Executive Summary

Maloney Associates' Environment & Sustainability Consultant Maryam Qureshi undertook desktop analysis of the energy data of the Station Community Centre on 30/05/2022. Following this, Energy Manager, Anthony Horsley, undertook a site energy audit on 01/06/2022.

The purpose of the review was to analyse and profile the electricity and gas consumption in line with the operational at the Station Community Centre. This is to aid in the development of an energy and carbon savings action plan. The aim of the action plan is to identify and highlight the energy saving measures and their associated costs, which have been identified through energy consumption analysis and site visit.

Following the detailed electricity profiling together with a comprehensive desktop energy analysis and site audit, table 1 shows the potential energy and cost savings of the identified energy conservation measure that can be implemented at the centre.

TABLE 1: SUMMARY OF POTENTIAL ENERGY SAVINGS

Energy Saving (kWh)	Emissions Saving ($kgCO_2e$)	Energy Cost Saving (£)	Capital Costs (£)	Simple Payback
59,399	15,873	£3,126	£23,600	7.6

The energy savings identified equate to a cost saving of **£3,126** and would require an investment capital expenditure of £23,600. This would provide simple payback **7.6**-years at the current electricity and gas unit rates. However, with the recent 100% price increases in the market energy unit rates, the ROI would reduce to just over 4-years.

Figure 1 and figure 2 shown below allow for the visualisation of the expected energy and emission savings following the implementation of the recommended energy conservation and investment measures (ECMs) outlined in section 5 of the action plan.

FIGURE 1: SUMMARY OF POTENTIAL ENERGY SAVINGS

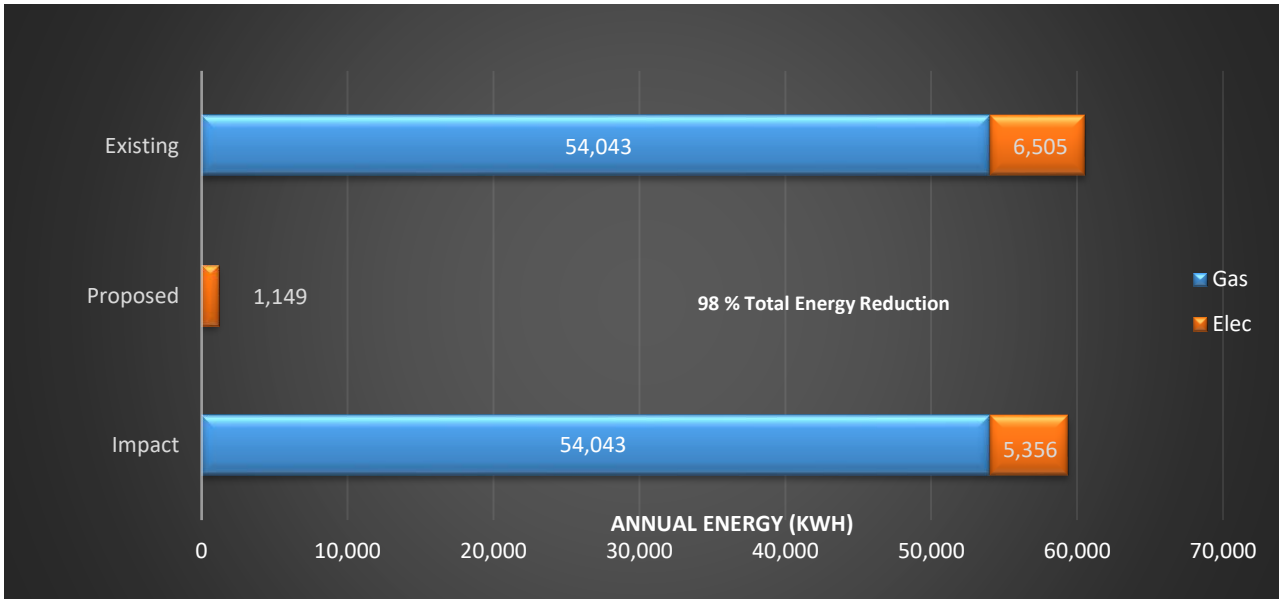
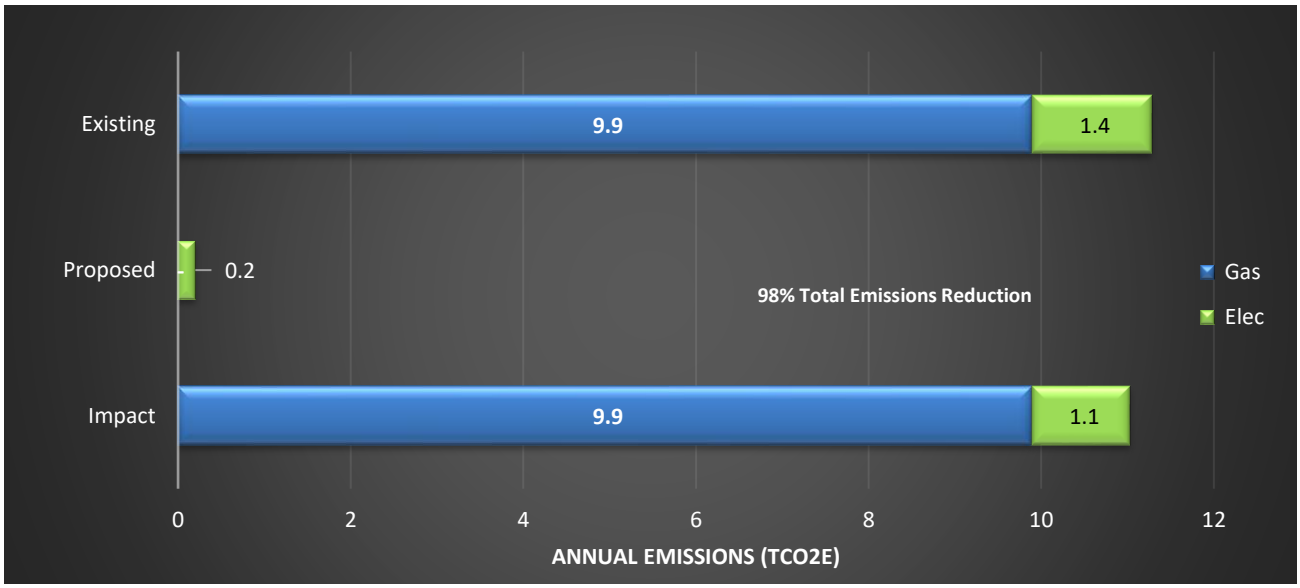


FIGURE 2: SUMMARY OF POTENTIAL EMISSIONS SAVINGS



The graphs illustrate the impact of the energy saving opportunity compared to the current energy consumption for the Station Community Centre. The identified savings represent an annual reduction of **5,356 kWh** in electricity and **54,043 kWh** of gas consumption. This equates to a combined carbon emission reduction of **11 tonnes** for electricity and gas. This totals **98 % reduction** in energy consumption and associated carbon emissions.

2.0 Methodology

2.1 Objectives & Methodology

This analysis and action plan for Stone Station Community Centre is designed to cover the following objectives:

- Profile & determine total energy consumption and associated carbon emissions of the site.
- Establish an action plan of cost-effective energy saving opportunities.

The report will firstly profile energy usage and provide a benchmark of energy usage at the site. This is then followed by a detailed action plan summarising cost-effective energy saving opportunities that were identified during the desktop analysis.

3.0 Site Energy Consumption and Performance

Table 2 and Table 3 below show a breakdown of the total annual energy used on site and the associated annual emissions. A breakdown of annual energy consumption and emissions per square metre in accordance with the size of the floor area of the Head Office is also provided.

Table 2: Energy Overview Table

Elec kWh	Gas kWh	Total kWh	Gas kWh/m²	Elec kWh/m²	Total kWh/m²
6,505	54,043	60,548	216.2	26	242

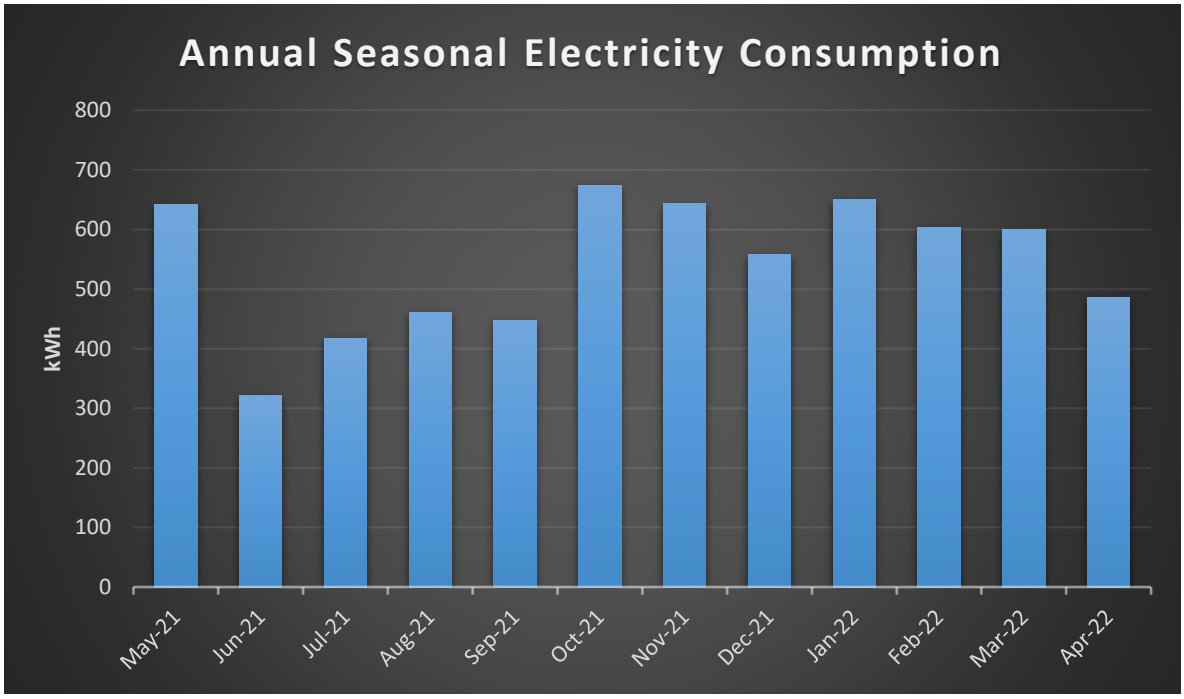
Table 3: Emissions Overview Table

Elec TCO_2e	Gas TCO_2e	Total TCO_2e	Gas $kgCO_2e/m^2$	Elec $kgCO_2e/m^2$	Total $kgCO_2e/m^2$
1	10	11	40	6	45

In order to allow a benchmark of energy use to be included within the report, the annual energy use has been based upon actual half hour data for electricity for the period 1st May 2021 to 30th April 2022.

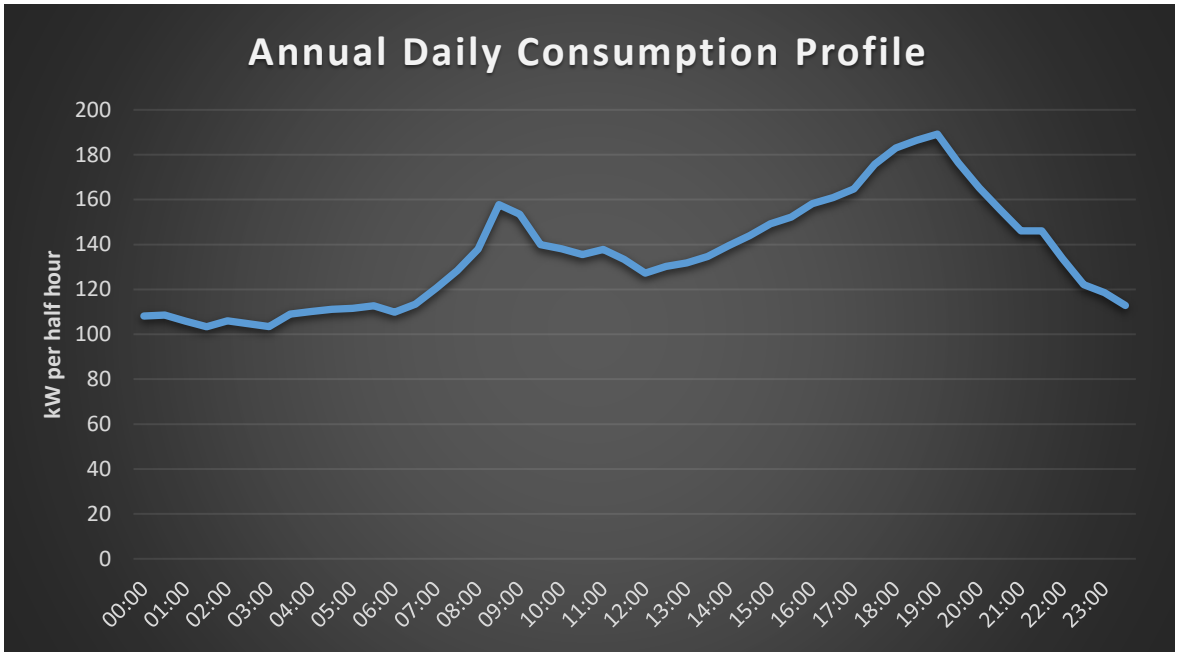
Figure 3 shown below details a seasonal profile of electricity usage throughout the period 1st May 2021 to 30th April 2022.This has been compiled with the use of actual hour data.

Figure 3: Annual electricity Consumption Profile



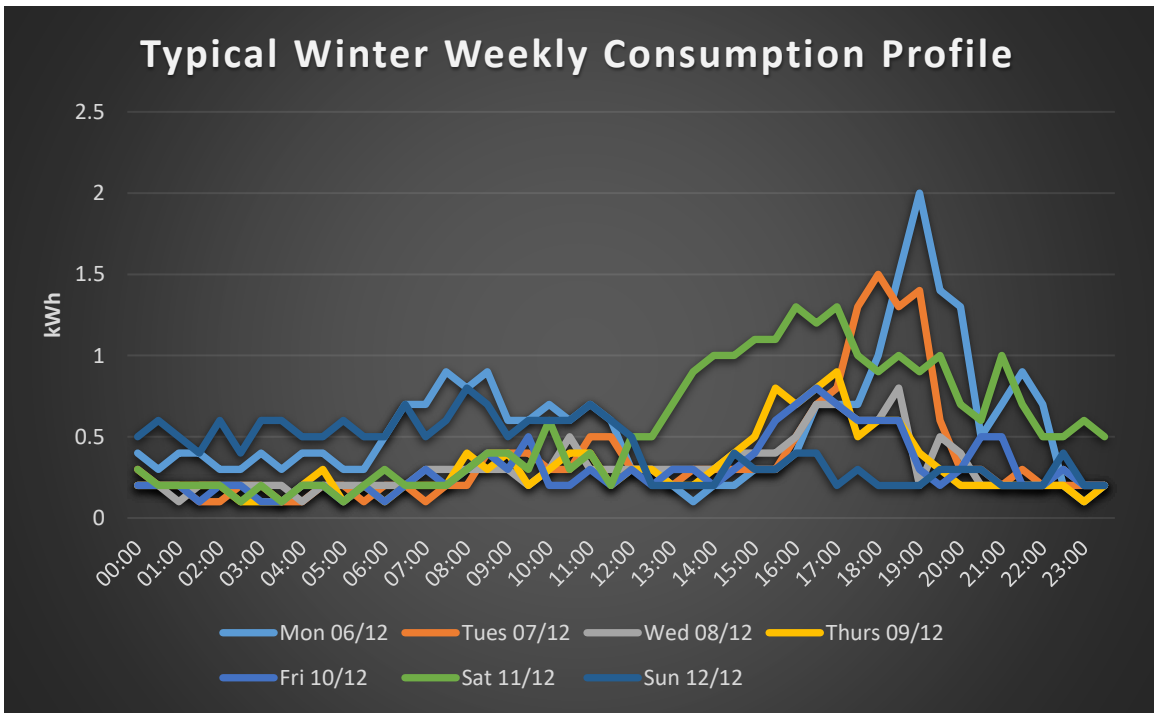
The higher consumption during the winter months can be attributed to the lighting during the shorter daylight days. The centre has a very low annual electricity consumption of **6,505 kWh**

FIGURE 4: ANNUAL DAILY ELECTRICITY CONSUMPTION PROFILE



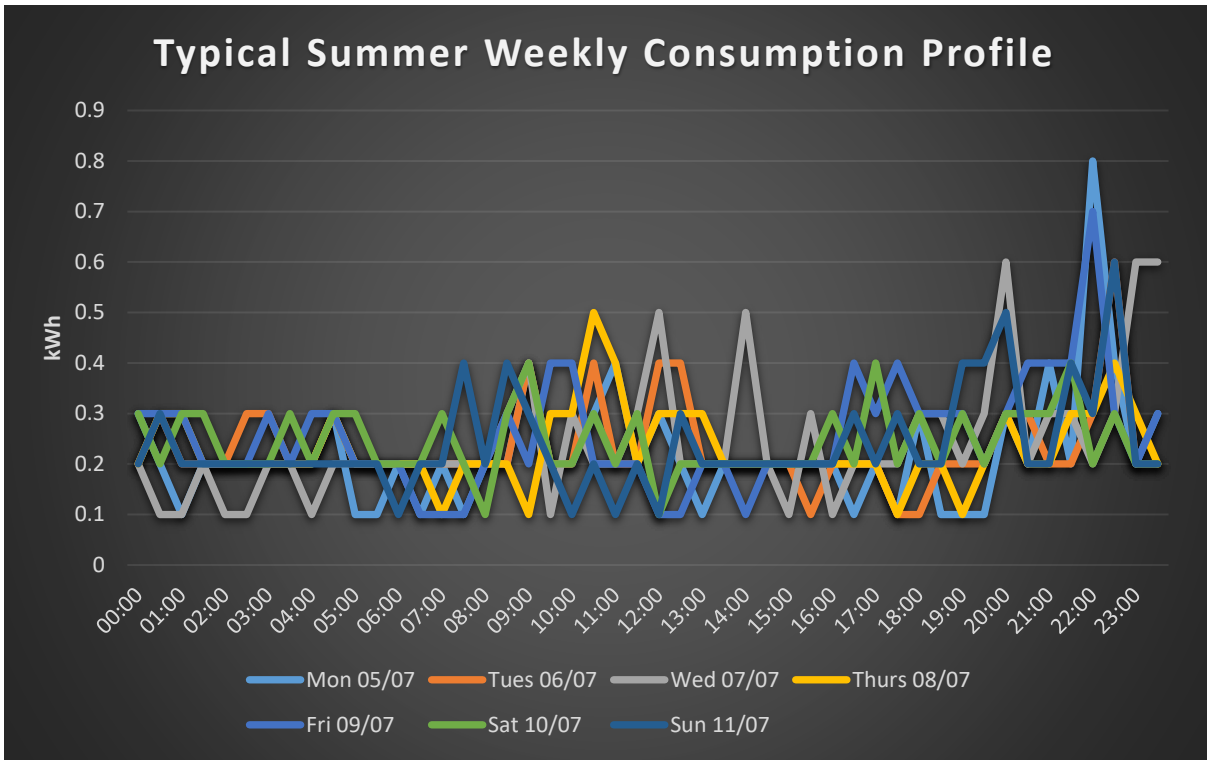
The above profile above does not follow a typical open and closed pattern as the centre is used on a ad-hoc basis. The profile shows the out of hours energy consumption to be circa 100 kW per half hour equal 0.5 kWh per day. This is an excellent level of consumption and can be attributed to essential equipment such as the emergency lighting, router and alarm system.

FIGURE 5: TYPICAL WINTER WEEKLY ELECTRICITY CONSUMPTION PROFILE



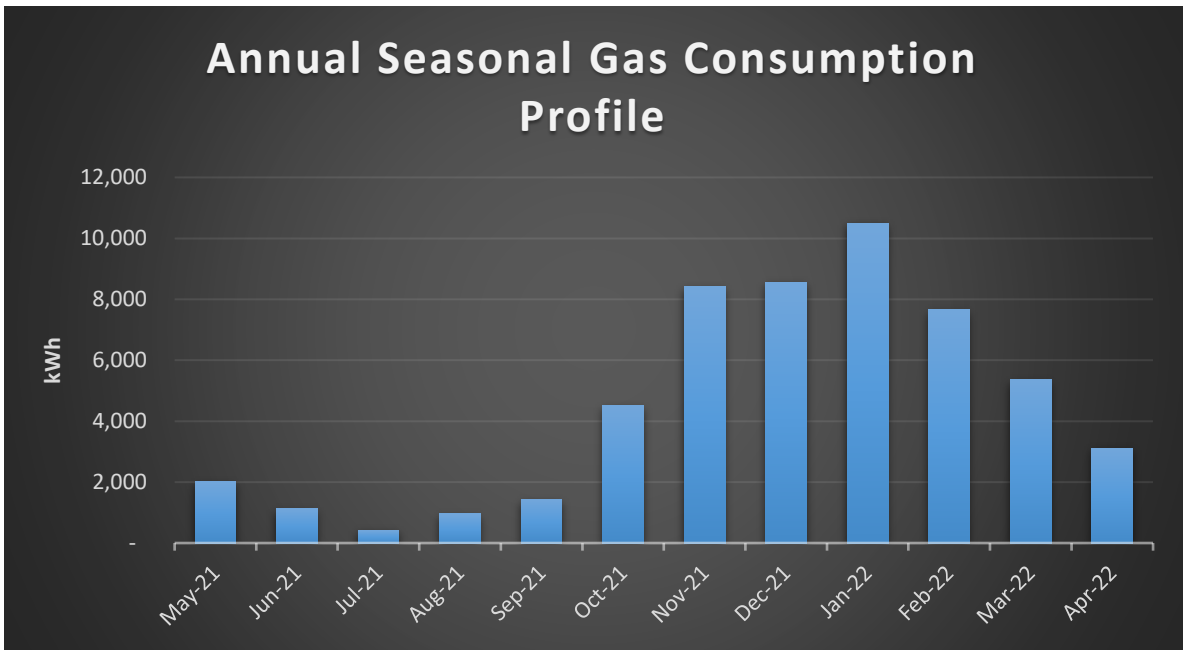
Again as the Centre is used on a ad-hoc basis there is no daily routine pattern to the electricity consumption.

FIGURE 6: TYPICAL SUMMER WEEKLY ELECTRICITY CONSUMPTION PROFILE



The profile again identifies the very low out of hours electricity consumption between 0.1 to 0.3 kWh per half hour which is again excellent and is atributed to the robust cloe down procedures followed by the site managers.

FIGURE 7: ANNUAL GAS CONSUMPTION PROFILE



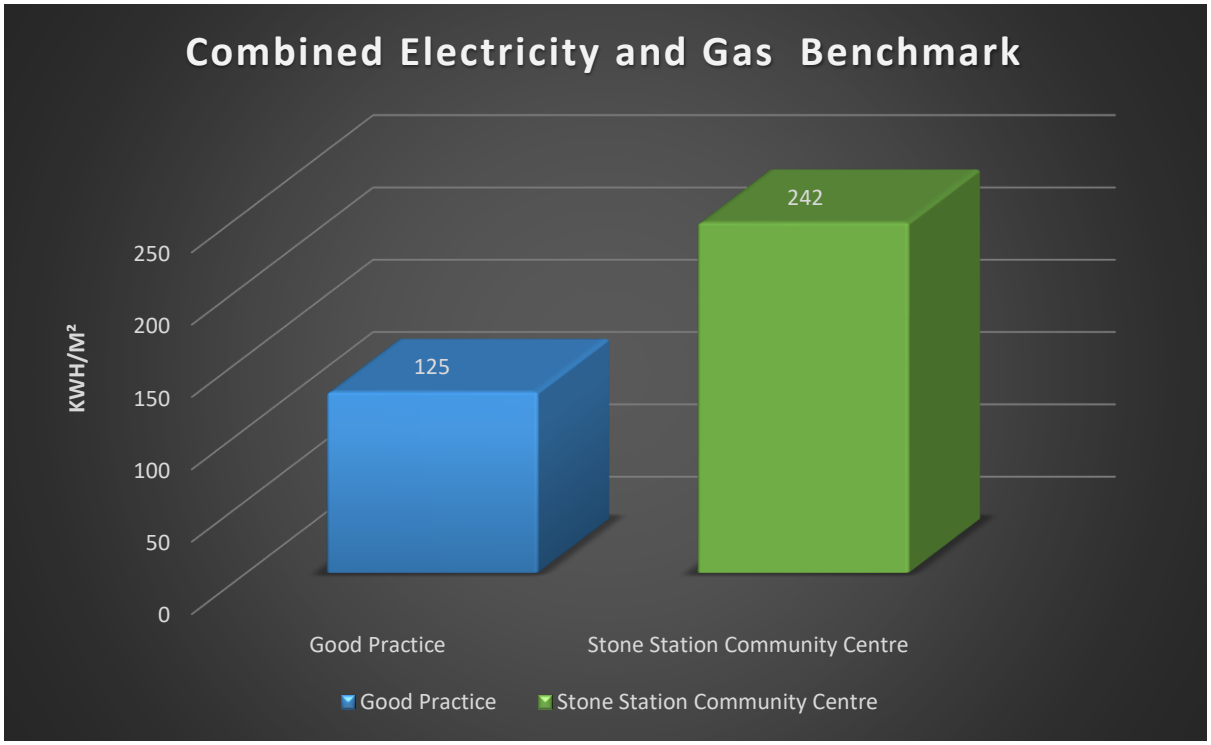
As there is no half hour data, it is not possible profile daily gas consumption. The profile above provides a visual representation for the annual gas consumption. The total gas consumption for the period is 54,043 kWh. The profile displays a typical heating pattern.

3.1 Energy Performance Benchmark

Stone Station Community Centre has been benchmarked for the performance of the site's energy usage and associated emissions using national industry standards provided but the Chartered Institution of Building Services Engineers (CIBSE). Figure 8 and Figure 9 allow for a visualisation of how the Community Centre is performing against national industry standards for energy usage or and associated emissions within a similar type of building.

The CIBSE benchmark for good practice shown in Figure 8 and Figure 9 have been based on a public building with light usage. This is currently the closest benchmark available for a similar building type to Community Centre and may not be a true reflection of the operation of the building.

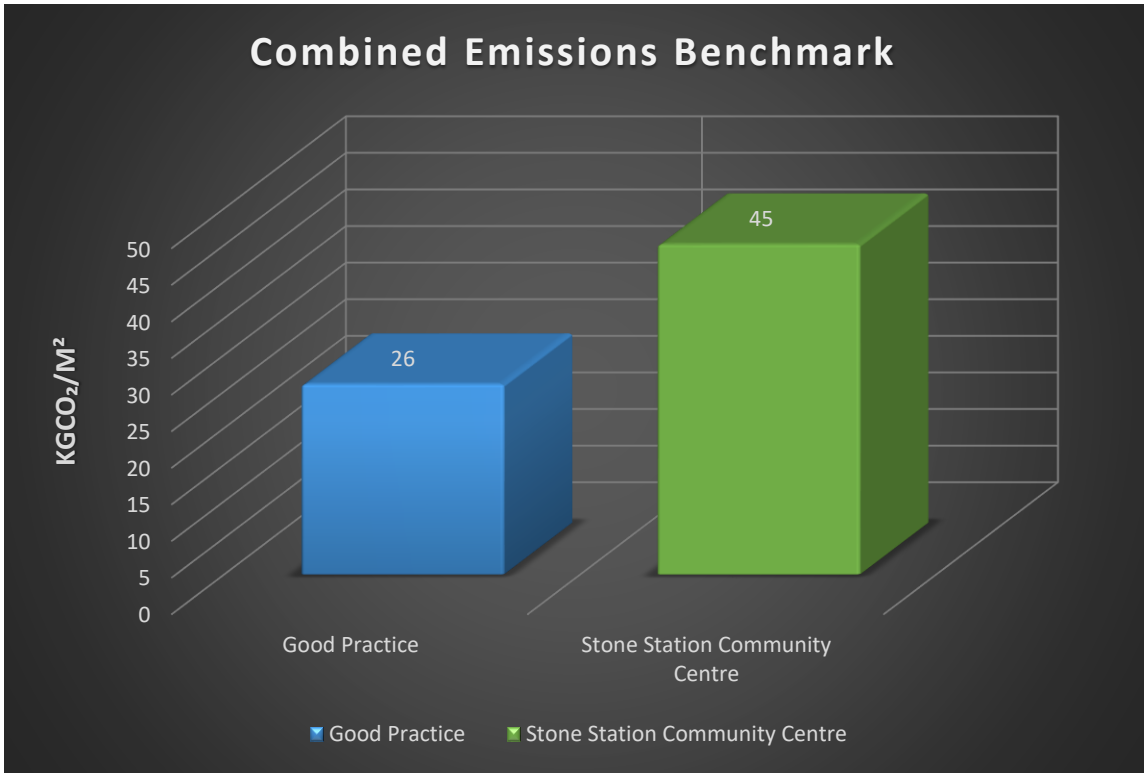
FIGURE 8: ELECTRICITY CONSUMPTION BENCHMARK



It should be noted that the benchmark is based on m^2. As the centre is a very small building this distorts the benchmark. As the energy profiling displays the centre's energy consumption is very well controlled.

The above and below benchmarks indicate that Stone Station Community Centre is currently operating 94% above the CIBSE (The Chartered Institution of Building Services Engineers) good practice benchmark for energy performance for energy consumption and 74% in emissions.

FIGURE 9: EMISSIONS BENCHMARK



4.0 Energy Conservation Measures

Following the desktop energy analysis carried out for Stone Station Community Centre and the development of energy profiling for the site, an energy reduction opportunity has been identified.

4.1 Energy Saving Summary

The following energy conservation measures (ECMs) have been categorised by payback criteria by the following methodology:

Short or Instant	**0 to 3 Years**
Medium	**3 to 5 Years**
Investement	**Over 5 Years**

Category	Service	Area	Finding	Action	Potential Annual Savings			Return on Investment (ROI)			
					Energy Saving (kWh)	Emissions Saving (kgCO2e)	Energy Cost Saving (£)	Capital Cost (£)	Simple Payback	Annual Maintenance Savings (£)	Payback Category (yrs)
During the site survey a lighting survey was undertaken to identify the potential for installing low energy LED lighting. However, as the centre is not used on a regular basis and the annual electricity consumption is very low, a lighting replacement project would have a ROI of approximately 10 years.											
ECM-1	Heating and Hot Water	Full Building	A comprehensive desktop assessment of the site's heating and hot water demand has been completed The Station Community Centre. This has identified the great potential to install an Air Source Heat Pump (ASHP). Although this is an investment measure, along with completion of ECM 2 and the procurement of a certified green electricity contract, this would result in the community centre achieving carbon Zero status.	It is recommended that a ASHP is installed, which will provide the buildings heating and hot water demand. This will account for 100% of the building's gas consumption. This is equal to 71862 kWh. The capital cost included is for the ASHP only. A further detailed site survey would be required to provide a detailed proposal allowing for accessories including radiators and required plumbing. It should be noted that replacing the natural gas demand for electricity run ASHP would be the optimum measure in the centre achieving a carbon net zero status. NOTE: The estimated electricity consumption required for the ASHP could be supplied by the solar PV recommended below.	54,043	9,899	£2,162	£17,000	7.9	£0	7.9

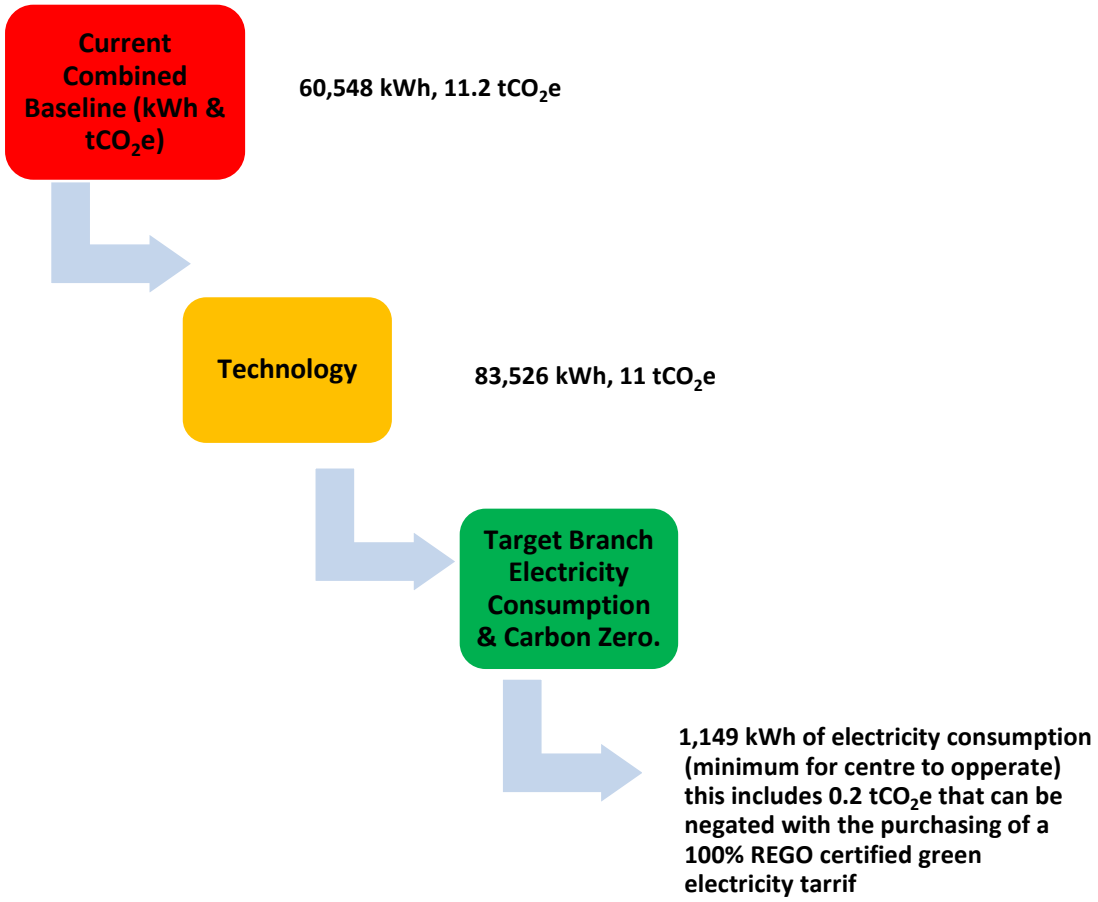
Category	Service	Area	Finding	Action	Potential Annual Savings			Return on Investment (ROI)			
					Energy Saving (kWh)	Emissions Saving (kgCO2e)	Energy Cost Saving (£)	Capital Cost (£)	Simple Payback	Annual Maintenance Savings (£)	Payback Category (yrs)
ECM-2	Solar PV	Roof Space	During the site visit it was identified that The Station Community Centre would be suitable for a small 6KW solar PV installation. This would be subject to a structural survey to the available roof space.	It is recommended that Stone Town Council take advantage of this excellent opportunity to generate on-site green electricity. It has been calculated that a 6 kWp system would generate circa 8,887 kWh of electricity of which the branch would utilise 100% directly at the branch. This system size is more than suitable to allow for the increase electricity associated with the ECM-1 above (air sourced heat pump to replace natural gas boiler for radiators and DHW). It should be noted that due to the minimal use of the community centre the amount of exported electricity will vary and as the export price is circa 8p per kWh , this will considerably increase the payback to over 10 years	5,356	5,975	£964	£6,600	6.8	£0	6.8
Total savings from the installation of the proposed ECM					**59,399**	**15,873**	**£3,126**	**£23,600**	**7.6**	**£0**	**7.6**

5.0 Energy and Carbon Reduction Key Milestones.

5.1 Energy Reduction Plan

FIGURE 10: ENERGY REDUCTION PLAN KEY MILESTONES

Figure 7 Highlights the current annual building energy consumption at the Station Community Centre totals 60,548 kWh with a carbon output of 11.2 tonnes of CO_2 equivalent (tCO_2e). The key milestones on route to a positive energy reduction plan includes actioning the identified ECMs from Section 4 of this report. The energy savings from renewable and carbon reducing technology. This will result in the centre having only 1,149 kWh of electricity and 0.6 tCO_2e only.



6.0 Summary of Key Assumptions

Assumption	Source/Reference
Energy data has been taken from the following sources: Electricity- online portal	Online half hour data
This report has been completed using methodologies and guidance as detailed within; - BS EN 16247 - Technical Memorandum (TM) 41 & 46 - The EU Energy Performance of Buildings Directive (EPBD) - The Energy Savings Opportunity Scheme Regulations 2017	Chartered Institution of Building Services Engineers (CIBSE) British Standards Institute (BSI)
The energy benchmark for 'Good Practice' has been taken from Chartered Institution of Building Services Engineers (CIBSE) Guide for Energy Benchmarks.	CIBSE TM46: This has been adjusted to reflect 2021 carbon emissions
All estimated capital costs stated within the report have been calculated using published cost data such as SPONS etc., cost data from previous projects with similar technologies and experience and knowledge of the auditors. Prior to the implementation of the ECMs it is recommended that fixed price quotations are sought for all measures.	
All capital costs contained within this report are exclusive of VAT	
Degree- day correction has not been applied to the data contained within this report	
Power capacities of some items of plant have been estimated where not readily available	Where required assessment made using engineers experience
Emissions factors used for calculations: Electricity- 0.21233 kg CO2e Gas- 0.18316 kg CO2e	DEFRA (2021)
The following energy unit rates have been used within the ECM calculations: Electricity- £0.18/ kWh Gas- £0.04/ kWh	Pozitive Energy bills
There are no current planned building alterations, committed energy improvement projects or known changes to the operational use of the facility	
Building fabric, window and door apertures etc., have not been measured or drawing dimensions verified during the survey	
Stone Station Community Centre operating hours are as follows: **Monday – Friday 8:30am–5:30pm** **Saturday -Sunday Closed**	Stone Town Council

Stone Town Council

Frank Jordan Centre

Lichfield Street

Staffordshire

ST15 8NA

Energy and Carbon Review & Action Plan

V2

Client: Stone Town Council	***Report prepared by:*** Anthony Horsley LCIBSE LCEA Maryam Qureshi BSc (Hons) ***Reviewed by:*** Stephen Bayfield BA(Hons) ***Approved By-Lead Consultant:*** Keith Maloney BEng (Hons) LCC LCEA CMVP

Version	Document Changes	Date	Reviewed By
V1	Draft Report	15/06/2022	Anthony Horsley
V2	Internal Peer Review	21/06/2022	Lucy England

Maloney Associates Ltd
211 Pearl House
Anson Court, Staffordshire Technology Park
Beaconside, Staffordshire
ST18 0GB

Contents

1.0 Executive Summary

Maloney Associates' Environment & Sustainability Consultant Maryam Qureshi undertook a remote energy survey of the Frank Jordan Centre on 15/06/2022. Prior to this, Energy Manager, Anthony Horsley, undertook a site energy audit on 01/06/2022.

The purpose of the review was to analyse and profile the electricity and gas consumption in line with the operational at the Frank Jordan Centre. This is to aid in the development of an energy and carbon savings action plan. The aim of the action plan is to identify and highlight the energy saving measures and their associated costs, which have been identified through energy consumption analysis and site visit.

Following the detailed electricity and gas profiling together with a comprehensive desktop energy analysis and site audit, table 1 shows the potential energy and cost savings of the identified energy conservation measure that can be implemented at the Frank Jordan Centre.

TABLE 1: SUMMARY OF POTENTIAL ENERGY SAVINGS

Energy Saving (kWh)	Emissions Saving ($kgCO_2e$)	Energy Cost Saving (£)	Capital Costs (£)	Simple Payback
80,749	15,049	£4,474	£30,000	6.7

The energy savings identified equate to a cost saving of **£4,474** and would require an investment capital expenditure of £30,000. This would provide simple payback **6.7**-years at the current electricity and gas unit rates. However, with the recent 100% price increases in the market energy unit rates, the ROI would reduce to just over 3-years.

Figure 1 and figure 2 shown below allow for the visualisation of the expected energy and emission savings following the implementation of the recommended energy conservation measures (ECMs) outlined in section 5 of the action plan.

FIGURE 1: SUMMARY OF POTENTIAL ENERGY SAVINGS

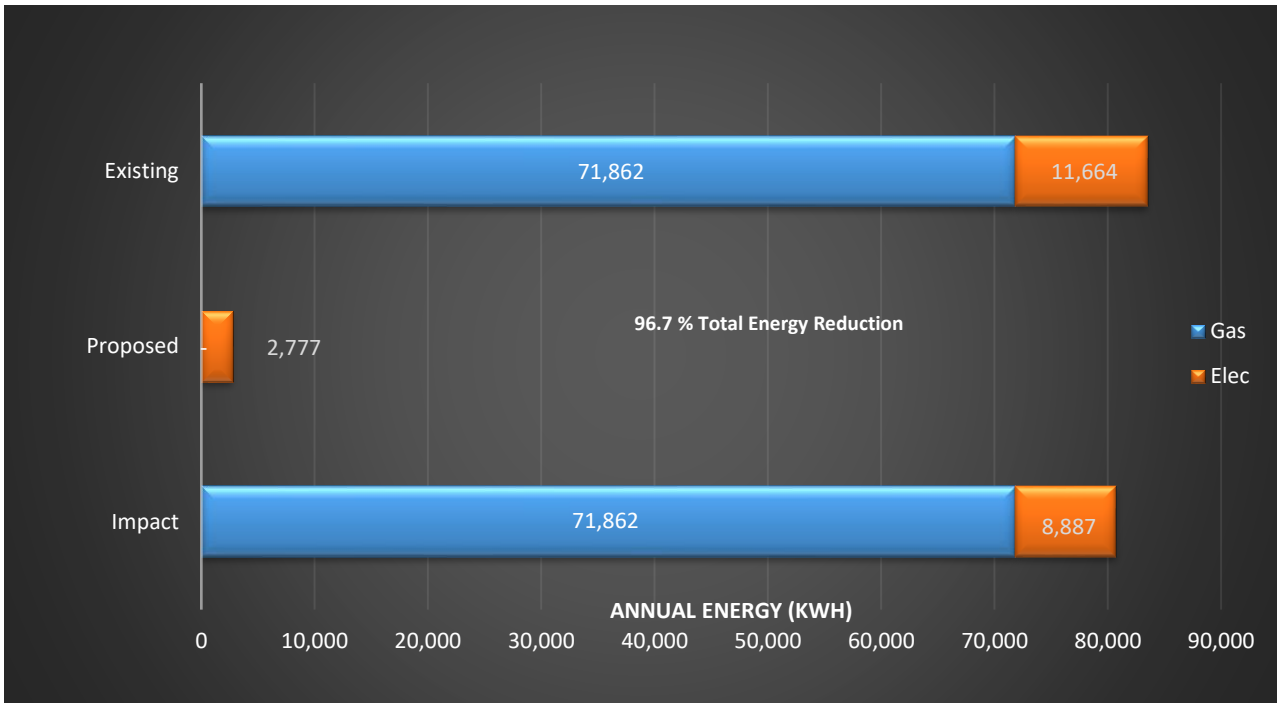
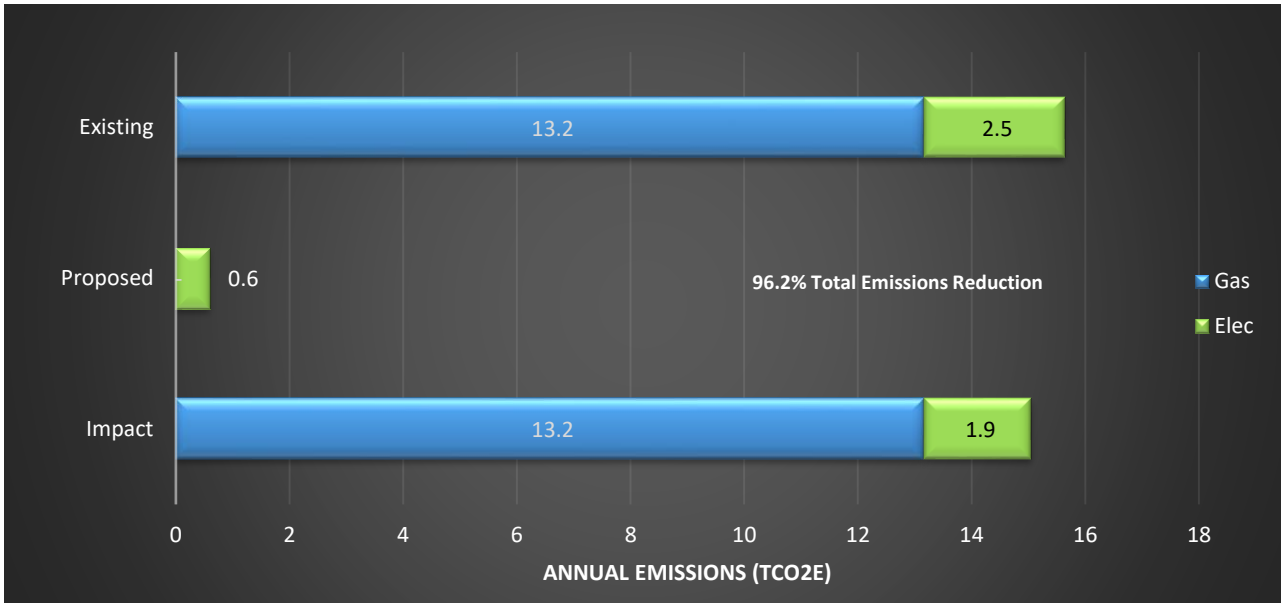


FIGURE 2: SUMMARY OF POTENTIAL EMISSIONS SAVINGS



The graphs illustrate the impact of the energy saving opportunity compared to the current energy consumption for the Frank Jordan Centre. The identified savings represent an annual reduction of **8,887 kWh** in electricity and **71,862 kWh** of gas consumption. This equates to a combined carbon emission reduction of **15 tonnes** for electricity and gas. This totals over **96 % reduction** in energy consumption and associated carbon emissions.

2.0 Methodology

2.1 Objectives & Methodology

This analysis and action plan for the Frank Jordan Centre is designed to cover the following objectives:

- Profile & determine total energy consumption and associated carbon emissions of the site.
- Establish an action plan of cost-effective energy saving opportunities.

The report will firstly profile energy usage and provide a benchmark of energy usage at the site. This is then followed by a detailed action plan summarising cost-effective energy saving opportunities that were identified during the desktop analysis.

3.0 Site Energy Consumption and Performance

Table 2 and Table 3 below show a breakdown of the total annual energy used on site and the associated annual emissions. A breakdown of annual energy consumption and emissions per square metre in accordance with the size of the floor area of the Frank Jordan Centre is also provided.

Table 2: Energy Overview Table

Elec kWh	Gas kWh	Total kWh	Gas kWh/m²	Elec kWh/m²	Total kWh/m²
11,664	71,862	83,526	143.7	23	167

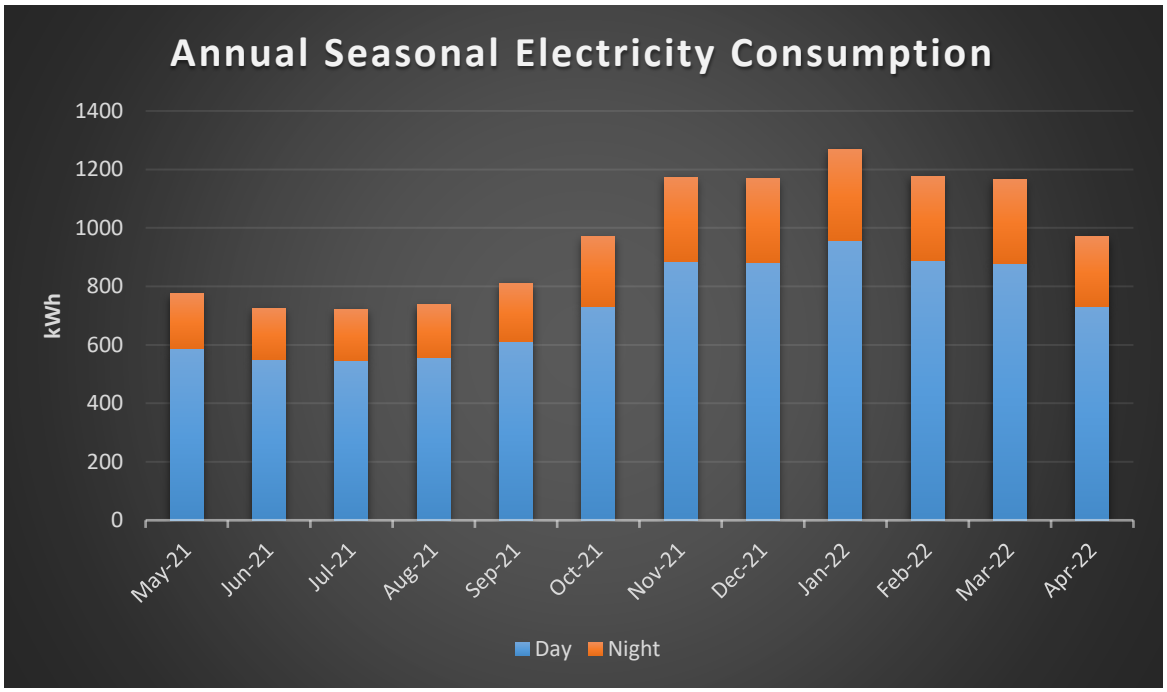
Table 3: Emissions Overview Table

Elec TCO_2e	Gas TCO_2e	Total TCO_2e	Gas $kgCO_2e/m^2$	Elec $kgCO_2e/m^2$	Total $kgCO_2e/m^2$
2	13	16	26	5	31

To allow a benchmark of energy use to be included within the report, the annual energy use has been based upon energy invoices for electricity and gas for the period 1st May 2021 to 30th April 2022.

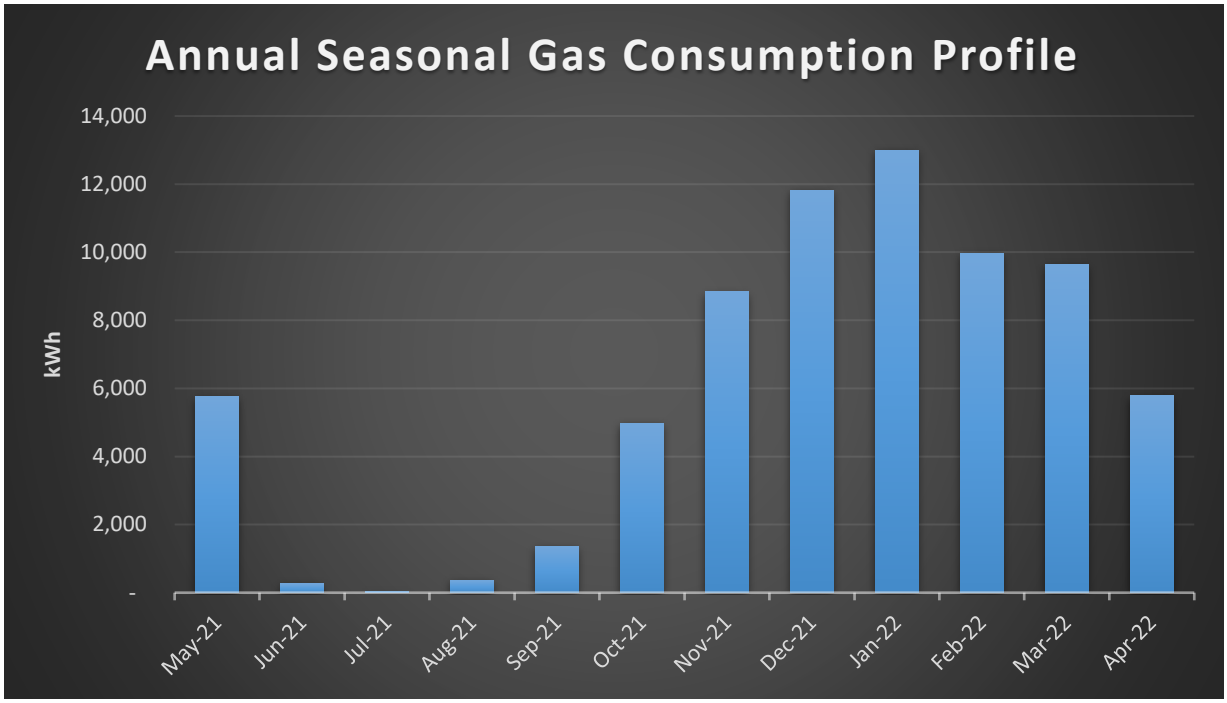
Figure 3 shown below details a seasonal profile of electricity usage throughout the period 1st May 2021 to 30th April 2022. There is currently no Half Hour data for this site. There is no half hour energy consumption for electricity or gas. Therefore, only monthly data has been used.

Figure 3: Annual electricity Consumption Profile



The above seasonal electricity consumption profile is a visual representation of the annual electricity consumption at the centre. The profile is what would be expected of a building of this type showing the increases in winter when more lighting and or portable heating is required.

FIGURE 4: ANNUAL GAS CONSUMPTION PROFILE



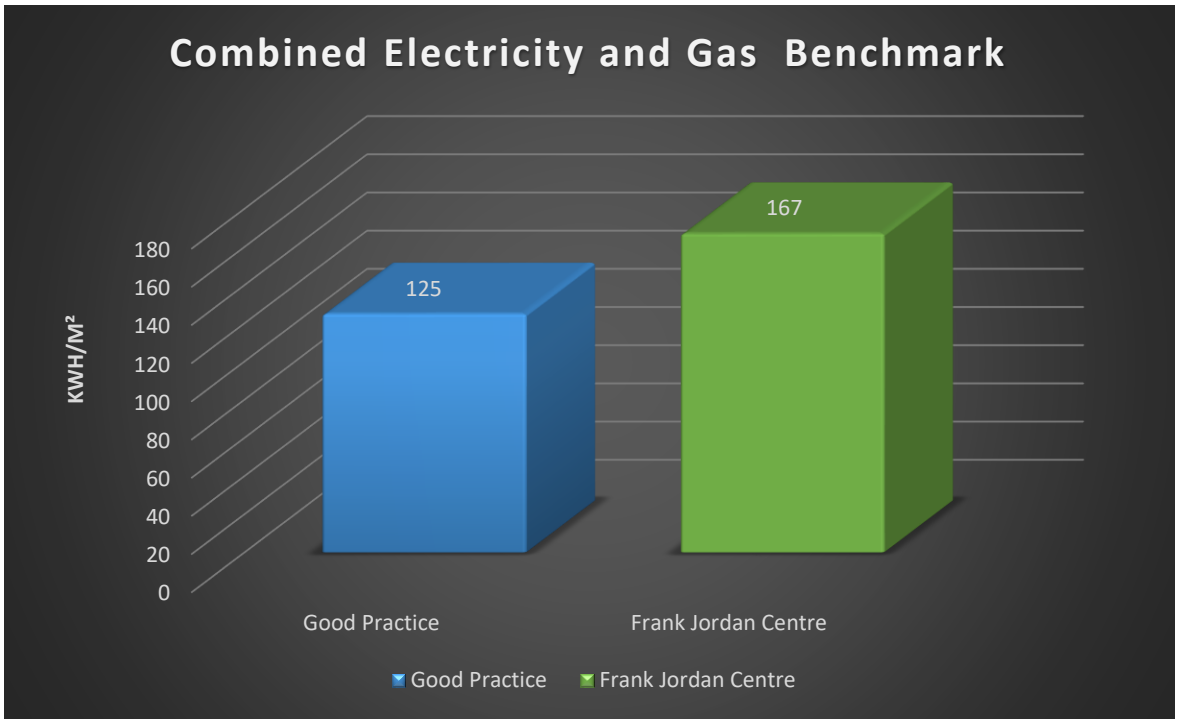
As there is no half hour data, it is not possible to profile daily gas consumption. The profile above provides a visual representation for the annual gas consumption. This displays a typical good practice profile for a building with a "combi" boiler providing heating in the winter and instant hot water when the heating is off. The total gas consumption for the period is 71,862 kWh.

3.1 Energy Performance Benchmark

The Frank Jordan Centre has been benchmarked for the performance of the site's energy usage and associated emissions using national industry standards provided but the Chartered Institution of Building Services Engineers (CIBSE). Figure 5 and Figure 6 allow for a visualisation of how the Frank Jordan Centre is performing against national industry standards for energy usage and associated emissions within a similar type of building.

The CIBSE benchmark for good practice shown in Figure 5 and Figure 6 have been based on a public building with light usage. This is currently the closest benchmark available for a similar building type to The Frank Jordan Community Centre and may not be a true reflection of the operation of the building.

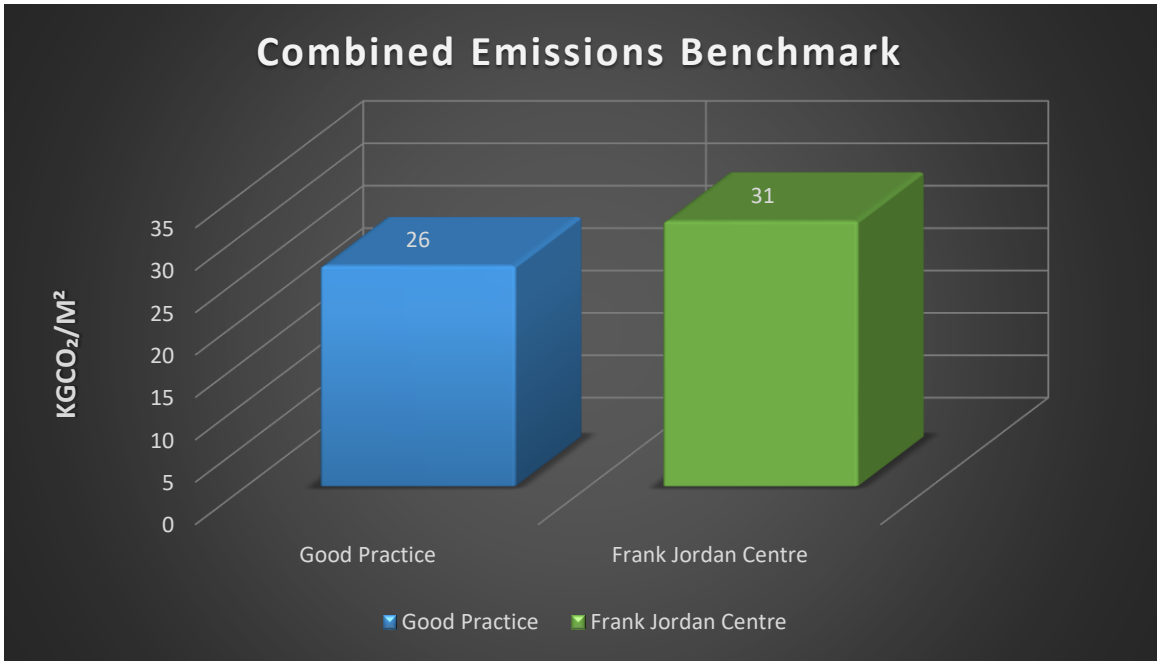
FIGURE 5: ELECTRICITY CONSUMPTION BENCHMARK



The above and below benchmarks indicate that the Frank Jordan Centre is currently operating 34% above the CIBSE (The Chartered Institution of Building Services Engineers) good practice benchmark for energy performance for energy consumption and 20% in emissions.

As mentioned above, the Frank Jordan Community Centre is above the CIBSE “good practice” benchmark, although the closest building type is ‘public building with light usage’ which may not be an accurate representation.

FIGURE 6: EMISSIONS BENCHMARK



4.0 Energy Conservation Measures

Following the desktop energy analysis carried out for the Frank Jordan Centre and the development of energy profiling for the site, an energy reduction opportunity has been identified.

4.1 Energy Saving Summary

The following energy conservation measures (ECMs) have been categorised by payback criteria by the following methodology:

Short or Instant	**0 to 3 Years**
Medium	**3 to 5 Years**
Long	**Over 5 Years**

Category	Service	Area	Finding	Action	Potential Annual Savings			Return on Investment (ROI)			
					Energy Saving (kWh)	Emissions Saving (kgCO2e)	Energy Cost Saving (£)	Capital Cost (£)	Simple Payback	Annual Maintenance Savings (£)	Payback Category (yrs)
It should be noted that during the site audit, it was identified that the centre has been fitted with low energy LED lighting with automatic presence detection sensors where applicable. It was evident from the meeting with the site supervisor that energy consumption is closely controlled with robust closedown procedures already in place. This is evident through analysis of the electricity consumption with the night-time usage at a minimum and consistent with that for a small server system and emergency lighting power. The following ECM's focus on decarbonisation and renewable technology.											
ECM-1	Heating and Hot Water	Full Building	A comprehensive desktop assessment of the site's heating and hot water demand has been completed for Frank Jordan Centre. This has identified the great potential to install an Air Source Heat Pump (ASHP). Although this is an investment measure, along with completion of ECM 2 and the procurement of a certified green electricity contract, this would result in the Franck Jordan Centre achieving carbon Zero status.	It is recommended that a ASHP is installed, which will provide the buildings heating and hot water demand. This will account for 100% of the building's gas consumption. This is equal to 71862 kWh. The capital cost included is for the ASHP only. A further detailed site survey would be required to provide a detailed proposal allowing for accessories including radiators and required plumbing. It should be noted that replacing the natural gas demand for electricity run ASHP would be the optimum measure in the centre achieving a carbon net zero status. NOTE: The estimated electricity consumption required for the ASHP could be supplied by the solar PV recommended below.	71,862	13,162	£2,874	£20,000	7.0	£0	7.0

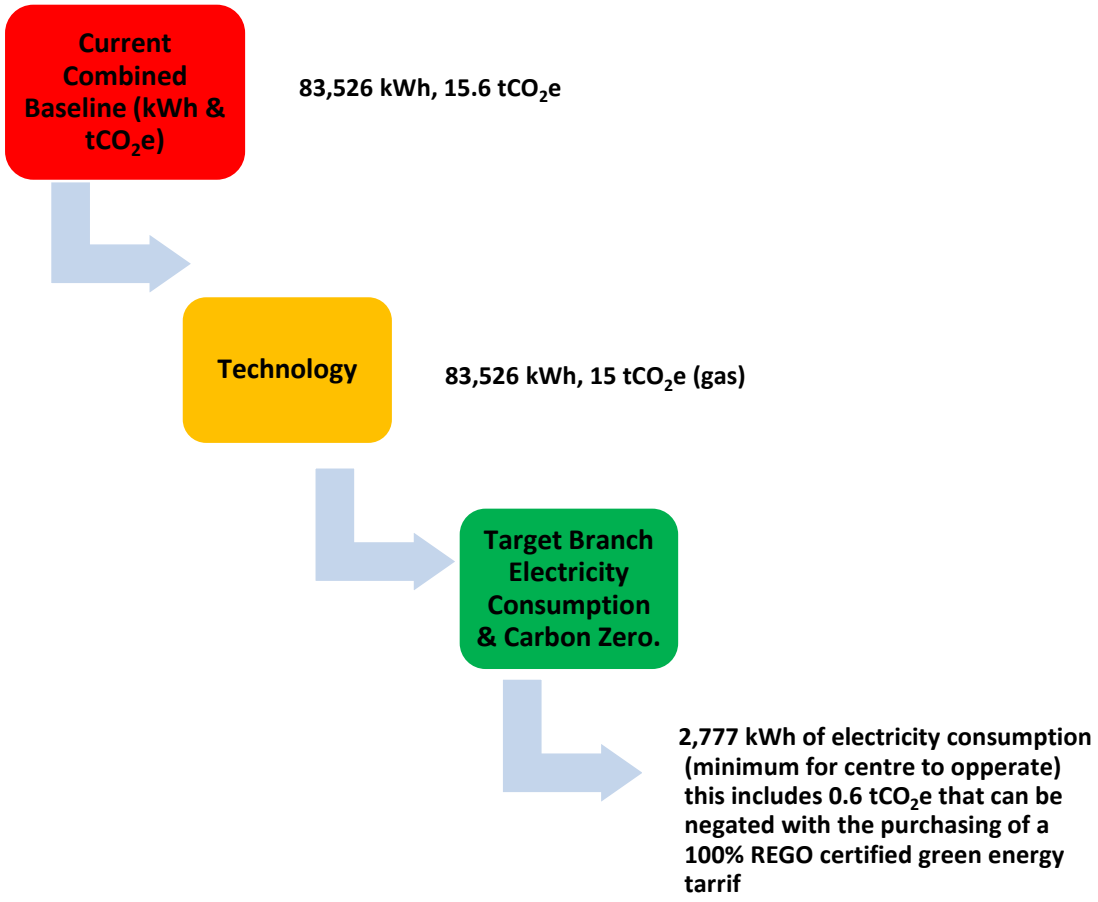
Category	Service	Area	Finding	Action	Potential Annual Savings			Return on Investment (ROI)			
					Energy Saving (kWh)	Emissions Saving (kgCO2e)	Energy Cost Saving (£)	Capital Cost (£)	Simple Payback	Annual Maintenance Savings (£)	Payback Category (yrs)
ECM-2	Solar PV	Roof Space	During the site visit it was identified that The Frank Jordan Centre would be suitable for a 10KW. This would be subject to a structural survey to the available roof space.	It is recommended that Stone Town Council take advantage of this excellent opportunity to generate on-site green electricity. It has been calculated that a 10 kWp system would generate circa 8,887 kWh of electricity of which the branch would utilise 100% directly at the branch. This system size is more than suitable to allow for the increase electricity associated with the ECM-1 above (air sourced heat pump to replace natural gas boiler for radiators and DHW).	8,887	1,887	£1,600	10,000	6.3	£0	6.3
Total savings from the installation of the proposed ECM					**80,749**	**15,049**	**£4,474**	**£30,000**	**6.7**	**£0**	**6.7**

5.0 Energy and Carbon Reduction Key Milestones.

5.1 Carbon Reduction Action Plan

FIGURE 7: ENERGY REDUCTION PLAN KEY MILESTONES

Figure 7 Highlights the current annual building energy consumption at the Frank Jordan Centre totals 83,526 kWh with a carbon output of 15.6 tonnes of CO_2 equivalent (tCO_2e). The key milestones on route to a positive energy reduction plan includes actioning the identified ECMs from Section 4 of this report. The energy savings from renewable and carbon reducing technology. This will result in the centre having only 2,777 kWh of electricity and 0.6 tCO_2e only.



6.0 Summary of Key Assumptions

Assumption	Source/Reference
Energy data has been taken from the following sources: Electricity & Gas- online portal	Online half hour data
This report has been completed using methodologies and guidance as detailed within; - BS EN 16247 - Technical Memorandum (TM) 41 & 46 - The EU Energy Performance of Buildings Directive (EPBD) - The Energy Savings Opportunity Scheme Regulations 2017	Chartered Institution of Building Services Engineers (CIBSE) British Standards Institute (BSI)
The energy benchmark for 'Good Practice' has been taken from Chartered Institution of Building Services Engineers (CIBSE) Guide for Energy Benchmarks.	CIBSE TM46: This has been adjusted to reflect 2021 carbon emissions
All estimated capital costs stated within the report have been calculated using published cost data such as SPONS etc., cost data from previous projects with similar technologies and experience and knowledge of the auditors. Prior to the implementation of the ECMs it is recommended that fixed price quotations are sought for all measures.	
All capital costs contained within this report are exclusive of VAT	
Degree- day correction has not been applied to the data contained within this report	
Power capacities of some items of plant have been estimated where not readily available	Where required assessment made using engineers experience
Emissions factors used for calculations: Electricity- 0.21233 kg CO_2e Gas- 0.18316 kg CO_2e	DEFRA (2021)
The following energy unit rates have been used within the ECM calculations: Electricity- £0.18/ kWh Gas- £0.04/ kWh	Pozitive Energy bills
There are no current planned building alterations, committed energy improvement projects or known changes to the operational use of the facility	
Building fabric, window and door apertures etc., have not been measured or drawing dimensions verified during the survey	
Frank Jordan Centre operating hours are as follows: **Monday – Thursday 9:00am–1:00pm**	Stone Town Council

PAPER FOR ENVIRONMENT SUB COMMITTEE 16TH AUGUST 2022

There is an option to invite an expert to give a talk to council and to other invited participants on environmental matters if a suitable venue can be arranged. See email below from Councillor Whalley:

> *"I have a business contact who is one of the landscape industries leading voices on the environment and biodiversity. He writes regular features for industry magazines and chairs industry debates on the subject.*
>
> *He is based in Surrey but was born and raised in Alexandra St. He would be more than willing to come to Stone and do a talk on what residents can do to increase biodiversity. I know that Crown Wharf have a large upstairs function room that is free of charge to use. Could be a great way to help kick start the town council's environment drive."*

The sub-committee must decide if this is an approach worth pursuing.