

TEWKESBURY BOROUGH COUNCIL

CN2030 YEAR 1 REVIEW & YEAR 2 ACTION PLAN



Context



- ▶ Report of carbon baseline for 2019 was developed in spring 2020
- ▶ High level 10 year Action Plan produced to identify pathways to 2030 carbon neutrality
- ▶ Full Council adopted the report and action plan in late July 2020
- ▶ Implementation of year 1 objectives commenced in August 2020
- ▶ Internal management team comprising Dept. CEO (then Head of Finance and Asset Management), Asset Manager, Facilities Officer and Low Carbon Consultant established, with often weekly progress meetings held

Year 1 Objectives from Action Plan

	Objective	Success Indicators	Outcome
1	Support the creation of Monitoring & Targeting processes across all elements to ensure the capture of accurate data alongside the finalisation of the ongoing emissions tracking system	Energy diaries created and in use	All energy diaries created, including SMT reporting graphs. TBC Officer populating with ongoing data
2	Specification for procurement and securing appropriate quotes (against procurement policy) for works relating to the Action Plan/Baseline Emissions Report recommendations	Documents produced to support procurement process	Completed and produced resulting from successful PSDS funding application
3	Production of full Business Case detail (prioritising emissions and finance) of all relevant Action Plan activities so as to support informed decision making	Produced Business cases	Being developed as required, however, initial success with PSDS bid £305,700 secured
4	Coordination of any necessary feasibility studies for the Heat Pump and/or Solar Panel scenarios to include: A) Network Operator position to supply capacity levels B) Planning for location of equipment for installation C) Contingency Plans (Battery Storage) D) Full cost report for recommended measures (estimated costs produced at application were verified by cost consultants, however Feasibility consultants suggest costs significantly higher. The actual position will not be fully known until procurement is complete	A) N/A – no network impact B) Pre plan map of sites C) N/A D) Known budgets for measures	N/A – no network impact Full Feas study complete N/A – not required Headline costs produced, exact costs to follow on procurement
5	Increase the level of sub-metering of services so as to enable accurate and specific reporting of impacts to be made	More granular data available	Not part of funding application. Delayed to yr 2
6	Regular production and presentation of update/progress reports to Full Council on at least a quarterly basis	Meetings held with positive feedback	Annual reporting to O & S and Executive
7	Ensure council representation throughout Gloucestershire as required at meetings or networks and feedback relevant information and actions	Meetings attended and PR conducted	1 x press release issued and attendance at Glos Local Nature Partnership

A look at the main specific outputs

1. Monitoring and Targeting - Energy diaries
2. Detailed surveys informing implementation plans: Domestic & Roses
3. Applications for External Funding
4. PSC: Low Carbon Skills Fund & the Public Sector Decarbonisation Scheme

1) Monitoring & Targeting

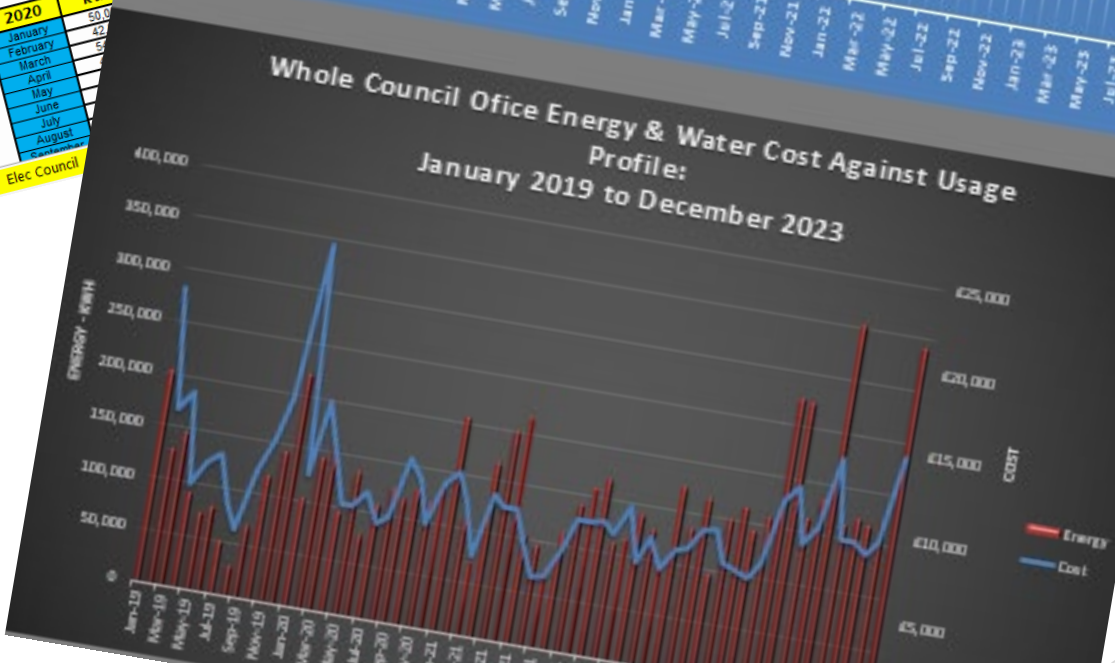
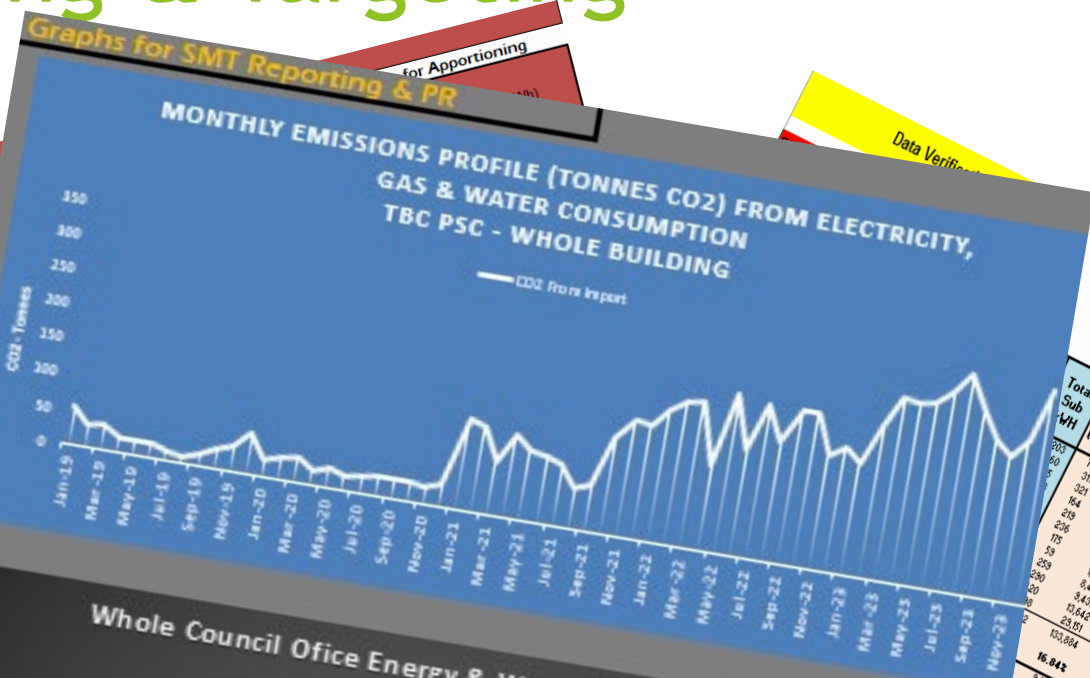
Graphs for SMT Reporting & PR

for Apportioning

Data Verification

Day Rate		Electricity - Night Rate		Electricity - Total Use		
Import Mtr Rdg	Kilowatt-hours (kWh)	Date	Import Mtr Rdg	Kilowatt-hours (kWh)	Date	Kilowatt-hours (kWh)
0	0	2019	0	0	2019	120,555
95,555	54,445	January	25,000	25,000	January	120,555
150,000	60,000	February	34,343	10,101	February	63,788
210,000	30,000	March	44,444	14,181	March	70,101
240,000	45,000	April	58,825	7,267	April	44,181
285,000	48,333	May	65,892	6,673	May	55,008
333,333	33,334	June	72,567	9,022	June	42,356
369,667	23,333	July	81,589	4,034	July	27,367
390,000	45,000	August	86,623	9,022	August	55,336
435,000	50,000	September	95,959	9,022	September	59,064
485,000	65,550	October	105,223	6,199	October	71,749
550,550	124,450	November	112,222	8,778	November	133,228
675,000	675,000	December	120,000	8,778	December	795,000
Total		Total		120,000	Total	795,000

2020 kWh		kWh		Elec Council	
Month	kWh	Month	kWh	Month	kWh
January	715,000	January	130,000	January	42
February	745,654	February	130,000	February	50
March	789,652	March	130,000	March	50
April	821,365	April	130,000	April	50
May	845,654	May	130,000	May	50
June	889,252	June	130,000	June	50
July	912,345	July	130,000	July	50
August	935,642	August	130,000	August	50
September	958,745	September	130,000	September	50
October	981,848	October	130,000	October	50
November	1,004,951	November	130,000	November	50
December	1,028,054	December	130,000	December	50
Total	10,000	Total	10,000	Total	500



Date	Main Import Meter	Total of sub & Ap data	Sub 1	AP Mole Vly		AP Comp p		AP - CAB	An GCC (19.57%)	Ap DWP (2.80%)	Ap TBC (49.24%)	Total Gas kWh
				(5.95%)	(5.60%)	(7.6%)	(0.6%)					
01/01/2019	61,643	12,571	3,795	4,776	3,795	4,776	2,383	14,265	2,383	31,308	63,308	
01/02/2019	64,340	12,571	3,204	2,387	3,204	2,387	2,070	15,151	2,070	23,895	43,084	
01/03/2019	64,340	12,571	3,988	2,984	3,988	2,984	4,200	16,621	4,200	25,856	45,504	
01/04/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/05/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/06/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/07/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/08/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/09/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/10/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/11/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
01/12/2019	64,340	12,571	3,988	3,988	3,988	3,988	3,988	16,621	3,988	25,856	45,504	
Sub Total	59,000	10,000	3,000	2,000	3,000	2,000	2,000	20,413	2,000	30,550	38,550	
% of Colman	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
% of Main	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	

The sum of all sub meters and apportioned data must equal the main import meter value every month. It is possible for formula to accidentally be changed during data entry, so it is important to verify the data on a monthly basis in order that the energy diary can more easily be repaired.

NB test data only

2a) Surveys for Domestic Estate

Summary of Recommendations

Building Fabric Measures	Saving (kWh)	%	Carbon (Tonnes)	Carbon Remaining (Tonnes)	Estimated install cost
Insulation on garage wall and behind cladding under front windows (U-0.32 100mm)	937	10.9	0.195		£2,000
Insulation in loft (400mm U-0.11)	1247	14.5	0.259		£500
Insulate flat roof (150mm U-0.3)	155	1.8	0.032		£500
Insulate garage ceiling (150mm U-0.22)	301	3.5	0.063		£1,000
All building fabric measures combined except windows	2,730	31.8	0.567	2.663	£4,000

Heating	Carbon Saving (Tonnes)	Carbon Remaining (Tonnes)	Estimated install cost
Air Source Heat pump	0.81	1.853	Net £10,000 (£15,000 install and £5,000 RHI income)

Renewables	Carbon Saving (Tonnes)	Carbon Remaining (Tonnes)*	Estimated install cost
4.4kWp Solar panels (South roof)	1.153	0.7	£6,500

*This is based on 2020 carbon conversion factors.

Offsite Renewables	Carbon Saving (Tonnes)	Carbon Remaining (Tonnes)	Estimated install cost**
2.7kWp Solar panels (South facing)	0.7	0	£2,200

Annual Emission	CO ₂ e Emissions		Annual Cost	
	Tonnes	%	£	%
0	0.84			
5	2.22	26%		
	0.17	69%	464	34%
	3.23	5%	418	31%
		100%	1,364	100%

ability consumption, carbon, and cost
 ial energy consumption, cost and carbon impact.
 in factors 2020 have been used to estimate the
 ble 4 below:

Carbon Factor (kg CO ₂ e)
0.28813
0.20778
1.052

2020 consumption

and

general maintenance and repair.
 r measures.

DECARBONISATION
 REPORT

4 Howard Rd

April 2021

2b) Surveys for Roses

- ▶ Severn Wye Energy Agency's Target 2030 project provided >£10,000 of technical survey support at no cost to the council
- ▶ Potential for a 30% grant contribution from T2030
- ▶ Ineligible for PSDS funding
- ▶ Other external grants identified for low level support
- ▶ Next steps are to:
 - ▶ Secure quotes for works
 - ▶ Complete funding applications
 - ▶ Commence implementing the decarbonisation plan

Measure	Estimated Annual Savings (£)	Ten year cost of inaction (£)
Investigate alternative HVAC solutions including heat pumps & improved controls to reduce reliance on mains gas	TBC	TBC
Replace stage lighting & remaining fluorescent lighting with LED's incorporating intelligent lighting control	£125+	£1,250+
Improve insulation levels to walls and roofs where possible	TBC – dependent on size of area insulated	
Insulate exposed pipework, valves & flanges within the plant room	TBC	TBC
Install ambient "free" cooling to beer cellar	£250-£500	£2,500-£5,000
Fit timers on drinks fridges	Approximately £50-£100 per fridge	
Inn Energy / Beertech Python monitor	£70-£140	£700-£1,400
Install 54kWp solar array	£7,520	£75,200

3) External Funding

Successful submissions:

- ▶ BEIS - Low Carbon Skills Fund - PSC Heating and PV Feasibility: £21,700
- ▶ BEIS Public Sector Decarbonisation Scheme - Heat & PV measures: £284,000
- ▶ S Wye Target 2030: Technical Survey & access to 30% install grant: >£10,000

Funding identified for 2021-22:

- ▶ Theatre Trust: Sustainability actions (Roses): up to £20,000
- ▶ Arts Council: Various schemes (Roses) typical award circa £50,000
- ▶ SW Energy Hub Grant (Domestic): £25,000
- ▶ Domestic retrofit grants (LAD2, HUG): typical award £5-£10,000
- ▶ Possible Government subsidy grant for domestic Heat Pumps: circa £4,000

4) PSC & the Public Sector Decarbonisation Scheme

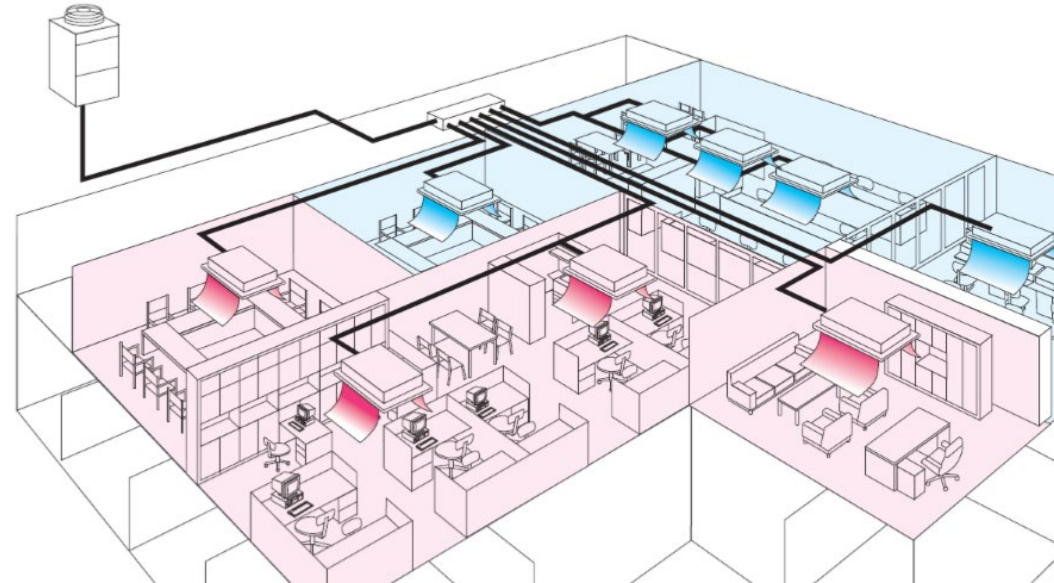
- ▶ Well reported to working group during year 1
- ▶ Feasibility study recommendations lead to change from GSHP to ASHP, which is in final stage of securing funder approval to proceed
- ▶ Cost estimated from Feasibility study of £650k subject to procurement. To be funded from PSDS grant and asset management reserves
- ▶ Expressions of interest already sought by council, and procurement route identified. We are ready to go to market upon approval from BEIS/SALIX
- ▶ Whilst implementation timescales are becoming tight, end of September completion remains the aim, however flexibility on the funder deadline is likely

4) PSC and PSDS Continued...

Measures confirmed as:

- ▶ Hybrid ASHP: minimum use of refrigerant
- ▶ Localised system offers better in-use efficiency
- ▶ Upgrades to the heating control system increases savings
- ▶ Solar PV (44KW) in form of a carport in rear car park remains the intended solution, however it is possible to use roof space should costs dictate.

Emission reductions from heating in the order of 74%, with further reductions achieved from control and PV systems



Additional Outputs Achieved in 2020

- ▶ Waste Management Systems
- ▶ Domestic Surveys & external funding research
- ▶ Roses Theatre Surveys & external funding research
- ▶ Solar Powered Car Park Machines
- ▶ LED Car Park Lighting
- ▶ Cycle Scheme
- ▶ Appointment of County wide Coordinator
- ▶ Gloucestershire Local Nature Partnership participation & SW Energy Hub
Interviews to define new iteration of Green Homes Grant approach for Glos
- ▶ Press Releases
- ▶ Electricity Bill for O & S Committee

PSC Data for 2020

- ▶ At the current time only PSC data is available. We have started a review of all 2020 data which will be compared against the baseline and reported in the month ahead.
- ▶ Against the 2019 Baseline:
 - ▶ Emissions from Electricity for TBC has REDUCED by 20.79 tonnes, or 25%
 - ▶ Emissions from Gas for TBC has INCREASED by 4.88 tonnes, or 8%
- ▶ Emissions from Electricity for whole office has REDUCED by 34.53 tonnes, or 24%
- ▶ Emissions from Gas for whole office has INCREASED by 8.47 tonnes, or 7%

Year 2 '20 Point' Action Plan (2021-22)

	Objective	Success Indicators by end March 2022
1	Communications & Engagement A) CN2030 Branding and web presence B) Climate Change (Service) Champions C) Staff Training – carbon literacy D) Appoint CN2030 Officer E) Establish protocol/ Plan of action with County-wide Climate Coordinator F) Ensure environmental impacts are 'properly considered in Committee Reports'	A) Agreed, utilise and maintained branding and web presence B) At least 1 CC Champion 'recruited' in each council service area C) Production and delivery of carbon literacy training D) Officer in post by December & induction complete (Feb '22) E) Action Plan outputs achieved once plan agreed F) Report template updated
2	Technical Implementation A) PSC Low carbon heating and Solar PV systems B) Further PSC Energy Efficiency improvements – LED lighting retrofit & Water Flow Restrictors C) Electric Vehicle Charge Points (EVCP) at car parks D) Conversion of car fleet to electric E) Agree Action Plans & Commencement of Domestic property decarbonisation F) Commencement of Roses Theatre decarbonisation plans (subject to funding)	A) Systems installed and operational with no negative user impacts B) Assessments & install costs secured – installation dates planned C) Scoping study to determine sites, system size, cost & charges for use D) Conversion cost defined, business case approved and date agreed E) Source quotes for works. Agree tech by tech or property approach F) Funding secured for initial measures that are installed March '22
3	Scoping Studies and Policies & Schemes A) Detailed feasibility studies in support of Roses Theatre decarbonisation plans (as applicable) B) Commence planning and Scoping study for implications of and opportunities for Borough wide decarbonisation consideration C) Update Tree Safety Management Policy D) Electric vehicle car purchase scheme	A) Completed feas studies as req'd to enable installations to commence B) A Carbon Neutral Tewkesbury Borough high level plan mapped C) Policies updated D) Scheme for EV purchasing produced and available for staff to utilise
4	Budgets & External Funding A) Agree council budget (£100k) for 2021-22 CN2030 implementation B) Secure Theatre Trust grant & (where available) Target 2030 grant for Roses decarbonisation C) Secure LAD2 funding for domestic property decarbonisation D) Research and applications to wider funding streams (as applicable/available)	A) 2021-22 CN 2030 internal budget agreed and spent on demonstrable emission reduction measures B) External funding secured and spent on emission reduction measures C) External funding secured and spent on emission reduction measures D) Funding research doc produced and new applications submitted