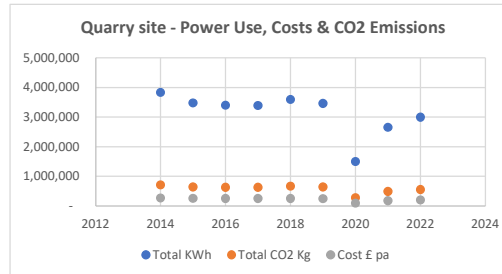
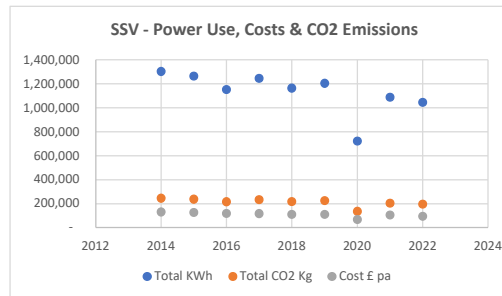


## Annex 2 - Power Usage, Energy Costs and CO2 Emissions Quarry and Shrewsbury Sports Village

Quarry Site	Year	Total KWh	Total CO2 Kg	Cost £ pa
Total gas & electric	2014	3,835,689	709,173	£274,564
Total gas & electric	2015	3,484,487	644,904	£257,388
Total gas & electric	2016	3,399,456	629,181	£251,289
Total gas & electric	2017	3,396,181	628,568	£250,959
Total gas & electric	2018	3,596,067	664,736	£255,803
Total gas & electric	2019	3,461,434	639,837	£246,088
Total gas & electric	2020	1,500,129	276,730	£99,875
Total gas & electric	2021	2,656,590	489,968	£175,513
Total gas & electric	2022	2,998,595	553,613	£205,143
<b>Quarry Average (2014-19)</b>		<b>3,528,886</b>	<b>652,733</b>	<b>£256,015</b>



Shrewsbury Sports Village	Year	Total KWh	Total CO2 Kg	Cost £ pa
Total gas & electric	2014	1,302,966	243,974	£130,133
Total gas & electric	2015	1,264,751	236,729	£125,235
Total gas & electric	2016	1,150,231	215,547	£116,938
Total gas & electric	2017	1,245,170	232,439	£115,800
Total gas & electric	2018	1,163,629	217,367	£110,004
Total gas & electric	2019	1,203,334	224,430	£109,512
Total gas & electric	2020	721,517	134,590	£65,932
Total gas & electric	2021	1,086,945	203,263	£105,407
Total gas & electric	2022	1,043,399	194,525	£94,041
<b>SSV Average (2014-19)</b>		<b>1,221,680</b>	<b>228,414</b>	<b>£117,937</b>



Combined Quarry & SSV Average	Total KWh	Total CO2 Kg	Cost £ pa
	<b>4,750,566</b>	<b>881,148</b>	<b>£373,952</b>

### Forecast Usage for Transformed Sports Village Based on all electric - sourced from Carbon Neutral supplier

Transformed SSV	Total KWh	Total CO2 Kg pa	Cost £ pa
Existing Sports Village (average)	1,221,680	228,414	£117,937
Proposed Transformation at SSV*	1,021,997	-	£177,316
<b>Total</b>	<b>2,243,677</b>	<b>228,414</b>	<b>£295,254</b>

Savings -	Total KWh	Total CO2 Kg pa	Cost £ pa
Forecast Annual Savings	2,506,889	652,733	78,699
Percentage savings	53%	74%	21%

### Forecast Usage for Transformed Sports Village Based on Gas and electric option

Transformed SSV	Total KWh	Total CO2 Kg pa	Cost £ pa
Existing Sports Village (average)	1,221,680	228,414	£117,937
Proposed Transformation at SSV*	1,021,997	197,245	£177,316
<b>Total</b>	<b>2,243,677</b>	<b>425,659</b>	<b>£295,254</b>

### Forecasting Assumptions

Assumption	Kg CO2 / KWh	Wholesale Cost
Gas CO2 Emission Factor →	0.183	4.34 pence per KWh
Electric CO2 Emission Factor →	0.193	17.35 Pence per KWh

Averages calculated between 2014-2019 when all Quarry Pools open and pre-pandemic  
Energy price comparisons are based on current average retail price - in March 2023

\* Forecast energy demand for SSV proposed extension calculated by CPB ME Design Consultants 10th March 2023

Carbon Factors taken from Carbon Trust - BEIS greenhouse gas conversion factors for company reporting, June 2022

Fuel Costs based on 'Prices of fuels purchased by non-domestic consumers in the United Kingdom excluding/including CCL (QEP 3.4.1 and 3.4.2)'

large premises and based on the 2022 second quarter figures from table 3.4.2 which includes the Climate Change Levy.

Savings -	Total KWh	Total CO2 Kg pa	Cost £ pa
Forecast Annual Savings	2,506,889	455,488	£78,699
Percentage savings	53%	52%	21%

## Quarry Swimming & Fitness Centre Utility Consumption

Assumptions	CO2	Wholesale Cost		KWh	Kg CO2	Cost £ pa
Gas CO2 Emission Factor → 0.203 Kg/kWh	0.183	4.34 pence per kWh	Run Rate (Mean 2014-2019)	3,528,886	652,733	256,015
Electric CO2 Emission Factor → 0.527 Kg/kWh	0.193	17.35 Pence per kWh	Standard Deviation	152,493	27,976	9,059
			95% Confidence limits	122,018	22,385	7,249

Quarry	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year	Total KWh	Total CO2 Kg	Cost £ pa
Total Power KWh 2014	374,209	358,752	352,514	284,217	274,054	215,840	195,504	219,111	210,254	256,520	275,662	819,052	2014	3,835,689	709,173	274,564
Total Power KWh 2015	328,260	353,125	367,342	303,912	284,314	235,007	223,336	227,420	255,265	285,294	311,233	309,979	2015	3,484,487	644,904	257,388
Total Power KWh 2016	358,424	348,523	361,849	321,426	261,786	214,956	208,125	208,548	210,872	281,434	324,771	298,741	2016	3,399,456	629,181	251,289
Total Power KWh 2017	329,716	312,598	337,403	297,166	255,267	215,885	214,937	229,854	251,760	273,135	323,735	354,725	2017	3,396,181	628,568	250,959
Total Power KWh 2018	314,010	367,191	408,551	331,133	276,508	215,712	193,103	229,493	263,008	316,091	338,572	342,697	2018	3,596,067	664,736	255,803
Total Power KWh 2019	382,027	311,012	335,088	295,210	274,129	241,429	198,144	210,510	239,036	298,778	330,786	345,286	2019	3,461,434	639,837	246,088
Total Power KWh 2020	347,568	274,688	244,139	71,632	2,850	2,666	2,639	2,954	23,493	120,993	158,411	248,097	2020	1,500,129	276,730	99,875
Total Power KWh 2021	179,806	134,675	155,006	204,284	229,581	211,812	193,588	201,762	215,889	276,182	307,503	346,503	2021	2,656,590	489,968	175,713
Total Power KWh 2022	353,035	309,836	319,146	292,546	257,385	220,352	191,355	174,726	163,567	193,604	236,940	286,104	2022	2,998,595	553,613	205,143

Quarry Pool  
 Restricted  
 Site shut  
 for Covid  
 19

Quarry	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year	Year Total	Total CO2 Kg	Cost £ pa
Gas kWh 2013	312707	299225	318617	292713	244234	176300	125603	133366	157130	174462	260552	275983		2770892		
Gas kWh 2014	304469	290242	280514	215717	202124	148480	125254	148884	141422	187200	207392	753132	2014	3,004,829	548,501	130,410
Gas kWh 2015	259873	288591	301752	236162	215664	167677	153136	155830	186415	214484	243833	245069	2015	2,668,487	487,106	115,812
Gas kWh 2016	291564	286253	295049	254566	194576	148916	138695	138918	143372	215074	259821	235171	2016	2,601,976	474,965	112,926
Gas kWh 2017	267276	250758	267853	228896	184907	150995	145937	159924	184130	206285	258785	294395	2017	2,600,141	474,630	112,846
Gas kWh 2018	258940	312481	341741	262603	208588	151452	126643	162503	197738	250321	274862	281607	2018	2,829,477	516,493	122,799
Gas kWh 2019	317197	256112	273348	236100	212249	180829	134424	146880	178226	234988	269496	284756	2019	2,724,604	497,349	118,248

Gas kWh 2020	285259	234446	202613	59658	0	0	0	0	13907	88662	137940	210394	2020	1,232,881	225,050	53,507
Gas kWh 2021	160875	121370	141351	174755	189920	167956	144931	154386	163407	222119	256523	294610	2021	2,192,203	400,165	95,142
Gas kWh 2022	299891	261376	264984	240381	204307	169855	140180	126899		152195	196059	243795	2022	2,422,086	442,128	105,119

Site shut for Covid  
 AHU's run for longer at 100% for Covid 19

Quarry	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year	Year Total	Total CO2 Kg	Cost £ pa
Day Elec kWh 2013	55600	55600	55650	56310	56040	54130	56320	54780	52390	56070	54640	55110		662640		
Day Elec kWh 2014	55600	55600	57140	53180	56050	53230	55320	55343	53698	54280	54510	52250	2014	656,200	126,896	113,851
Day Elec kWh 2015	55548	52441	53140	53740	54840	53130	55770	56710	54400	56320	54740	52380	2015	653,159	126,308	113,323
Day Elec kWh 2016	54030	50680	54160	53090	53330	52420	54920	55130	52600	52350	52380	50990	2016	636,080	123,005	110,360
Day Elec kWh 2017	50430	48920	55120	52330	54440	50180	53860	53340	52740	52580	51750	48330	2017	624,020	120,673	108,267
Day Elec kWh 2018	43490	43400	53180	52840	52760	50180	52350	52450	50840	51420	51410	48860	2018	603,180	116,643	104,652
Day Elec kWh 2019	51830	44290	49620	46300	48530	47670	50010	50120	47300	50020	49010	48410	2019	583,110	112,762	101,170
Day Elec kWh 2020	49840	31076	31761	8635	2309	2184	2064	2397	7668	24438	15202	28865	2020	206,438	39,921	35,817
Day Elec kWh 2021	13980	9592	9883	22567	30424	34053	38681	37926	41424	42557	40502	40817	2021	362,405	70,082	62,877
Day Elec kWh 2022	42180	38300	42654	41043	42088	40103	40518	36728	31804	32176	31739	32308	2022	451,639	87,338	78,359

Site shut for Covid  
 AHU's run for longer at 100% for Covid 19

Quarry	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year	Year Total	Total CO2 Kg	Cost £ pa
Night Elec kWh 2013	13280	12450	13300	14970	15720	14330	15490	14500	14420	15560	14220	13990		172230		
Night Elec kWh 2014	14140	12910	14860	15320	15880	14130	14930	14885	15135	15040	13760	13670	2014	174660	33,776	30,304
Night Elec kWh 2015	12839	12092	12450	14010	13810	14200	14430	14880	14450	14490	12660	12530	2015	162841	31,490	28,253
Night Elec kWh 2016	12830	11590	12640	13770	13880	13620	14510	14500	14900	14010	12570	12580	2016	161400	31,212	28,003
Night Elec kWh 2017	12010	12920	14430	15940	15920	14710	15140	16590	14890	14270	13200	12000	2017	172020	33,265	29,845
Night Elec kWh 2018	11580	11310	13630	15690	15160	14080	14110	14540	14430	14350	12300	12230	2018	163410	31,600	28,352
Night Elec kWh 2019	13000	10610	12120	12810	13350	12930	13710	13510	13510	13770	12280	12120	2019	153720	29,726	26,670
Night Elec kWh 2020	12469	9165	9765	3339	541	482	575	557	1918	7892	5270	8838	2020	60811	11,760	10,551
Night Elec kWh 2021	4952	3712	3772	6962	9236	9802	9976	9451	11058	11506	10478	11076	2021	101982	19,721	17,694
Night Elec kWh 2022	10964	10160	11508	11122	10990	10394	10657	11098	9600	9233	9142	10001	2022	124869	24,147	21,665

Site shut for Covid  
 AHU's run for longer at 100% for Covid 19

## Shrewsbury Sports Village Power Consumption

Assumptions	CO2	Wholesale Cost			KWh	Kg CO2	Cost £ pa	
Gas CO2 Emission Factor →	0.203 Kg/kWh	0.183	4.34	pence per KWh	Run Rate (Mean 2014-2019)	1,221,680	228,414	117,937
Electric CO2 Emission Factor →	0.527 Kg/kWh	0.193	17.35	Pence per KWh	Standard Deviation	54,506	10,255	7,544
					95% Confidence limits	43,613	8,205	6,037

SSV	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year	Total KWh	Total CO2 Kg	Cost £ pa
Total Power KWh 2014	149,065	196,502	157,060	117,674	90,502	60,207	60,715	71,060	63,477	94,466	127,484	114,753	2014	1,302,966	243,974	130,133
Total Power KWh 2015	169,662	169,450	160,387	124,811	91,351	75,448	49,813	50,768	52,623	92,906	117,478	110,054	2015	1,264,751	236,729	125,235
Total Power KWh 2016	147,715	135,766	135,617	100,678	78,225	57,433	55,159	50,178	50,563	68,989	128,703	141,204	2016	1,150,231	215,547	116,938
Total Power KWh 2017	177,504	148,057	131,764	110,956	74,727	50,859	44,587	54,922	75,132	82,913	126,642	167,109	2017	1,245,170	232,439	115,800
Total Power KWh 2018	162,224	163,392	171,091	96,496	53,034	44,451	41,875	44,673	47,896	75,988	126,295	136,213	2018	1,163,629	217,367	110,004
Total Power KWh 2019	163,856	151,422	160,309	121,638	78,352	49,542	39,473	43,813	53,268	104,425	121,380	115,857	2019	1,203,334	224,430	109,512
Total Power KWh 2020	134,330	121,374	112,554	6,521	5,880	5,022	16,378	39,425	46,298	72,292	34,943	126,500	2020	721,517	134,590	65,932
Total Power KWh 2021	78,940	118,995	86,250	119,666	119,430	59,601	52,829	54,101	53,728	74,453	131,002	137,951	2021	1,086,945	203,263	105,407
Total Power KWh 2022	163,424	139,572	117,446	80,517	54,269	37,332	37,285	37,453	52,020	71,732	105,570	146,780	2022	1,043,399	194,525	94,041

SSV	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year Total	Total CO2 Kg	Cost £ pa
Gas kWh 2013	68618	47520	163235	104474	77761	32596	15382	9957	28878	41604	73150	76544	739721		
Gas kWh 2014	99785	148042	104440	67254	47642	20617	10725	23040	12067	45726	81534	76493	737366	134,599	32,002
Gas kWh 2015	116672	122660	108537	79801	48281	32193	9208	8918	11453	44456	72248	69624	724051	132,168	31,424
Gas kWh 2016	98215	89646	89247	59148	37325	16183	12609	11258	11503	24649	83863	101454	635101	115,931	27,563
Gas kWh 2017	128574	102757	84394	74376	39787	19659	17447	18302	35472	40853	82452	126389	770460	140,640	33,438
Gas kWh 2018	113521	117805	123227	58946	21062	13465	9674	13911	16903	37913	82530	97316	706273	128,923	30,652
Gas kWh 2019	120162	109565	116143	87995	47773	23665	11209	9784	19513	62434	78630	76126	762999	139,278	33,114
Gas kWh 2020	89573	82106	82106	1048	0	0	3477	13597	20262	39765	24833	98660	455427	83,134	19,766
Gas kWh 2021	63812	91029	54864	81455	71755	16038	8638	9497	11449	41055	88734	101015	639341	116,705	27,747
Gas kWh 2022	121381	100024	78591	54474	28212	13661	13503	9731	23838	40256	71762	113194	668628	122,051	29,018

SSV	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year Total	Total CO2 Kg	Cost £ pa
Day Elec kWh 2013	44000	43000	73200	36500	35100	29800	27000	29900	32500	39100	18200	16300	424600		
Day Elec kWh 2014	44000	41300	44700	42700	35100	32000	41600	40500	42800	41500	40100	35300	481600	93,132	83,558
Day Elec kWh 2015	43900	41200	45600	38300	36500	36550	34150	36040	35460	42250	40000	35200	465150	89,951	80,704
Day Elec kWh 2016	43800	41100	40900	35600	34800	35200	36800	33500	33800	38400	39900	35100	448900	86,808	77,884
Day Elec kWh 2017	43700	41000	42600	31200	29400	26400	23100	30900	34000	37200	39800	35000	414300	80,117	71,881
Day Elec kWh 2018	43636	40968	42346	33377	27659	25597	27224	27019	27366	34293	39712	34099	403294	77,989	69,972
Day Elec kWh 2019	39504	37357	39136	29018	26066	23141	25264	30440	30243	38668	39623	35973	394432	76,275	68,434

Day Elec kWh 2020	41448	36584	27674	3874	4050	3613	10778	22525	22923	28695	8216	24572	234951	45,435	40,764
Day Elec kWh 2021	11533	23215	25940	32783	41384	39042	39554	40798	39161	30884	39629	34040	397962	76,958	69,046
Day Elec kWh 2022	39346	37017	35778	24276	24148	21133	19939	24346	25777	29275	31495	30704	343236	66,375	59,551

SSV	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year Total	Total CO2 Kg	Cost £ pa
Night Elec kWh 2013	4200	4140	4770	5660	4340	4390	4350	4340	4680	5750	5420	5410	57450		
Night Elec kWh 2014	5280	7160	7920	7720	7760	7590	8390	7520	8610	7240	5850	2960	84000	16,244	14,574
Night Elec kWh 2015	9090	5590	6250	6710	6570	6705	6455	5810	5710	6200	5230	5230	75550	14,610	13,108
Night Elec kWh 2016	5700	5020	5470	5930	6100	6050	5750	5420	5260	5940	4940	4650	66230	12,808	11,491
Night Elec kWh 2017	5230	4300	4770	5380	5540	4800	4040	5720	5660	4860	4390	5720	60410	11,682	10,481
Night Elec kWh 2018	5068	4619	5518	4174	4313	5390	4977	3743	3627	3782	4053	4799	54062	10,454	9,380
Night Elec kWh 2019	4190	4501	5030	4625	4514	2737	3000	3589	3512	3322	3127	3758	45904	8,877	7,964
Night Elec kWh 2020	3309	2684	2774	1599	1830	1409	2123	3303	3113	3833	1893	3269	31139	6,022	5,403
Night Elec kWh 2021	3595	4751	5446	5428	6292	4521	4637	3806	3118	2514	2638	2896	49642	9,600	8,613
Night Elec kWh 2022	2696	2530	3077	1767	1909	2539	3842	3375	2405	2201	2313	2882	31536	6,098	5,471