

Eastern Metropolitan Regional Council

Sustainability

Emissions and Energy Data Analysis Report 2022/2023

Shire of Mundaring





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1 Introduction

The Shire of Mundaring has made a commitment to reduce greenhouse gas emissions resulting from Shire activities.

The Shire endorsed its first Energy and Emissions Reduction Strategy in 2018, which provides direction for the Shire to reduce corporate carbon emissions and implement renewable energy when possible. The Strategy also set the Shire's Emissions Reduction Target.

The Shire's Emissions Reduction Target is:

- *To reduce corporate emissions by 30% by 2030, from 2016/2017 levels*

The Shire is not obliged to report emissions under the National Greenhouse and Energy Reporting Scheme (NGERS) or any other legislative framework. The Shire has chosen to monitor and report emissions annually in order to track progress towards the Emissions Reduction Target.

Corporate emissions are monitored and analysed using the Azility Platform with assistance from EMRC through the regional Achieving Carbon Emissions Reduction (ACER) program.

The following report examines the Shire's corporate emissions for 2022/2023 compared to the Shire's target with a baseline year of 2016/2017.

Data disclaimer

The data within this report is correct at the time extracted from the Shire's Azility platform and contains actual data for all major accounts. Where billing data has not yet been received for minor accounts, Azility uses estimates based on previous years' data.

Data completeness at the time of reporting is as follows:

- Electricity: 95%
- Streetlighting: 98%
- Gas: 87%
- Fuel: 100%

It is recommended that the Shire considers supplying Azility with its e-bills (electronically provided invoices) to reduce estimated data in the future and improve data quality within the platform.

2 Emissions Reduction Target

The Shire has committed to a 30% reduction in 2016/2017 emissions by 2030. This target has been taken very seriously by the Shire, which has allowed it to reach its target in half the predicted time.

This is due in part to the introduction of the WALGA Renewable Energy 'bulk buy' initiative which allowed the Shire to purchase 100% greenpower for their 7 contestable electricity accounts. This project commenced on 1st April 2022, this is visible in the slight reduction in Net emissions in 2021-2022 and then the much more significant diversion between Gross and Net in 2022-2023.

Figure 1 displays the historical carbon emission for the Shire of Mundaring since baseline 2016/2017. The report shows the difference in Gross emissions (before the purchase of greenpower) and Net emissions (post greenpower). Despite the big impact the greenpower has on the Councils profile, there was already a reduction in Gross emissions overall.

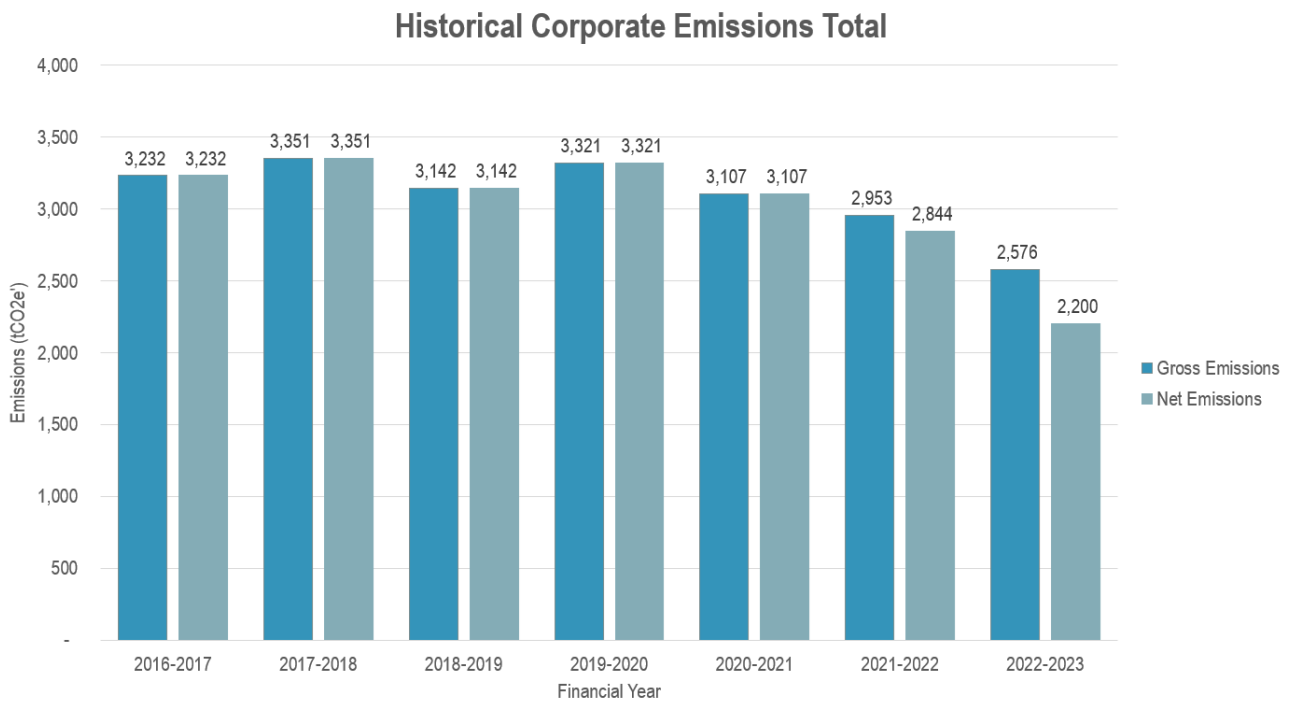


Figure 1 - Shire of Mundaring's historic emissions (tCO2-e) since the baseline year of 2016/2017

Figure 2 shows that there is not a one-to-one relationship in relation to consumption and emissions for the Shire of Mundaring. This is due in part to the Shire purchasing greenpower for their top 7 contestable sites resulting in an emissions reduction. This indicates why it is important to continue to monitor consumption as well as emissions to be able to obtain a clear picture of the council’s assets.

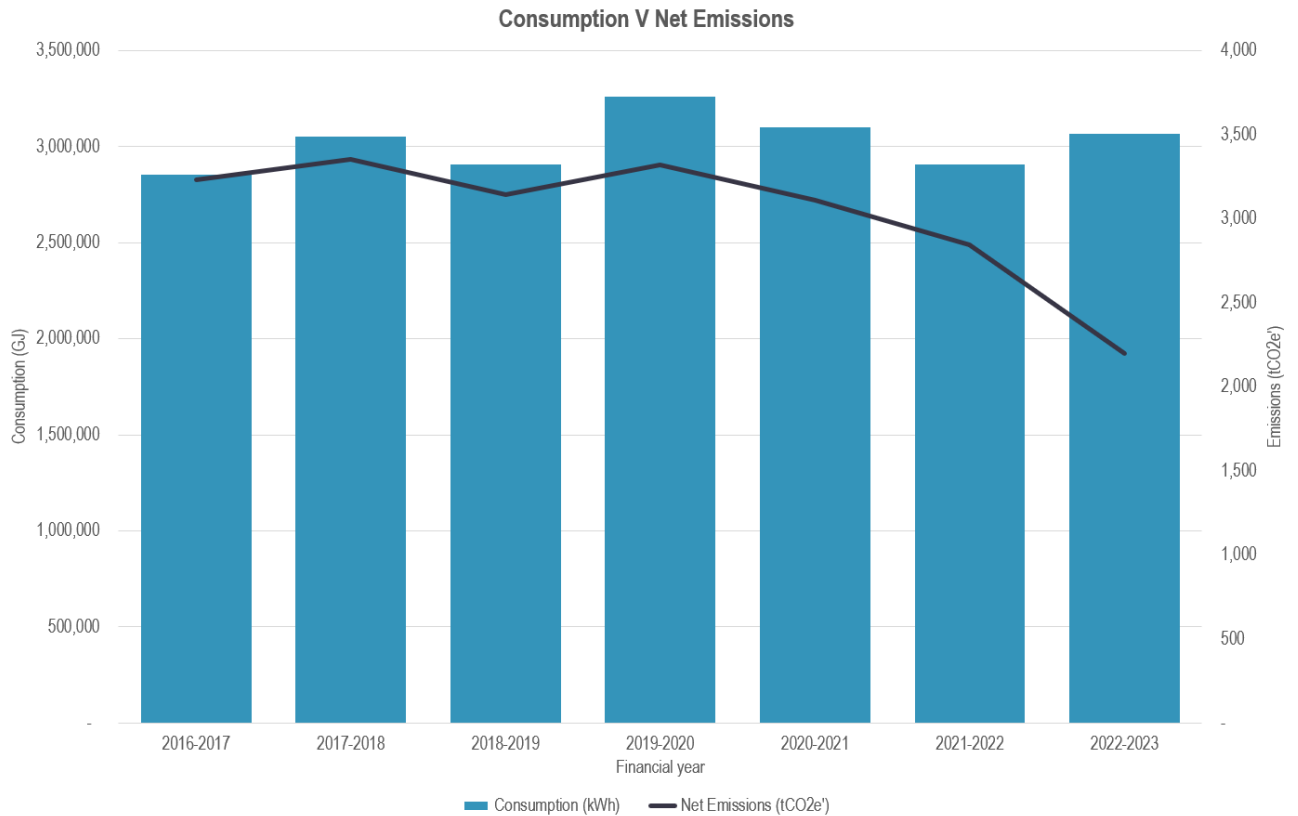


Figure 2 - Shire of Mundaring’s Consumption V Net Emissions

The above shows that despite an increase in consumption of approximately 5%, there has been a 23% reduction in emissions. This is further explored in more detail in Section 5 of this report.

Figure 3 shows the emissions reduction for the Shire since adopting its target in 2018 and progress towards reaching the goal of achieving a 30% reduction of baseline emissions (2016-2017) by 2030.

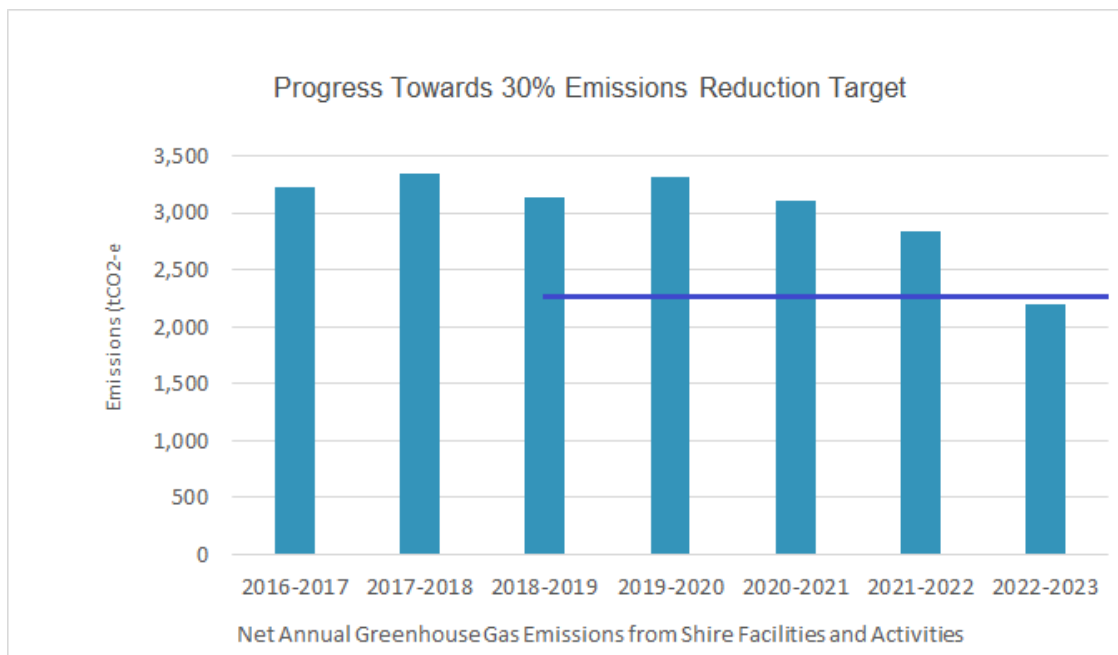


Figure 3: An approximate reduction path for Shire of Mundaring’s target for the year 2029/2030.

Table 1 highlights the Shire’s progress towards the target of a 30% reduction on 2016/17 levels. The Shire as of this year (2022-2023) has reached their 30% reduction goal. This has been achieved in half the time predicted.

The Shire of Mundaring is already in consultation internally in relation to what their next target should be.

Table 1: Total emissions data (tCO₂-e) with differences for last five years and progress towards target (target baseline year highlighted)

Financial Year	Emissions Total (tCO ₂ e’)	Difference in emissions since previous year (tCO ₂ e’)	Difference in emissions since baseline year 2016/2017
2016-2017	3,232		
2017-2018	3,351	119	4%
2018-2019	3,142	-209	-3%
2019-2020	3,321	178	3%
2020-2021	3,107	-214	-4%
2021-2022	2,844	-263	-12%
2022-2023	2,200	-644	-32%

3 Total Carbon Footprint and Activity Breakdown

The Shire has recorded an overall decrease in emissions. **Table 2** demonstrates the volume and percentage change of emissions for each scope, and total change in comparison to the previous reporting year of 2021/2022. Scope One emissions (fuels) have reduced 6%, which is attributed to a variety of reasons including upgrading to more efficient diesel engines, reduction in allocated vehicles and introduction of pool cars in the Administration Building, and a decrease in vehicle use as a result of increased prevalence of online meetings.

Scope Two emissions have seen a reduction of 61%, this is attributed to the Shire’s commitment to the Renewable Energy Project which has seen all contestable sites (7 in total) move to 100% greenpower. Additionally, Scope Three has reduced by 8%, this is due to the replacement of some globes with LED through Western Power’s ordinary maintenance.

Another point to note is that the emissions factor for electricity (SWIS) was 0.68 in 2021/2022 and has reduced to 0.51 in 2022/2023. This has also had a significant impact on the reduction in overall emissions for both Scope 2 and Scope 3.

Table 2: The Shire’s 2021/2022 and 2022/2023 carbon emissions source and scope

Emissions Source	Total Greenhouse Gas Emissions (tCO ₂ -e)		Volume Change	Percentage Change
	2021/2022	2022/2023	tCO ₂ -e	%
Scope 1				
Emissions from Fuel Combusted for Transport and Fuel Combusted for Stationary Energy	899	846	-53	-6%
Scope 2				
Electricity and Gas	822	322	-500	-61%
Scope 3				
Electricity for Street Lighting*	1123	1032	-90	-8%
Total	2844	2200	-644	-23%

Figure 4 shows the percentage of emissions by each asset group in the 2022/2023 reporting period. Streetlighting is the largest contributor (43%), followed by Fleet (38%), Sport and Recreation (10%) and Buildings and Facilities (6%).

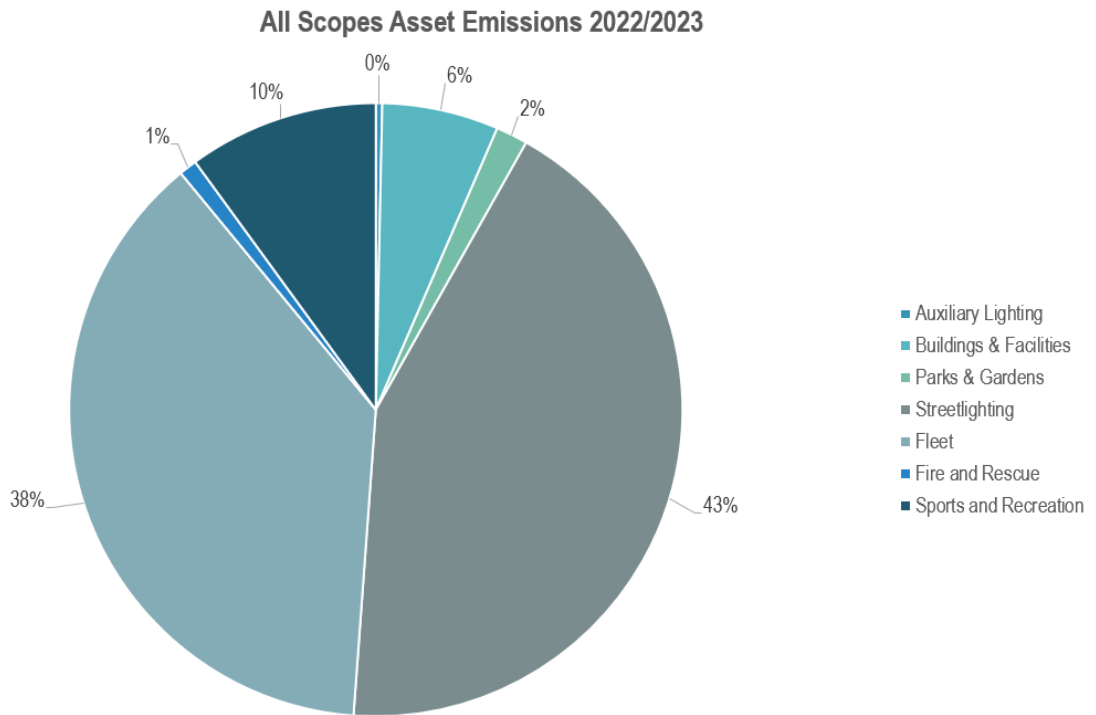


Figure 4: Shire of Mundaring’s emissions (tCO₂-e) by organisational unit for 2022/2023

Figure 5 demonstrates the percentage of consumption by each asset group in the 2022/2023 reporting period and we can see that there is not a one-to-one ration for consumption when compared back to emissions. In this case, Fleet consumption significantly outweighs all other groups making up 50% consumption. Streetlighting is only 22% of consumption but represents 43% of emissions.

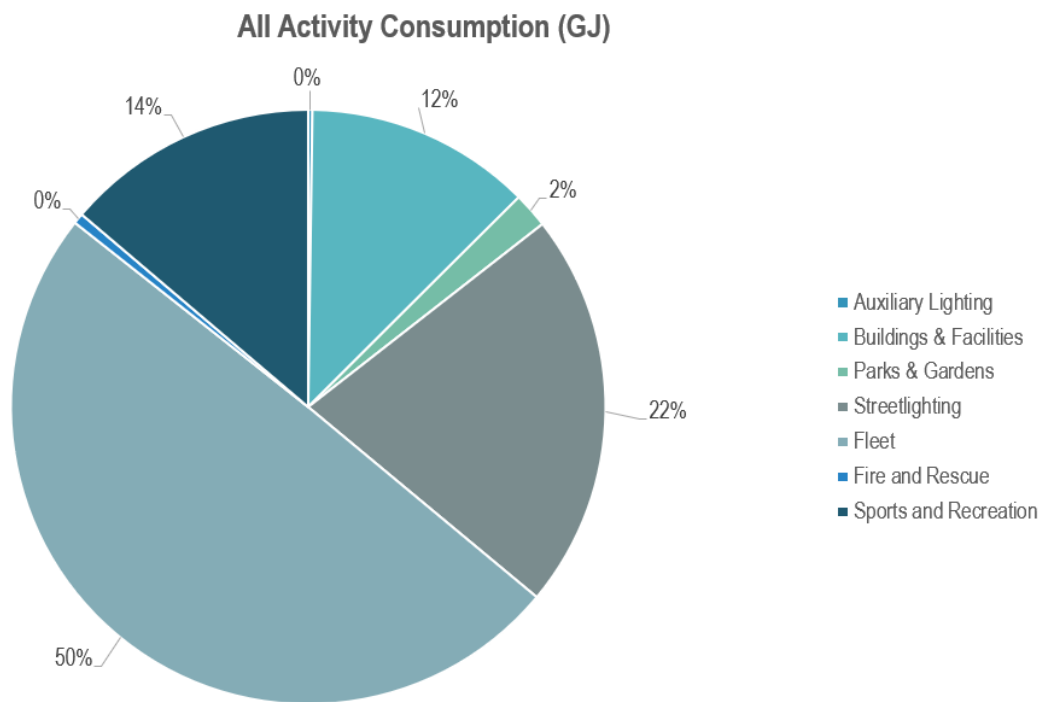


Figure 5: Shire of Mundaring’s consumption (GJ) by organisational unit for 2022/2023

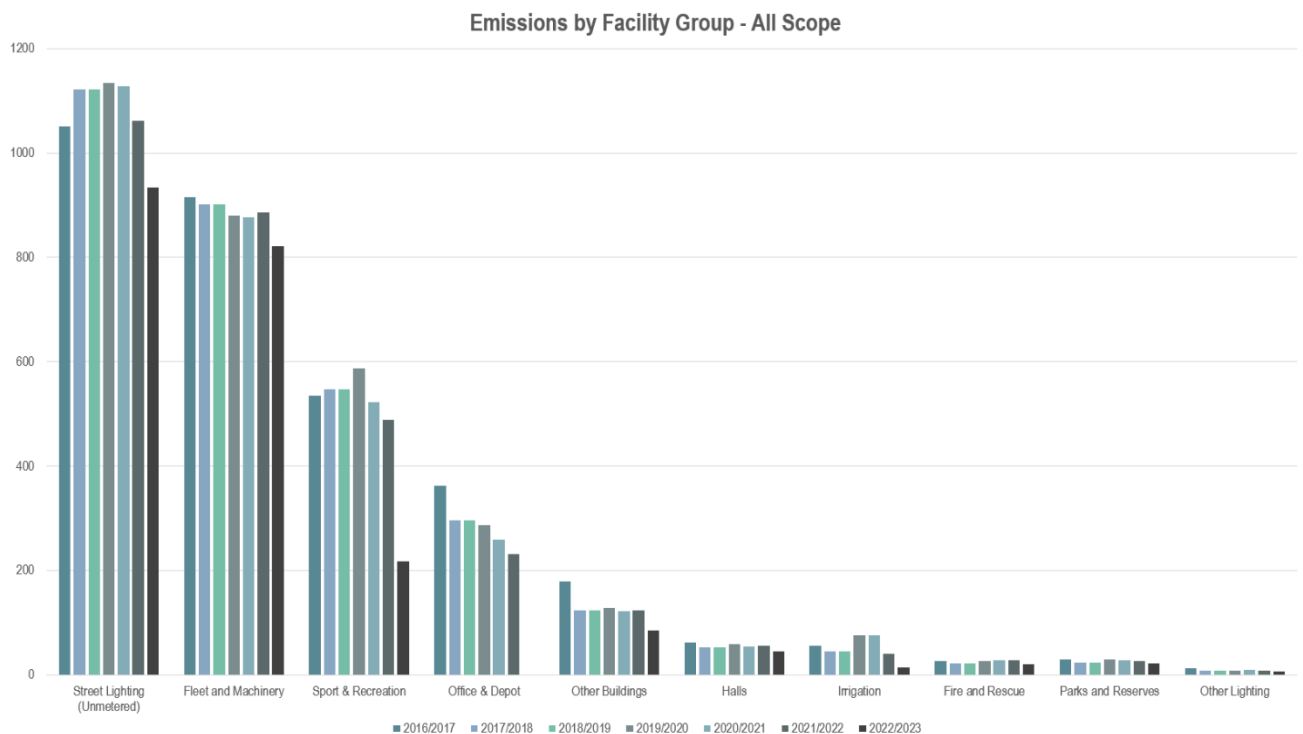


Figure 6: Shire of Mundaring’s emissions (tCO₂-e) by organisational unit for 2022/2023

Figure 6 displays historical emissions for each facility group, providing insight into the reductions that the Shire has achieved over time. Unmetered street lighting continued to be the biggest contributor to emissions in 2022/2023.

Fleet emissions are the second highest contributor for the Shire. The Shire has investigated the feasibility of switching to electrical vehicles to reduce emissions from fleet vehicles and continues to work towards reducing emissions from this group.

Sports & Recreation has seen a significant reduction on historical numbers due to the Renewable Energy Project, which has seen contestable sites move to 100% greenpower. This impact is also seen in the Office & Depot facilities, where there are no emissions for 2022/2023.

4 Highest Emission Assets

Table 3 reveals the performance of the Shire’s top emitting Assets. All the top 10 assets, along with fuel and Streetlighting have seen a reduction in emissions. Top 10 assets have seen a massive reduction, with most of them being part of the Renewable Energy Project, resulting in them going to 100% greenpower.

Table 3: Highest emitters for 2022/2023 with comparison to previous reporting period 2021/2022

Asset Name	Emissions	Emissions	Volume	% Change
	(tCO ₂ -e)	(tCO ₂ -e)	Change	
	2020/2021	2021/2022	(tCO ₂ -e)	
Shire of Mundaring Administration & Civic Complex	179.61	0	-179.61	-100%
Bilgoman Pool	160.38	59.88	-100.5	-63%
Mundaring Arena	120.89	73.6	-47.29	-39%
Boya Community Centre	59.64	0	-59.64	-100%
Shire Depot	52.43	0	-52.43	-100%
Lake Leschenaultia	44.96	2.79	-42.17	-94%
Elsie Austin Reserve	26.59	23.38	-3.21	-12%
Midvale Early Childhood & Parenting Centre	22.59	18.07	-4.52	-20%
Salisbury Road Bore	21.03	0	-21.03	-100%
Brown Park Community Centre	16.19	11.32	-4.87	-30%
Fleet				
Diesel	805.88	761.76	-44.13	-5%
ULP	79.64	60.17	-19.47	-24%
Street Lighting				
Unmetered Street Lighting	1062.28	933.41	-128.87	-12%

5 Assets with the Largest Consumption Change

Although emissions have significantly reduced (-23%) this year, overall consumption has increased (25%). Table 4 shows the assets that have had a significant consumption increase compared to the same time last year.

Table 4: Assets with the largest consumption increase compared to last year

Asset Name	2021-2022	2022-2023	Volume change (kWh)	% Change
Salisbury Road Bore	30,473	67,306	36,833	121%
Bilgoman Pool	155,791	164,515	8,724	6%
Boya Community Hub and Oval	86,436	90,630	4,194	5%
Elsie Austin Reserve	38,529	42,525	3,996	10%
Mundaring Park	4,266	6,805	2,539	60%
Chidlow Oval	4,694	7,213	2,519	54%
Parkerville Oval	18,343	20,801	2,458	13%
Harry Riseborough Oval	18,348	20,567	2,219	12%
Mundaring Recreation Ground (Arena)	175,204	177,220	2,016	1%
Mt Helena Toilets	286	1,262	976	341%

Table 5 shows the assets that have had the largest reduction in consumption compared to the same time last year.

Table 5: Assets with the largest consumption decrease compared to last year

Asset Name	2021-2022	2022-2023	Volume change (kWh)	% Change
Shire Of Mundaring Administration & Civic Complex	260,307	239,189	- 21,118	-8%
Mundaring Adult Creative & Learning Centre	30,468	20,362	- 10,106	-33%
New Childrens Services - Hub	19,589	15,177	- 4,412	-23%
Shire Depot	75,989	72,572	- 3,417	-4%
Mundaring Firefighting School	9,564	6,349	- 3,215	-34%
Brown Park Community Centre	23,395	20,182	- 3,213	-14%
Glen Forrest Oval Change Room	3,070		- 3,070	-100%
Chidlow Pavilion	21,015	18,288	- 2,727	-13%
Darlington Oval	19,765	17,142	- 2,623	-13%
Lake Leschenaultia	61,321	59,091	- 2,230	-4%