

Shire of Denmark
Minutes



**SHIRE OF DENMARK
SUSTAINABLE PROJECTS COMMITTEE**

HELD IN THE COUNCIL CHAMBERS,
953 SOUTH COAST HIGHWAY, DENMARK
ON TUESDAY, 1 NOVEMBER 2022

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Council Committee Meeting

01 November 2022

DISCLAIMER

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1. DECLARATION OF OPENING/ANNOUNCEMENT OF VISITORS

2.01pm – The Presiding person declared the meeting open.

2. RECORD OF ATTENDANCE/APOLOGIES/APPROVED LEAVE OF ABSENCE**MEMBERS:**

Cr Jan Lewis (Presiding Person)
 Cr Kingsley Gibson, Deputy Shire President
 Cr Clare Campbell
 Cr Donald Clarke – *arrived 2.05pm*

STAFF:

David King, Deputy Chief Executive Officer
 Damian Schwarzbach, Manager Sustainable Projects

APOLOGIES:

Nil

ON LEAVE OF ABSENCE:

Nil

ABSENT:

Nil

VISITORS:

Mark McHenry – Murdoch University Biochar Project

3. DECLARATIONS OF INTEREST

Nil

4. ANNOUNCEMENTS BY THE PERSON PRESIDING

Nil

5. CONFIRMATION OF MINUTES

The mover of any motion to confirm previous Minutes needs to have been at the meeting.

COMMITTEE RESOLUTION & OFFICER RECOMMENDATION	ITEM 5
MOVED: CR CAMPBELL	SECONDED: CR GIBSON
That the minutes of the Sustainable Projects Committee Meeting held on the 02 August 2022, be confirmed as a true and correct record of the proceedings.	
CARRIED	

6. PRESENTATIONS**Biochar Project**

Mark McHenry provided the Committee with an update on the project progress.

Murdoch University have completed their initial investigations and provided the following information:

- Calculations indicate 800 tonnes of green waste could be converted in to approximately 350 tonnes of biochar.
- Current selling price per tonne of Biochar around \$2,000.
- Benefits of biochar include; assist Shire of Denmark work towards being carbon neutral; saving on transport costs to Albany; potential to be an environmental solution to plastic packaging used to wrap silage.
- Ballpark Capital expenditure for set up \$300,000.

Next stage to engage the technical provider and investigate the practicality and potential commercial viability. Tentative due date of February 2023.

7. OFFICER REPORTS

7.1 SUSTAINABLE PROJECTS SUBSCRIPTIONS

File Ref:	COMM.SPC/REM.33
Applicant / Proponent:	N/A
Subject Land / Locality:	N/A
Disclosure of Officer Interest:	Nil
Date:	27 October 2022
Author:	Damian Schwarzbach, Manager Sustainable Projects
Authorising Officer:	David King, Deputy CEO
Attachments:	7.1 Sustainable subscriptions

The Manager of Sustainable Projects lead a discussion on the sustainable based subscriptions the Shire subscribes to.

The Committee discussed the report and suggested to Officers' that they were comfortable with NOT pursuing Waterwise accreditation. The reason being, the Sustainability Strategy and Action Plan partnered with the Azzility reporting platform addresses the monitoring required to ensure the Shire is working towards minimising water usage.

Outcome

Officers to provide a report on reporting requirements and time required to maintain at the next Committee meeting.

7.2 ENERGY CONSUMPTION DATA

File Ref:	COMM.SPC/REM.33
Applicant / Proponent:	N/A
Subject Land / Locality:	N/A
Disclosure of Officer Interest:	Nil
Date:	27 October 2022
Author:	Damian Schwarzbach, Manager Sustainable Projects
Authorising Officer:	David King, Deputy CEO
Attachments:	7.2 Energy Consumption Data

The Manager of Sustainable Projects lead a discussion on the energy consumption data.

The Committee discussed the Azzility reporting platform and the amount paid to subscribe.

Cr. Gibson presented a real time monitoring tool, Solar Analytics. The Committee indicated that this could be of interest to the Shire in the future.

7.3 PRIORITISATION OF SUSTAINABLE ACTION PLAN PROJECT

File Ref:	COMM.SPC/REM.33
Applicant / Proponent:	N/A
Subject Land / Locality:	N/A
Disclosure of Officer Interest:	Nil
Date:	27 October 2022
Author:	Damian Schwarzbach, Manager Sustainable Projects
Authorising Officer:	David King, Deputy CEO
Attachments:	7.3a Sustainable Projects Committee Prioritisation List 7.3b Sustainable Homes Brochure

Members reviewed and discussed the Sustainable Action Plan.

Cr Clarke suggested inviting David Stockdale to present to the Committee in the future about reducing building waste and the methods he utilises.

7.4 TREATED WASTE WATER PROJECT UPDATE

File Ref:	PROJ.ENG.31.20/21
Applicant / Proponent:	N/A
Subject Land / Locality:	Mclean Park
Disclosure of Officer Interest:	Nil
Date:	26 th October 2022
Author:	Laura Delbene, Sustainable Projects Officer
Authorising Officer:	David King, Deputy CEO
Attachments:	Nil

Summary:

The Shire of Denmark has entered into a recycled water supply agreement with Water Corporation. The agreement is for 15 years, supplying 140kL per day to irrigate the oval at Mclean Park. There is no recycled water supply charge to the Shire.

The Shire works for the project include works at Mclean Oval to be able to accept the treated wastewater and a pipeline connecting to the boundary of the wastewater treatment plant.

Water Corporation works includes necessary water treatments plant works and a pump station to provide pressure for delivery of the wastewater.

The Shire has installed a second 200kL tank and upgraded the irrigation system as part of the project. The project scope requires the Shire to establish a pipeline from Zimmerman Street to the tank at Mclean Park; this is in the draft budget for 2022/23.

The project aligns with the Shire's Sustainability Action Plan and delivers a positive outcome for our environment. Currently, all wastewater discharges to a creek that enters the Wilson Inlet adjacent to the Ricketts Reserve.

Update:

The Shire has received notification from Water Corporation that their tendered prices for their works have exceeded their current budget allocation. This is due to the industry and economic conditions that have developed over the last two years and raise concerns for the Shire regarding Water Corporation approving the additional cost to complete their part of the project.

We have awarded the pipeline contract to Denmark Plumbing for the supply and installation. Shire Officers will place the contract on hold until further advice from the Water Corporation on scheduling their works.

A Recycled Water Quality Management Plan is required from the Department of Health. This includes irrigation timing (between 12 midnight and 4am), ensuring irrigation heads direct the water away from buildings, the monitoring program to be completed by Shire staff and annual reporting requirements. The Shire has applied for approval of a recycled water scheme with the Department of Health and is awaiting confirmation.

The Water Corporation have recently confirmed that the works on their end will go ahead after gaining approval for a revised budget. Due to delays resulting from the re-budgeting process and the unavailability of suitable contractors, they are not in a position to have the works completed prior to this summer and have only just awarded the contract for commencement with a tentative start date of 11th April 2023, planning to be finished by 25th May 2023. Water Corporation are conscious of the influx of tourists around the Easter/school holiday break and

will endeavour to carry out all works impacting the public or any shutdowns outside of the holiday periods as much as possible.

The Department of Health (DoH) application has been followed up with confirmation from Water Corporation that they have provided DoH notifications of proposed works which should result in an 'in-principle' agreement for the proposed scheme. It has been confirmed that progression of the application is subject to the provision of detailed design and validation and verification reports from Water Corporation and there is nothing further required from the Shire at this stage.

Denmark Plumbing who were initially awarded the contract for the Shire's section of pipeline (which had been placed on hold) have now been advised to go ahead following the assurance from Water Corporation. Denmark Plumbing anticipate a start date of 21st November 2022, subject to delivery of pipeline materials currently being manufactured. Affected residents will be notified of any planned interruptions.

Risk:

Risk	Risk Rating (Prior to Treatment or Control)	Risk Action Plan (Controls or Treatment proposed)	Risk Rating (Post Treatment or Control)
Financial: Due to the project delivery timeframe extension, the pipeline's supply and installation cost may increase.	Moderate (5-9)	Accept Risk	Moderate (5-9)
Reputational: Water Corporation project costs are not approved, so the project doesn't progress.	Low (1-4)	Accept Risk	Low (1-4)

Next Steps:

Advise affected stakeholders of the anticipated start date and any perceived interruptions.

Continue to work with Water Corporation to progress the DoH application as required.

7.5 POWER PROJECT UPDATE

File Ref:

Applicant / Proponent:	N/A
Subject Land / Locality:	Various
Disclosure of Officer Interest:	Nil
Date:	26 th October 2022
Author:	Laura Delbene, Sustainable Projects Officer
Authorising Officer:	David King, Deputy CEO
Attachments:	Nil

Summary:

The Shire of Denmark wishes to consume electrical energy with net-zero emissions. This can be achieved by installing additional behind-the-meter photovoltaic (PV) generation sufficient to achieve an annual net-zero energy balance and/or contract from external renewable generation.

The project's first stage is to reduce the organisations dependence on external generation by installing PV. A typical approach to PV installation is to match daytime use. However, this approach would limit the project's success in missing the opportunity of existing roof space and requiring reliance on external generation for a significant load requirement outside of effective PV generation times.

It is proposed to maximise the Shire's PV opportunity by managing the energy balancing of timing mismatches between self-generation and loads with local energy storage.

Future stages would look to incorporate non-contestable supplies by including enough behind-the-meter PV to be eligible to enter the Wholesale Energy Market (WEM).

The final stage would be to purchase any shortfall via external renewable generation.

Update:

The Shire has engaged Power Research and Development to develop the project scope. The project's first stage is to focus on grid connection points where the behind-the-meter power usage will exceed 50MWh. This is because these connection points become contestable and not tied into a Synergy contract supply agreement.

Three (3) Zones have been identified that should meet these criteria where the behind-the-meter works are considered feasible. These are:

Administration Zone – Total 64MWh

Administration Building
CEO House

McLean Park Zone – Total 76MWh

Recreation Centre
McLean Oval

Town Zone – Total 35MWh + EV charging

Berridge Park
Thornton Park
Kwoorabup Park
War Memorial
Morgan Richards Community Centre Area
EV fast charger

Preliminary drawings have been developed for the necessary behind the meter works. The Shire has now requested more detailed concept designs and some indicative costs; which once received, will inform a business case to understand the project in more depth including return on investment.

Once a business case is complete, officers will seek further guidance from the Sustainable Projects Committee on which zones to progress as a priority.

Risk:

Risk	Risk Rating (Prior to Treatment or Control)	Risk Action Plan (Controls or Treatment proposed)	Risk Rating (Post Treatment or Control)
Financial: The project is provisioned on the assumption of a return on investment from energy cost savings. With the current economic environment, there is a risk that the timeframes for a return on investment are extended or not met.	High (10-16)	Manage by obtaining construction quotes to inform the business case prior to awarding a contract	Moderate (5-9)
Financial: The project is provisioned on the assumption of a return on investment from energy cost savings. Changes in the energy market could affect the return on investment.	Low (1-4)	Accept Risk	Low (1-4)

Next Steps:

Obtain the indicative budget and concept designs to develop a business case in order to determine the return on investment for the three (3) zones.

Outcome

Once Concept and indicative budget received, invite Colin Stonehouse to present to the Committee on the recommendations.

7.6 KERBSIDE FOGO COLLECTION PROJECT UPDATE

File Ref:	
Applicant / Proponent:	N/A
Subject Land / Locality:	Various
Disclosure of Officer Interest:	Nil
Date:	26 th October 2022
Author:	Laura Delbene, Sustainable Projects Officer
Authorising Officer:	David King, Deputy CEO
Attachments:	7.6a FOGO Case Studies

Summary:

The Waste Avoidance and Resource Recovery Act 2007 (WARR) Strategy outlines high-level overarching targets and strategies for the State under three key objectives: Avoid, Recover and Protect. Specific targets have also been set under each objective, separated into targets for the community, government, and the waste industry, as shown in the table below. The targets are set for Municipal Solid Waste (MSW) and commercial and industrial waste (C&I) for 2025 and 2030.

The Shire does not currently fall under a major regional centre category. However, the Shires sustainability strategy aims for zero waste to landfill by 2030. This is a higher benchmark than the WARR Strategy Targets for major regional centres.

Kerbside Food Organics Green Organics (FOGO) investigations – 50% of the Shires kerbside Municipal Solid Waste (MSW) is considered to be compostable. Therefore, this must be diverted from landfill to work towards the WARR Strategy and Shires Sustainability Strategy goals.

Council resolved to initiate a FOGO kerbside collection in 2023/24.

The rollout of a FOGO kerbside collection has several key steps. These are:

1. Securing a contract to accept FOGO material
2. Bin stock provision
3. Operational adjustments to facilitate collection or collection contract
4. Education

It is proposed that once (1) is assured and costs for (1-3) are understood, a business case should be presented to the Committee.

Update:

The facility identified for FOGO waste disposal has reached its licence capacity limits and without the operator obtaining DWER approval to increase the capacity limits, the Shire has no means to dispose of FOGO waste. As a result of this, at the last meeting, the committee recommended looking in to options around private operators to process the organic waste.

Up until this point significant investment in officer time and/or cash had been on hold until the status of expansion from the local processor including their associated timeframes was understood.

Officers have recently received notice that the facility has been experiencing increasing contamination rates and the advice to them from DWER is that they will not support an expansion to the license until it can be demonstrated that a compost product to Australian Standard can be produced. The facility has confirmed with the Shire that they will be concentrating on reducing contamination rates and ensuring they can create a suitable compost product before any expansion occurs. There is no timeframe on this.

Through investigating alternative processing receipt points some emerging issues with FOGO in general were highlighted. The additional case study (Attachment A) talks to this in more detail, but in summary, emergent issues include:

- Facilities are becoming unable to cope with the volumes of waste collected and are outgrowing premises sooner than expected with no identified expansion options;
- Contamination is slowing down the processing and significantly hinders production of a quality compost product;
- Part composted waste is piling up with no ability to process the volumes and no market for partially composted waste;
- There is no guaranteed end user for the finished compost product;
- Success is heavily reliant on continual education campaigns and engagement measures to keep participants involved in the program and to ensure contamination rates don't escalate.

In light of the above and the background and rationale provided in the case study, officers are seeking support to review the Shire of Denmark Waste Action Plan. This approach does not seek to replace the implementation of FOGO but investigate alternative community education initiatives. It is hoped that it will prove beneficial to be working towards educating and empowering the community to reduce and process organic waste at the source now, rather than waiting for a processing solution. When FOGO is implemented in the Shire, this may then ameliorate some issues currently faced by existing FOGO facilities, by reducing the reliance on FOGO to dispose of all organic waste and an understanding of the consequences that contamination has on the end compost product.

Risk:

Risk	Risk Rating (Prior to Treatment or Control)	Risk Action Plan (Controls or Treatment proposed)	Risk Rating (Post Treatment or Control)
Reputational: That FOGO is delayed due to lack of receipt facility	Moderate (8)	Accept Risk	Moderate (8)

Next Steps:

Review the Shire of Denmark's Waste Action Plan in light of recent developments.

Outcome

The Committee supported Officers to review the Shire of Denmark's Waste Action Plan and present a draft at the next Committee meeting for consideration.

7.7 TASK LIST

Shire Officers presented the Task List and provided updates on;

- a. Zero Waste Boomerang Alliance Project – partnership with Shire of Denmark and Plastic Reduction Denmark to “Get rid of the disposable coffee cup”.
- b. Recycling Bins in the CBD trial.

8 GENERAL BUSINESS

8.1 ARENA FUTURE FUELS PROGRAM

Officers provided an update on WALGA's Expression of Interest on behalf of the Local Government sector with this program.

The State Government is in the process of developing the criteria for the “Workplace EV Charging Grant Program”. The fund has \$5 million allocated to support Local Government EV uptake and is anticipated to open in January 2023. The program will provide 50% of the purchase cost of charging infrastructure and a proportion of installation costs.

8.2 REGIONAL CLIMATE ALLIANCE

Officers provided an update on the:

- Sustainable Built Design Audit – Recreation Centre, Depot & Shire Administration.
- WALGA Round 2 Grant Application

8.3 EV CHARGER

Officers provided an update on the proposed EV charging station. This included;

- Western Power quote
- Civil works issues – drainage challenges
- Request to Western Power to consider relocating the uni-pillar to the CRC carpark – cost implications.

The Committee supported pursuing the CRC carpark option.

Outcome

Officers to investigate best location and costs to install a 11KW AC charger in Denmark town this financial year.

9 NEXT MEETING

It is recommended that the next meeting of the Sustainable Projects Committee be held on a date to be confirmed (potentially December 2022) at the Shire of Denmark Council Chambers commencing at a time TBD.

9 CLOSURE OF MEETING

4.26pm – There being no further business to discuss, the Presiding Person closed the meeting.

These minutes were confirmed at the meeting of the _____

Signed: _____

(Presiding Person at the meeting at which the minutes were confirmed.)

SHIRE SUSTAINABILITY SUBSCRIPTIONS				
Subscription Provider	Item	Comments	Pillar	Cost pa (ex GST)
Garage Sale Trail	Annual garage sale trail subscription	Garage Sale Trail held over 2 weekends in November. Subscription gives promotional material and website login for Council dashboard for registrations	Zero waste	\$2,621.70
Azility	Azility software platform - electricity water GHG emissions	Environmental auditing and reporting software platform for electricity, water, GHG emissions	Zero Carbon Energy Sustainable Water	\$7,170
Outpost Central	Water data loggers	2 x data loggers and access to water leak reporting data	Sustainable Water	\$108
My Community	My Community Platform Diary and Directory	Access to website for MyCommunity Diary and MyCommunity Directory for NFP clubs and organisations and associated events	Culture & Community	\$800+
HQ Community Engagement	Your Denmark	Community engagement platform for projects consultation and to conduct community surveys	Culture & Community	?

Waterwise	Waterwise Council accreditation		Sustainable Water	Nil
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Conduct annual review and reporting of water consumption assessed against water efficiency targets for corporate and community emissions as outlined in our Waterwise Efficiency Action Plan – to apply for re-endorsement in order to receive annual accreditation as a Waterwise Council. The re-endorsement report is due again in October; and our Waterwise Efficiency Action Plan (2017-2022) is a five year plan, and is due for review. This is not a subscription cost, but requires Officer time commitment in the collation, analysis and reporting, as well as time towards our quarterly Water Management Team meetings.

Cities Power Partnership

CPP Commitment - select 5 key actions from listed partnership pledges within a 6 month period in categories of renewable energy, efficiency, transport, partnership collaborations. The key time commitments we require from councils are: 1. making and submitting your pledges, this process and timeframe varies depending on your Council; 2. providing information and a quote from the Shire president for the website; 3. complete an annual report survey - an update on your pledge progress.

This was already investigated by Officers back in August 2021. Officer's response was that the Shire are already covering actions across the 4 areas identified in the Cities for Power partnership (renewable energy, efficiency, transport, partnership collaborations) through our Sustainability Strategy and Action Plan; and that signing up to it would just involve more paperwork and reporting, with no additional identified outcomes (other than being identified as an affiliated Council CCP member). In the end Officers would rather spend time on delivering on climate actions rather than working to be accredited in this space.

Free

Responsibility
Sustainability Officer
Sustainability Officer
Sustainability Officer
Community Development Officer
Community Engagement Officer

Sustainability Officer



Shire of Denmark
Quarterly Performance Review
July 2021 to June 2022

20 December 2022 - Attachment 10.1c



Agenda



Energy Overview

Includes an overview of energy, electricity, and gas over the past few years. Also, review the assets with the biggest increases and decreases since the same time last year.

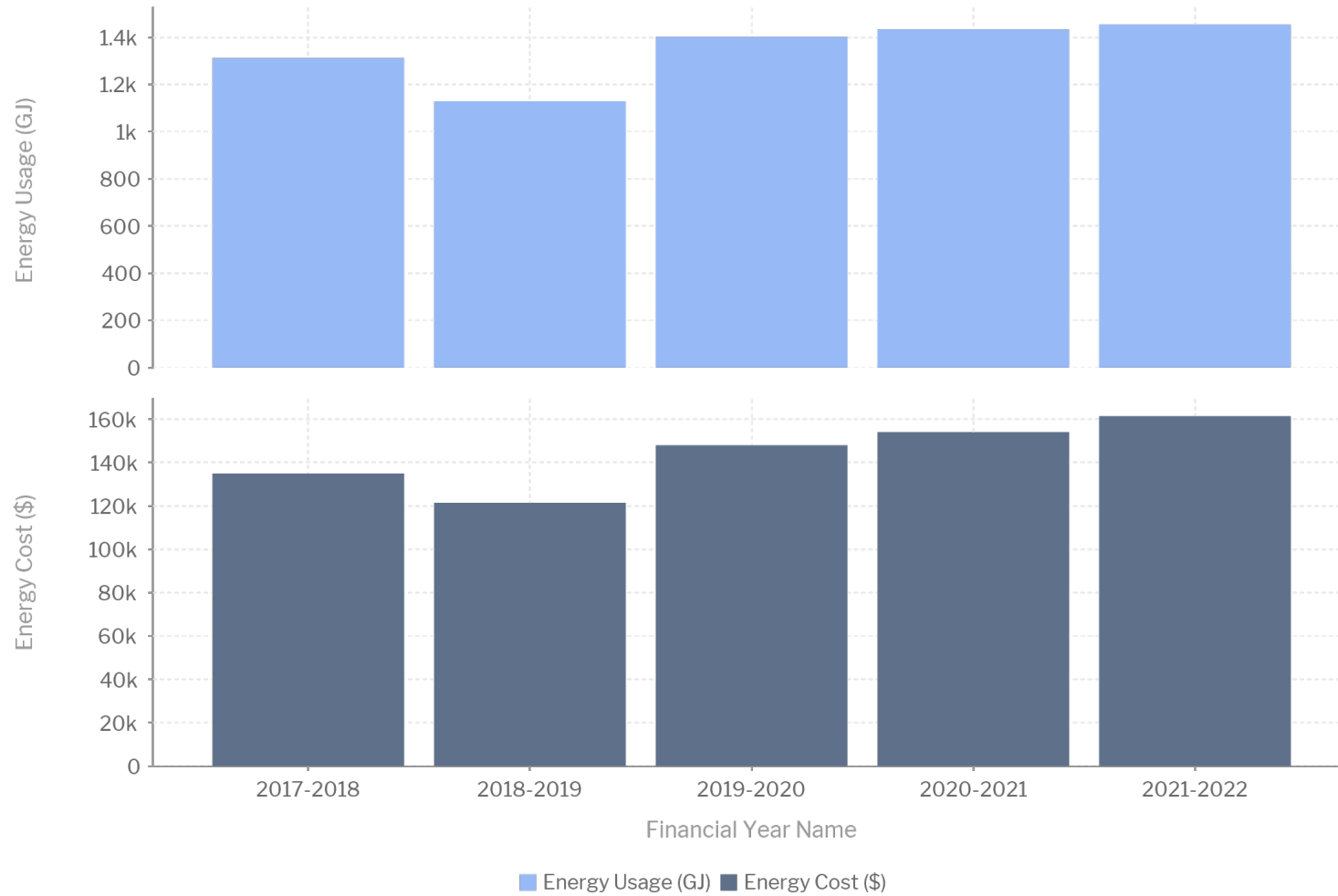
Water Overview

Overview of water of the past few years, including assets with the biggest increases and decreases since the same time last year.





Annual Energy Consumption and Costs



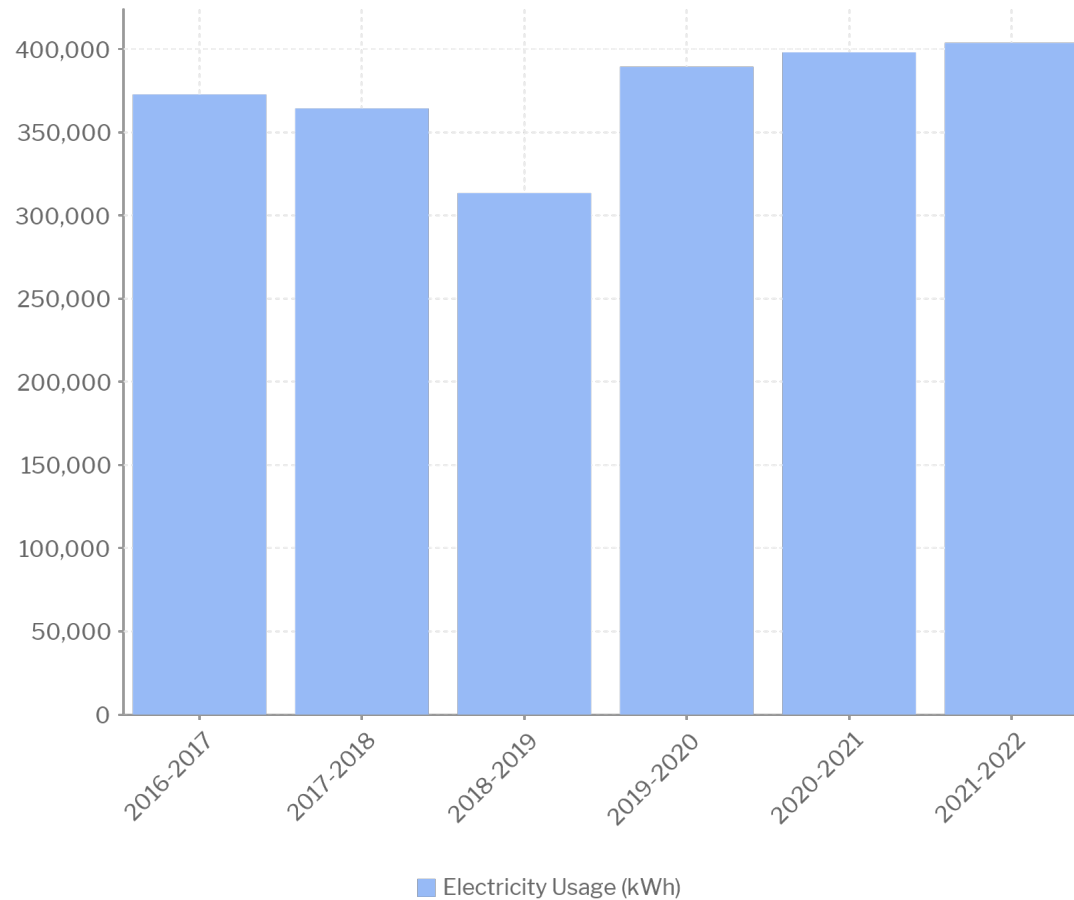
current years data reflects YTD figures



Electricity Consumption - Breakdown



Electricity Consumption (kWh)



Electricity Consumption 2020 /21

Total = 398,142kWh

Leased assets = 32,792kWh

Council Owned = 365,350kWh

Electricity Consumption 2021 /22

Total = 403,867kWh

Leased assets = 38,973kWh

Council Owned = 364,894kWh



Top 10 and ECOP - Electricity



Asset Name	Rank of Electricity Usage (kWh)	Electricity Usage (kWh)	Rank of Electricity Cost (\$)	Electricity Cost (\$)	Rank of Electricity Cost per kWh (\$)	Electricity Cost per kWh (\$)
UNMETERED STREET LIGHTING	1	33,516	1	\$17,351.00	1	\$0.52
Shire Administration Centre	2	12,548	2	\$3,852.00	6	\$0.31
McLean Park	3	11,269	3	\$3,252.00	10	\$0.29
Recreation Centre	4	10,733	4	\$3,106.00	9	\$0.29
Depot	5	5,285	5	\$1,608.00	7	\$0.30
Civic Centre, Library & Old Resource Centre	6	4,733	6	\$1,455.00	5	\$0.31
Peaceful Bay - Water Supply Pump Shed	7	3,283	7	\$1,048.00	4	\$0.32
CEO's House	8	2,927	10	\$852.00	8	\$0.29
SPIRIT OF PLAY COMMUNITY SCHOOL	9	2,852	9	\$913.00	3	\$0.32
Surf Life Saving Club/ Ocean Beach Shower and Toilets	10	2,841	8	\$937.00	2	\$0.33



Assets with the Biggest Electricity Usage Increase



Financial Year Name	Asset Name	Electricity Usage (kWh)	Usage Change Since Previous Year (KWh)	Percent Usage Change Since Previous Year (%)	Previous Financial Year	Previous Year Electricity Usage (kWh)
2021-2022	CEO's House	11,740KWh	6,860	141%	2021	4,880KWh
2021-2022	Recreation Centre	39,528KWh	6,429	19%	2021	33,099KWh
2021-2022	Denmark High School Oval Bore	11,319KWh	3,033	37%	2021	8,286KWh
2021-2022	McLean Park	45,171KWh	2,630	6%	2021	42,541KWh
2021-2022	Peaceful Bay - Water Supply Pump Shed	8,301KWh	1,664	25%	2021	6,637KWh
2021-2022	Depot	21,415KWh	1,160	6%	2021	20,255KWh
2021-2022	TV TOWER	1,976KWh	911	86%	2021	1,065KWh
2021-2022	MCINTOSH LANDFILL	4,402KWh	795	22%	2021	3,607KWh
2021-2022	MUSEUM	2,735KWh	597	28%	2021	2,138KWh
2021-2022	THORNTON PARK	4,207KWh	406	11%	2021	3,801KWh



Assets with the Biggest Electricity Usage Decrease



Financial Year Name	Asset Name	Electricity Usage (KWh)	Usage Change Since Previous Year (KWh)	Percent Usage Change Since Previous Year (%)	Previous Financial Year	Previous Year Electricity Usage (kWh)
2021-2022	Shire Administration Centre	48,281KWh	-10,189	-17%	2021	58,470KWh
2021-2022	Civic Centre, Library & Old Resource Centre	19,566KWh	-3,224	-14%	2021	22,790KWh
2021-2022	Surf Life Saving Club/ Ocean Beach Shower and Toilets	11,472KWh	-2,070	-15%	2021	13,542KWh
2021-2022	Peaceful Bay Beach Toilets Pump/ Playground Toilets	5,995KWh	-1,277	-18%	2021	7,272KWh
2021-2022	BERRIDGE PARK	4,461KWh	-1,125	-20%	2021	5,586KWh
2021-2022	WILLIAM BAY BUSH FIRE BRIGADE	440KWh	-813	-65%	2021	1,253KWh
2021-2022	EAST DENMARK BUSH FIRE BRIGADE	2,903KWh	-417	-13%	2021	3,320KWh
2021-2022	UNMETERED STREET LIGHTING	135,242KWh	-284	0%	2021	135,526KWh
2021-2022	SOMERSET HILL BUSH FIRE BRIGADE	562KWh	-179	-24%	2021	741KWh
2021-2022	WAR MEMORIAL	671KWh	-125	-16%	2021	796KWh

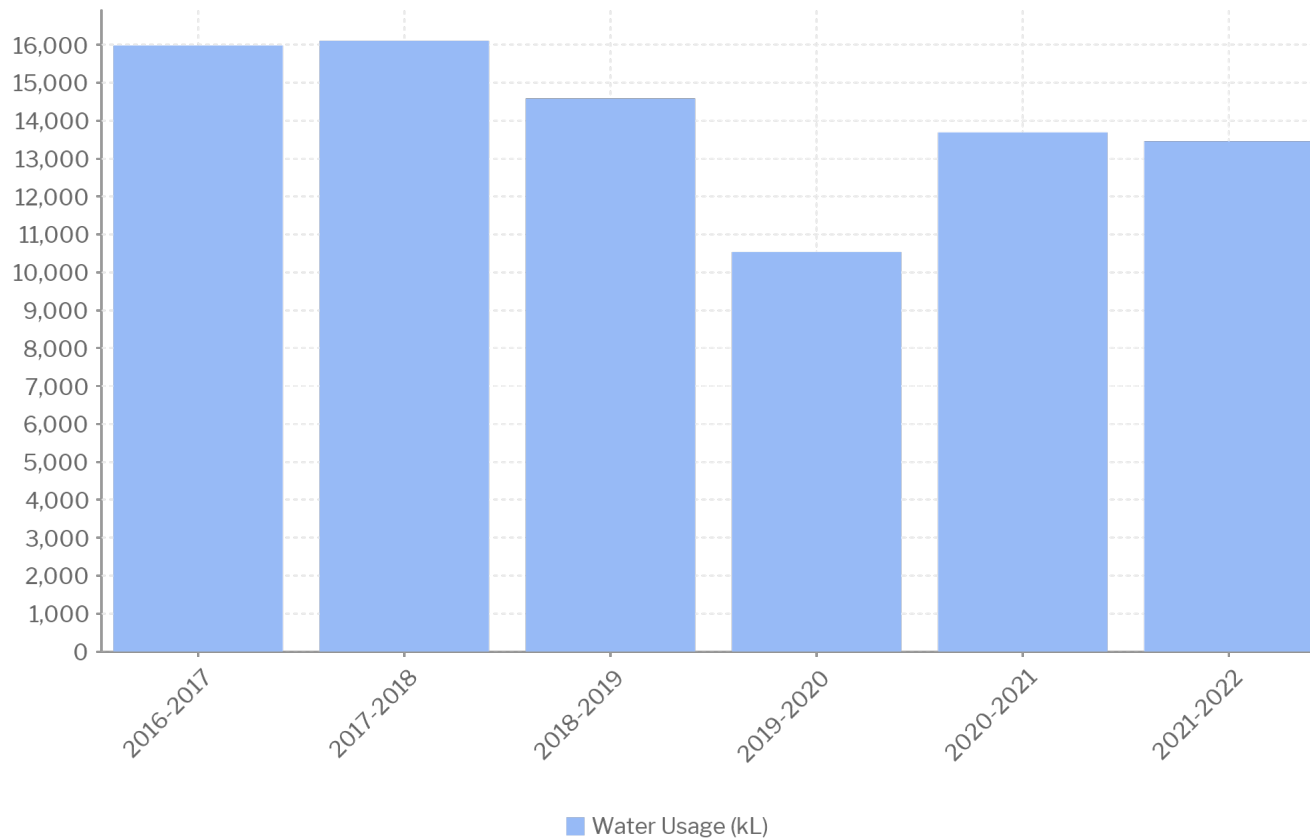




Water Consumption - Breakdown



Water Consumption (kL)



Water Consumption 2020/21

Total = 13,690kL

Leased Assets = 4,703kL

Council Owned = 8,987kL

Water Consumption 2021/22

Total = 13,458kL

Leased Assets = 6,510kL

Council Owned = 6,948kL



Top 10 - Water



Asset Name	Rank of Water Usage (kL)	Water Usage (kL)	Rank of Water Total Cost	Water Total Cost (\$)
Old Saleyards	1	813	2	\$2,219.00
Depot	2	654	3	\$1,784.00
Zimmerman Street Standpipe	3	323	1	\$3,369.00
Surf Life Saving Club/ Ocean Beach Shower and Toilets	4	276	6	\$752.00
Denmark Cottage Crafts	5	257	5	\$810.00
Civic Centre, Library & Old Resource Centre	6	215	4	\$1,097.00
Recreation Centre	7	121	8	\$404.00
McLean Park	8	86	10	\$233.00
Morgan Richards Community Centre (former Old Hospital)	9	79	7	\$565.00
BERRIDGE PARK	10	74	9	\$376.00



Assets with the Biggest Water Usage Increase



Financial Year Name	Asset Name	Water Usage (kL)	Consumption Change Since Previous Year (kL)	Percent Consumption Change Since Previous Year (%)	Previous Financial Year	Previous Year Water Usage (kL)
2016-2017	BERRIDGE PARK	3,856kL	1993	107%	2016	1,863kL
2016-2017	Zimmerman Street Standpipe	2,514kL	738	42%	2016	1,776kL
2016-2017	Denbarker Road Standpipe	484kL	437	930%	2016	47kL
2016-2017	Depot	1,717kL	410	31%	2016	1,307kL
2016-2017	Riverside Club	451kL	303	205%	2016	148kL
2016-2017	Surf Life Saving Club/ Ocean Beach Shower and Toilets	882kL	98	13%	2016	784kL
2016-2017	Recreation Centre	566kL	98	21%	2016	468kL
2016-2017	Kwoorabup Community Park	185kL	87	89%	2016	98kL
2016-2017	Old Saleyards	875kL	78	10%	2016	797kL
2016-2017	Denmark Arts Centre Precinct (former Frail Aged Lodge)	225kL	68	43%	2016	157kL



Assets with the Biggest Water Usage Decrease



Financial Year Name	Asset Name	Water Usage (kL)	Consumption Change Since Previous Year (kL)	Percent Consumption Change Since Previous Year (%)	Previous Financial Year	Previous Year Water Usage (kL)
2021-2022	Zimmerman Street Standpipe	1,250kL	-1773	-59%	2021	3,023kL
2021-2022	Howe Road Standpipe	4kL	-1065	-100%	2021	1,069kL
2021-2022	BERRIDGE PARK	93kL	-780	-89%	2021	873kL
2021-2022	House at 23 Riverbend Lane Scotsdale	68kL	-191	-74%	2021	259kL
2021-2022	Kwoorabup Community Park	112kL	-148	-57%	2021	260kL
2021-2022	SPIRIT OF PLAY COMMUNITY SCHOOL	209kL	-113	-35%	2021	322kL
2021-2022	CEO's House	13kL	-102	-89%	2021	115kL
2021-2022	MUSEUM	9kL	-34	-79%	2021	43kL
2021-2022	Shire Administration Centre	198kL	-25	-11%	2021	223kL
2021-2022	PODDY SHOT TOILETS	128kL	-15	-10%	2021	143kL



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CBP or OP	Number	Pillar	Item	Action	Directive	Responsibility	Resourcing Required	Measure of Success	Ref	Average
OP	8 & 9	Sustainable Materials & Products & Zero Waste	SM3 & ZW9	"Get rid of the disposable coffee cup" Project	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Sustainable Projects	New	Develop and Distribute the resource pack to Local businesses.	In progress	5
OP	9	Zero waste	ZW12	Recycling bins in the CBD trial	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Sustainable Projects	New		2 x trial recycling bins in operation in the CBD	In progress
OP	7	Sustainable Travel & Transport	ST3	Reduce the carbon footprint for the fleet of corporate vehicles; including consideration of Council fleet vehicles to be electrical or hybrid.	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Technical Services - Engineering	New	Carbon footprint of Council fleet vehicles reduced by a minimum of 50 per cent by 2030.	7.1 Ongoing	4.5
OP	8	Sustainable Materials & Products	SM2	Direct industry and public on where to access information on sourcing and selecting sustainable building materials.	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Sustainable Development - Building	New	Links provided on Shire website to sources of information on sustainable building materials.	8.3	4
OP	6	Local & Sustainable Food	SF5	Partner with the Chamber of Commerce and State government in supporting investigation into sustainable farming products (i.e. viability of a local food processing plant and local or mobile abattoir).	<i>WA Health Meat Inspection Branding and Processing Regulations (1950)</i>	Sustainable Projects	New	Engagement with key partners in responding to requests to support industry on case-by-case basis.	6.2	3.75
OP	10	Zero Carbon Energy	ZC1	Audit Greenhouse Gas Emissions for Shire activities and investigate purchase of software to record and audit data annually for Shire operations.	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Sustainability	New	Develop baseline data for carbon emissions and audit trends over time.	10.2	3.75
OP	9	Zero Waste	ZW8	Support local builders to reduce waste via recycling and reusing commercial and industrial waste as repurposed materials; including investigating licencing requirements to recycle waste from building contractors.	<i>Great Southern Group of Councils Regional Waste Strategic Plan (2014-2018)</i>	Waste & Reserves	New	Reduced commercial and industrial waste.	9.4	3.5
OP	10	Zero Carbon Energy	ZC6	Provide information to community and general public regarding battery and storage options for new residential properties - broader comment	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Sustainable Projects	New	Information made readily available to public on alternative energy options.	10.3	3.5
OP	5	Sustainable Water	SW5	Install water bottle refill facilities at strategic locations across the Shire.	<i>Shire of Denmark Sustainable Events Policy P100516</i>	Sustainable Projects & Technical Services - Assets	New	Installation of water refill facilities to enable compliance with Sustainable Events Policy at Shire events.	5.1	3.25
OP	7	Sustainable Travel & Transport	ST4	Investigate and trial cultural change programs that will see reduced reliance on fossil fuel transport by staff.	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Governance - Human Resources	New	Programs implemented to reduce fossil fuel usage by Shire staff.	7.4	3.25
OP	4	Land & Nature	LN2	Investigate options to develop an objective environmental impact measuring tool to guide decision making for procurement.	<i>Shire of Denmark Environment Policy P100503</i> <i>Shire of Denmark Purchasing Policy P040220 (5) Sustainable Procurement</i>	Sustainable Projects	New	Redesign evaluation matrix for procurement to include, as far as is practicable, objective environmental considerations.	4.1	3
OP	5	Sustainable Water	SW3	Investigate fire-resistant options for installation of durable water tanks on Shire buildings and administration building plumbed to building to be used on grey water system (toilets and washing).	<i>Shire of Denmark Water Efficiency Action Plan (2017-2022)</i>	Technical Services - Assets	New	Increased number of water tanks and pumps installed on Shire buildings and plumbed into the toilets and greywater system.	5.1	3
OP	6	Local & Sustainable Food	SF7	Support delivery of education on sustainable food production (i.e. regenerative farming).	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Governance - Economic Development	New	Delivery of education on sustainable food production practices.	6.4	3
OP	9	Zero Waste	ZW7	Investigate funding opportunities to divert waste water from the inlet to the Golf Course and Denmark Agricultural College.	<i>Shire of Denmark Water Efficiency Action Plan (2017-2022)</i>	Sustainable Projects	New	Identification of potential funding sources for waste water reuse to irrigate key community assets.	9.2	2.75

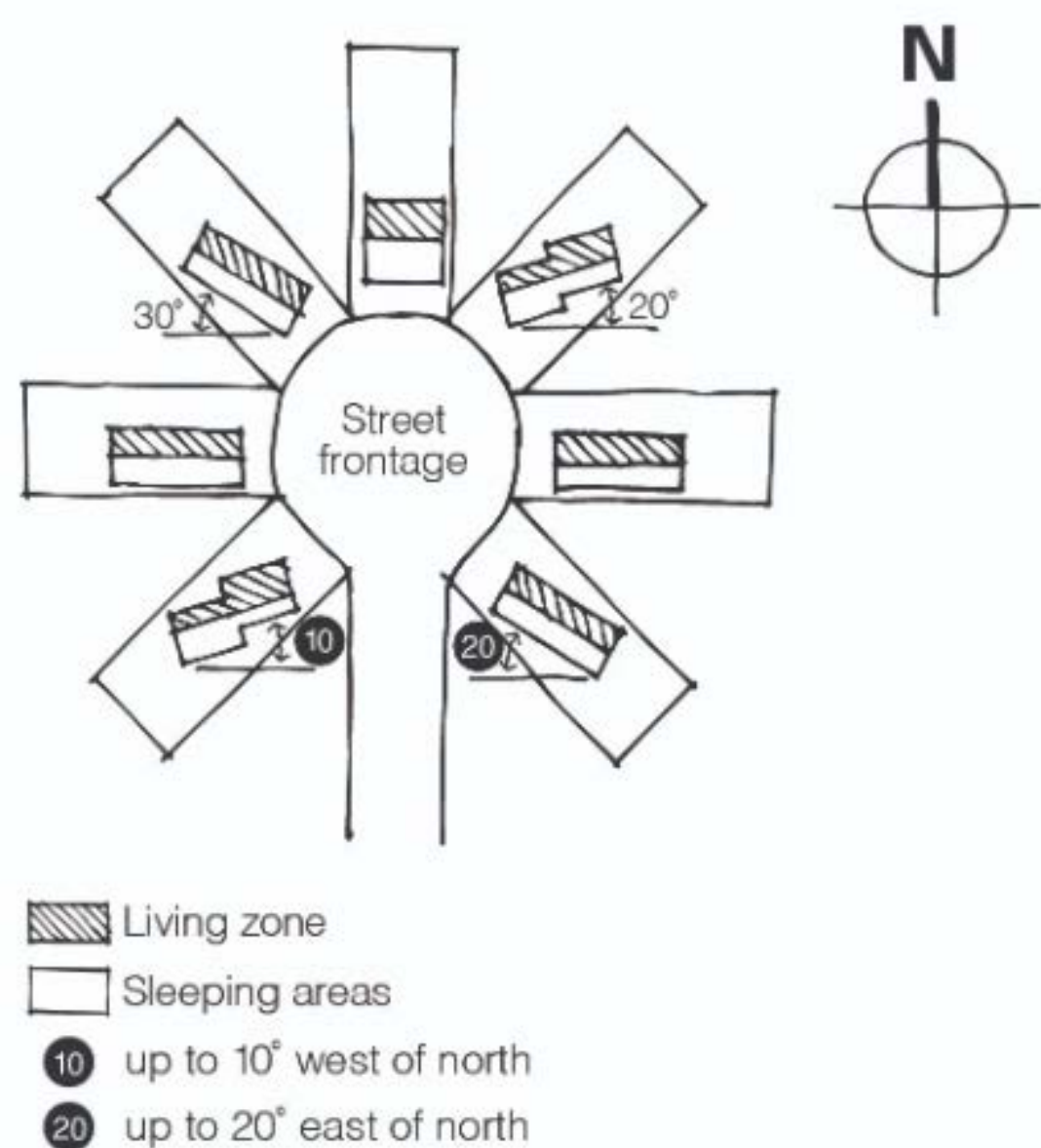
OP	9	Zero Waste	ZW11	Investigate best practice sustainable fish cleaning, composting and offal disposal stations for installation at key Shire sites.	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Community Services - Ranger Services	New	Investigations undertaken on feasibility of installing fish cleaning, composting and offal disposal stations at relevant Shire sites.	9.3	2.75
OP	7	Sustainable Travel & Transport	ST8	Support community initiatives for communal travel options (i.e. community shuttle bus to Greens Pool).	<i>Shire of Denmark Sustainability Strategy (2021-2031)</i>	Governance - Economic Development	New	Communal travel options investigated.	7.4	2.5

Sustainable Homes

A guide to designing, building or retrofitting your home to be more sustainable, livable and healthy

The Shire of Denmark's commitment to sustainability is reflected in our [Sustainability Strategy and Sustainability Action Plan](#). One way we can contribute to achieving the aims of the strategy and action plan is through the promotion of well designed and constructed sustainable homes which are great for the environment whilst saving energy, water and money and being a comfortable place to live all year round.

There are so many ways sustainability can be considered in building design and in the way we live including designing homes to be adaptable; using sustainable building materials; considering renewable energy systems; and selecting products and materials that are good for the environment and good for our health. The following information is designed to give you an overview of the things to consider for your next building or renovation project. There's a handy checklist and links to further information at the end of this brochure too!



Orientation possibilities on different blocks

Do your homework

Considering what type of home you need to be sustainable and comfortable is a great start, but it is also important to choose a builder that can demonstrate best practice when it comes to construction methods, and one who will facilitate sustainability aims in to your budget. Sustainable design features might have some upfront costs but will save you money in the long run.

Size matters

Deciding how big your home needs to be can make a significant long term difference to your environmental impact. Will a smaller design allow you to create and afford a more comfortable and energy efficient home?

House Orientation

Good house orientation combined with well considered layout and design can substantially reduce household energy consumption and costs, while improving the comfort of your home. If your home has longer northside orientation, greater opportunity exists to take advantage of winter sun for warmth and natural light. Good orientation to take advantage of solar passive energy is possible on different block configurations by considering the design and location of living and sleeping zones.



Renewable Energy

Sources of energy are regarded as renewable if their use does not cause them to be depleted. The most common renewable energy systems used in Australian homes are solar photovoltaic (PV) systems to produce electricity, air source heat pumps and solar hot water systems. Renewable systems offer economic, health and environmental benefits and can produce electricity, heating or cooling with very low to zero greenhouse gas emissions. Renewable energy systems are a significant investment for most people, but equipment costs have been falling considerably in recent years, especially for solar photovoltaic (PV) systems. Don't forget to consider provisions for electric vehicle (EV) charging at home too.



Waste Minimisation

Construction and demolition waste is a significant contributor to Australia's total waste and much of that waste can be recycled. Key considerations to minimise waste are to:

- **reduce**, by building a smaller home and designing to reduce wastage.
- **reuse**, by looking for sources of materials that have been salvaged for reuse, such as brick, timber and plasterboard.
- **recycle**, by finding local recycling operators, and buying materials with high proportions of recycled content which in turn helps build the market for recycled building materials.

Material Selection

Carefully analysing and selecting environmentally friendly materials in the construction phase can significantly improve the health, comfort, cost effectiveness and energy efficiency of your home. Also consider the lifecycle of materials and the processes adopted to extract, process and transport them to the site. Informed decisions about materials and construction systems can reduce the environmental impact of a home without adding to the cost. The following guiding principals should be considered:

- Where possible, use fully recycled materials or materials with recycled content such as timber, glass or cork.
- Understand how chemicals used in the manufacture of some materials might affect your health. Look for products with low Volatile Organic Compounds (VOC's) i.e., when choosing paint and carpet.
- Consider how and where the materials are sourced and the impact this causes.
- Consider rapidly renewable materials such as bamboo, cork and linoleum.
- Design and build for de-construction, re-use, adaptation, modification and recycling.



Water

Reducing water use in the home is a simple and easy way to decrease water and energy bills and reduce your household's environmental impact. Water-efficient showerheads, taps, appliances and toilets can significantly reduce water use. Look for the Water Efficiency Labelling and Standards (WELS) label for water-efficient products.

You should also consider the distance from your hot water unit to where hot water is needed to reduce the running of taps or showers until the water gets up to the right temperature.



Wastewater Reuse

Many Australian homes use potable (drinkable) water for practically everything in the house and garden. You can reduce potable water use in the home by treating and reusing greywater (from showers, basins and taps) for irrigating gardens or for flushing toilets.



A livable designed home benefits:

Families with young children by making it easier to manoeuvre prams and strollers and removing trip hazards for toddlers.

People who sustain a temporary injury that limits their mobility (for example as a result of sporting or work-related injury or motor vehicle accident).

Ageing baby boomers who are looking to move or renovate their existing homes to better accommodate future needs.

People with disability and their families enabling them better choice of housing and the opportunity to visit the homes of friends and relatives.



Universal Design

When designing a new home or renovating your existing home it is important to consider your future needs. Many homes don't cater for an ageing demographic and aren't designed to meet the changing needs of occupants.

Designing a home with comfort, safety and ease of access in mind are features that make the home more liveable, whether that's for parents with prams, getting the shopping in the house or allowing people with disability or temporary injury to move around more freely and easily.



Windows and Glazing

Up to 40% of a home's heating energy can be lost and 87% of its heat gained through windows. Minimise windows in east and west elevations to avoid excessive heat gain in summer as these windows are exposed to morning and afternoon sun for longer periods of time. North facing windows are great for letting winter sun in.

Improving the thermal performance of windows and glass doors can improve comfort and reduce energy costs. Glazing choices are generally made when building a new home but improving glazing through renovation is an easy way to significantly improve thermal performance of your existing home without rebuilding or moving. Window furnishings such as carefully selected blinds or curtains can also improve heat loss or gain.

Ventilation and Sealing

When planning door and window locations for your house, consider which direction breezes come from and place openings in these areas. Locating windows opposite each other will allow air to flow more readily through your house. If possible, windows on the prevailing breeze side of the house should be lower than those on the opposite side to assist natural air flow.

Sealing your home is one of the simplest ways to increase your comfort and reduce energy use. Unintended air movement can contribute up to 25% of winter heat loss in buildings.



Insulation

Insulation is a material that resists or blocks the flow of heat energy. Insulation is used to stop heat inside the home from escaping in winter, and to stop heat outside the home from entering in summer.

For insulation to be effective, it should work in conjunction with good passive design. For example, if insulation is installed but the house is not properly shaded in summer, built-up heat can be kept inside by the insulation, creating an 'oven' effect.



CHECKLIST

- **Have you thought about what size home you really need?**
- **Does the layout and siting of your home allow for the best solar passive outcomes?**
- **Have you integrated a renewable energy system or allowed for this down the track?**
- **What percentage of construction materials to be used are recycled?**
- **Do materials and fixtures contain harmful chemicals or are they better for your health?**
- **Are your appliances the best choices you can make for water and energy efficiency?**
- **Can you put wastewater to good use, including in the garden and for flushing toilets?**
- **Will your home be comfortable and accessible as you get older or sustain an injury?**
- **Can your home be easily adapted to suit disability access?**
- **Have you considered how upgrading your choice of glazing can reduce energy costs?**
- **Insulation is a must, but have you used the best performing product?**
- **Does your home have adequate ventilation for passive cooling and can be well sealed to limit heat loss in winter ?**

FURTHER RESOURCES

Australia's Guide to Environmentally Sustainable Homes

<https://www.yourhome.gov.au/>

Liveable Housing

<https://liveablehousingaustralia.org.au/>

Water Efficiency Labelling Standards Scheme

<https://www.waterrating.gov.au/>

Energy Ratings for Electrical Appliances

<https://www.energyrating.gov.au>

Insulation Facts Sheet

<https://www.commerce.wa.gov.au/homeinsulationfactsheet.pdf>

Green Building Council Australia

<https://new.gbca.org.au/green-star/rating-system/>

Vinyl Council of Australia

<https://www.vinyl.org.au>

Green Painters

<https://www.greenpainters.com.au>



NOTE:

- The websites and/or products listed on this publication are for general information only and are not endorsed by the Shire of Denmark.
- Designing buildings for energy efficiency as required under the National Construction Code (NCC) may require detailed advice. It is important to seek appropriate professional advice in the implementation of the principles outlined in this document.



Attachment A - Case Study

Subject: FOGO - Consideration of Private Sector Processing

Background:

The 'Keep Denmark Pristine' online FOGO survey is ongoing which has so far attracted a total of 526 responses, noting it is not discernable whether respondents are from outside the Shire. 54% of respondents have indicated support; 31% say they don't need FOGO as they already compost/own chooks; 8% need more information before forming an opinion; and 7% are not keen/don't want the hassle.

Officers have recently received notice that the facility in Albany will not be expanding its service in the immediate future. This is a result of increasing contamination rates and advice to them from DWER that they will not support an expansion to the license until it can be demonstrated that a compost product to Australian Standard can be produced. The facility has confirmed with the Shire that they will be concentrating on reducing contamination rates and ensuring they can create a suitable compost product before any expansion occurs.

Following the request by the committee to explore the potential for private sector operators to oversee the operation, a search of whether this has been successful for other Councils was undertaken with emerging issues over FOGO in general highlighted.

Case Study - Bega Valley Shire Council

Bega Valley Shire Council (BVSC) implemented FOGO in 2018, collecting organic waste and processing it in mass stack piles with aerated floors. The Council sell the compost to residents and use it on their own reserves and it was instrumental in rejuvenating land following devastating bushfires in the Bega Valley in 2018 where 467 homes and 1000 outbuildings were lost. Since then, their organics facility which is licensed for collection of 5000 tons per annum has nearly trebled, collecting 10,000 -15,000 tons annually (from a population of 38,000).

The BVSC have therefore outgrown their facility sooner than expected, raising ongoing concerns about license capacity exceedance, along with several other issues, including leachate management, contamination of feedstock, and ongoing pollution incidents that have put them on watch by NSW EPA. They subsequently put out an Expression of Interest (EOI) in 2021 to gauge the appetite and capacity of private sector to run the organics processing with a solutions-based approach to tease out alternatives.

No other alternatives proved feasible as the cost (economic and environmental) of transporting waste further afield outweighed the benefits. A more detailed EOI to attract a private operator to run FOGO at the current facility whilst a new facility is constructed is underway. In the meantime they continue to operate above the license capacity with largely unmanaged risks.

Case Study – City of Bunbury

In similar circumstances, the City of Bunbury recently revealed that organic waste is coming in at a faster rate than the existing equipment can process, see:

<https://www.abc.net.au/news/2022-08-17/fogo-waste-piling-up-in-western-australia-with-no-solution/101338946> (ABC South West. 17 Aug 2022).

To resolve the issue, the City sought to find an independent processor to take on the part composted waste to continue the process of turning it in to compost, however an EOI earlier in the year failed to attract a submission. The city is currently trying to keep the 25,000 tons of part processed waste from going to landfill after rediverting 10,000 tons of processed FOGO to a landfill facility to cap the subsoil for rehabilitation. It was acknowledged that there is a strong market for the end product; however, they are currently stuck with large volumes of part composted product that has no defined use.

Case Study - City of Greater Geraldton

A FOGO trial of 500 households got underway in 2021. After initial success the trial participation dropped with only approximately half the participants putting out the bin for collection. Additional to this was a high contamination rate (45%). The trial has been extended for another twelve months to confirm viability of rolling it out across the city. After twelve months the Trial needed to be 'revitalised' and since this was done in May 2022, increased participation and decreased contamination has been experienced but it has taken ongoing education efforts to ensure participants do the right thing.

Summary

The research in to possible private sector options for composting FOGO waste has highlighted several issues including:

- Facilities are becoming unable to cope with the volumes of waste collected and are outgrowing premises sooner than expected with no identified expansion options;
- Contamination is slowing down the processing and significantly hinders production of a quality compost product;
- Part composted waste is piling up with no ability to process the volumes and no market for partially composted waste;
- There is no guaranteed end user for the finished compost product;
- Success is heavily reliant on continual education campaigns and engagement measures to keep participants involved in the program and to ensure contamination rates don't escalate.

Conclusion

Whilst FOGO is seen as a relatively successful solution upfront for reducing the amount of organic waste being directed to landfill, it can still result in a 'surplus product' that can accumulate over time. This is due to FOGO's success being heavily reliant on the behavior of participants, the capacity of a facility to both receive and process the volumes of waste collected to a required standard, and ultimately, the ongoing demand and use for the end product to avoid it too becoming a 'surplus waste'.

FOGO is one solution to reducing organic waste entering the general waste stream and perhaps has its place in larger cities and towns where gardening, composting and keeping livestock i.e., chickens is limited. However, the fact remains that it is an 'end of the line' process that accommodates an 'out of sight, out of mind' solution to food waste, and additionally removes participants from being directly affected contamination issues. Ultimately the goal should be to reduce the amount of organic waste (in particular food organics) at the source; however, the increasing volumes of FOGO being collected indicate that this may not be the case.

There are several alternatives to deal with organic waste that could be championed in the Shire, if resources, time and commitment allows.