



10 November 2020

NOTICE OF MEETING

Dear Committee Member,

The next Environmental Advisory Committee meeting will be held at 6.00 pm on Wednesday, 18 November 2020 in the Council Chamber, 7000 Great Eastern Highway, Mundaring.

The attached agenda is presented for your consideration.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Jonathan Throssell".

Jonathan Throssell
CHIEF EXECUTIVE OFFICER

Please Note

If an Elected Member has a query regarding a report item or requires additional information in relation to a report item, please contact the senior employee (noted in the report) prior to the meeting.



AGENDA
ENVIRONMENTAL ADVISORY COMMITTEE MEETING
18 NOVEMBER 2020

ATTENTION/DISCLAIMER

The purpose of this Committee Meeting is to discuss and make recommendations to Council about items appearing on the agenda and other matters for which the Committee is responsible. The Committee has no power to make any decisions which are binding on the Council or the Shire of Mundaring unless specific delegation of authority has been granted by Council. No person should rely on or act on the basis of any advice or information provided by a Member or Employee, or on the content of any discussion occurring, during the course of the Committee Meeting.

The Shire of Mundaring expressly disclaims liability for any loss or damage suffered by any person as a result of relying on or acting on the basis of any advice or information provided by a Member or Employee, or the content of any discussion occurring during the course of the Committee Meeting.

CONTENTS

1.0	OPENING PROCEDURES	4
1.1	ANNOUNCEMENT OF VISITORS.....	4
1.2	ATTENDANCE/APOLOGIES	4
2.0	ANNOUNCEMENTS BY PRESIDING MEMBER WITHOUT DISCUSSION	4
3.0	DECLARATION OF INTEREST	4
3.1	DECLARATION OF FINANCIAL INTEREST AND PROXIMITY INTERESTS	4
3.2	DECLARATION OF INTEREST AFFECTING IMPARTIALITY.....	4
4.0	CONFIRMATION OF MINUTES OF PREVIOUS MEETINGS	4
5.0	PRESENTATIONS	4
6.0	REPORTS OF EMPLOYEES	5
6.1	PROGRESS ON REDUCING ENERGY AND EMISSIONS.....	5
6.2	REVIEW OF EAC TERMS OF REFERENCE.....	19
7.0	URGENT BUSINESS (LATE REPORTS)	25
8.0	CLOSING PROCEDURES	25
8.1	DATE, TIME AND PLACE OF THE NEXT MEETING	25
8.2	CLOSURE OF THE MEETING	25

**ENVIRONMENTAL ADVISORY COMMITTEE MEETING
COUNCIL CHAMBER, 7000 GREAT EASTERN HIGHWAY, MUNDARING – 6.00 PM**

1.0 OPENING PROCEDURES

Acknowledgement of Country

Shire of Mundaring respectfully acknowledges the Whadjuk people of the Noongar Nation, who are the traditional custodians of this land. We wish to acknowledge Elders past, present and emerging and respect their continuing culture and the contribution they make to the region.

1.1 Announcement of Visitors

1.2 Attendance/Apologies

Staff Ruth Broz Minute Secretary

Apologies Angus Money Manager Planning and Environment

Guests

2.0 ANNOUNCEMENTS BY PRESIDING MEMBER WITHOUT DISCUSSION

3.0 DECLARATION OF INTEREST

3.1 Declaration of Financial Interest and Proximity Interests

Elected Members must disclose the nature of their interest in matters to be discussed at the meeting (*Part 5 Division 6 of the Local Government Act 1995*).

Employees must disclose the nature of their interest in reports or advice when giving the report or advice to the meeting (*Sections 5.70 and 5.71 of the Local Government Act 1995*).

3.2 Declaration of Interest Affecting Impartiality

An Elected Member or an employee who has an interest in a matter to be discussed at the meeting must disclose that interest (*Shire of Mundaring Code of Conduct, Local Government (Admin) Reg. 34C*).

4.0 CONFIRMATION OF MINUTES OF PREVIOUS MEETINGS

RECOMMENDATION

That the Minutes of the Environmental Advisory Committee Meeting held 19 August 2020 be confirmed.

5.0 PRESENTATIONS

6.0 REPORTS OF EMPLOYEES

6.1 Progress on Reducing Energy and Emissions

File Code	EV.PRG 13
Author	Briony Moran, Coordinator Environment and Sustainability
Senior Employee	Adrian Dyson, Acting Director Statutory Services
Disclosure of Any Interest	Nil
Attachments	1. Emissions Snapshot for 2019/2020

SUMMARY

This report summarises work undertaken to reduce the Shire's energy use and greenhouse gas emissions since Council adopted an emissions reduction target; notes the substantial proportion of emissions from streetlighting; and recommends advocacy for an accelerated change to more energy efficient streetlights.

BACKGROUND

An Energy and Emissions Reduction Strategy (EERS) was adopted by Council at its meeting of 11 September 2018 (C9.09.18).

The focus of the EERS was on reducing the Shire's energy use and 'corporate emissions', for which the Shire has the most direct control and responsibility, and where future energy cost savings could be shared by all ratepayers. Emissions from Shire facilities and vehicles are currently measured through the Azility service which records energy use (electricity, gas and fuel) and calculates resulting greenhouse gas emissions.

The EERS contains an emissions reduction target which is "to reduce corporate emissions by 30% by 2030, from 2016/2017 levels."

The EERS includes principles to guide efforts to reduce the Shire's overall emissions:

1. Reduce energy requirements by implementing efficiency measures and purchasing more efficient items and vehicles;
2. Directly increase use of renewable energy by installing Photovoltaic (PV) systems at suitable Shire facilities;
3. Reduce or offset some emissions by purchasing decisions, such as GreenPower or accredited carbon offsets.

The EERS states that "the Energy and Emissions Reduction Strategy (EERS) and target will require review every four years to adapt to changing national policies and programs." The next review is of the EERS and target is due mid-2022.

At the same meeting, Council also decided to join the Australian Climate Council's Cities Power Partnership (CPP) program for local governments. After joining CPP, the Shire was required to select five actions from a list which contribute to emissions reduction. These actions are listed below:

1. Lobby state and federal government to address barriers to the take up of renewable energy, energy efficiency and/or sustainable transport, and to support increased ambition;
2. Implement an education and behaviour change program to influence the behaviour of council officers, local residents and businesses within the municipality to drive the shift to renewable energy, energy efficiency and sustainable transport;
3. Establish a revolving green energy fund to finance energy efficiency and renewable energy projects, receiving savings from implemented energy initiatives;
4. Install renewable energy (such as solar PV and battery storage) on council buildings; and
5. Roll out energy efficient lighting across the Shire, ensuring all new lighting (particularly street lighting) is energy efficient and existing lighting is targeted for replacement.

Progress to date is summarised in the 'Comment' section below.

STATUTORY / LEGAL IMPLICATIONS

Nil

POLICY IMPLICATIONS

The Shire's Environmental Sustainability Policy includes policy statements relating to energy, emissions and climate change:

- 1.4. Human induced climate change is recognised as a key threat to biodiversity, requiring mitigation action to reduce carbon emissions at all levels of government, and adaptation to local impacts.*
- 2.1 The Shire will pursue and promote improved water and energy efficiency, reduced carbon emissions and sustainable use of natural resources.*
- 2.2 Energy and water efficiency is a key consideration in design, construction, maintenance or renovation of Shire facilities, and in the purchase of vehicles, machinery, fittings and appliances.*

FINANCIAL IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Mundaring Strategic Community Plan 2020 - 2030

Priority 2 - Natural Environment

Objective 2.4 – Energy management that is efficient and sustainable

Strategy 2.4.2 – Improve energy efficiency and adopt low-emissions technology

SUSTAINABILITY IMPLICATIONS

Reducing the Shire's energy use and emissions will have social and environmental benefits by contributing to the avoidance of catastrophic levels of global climate change. Where energy requirements can be reduced substantially or replaced with on-site renewable energy, it may also have economic benefits by reducing the Shire's exposure to rising energy costs and future regulation.

RISK IMPLICATIONS

Risk: Reputational – Shire of Mundaring does not reduce energy use and carbon emissions in line with adopted target		
Likelihood	Consequence	Rating
Possible	Moderate	Moderate
Action / Strategy		
Continue to work towards and monitor progress in reducing energy use and emissions		

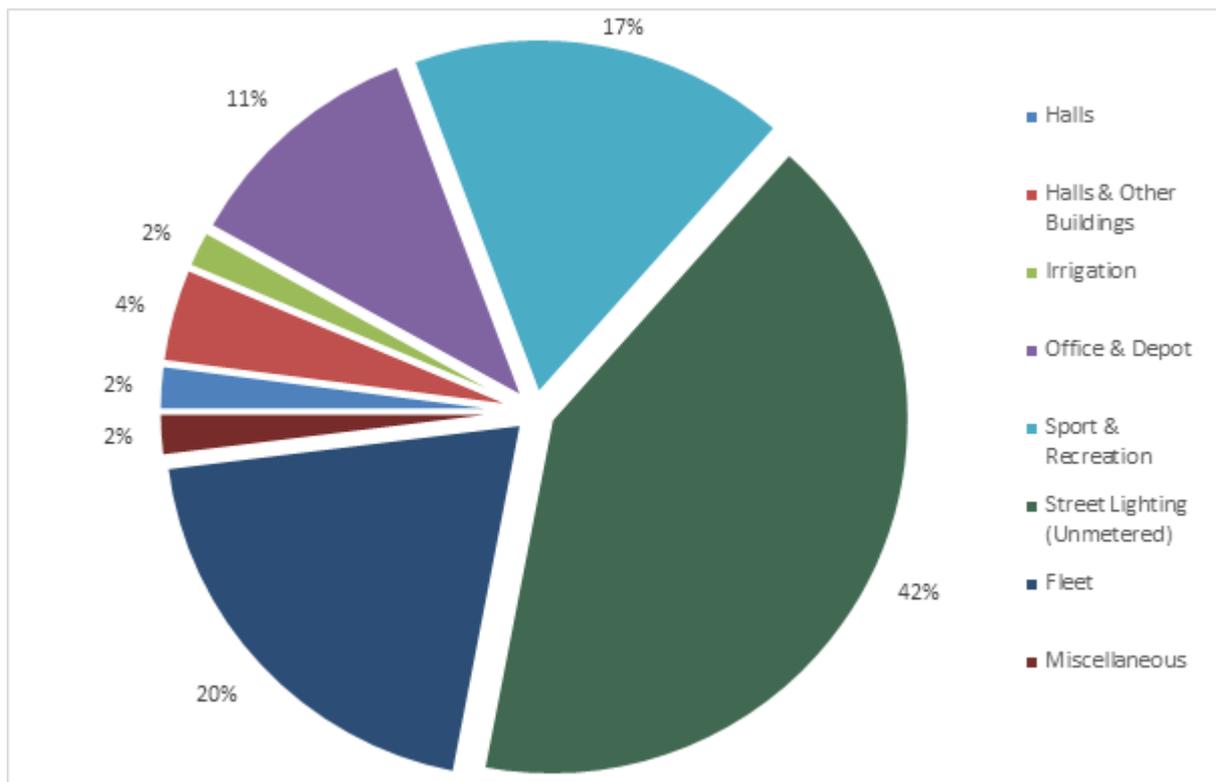
EXTERNAL CONSULTATION

No external consultation was required.

COMMENT

The chart below shows the sources of the Shire’s greenhouse gas emissions or ‘carbon footprint’ for the 2019/2020 year, categorised by use. In many cases there are multiple uses and facilities on one site, however there is only one electricity meter so the site (and all related energy use and emissions) is classified by its main use. For example, an oval will be classified as ‘sport and recreation’ but will include electricity used on site for lighting, irrigation and buildings. The miscellaneous category includes fire and emergency sites and decorative lighting.

Shire greenhouse gas emissions 2019/2020 by source (provided by EMRC):



Street lighting is the single most significant source (42%) of greenhouse gas emissions from Shire facilities and activities. While the streetlight related emissions for 2019/2020 contain some estimated use and will be adjusted based on final billing information, this is consistent with the proportion (41%) in the baseline year 2016/2017. Emissions from community facilities and Shire administration sites together make up approximately one third of emissions. Fuel use by the Shire’s vehicle fleet and machinery currently causes 20% of emissions.

The emissions snapshot (Attachment 1) was prepared by Eastern Metropolitan Regional Council (EMRC) in October 2020, using information from the Azility energy and water monitoring service. The energy use is based on billing and purchasing information, and the emissions are calculated based on the source. While the amount of energy used by the Shire is accurate, some adjustments in the emissions totals may occur as more accurate emissions intensity is received for the South West Interconnected System (SWIS) for that year.

The emissions snapshot includes a graph of six years of greenhouse gas emissions (although it should be noted again that the final figure for 2019/2020 will be revised based on final streetlight information). The graph shows that the Shire's emissions fell slightly in 2018/2019 but appear to have risen again in 2019/2020 to a level close to 2017/2018. Emissions from fleet and machinery were consistent with the previous year at just over 900 tonnes of CO₂-equivalent. Emissions from the Shire Administration and Civic Centre and Depot fell slightly (likely due to repaired solar panels and inverter for Administration and changes to air conditioning) however all other categories recorded increases. This is due to increased electricity use across many sites, which can vary annually such as use of air conditioning based on weather conditions.

Sum of Annual Electricity Usage (kWh)				
Category	2016/2017	2017/2018	2018/2019	2019/2020
Fire and Rescue	27,908	30,007	25,290	32,913
Halls	78,408	80,322	60,966	72,773
Other Buildings	169,246	155,779	114,673	132,709
Irrigation	62,844	65,987	49,268	95,440
Office & Depot	459,347	444,352	395,416	393,868
Other Lighting	16,964	11,993	10,116	11,942
Parks and Reserves	30,306	33,261	24,409	31,660
Sport & Recreation	591,205	727,013	632,125	706,064
Street Lighting	1,654,323	1,695,247	1,739,065	2,038,302 *
Waste	1,802	3,165	2,497	2,788
Grand Total (kWh)	3,092,353	3,247,126	3,053,825	3,518,459 *

* Figure for streetlighting 2019/2020 includes some estimated use and will be revised on final billing information. While new lighting has been added, as a consequence of residential subdivisions and the Great Eastern Highway upgrades, streetlighting emissions may be currently overestimated and 2019/2020 emissions total could be revised down.

Actions to date are summarised below, along with plans for some additional actions and notes on potential issues in reducing emissions.

Buildings and Facilities

These actions relate to two Cities Power Partnership items, to roll out energy efficient lighting and to install renewable energy on council buildings. A key challenge to reducing emissions from buildings and facilities by 2030 will be the addition of new facilities and oval lighting, if no older facilities are retired. Energy efficiency improvements and renewable energy additions for Shire facilities in the last two years include:

- continued practice of LED lighting replacements has continued across Shire managed buildings and facilities, as well as new oval lighting;
- Administration Building and Civic Centre solar panels cleaned and repaired and inverter replaced (2019);
- Administration Building and Civic Centre introduced night purging to reduce air conditioning load (2019);

- Depot replaced external lighting with LED and solar lights (2019);
- Boya Community Centre installation of new 35kW solar panels (2020);
- Mundaring Arena installation of new 35kW solar panels (2020); and
- Trialling different refrigerant gas in part of air conditioning system at depot (2020).

Installation of the new solar panels on Boya Community Centre and Mundaring Arena was completed in early June 2020. The reduction in emissions from energy use at those facilities in the 2019/2020 year is minimal however a change should be apparent in the 2020/2021 report. The energy generated from the solar panels is able to be viewed online, with an estimate of CO₂ emissions saved from each building.

Additional solar panels are currently being planned for the Administration Building and Civic Centre and expected to be operational early in 2021. A solar and battery system is being investigated for the new Containers for Change collection facility at Coppin Road Community Recycling Centre.

The Shire has participated in an EMRC Building Benchmarking Project (BBE) in 2020. The BBE project involves 83 building energy audits and benchmarking across five participating councils; Town of Bassendean, City of Bayswater, City of Belmont, Shire of Mundaring, and City of Swan. Facilities included for the Shire of Mundaring included the Administration Building and Civic Centre, Depot, Bilgoman Aquatic Centre, Lake Leschenaultia, Mundaring Arena, Hub of the Hills, Boya Community Centre, and Midvale Early Childhood and Parenting Centre.

The completion of the energy audits was delayed by Covid-19 and reports with specific recommendations for individual facilities are expected to be received in November 2020. The results will assist the Shire to plan and prioritise future energy and emissions reductions actions for those buildings and facilities. Some sites will be recommended for new or additional solar panels. Some sites may not be suitable for installation of solar panels due to irregular use, or if regular use occurs in the evenings. Other recommendations are expected to include:

- Submetering to more accurately determine where energy is being used;
- Removal and replacement of inefficient heaters and air conditioners;
- Adjustments to settings on air conditioners;
- Prompts and reminders near switches and air conditioners;
- Increased use of timers and sensors;
- Solar hot water systems as electric systems require replacement; and
- Increased insulation.

Some sites have limited scope to either reduce energy use or install onsite renewable energy. For the majority of Shire sites and accounts, electricity use can only be supplied through Synergy as it is below the threshold (50 MWh) to be 'contestable'. Once streetlights are excluded, six high energy use sites make up close to two thirds of the Shire's electricity use. For these contestable sites there may be an opportunity to participate in a local government group purchase of renewable energy through a power purchase agreement (PPA). This is an established practice in the eastern states, where aggregated demand and longer contracts can reduce electricity purchase costs (compared to current prices) as well as support investment in new renewable energy generation.

Shire of Mundaring and five other Perth based local governments participated in a non-binding investigation stage with an eastern-states based provider in 2020. Initial findings

were reportedly positive in terms of prices, however there are governance and procurement issues for joint purchasing. Officer discussions are continuing and it appears likely that one of the larger local governments will offer to lead a group procurement process to investigate further and produce a business case. The cost for the Shire to participate in a group procurement of consultancy services for a PPA is not known yet. If a PPA is found to be a cost effective way of reducing emissions and is pursued, it would still not take effect for several years (perhaps 2022 or 2023) as current contestable electricity supply contracts expire.

Fleet

Emissions from the Shire's petrol and diesel vehicles contributed 20% of the Shire's carbon footprint in 2019/2020. The Shire's revised Purchasing Policy AS-04 was adopted by Council 10 December 2019 (C9.12.19). The Purchasing Policy now includes a sustainable procurement section and a sustainability purchasing principle; "Energy and water efficiency are key considerations in purchasing decisions, and reusable, recycled content or recyclable products are preferred where available and practical." Vehicle purchasing decisions also have to be based on safety, effectiveness, and affordability.

Fuel efficiency has been a purchasing criteria for Shire vehicles for many years. One hybrid vehicle has previously been trialled within the light vehicle fleet, but the current fleet contains only internal combustion engine (ICE) vehicles. For the light vehicle fleet, current hybrid and full EV vehicles have a higher purchase cost than their ICE equivalents, which also results in higher ongoing costs from fringe benefits tax.

Replacement of light fleet vehicles has been placed on hold as part of the Shire's Covid-19 financial response, and there are few non-ICE options as yet for heavy vehicles and machinery. Electric trucks are in development and beginning to become available in Australia. Trials by other local governments will be monitored. Hydrogen powered heavy vehicles are also in development but appear unlikely to compete on cost with electric vehicles (EV) in most applications.

Assistance and incentives for uptake of EV have been extremely limited in Australia and the uptake has been relatively slow. While EV and battery technology have been developing rapidly, public perceptions are likely to be based on out of date information about range limitations and the need for frequent charging. Average vehicle operating costs may be lower for EV and hybrid vehicles but purchase costs are still higher for EV and hybrid than equivalent ICE vehicles. EV are following a rapid technological development path and exponential adoption curve similar to smart phones, with expectations for increasing capability and decreasing cost each year for the next decade.

Many countries have legislated dates for banning new ICE vehicle sales, and some major manufacturers have responded by ending development of ICE engines. Some countries that initially set dates of 2040 are now bringing forward their dates to 2030. The Australian vehicle market is relatively small, and part of the right-hand drive market (which includes the United Kingdom, Singapore, and Japan). Even if no Australian phase-out date is set for ICE, the range of vehicles available to the Shire will be affected by the rapid pace of change in other countries over the next decade.

A recent survey of fleet managers across various industries by the Australasian Fleet Management Association for the Electric Vehicles in Business Fleets report found that the greatest concern about adoption of EV by local governments was the purchase cost, followed by the cost of installing charging infrastructure, and then uncertainty on resale values. Each of these is also valid for the Shire's vehicle purchasing decisions. The crossover point where EV become cheaper than equivalent ICE passenger vehicles is

anticipated around 2024-2025, and cost will then become an incentive rather than a barrier to broad adoption of EV.

There is a 'chicken and egg' issue with public EV charging infrastructure, in that current low numbers of EV do not support significant private investment in charging stations, and the lack of stations discourages faster uptake of EV. While data from other jurisdictions show that the vast majority of charging occurs at home or work, there is a need for a visible, coherent and reliable public fast charging network in WA. For the Shire to adopt plug-in 'full' EV rather than hybrid vehicles will require an investment in charging infrastructure, with some reliance on the broader public charging network.

The WA Distributed Energy Resources Roadmap and Distributed Energy Buyback Scheme (DEBS) released earlier this year recognise electric vehicles as 'batteries on wheels' that add energy storage to the network. In the future EV owners will be able to receive payments (similar to solar panels) when exporting to the grid at times of high demand. It is unclear if this will be of significance to local government fleets.

The release of the State Climate Policy and possibly the WA Electric Vehicle Strategy are anticipated by the end of 2020. If the Electric Vehicle Strategy includes State Government investment in a fast charging network and other supports for EV then decisions could be made by fleet managers to switch to an EV light vehicle fleet more rapidly. If a fuel supply shock occurred with interruption and delays to petrol and diesel deliveries into WA, this could also cause a more rapid transition to hybrid vehicles and EV.

Shire staff will continue to monitor available vehicle models, safety, costs and opportunities to transition from ICE vehicles over the next two years, but anticipate that the most significant changes will occur from 2024 onward. Full EV vehicles have the greatest potential to reduce the Shire's fleet emissions, especially if they are charged primarily from renewable energy (on site via solar panels or purchasing renewable power). There is more significant uncertainty on the timing of development of affordable and effective EV or hydrogen replacements for machinery and heavy vehicles compared to the passenger fleet.

In summary, it is currently unlikely that total fleet emissions can be reduced by 30% by 2030 and it is possible some purchasing of carbon offsets may be required for the Shire to achieve its target.

Streetlights

Emissions from streetlights formed approximately 42% of the Shire's carbon footprint in 2019/2020. Almost all streetlights within the Shire are owned and maintained by Western Power, but with electricity use billed to the Shire. Streetlights along highways have electricity costs shared between the Shire and Main Roads WA.

The cost and emissions from streetlights appear to have increased from 2018/2019. This is likely due to the addition of some streetlights in new subdivisions, and increased lighting along the upgraded section of the Great Eastern Highway. Since the adoption of the Environmental Sustainability Policy OR-23 in June 2018 (C5.06.18), developers have been advised that new streetlights required to be installed as conditions of subdivision approval are required to be LED. Once installed by the developer, ownership of the streetlights is transferred to Western Power. The Shire requested that Main Roads WA new lighting along the Great Eastern Highway be energy efficient LED, however this did not occur.

As Western Power owns the majority of street lighting infrastructure across the SWIS it controls changes to the majority of lamps (there are exceptions in parts of the Cities of Perth, Joondalup and Subiaco). The phasing out of older lamps and changeover to LED streetlights varies across Australia, but has been slow within the SWIS. The transition to

LED streetlights around Perth has been restricted by delays in adding LED streetlights to Western Power’s list of permitted lamps and setting tariffs for LED streetlights, and lack of clarity regarding costs to local governments to change lamps.

EMRC has provided the summary below of the mix of streetlights across the Shire with indicative electricity use and emissions, based on billing information from June 2019:

Asset Type	Number of Lamps (June 2019)	Electricity Usage (kWh)	Emissions (tCO2-e)
22W LED - C	1	128	0.09
125W Mercury Vapor - C	737	538,010	371.23
150W High Pressure Sodium - C	53	46,428	32.04
150W Metal Halide - C	18	15,768	10.88
250W High Pressure Sodium - A	3	4,380	3.02
250W High Pressure Sodium - C	498	727,080	501.69
250W Mercury Vapour - C	1	1,460	1.01
250W Metal Halide - C	7	10,220	7.05
42W CFL SE - C	803	196,960	135.90
42W CFL SE - M	1	245	0.17
70W High Pressure Sodium - C	7	2,862	1.97
70W Metal Halide - C	73	29,842	20.59
80W Mercury Vapour - C	1053	491,962	339.45
TOTAL	3255	2,065,345	1,425.09

Since June 2019, the number of 80W mercury vapour lamps within the Shire has decreased slightly and more LED lamps have been installed. A transition from older lamps can occur slowly, as individual lamps burn out and are gradually replaced by more efficient LED. It is also possible to accelerate the transition: some local governments are investigating options and costs to pay Western Power to change over all or part of their streetlights. Significant bulk changeovers have already occurred in all Australian states and territories, and within the regional WA Horizon Power network outside of the SWIS.

Where a local government pays for the full upfront cost of an LED retrofit for a streetlight within the SWIS, there is provision for discounted daily charges for that streetlight. The Economic Regulation Authority provided for differential charges from 1 July 2019, with Reference Tariff RT30 consisting of “a user-specific charge that is to be an amount which reflects the costs to Western Power of replacing the existing streetlight with the LED streetlight replacement requested by the user which may consist of capital and non-capital costs.”

Metropolitan local governments have received indicative cost estimates from Western Power of around \$700 per streetlight, meaning the upfront cost will be substantial, and there is uncertainty around the length of the discount term based on the life of the assets. A local government driven streetlight replacement program will require many individual local governments (or regional councils) to engage consultants to assess the overall financial costs and benefits, as well as emissions reduction potential, to prepare business cases for funding bulk LED changeover projects. This patchwork approach will be slower than necessary and is unlikely to prioritise changeover efforts towards areas where streetlights are oldest or most inefficient. It may also miss opportunities to build in brightness controls, monitoring or other ‘smart’ streetlight features across the SWIS.

Western Power has been conducting an LED smart streetlight trial, which is due to conclude soon:

“In November 2019, we commenced our smart streetlights trial in Melville. The 12-month trial is testing new technology that will provide communities with an enhanced streetlighting product that can automatically report its own faults for quicker repairs, be dimmed/brightened remotely and reduce CO2 emissions by up to 65% (compared to standard streetlights).”

While LED streetlights will use significantly less electricity, the costs and payback time to change out streetlights across the Shire is unknown and staff are investigating further. Additional information should become available after the smart streetlights trial concludes. A range of factors will affect the costs of change for the Shire of Mundaring, including:

- Initial charges for replacing streetlights to LED;
- Appropriate bulbs for different settings;
- Maintenance cost of LED vs previous maintenance cost;
- Maintenance schedule;
- Changes in cost of power and tariff settings;
- Opportunities to participate in regional initiatives or grant funded projects; and
- Possibility of including streetlighting as a ‘contestable’ power purchase in future, which allows for a tender for alternative electricity suppliers.

This issue affects local governments across the SWIS and the Western Australian Local Government Association (WALGA) has been advocating for more energy efficient streetlighting for a number of years. WALGA has described a key reason for the lack of progress:

“The misalignment of objectives is one of the key reasons that the introduction of more energy efficient technologies has been slow. Western Power aims to maximise its returns from the street lighting network, and to reduce associated risks. By contrast, Local Governments have a wide range of objectives on behalf of the community, including improving public amenity and safety, reducing greenhouse gas emissions and energy consumption, and minimising costs.”

EMRC is in the early stages of investigating a regional initiative to speed up the transition to more efficient streetlighting, reducing emissions and ongoing electricity costs for member councils. The cost to engage consultants directly, or through participation in an EMRC regional project, to produce a detailed analysis and business case for a bulk changeover to LED streetlights is not known yet. However, as the infrastructure is effectively owned by the State Government, there is an opportunity for the State Government to fund, support and coordinate a more rapid changeover of streetlights across the SWIS which would reduce greenhouse gas emissions across the region. The costs of transition are currently a barrier and advocacy for assistance would be consistent with this CPP action:

“Lobby state and federal government to address barriers to the take up of renewable energy, energy efficiency and/or sustainable transport, and to support increased ambition.”

This report recommends that the Shire’s advocacy efforts are particularly focussed on streetlights in the short term, due to their large contribution to the Shire’s carbon footprint, and readily available LED lighting options to reduce energy use. As this issue affects

other local governments, this should include participation in EMRC and WALGA advocacy for energy efficient streetlighting as well as direct Shire actions.

Encouraging Community Emissions Reduction

Shire of Mundaring subscribed to the Switch Your Thinking program as a member council in July 2019. The Switch Your Thinking program provides energy efficiency and sustainability information and programs, and gives residents and local businesses access to discounts from participating suppliers (including discounted solar panels). Switch Your Thinking staff provided a presentation on household energy efficiency in Mundaring in March 2020 as part of the Blue Sky Festival, however the main Festival was cancelled. Shire residents have had access to online information from Switch Your Thinking including webinar presentations through the period of restricted events in 2020.

Improved energy efficiency information is now provided to residents planning to build new homes through a Shire-specific Passive Solar Building Design information sheet published in September 2019. A free 'Sustainable Homes' workshop for residents with a solar architect was also held in December 2019.

On 20 February 2020 the Shire together with volunteers from the local Climate Change Interest Group provided a free screening of the climate documentary '2040' at the Kookaburra Outdoor Cinema. Attendees of all ages were invited to participate in a visioning exercise before the screening began, responding to the prompt: *"I imagine a positive and sustainable low carbon Mundaring as being like this by 2040..."* Contributions were compiled into a report by members of the Climate Change Interest Group and provided to the Shire and Councillors.

In February 2020 the Shire also joined the ClimateClever program as a member Council. This provides schools and households with discounted access to programs to monitor and reduce their energy, water and waste. At least one local school is participating, however promotion of the program and meetings for interested schools and teachers have been difficult in 2020 due to Covid-19.

Advocacy

Many factors affecting the Shire's greenhouse gas emissions are not within the Shire's control. The EERS states:

"To date there has been a concerning lack of direction from the State and Commonwealth Governments, and Australia's emissions are well above the levels required to meet the national target of 26-28% reduction by 2030 (from 2005 levels). Advocacy for effective leadership and action from the State and federal governments will therefore be a necessary component of the Energy and Emissions Reduction Strategy and associated action plan."

This is consistent with the Cities Power Partnership action, *"Lobby state and federal government to address barriers to the take up of renewable energy, energy efficiency and/or sustainable transport, and to support increased ambition."*

Since the EERS was adopted in 2018, the WA Energy Transformation Strategy was released in March 2019, and an Energy Transformation Taskforce established in May 2019. Advocacy actions taken by the Shire to date include:

- Participation in sector consultation for Distributed Energy Resources Roadmap and Whole of System Plan, elements of Energy Transformation Strategy (July 2019)
- Submission to Environmental Protection Authority on Greenhouse Gas Emissions Assessment Guidance (September 2019);

- Participation in sector consultation for WA Housing Strategy (October-November 2019)
- Submission to Department of Water and Environmental Regulation on Climate Change in Western Australia issues paper (November 2019); and
- Council declaration of climate emergency and letters to Premier and Prime Minister (December 2019 – January 2020).

The WA Housing Strategy was released on 14 October 2020. The State Climate Policy and Electric Vehicle Strategy are expected to be released within months. Significant steps in adding renewable energy and ‘greening the grid’ are expected for the South West Interconnected System (SWIS) following a series of changes and announcements this year.

A community-scale Tesla battery was installed in Ellenbrook and, in February 2020, residents with solar panels were invited to participate in a community ‘PowerBank 2’ battery storage trial. This followed on from the first PowerBank trial in Mandurah. Both were completed as part of a Synergy – Western Power partnership. Community batteries provide lower cost energy storage than individual household batteries, but are likely to be targeted to more densely populated areas (both Mandurah and Ellenbrook are in Western Power’s Top 10 Solar Suburbs list based on number of solar PV systems per postcode).

The Distributed Energy Resources Roadmap was announced in April 2020, followed in July by State Government ‘clean energy projects’ funding for installation of solar panels and batteries in specific locations (including Virtual Power Plants at 10 schools). None of the schools selected for the two year Virtual Power Plants pilot projects are within the Shire of Mundaring. Also in July, the Public Transport Authority announced a trial of electric buses with fast chargers in Joondalup.

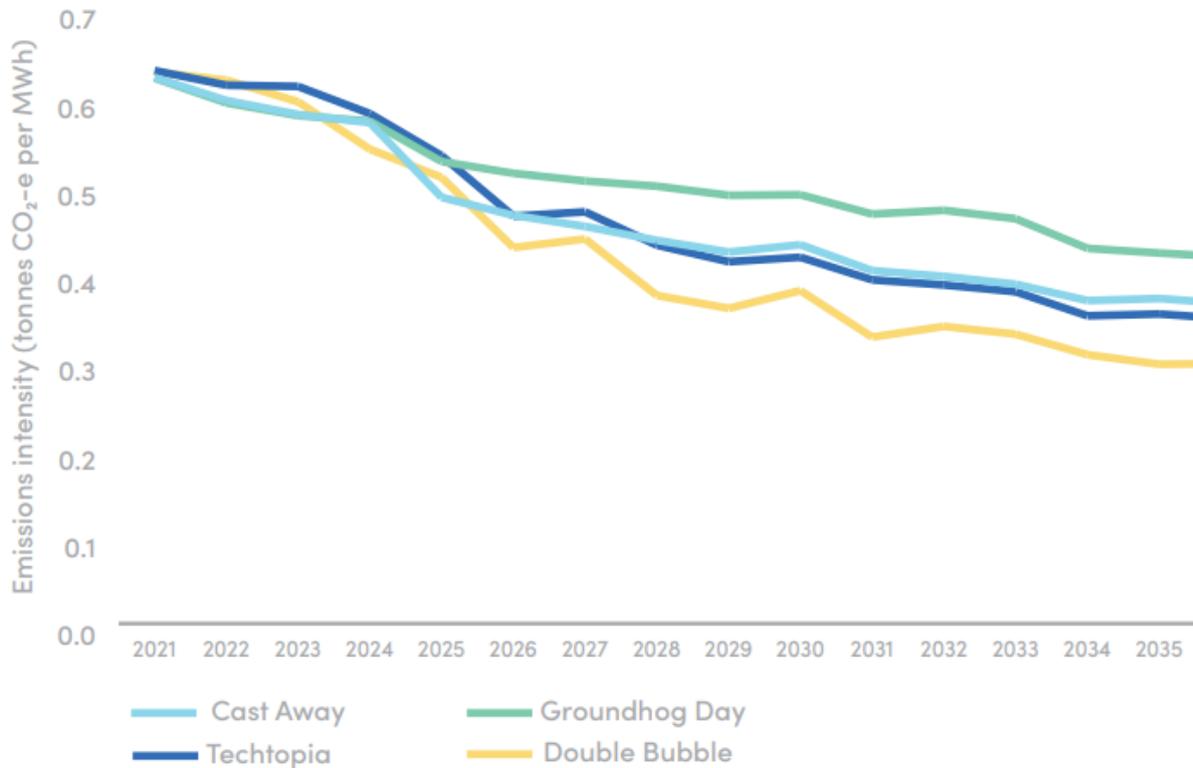
The Distributed Energy Buyback Scheme (DEBS) was announced in August 2020. This extends export payments from solar PV to include batteries (including EVs) and introduces time-of-export payments which will provide an incentive to install west facing solar panels. Additional funding to increase the installation of advanced meters across the SWIS was announced in September, expected to add another 180,000 meters within two years.

Changes to the Electricity Networks Access Code were gazetted in September 2020. On 2 October 2020 the State Government announced plans for a 100 megawatt battery to be housed at the decommissioned Kwinana Power Station, which “if feasible, a contract could be awarded by May 2021 and the battery could be operational by September 2022”. Proposed changes to the Wholesale Electricity Market rules for the SWIS have also been released for comment in October.

The Whole of System Plan (WOSP) was released on 12 October 2020. The plan has four different modelled scenarios (variations on business as usual) for changes to the SWIS over the next 20 years. In each scenario, renewable energy generation capacity increases from 34% in 2020 to over 70% by 2040. This transition is based on current policy settings: *“As there is no explicit climate or emissions reduction policy targeting the electricity sector, no State or Federal target or carbon price has been included in the modelling.”*

Rooftop solar panels will continue to replace other energy sources, particularly coal (which declines under all scenarios). The rate of change varies under the different scenarios which are based on different conditions for economic and population growth. The rate of change could be influenced by policy initiatives, and production of the next generation of solar panels which further increase efficiency and lower cost. It could also be influenced by broader social changes such as in increase in people working from home.

The graph below is an excerpt from the WOSP (page 12) and shows the expected reduction in emissions intensity under the four different scenarios. While actual changes may be higher or lower depending on a wide range of factors, it appears likely that emissions intensity for electricity will reduce by at least 20% and could be over 30% by 2030. These changes in the SWIS will reduce emissions from electricity use for Shire facilities and activities that are not suitable for on-site solar panels and have limited options to reduce energy use.



Annual emissions intensity to meet end-user demand, tonnes CO₂-e per MWh

The new Merredin Solar Farm connected to the SWIS in April 2020. Construction of two new wind farms (Warradarge and Yandin) is expected to be completed by the end of 2020. A significant expansion to the Greenough River Solar Farm is also near completion, which will add further renewable energy to the SWIS. Staged retirements of units of the coal-fired Muja Power Station were announced in August 2019, to take effect in 2022 and 2024.

Emissions intensity for SWIS electricity will continue to fall as more renewable energy is added to the network. This would reduce the Shire's greenhouse gas emissions from using electricity, if no new streetlights and facilities were added. The rate and extent of change in the SWIS by 2030 is reliant on State Government and private sector investment. It is difficult to judge the impact of advocacy actions to date, however a number of the changes and trials announced this year align with Shire submissions and suggestions in stakeholder engagement processes.

Offsets

It would be possible to pay to offset all of the Shire's carbon emissions, or for emissions from a specific source such as the vehicle fleet. The EERS uses the principle that Shire funds and staff time should first be directed to efficiency measures and increasing use of renewable energy, which can have ongoing emissions reduction and cost saving benefits. If other Shire actions do not achieve the full 30% target by 2030, then the Shire may choose to purchase carbon offsets.

The cost to purchase offsets is expected to increase significantly as demand grows from voluntary action as well as changes to regulations and trade. The current price for Western Australian based offsets is around \$20 per tonne of CO₂-equivalent. There are cheaper international carbon offsets available that are currently less than \$10 per tonne. Some large companies that are exposed to greenhouse emissions reduction measures have been factoring in future carbon offset prices of around \$100 per tonne by 2030.

As noted above, it may be difficult to reduce emissions from Shire vehicles to the same extent as emissions from streetlights and facilities by 2030. While the Shire could currently offset greenhouse gas emissions from its fleet and machinery for between \$5,000 (international) and \$15,000 (all Australian biodiversity projects), this cost could feasibly be ten times higher by 2030.

Some conventional forms of carbon offsetting, such as forestry planting, may become less viable due to increased droughts, fires and other early impacts of climate change. This may further increase the cost of carbon offsets by 2030.

VOTING REQUIREMENT

Simple Majority

RECOMMENDATION

That Council:

1. Notes the content of this report;
2. Acknowledges achievement of the '30% by 2030' emissions reduction target adopted by Council in 2018 will require ongoing effort across the Shire;
3. Authorises the Shire President to write to the Minister for Energy to advocate for State Government support, funding and coordination of an accelerated changeover to energy efficient streetlights; and
4. Authorises the Shire President to write to the Eastern Metropolitan Regional Council and the Western Australian Local Government Association to encourage advocacy, support and coordination of an accelerated changeover to energy efficient streetlights.



Shire of Mundaring

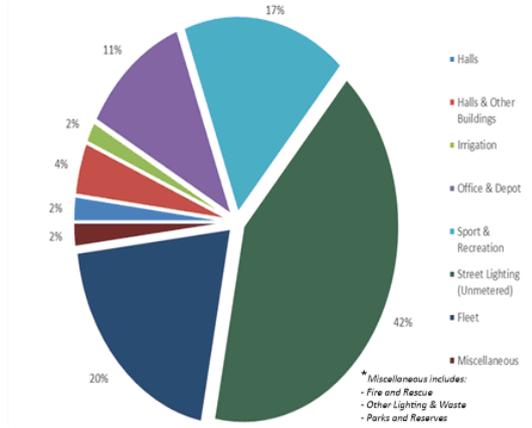
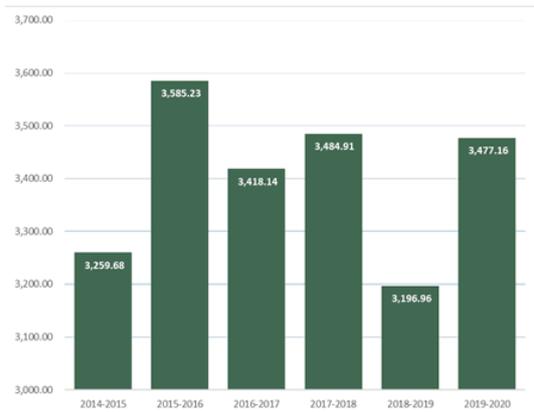
Emissions Snapshot



Total corporate emissions
2019/2020

3,477.16 tCO₂-e

a 9% increase on 2018/2019



TARGET:
To reduce corporate emissions by
30% by 2030
from 2016/2017 levels

Organisational Units Emission Reduction in 2019/2020

Organisational Units	2018/2019 tCO ₂ -e	2019/2020 tCO ₂ -e	%Change
Fire and Rescue	18.97	24.02	27%
Halls	45.72	53.12	16%
Halls & Other Buildings	89.51	99.93	12%
Irrigation	36.95	69.67	89%
Office & Depot	296.56	287.52	-3%
Other Lighting	7.58	8.72	15%
Parks and Reserves	18.31	23.11	26%
Sport & Recreation	475.23	516.64	9%
Street Lighting (Unmetered)	1,304.30	1,487.96	14%
Waste	1.87	2.03	9%
Fleet	901.95	904.43	0%



6.2 Review of EAC Terms of Reference

File Code	GV.MTG 6/7
Author	Briony Moran, Coordinator Environment and Sustainability
Senior Employee	Adrian Dyson, Acting Director Statutory Services
Disclosure of Any Interest	Nil
Attachments	1. Environmental Advisory Committee Terms of Reference

SUMMARY

This report requests that the Committee recommends Council maintains the current Environmental Advisory Committee (EAC) Terms of Reference.

BACKGROUND

The current EAC Terms of Reference (TOR) were adopted by Council at its meeting of 28 October 2019 (SC3.10.19). These terms of reference include provision for the EAC itself to review its TOR:

12.1 The Committee is to conduct a review of its terms of reference every two years.

The previous review by the EAC was undertaken in February 2018 and the revised TOR adopted by Council at its meeting of 13 March 2018 (C6.03.18). Further amendments were made by Council at its meeting of 11 September 2018 (C8.09.18) including a change to the requirements for a quorum, to be consistent with section 5.19 of the *Local Government Act 1995*.

STATUTORY / LEGAL IMPLICATIONS

Formal committees of Council are established under the *Local Government Act 1995*.

POLICY IMPLICATIONS

Nil

FINANCIAL IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Mundaring Strategic Community Plan 2020 - 2030

Priority 4 - Governance

Objective 4.4 – High standard of governance and accountability

Strategy 4.4.8 – Compliance with the Local Government Act 1995 and all relevant legislation and regulations

SUSTAINABILITY IMPLICATIONS

Nil

RISK IMPLICATIONS

Risk: Reputational – terms of reference for committees not reviewed		
Likelihood	Consequence	Rating
Unlikely	Minor	Low
Action / Strategy		
Review terms of reference regularly.		

EXTERNAL CONSULTATION

No external consultation was undertaken.

COMMENT

The TOR have been amended in 2018 and 2019 and are considered compliant with the *Local Government Act 1995*.

VOTING REQUIREMENT

Simple Majority

RECOMMENDATION

That Council maintains the current Environmental Advisory Committee Terms of Reference, noting a biennial review has been undertaken.



ENVIRONMENTAL ADVISORY COMMITTEE

TERMS OF REFERENCE

(Adopted 8 March 2016 – C4.03.16)
(Amended 25 October 2017 – SC5.10.17)
(Amended 13 March 2018 – C6.03.18)
(Amended 11 September 2018 – C8.09.18)
(Amended 28 October 2019 – SC3.10.19)

Established: October 1993

1. NAME

The name of the Committee is the Shire of Mundaring Environmental Advisory Committee.

2. HEAD OF POWER

The Committee is established by Council under section 5.8 of the *Local Government Act 1995* as a committee comprised of council members and other persons under section 5.9(2)(d).

3. DEFINITIONS

Act means the *Local Government Act 1995*.

Committee means the Shire of Mundaring Environmental Advisory Committee.

Council means the Council of the Shire of Mundaring.

Elected Member means a Councillor of the Shire of Mundaring.

4. OBJECTIVES

4.1 To provide a forum for discussion and recommendation to Council to:

- Provide advice to Council on a range of environmental and sustainability issues within the Shire of Mundaring and across the community;
- Advise on priority projects to be considered for funding in the Corporate Business Plan and/or Annual Budget;
- Receive information and provide advice on key environmental and natural resource programs, services and facilities currently provided or planned by the Shire;
- Work with the community to create and encourage increased levels of environmental awareness; and

- Make recommendations to Council on policy and appropriate courses of action to promote social, economic and environmental sustainability.
- Work within community to increase awareness in mitigation and adaptation strategies for climate change.

5. COMMITTEE STRUCTURE

5.1 The Committee shall consist of eleven members:

- Two elected members; and
- Up to nine community members with an interest and/or expertise in environmental matters and a demonstrated ability to provide impartial advice.

5.2 A quorum will be at least 50% of the number of positions on the Committee (whether vacant or not).

5.3 The Committee is supported by the Manager Planning and Environment and Coordinator Environment and Sustainability.

6. TERMS OF APPOINTMENT

6.1 Members are appointed by Council following ordinary local government elections for a term of up to two years to expire on the date of the subsequent ordinary local government elections.

6.2 If a member resigns prior to an ordinary local government election, Council will appoint a replacement.

7. PRESIDING PERSON

7.1 One elected member appointed to the Committee will be the presiding person.

7.2 In the absence of the Presiding Person the other elected member will assume the chair.

7.3 The role of the presiding member includes:

- Overseeing and facilitating the conduct of meetings in accordance with the Act and the Shire's *Meeting Procedures Local Law 2015*;
- Ensuring all Committee members have an opportunity to participate in discussions in an open and encouraging manner; and
- Where a matter has been debated significantly and no new information is being discussed, to call the meeting to order and ask for the debate to be finalised and the motion to be put.

8. MEETINGS OF THE COMMITTEE

8.1 The Committee will meet at least three times per calendar year.

8.2 Meetings of the Committee are open to the public and will be advertised on the Shire website.

8.3 An ordinary or special meeting of the Committee is to be held:

- If called for by either the presiding person or at least two Committee members in a notice to the CEO setting out the date and purpose of the proposed meeting; or
- If so decided by the Committee; or
- If called for by Council.

8.4 The Committee may invite Shire employees and other appropriate persons to attend meetings and provide pertinent information where necessary.

8.5 The first item on the agenda for all Committee meetings (after apologies) shall be the declaration by Committee members present of any financial, proximity and impartiality interests. These shall be recorded in the minutes.

8.6 Committee members who have disclosed a financial or proximity interest must not be present during discussion of and voting on the matter in which they have an interest.

8.7 Committee members who have disclosed an impartiality interest may remain in the meeting and participate in the discussion and voting, unless the interest is such that it would prevent them from impartially and objectively considering all the relevant information.

9. POWERS OF THE COMMITTEE

9.1 The Committee is a formally appointed committee of Council and is responsible to that body.

9.2 The Committee does not have any delegated authority.

9.3 Committee recommendations must be adopted by Council during a formal Council meeting before they can be implemented.

9.4 Members of the Committee are not permitted to speak to the media as representatives of the Committee unless approved by Council.

10. VOTING

10.1 Each member of the Committee present during a meeting will have one vote.

10.2 The names of members voting for and against will be recorded in the minutes.

11. REPORTING REQUIREMENTS

11.1 Recommendations arising from the Committee's deliberations shall be presented to the next ordinary meeting of Council.

12. REVIEW OF TERMS OF REFERENCE

12.1 The Committee is to conduct a review of its terms of reference every two years.

12.2 Reviewed terms of reference will be provided to Council for consideration and adoption.

13. TERMINATION OF THE COMMITTEE

13.1 The Committee can be terminated in accordance with the Act or at the discretion of Council.

7.0 URGENT BUSINESS (LATE REPORTS)

8.0 CLOSING PROCEDURES

8.1 Date, Time and Place of the Next Meeting

The next meeting of the Environmental Advisory Committee will be held on Wednesday 17 February 2021 at 6.00pm in the Committee Room, 7000 Great Eastern Highway, Mundaring.

Future Meeting Dates

Wednesday, 16 June 2021

Wednesday, 18 August 2021

Wednesday, 17 November 2021

8.2 Closure of the Meeting