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Net Zero Emissions by 2022 Plan

15 Sep-20

Executive Summary

This report outlines a plan for AAEE NSW to move rapidly to net zero emissions. It sets an ambitious target – to be net zero by 2022, reviews the association's carbon emissions footprint from its activities in 2019/20 and identifies a set of actions for the different areas where the association can reduce their carbon emissions.

The association is not typical in its carbon footprint because it does not have offices, but runs as a 'virtual' office' with its committee members geographically dispersed. The main areas of carbon emissions for the association are fuel use from travel and electricity use from its digital activities.

Some carbon emissions from digital activities were impossible to assess, due to a lack of availability of data from services providers including for example, electricity use by data centres. Therefore the carbon footprint in this report is a 'best estimate' made with the data available. It is hoped that, over time, more data will become available and information and communications technology providers will be more transparent in their reporting about their electricity use and carbon emissions.

The different areas for action identified are fuel, information and communications technology (ICT) and waste. The Plan also considers an approach to achieve net zero for the association's biennial conference and a process to develop Contractor Guidelines. Many actions within the ICT theme are based on changing service providers to those who offer certified carbon neutral products and/or placing pressure on providers to release data and move towards increased transparency and carbon neutrality.

The association will review the plan, and the actions in it, each year and gradually improve the accuracy of its carbon footprint. Where carbon neutral options are not available for certain services (e.g. Zoom video conferencing), the process will be one of reviewing the market each year to identify and select the most 'carbon friendly' products. Appendix A of the Plan offers guidance on identifying products that are truly 'carbon friendly'. If products are not available, in the meantime, the association will continue putting consumer pressure on providers to offer certified carbon neutral products and increased transparency and reporting.

Each year the association will offset its estimated footprint to achieve carbon neutrality but only after a full review of the actions identified and taking all actions possible to reduce their carbon footprint.

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Introduction

AAEE NSW is a state chapter of the Australian Association of Environmental Education (AAEE), the national peak professional association for environmental educators in Australia.

The three major roles of AAEE NSW are:

- promoting the most extensive and effective use of education and engagement to help people live more sustainably and protect and enhance the local environment
- supporting its members and others in the sector via professional development, and
- building greater strength in local networks that facilitate collaboration and skill sharing

In January 2020 the AAEE National Association declared a climate emergency as a result of lobbying by the NSW Chapter. AAEE NSW is committed to action on climate change and wants to show leadership to their members and others. It has therefore committed to a target of net zero carbon emissions by 2030 and developing this Net Zero Emissions Plan.

The plan outlines the initial steps that AAEE NSW will take to move towards this target. It will remain a work in progress, as currently not all data is locatable, particularly information from digital technology companies for AAEE NSW activities such as video conferencing, website hosting and storage of AAEE NSW data.

AAEE NSW will continue to review and update the plan as more data becomes available and as tech companies, increasingly under pressure to reduce their emissions, increasingly move to renewable sources of energy to run their data centres.

For the time being, this plan outlines the actions AAEE NSW can take to reduce their carbon footprint with the ultimate aim to have net zero emissions by 2030.

AAEE NSW envisages that some of the information contained here will also help members to think about how they can reduce their carbon footprint and how they can influence and support others to do the same.

Definitions

Net Zero Emissions

Net zero refers to achieving a balance between the amount of greenhouse gas emissions produced (CO2-e) and the amount removed from the atmosphere. There are two routes to achieving net zero, which work in tandem: firstly reducing existing emissions as much as possible and then actively removing any remaining greenhouse gases.

A *gross*-zero target would mean reducing all emissions to zero. This is clearly not realistic, since any organisation or person will always be responsible for emitting some carbon emissions, such as those that are embedded in what we buy (materials, clothes, food etc) .So instead the *net*-zero target recognises that there will always be some emissions but that these need to be *offset*, predominantly through natural land-based carbon sinks.

When the emissions produced are cancelled out by the amount removed then net-zero is achieved.

Carbon Neutral

A carbon neutral footprint is one where the sum of all greenhouse gas emissions (CO2-e) produced is offset by natural carbon sinks and/or carbon credits. This is generally taken to be the same as net zero emissions. One difference however is that an organisation can become accredited as "Carbon Neutral" through a range of national and international standards.

Climate Active

In Australia the accreditation system for becoming carbon neutral is known as the Climate Active Carbon Neutral Standard (formerly the National Carbon Offset Standard). To achieve carbon neutrality certification under Climate Active, an entity must measure its carbon footprint, reduce emissions where possible and purchase eligible offset units for the remaining emissions. The Climate Active Standard is voluntary and can be used in a number of ways - to better understand and manage carbon emissions, to credibly claim carbon neutrality and to seek carbon neutral certification.

Digital carbon footprint

The digital carbon footprint comes from all uses of Information and Communications Technology (ICT). This includes surfing the Internet, social media use (Facebook, Instagram, Twitter etc), sending and receiving emails, data storage, video conferencing, and media streaming (Netflix). Traditionally, ICT's footprint includes devices like computers, phones and tablets, regardless of activity, but excludes entertainment and media devices like TVs and gaming consoles.

Carbon Offsetting

A **carbon offset** (or **carbon** credit) is generated from an activity that prevents, reduces or removes greenhouse gas emissions from being released into the atmosphere to compensate for emissions occurring elsewhere.

Why is AAEE NSW trying to achieve net zero?

In January 2020 the AAEE National Association declared a climate emergency as a result of lobbying by the NSW Chapter. This climate emergency declaration was initiated in August 2019, when the youth-led Global Climate Strikes and the start of the NSW mega-bushfires made AAEE NSW acutely aware that it was time to step up and show climate leadership.

The AAEE NSW climate emergency declaration calls for two things:

1. That all Australian federal, state, and territory parliaments and all local councils declare a climate emergency; and

2. That our members continue to work with their employers to declare a climate emergency and support the national climate strikes.

Leadership
AAEE NSW wants to show climate leadership by moving to net zero emissions and by encouraging and supporting other organisations to also move to net zero emissions as quickly as possible.

Whilst AAEE NSW's footprint is very small when compared with many others (corporations, government etc), the association wishes to help members who want to develop Net Zero Emissions Plans, by sharing their experiences and lessons learned from the development of this plan.

Science-based targets
Almost 200 countries, including Australia, signed the United Nations Paris Agreement on Climate Change in 2015, setting a target of limiting global temperatures to 'well below 2°C and pursue efforts to below 1.5°C'. However the Intergovernmental Panel on Climate Change (IPCC) Special Report from March 2018 warns governments of the stark difference of a 2°C warmer world compared with 1.5°C. It states that to have a 50% chance of keeping global warming below 1.5°C (or returning to 1.5% before 2100 after an overshoot) we need to reduce carbon emissions by at least **45% by 2030 (based on 2010 levels)** and then **rapidly drop to zero by 2050** at the latest.

The report goes on to say that *this will require rapid, far-reaching and unprecedented changes in all aspects of society, including energy, land, urban and infrastructure (including transport and buildings). 'Business as usual' and incremental or gradual improvements will not be enough.*

AAEE NSW Net Zero Target

AAEE NSW have chosen to set an ambitious target of achieving **net zero emissions by 2022**.

By setting ambitious targets AAEE NSW wants to show that it can be done and to encourage others to follow.

The association will also encourage its suppliers/providers (e.g. of electricity, data storage, digital communications etc) to step up. As an organisation and as consumers, everybody can use their purchasing power to drive change, pushing companies to get on with the job of transitioning rapidly to a net zero economy.

Global and national context

The broader global and local context concerning climate change, within which AAEE NSW operates, is identified below. The over-riding international driver is the United Nations Paris

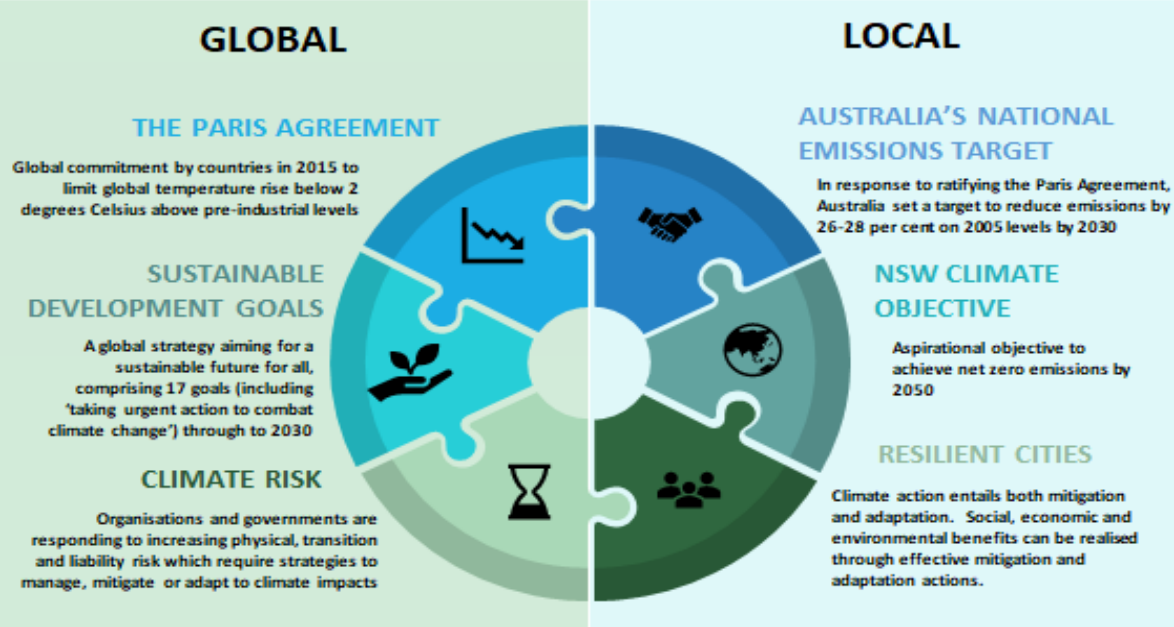

Figure 1 - Key policy drivers for climate action (from NSW government Department of Planning, Industry and Environment: Draft Net Zero Emissions Guidance for NSW councils)

Agreement on Climate Change. As can be seen Australia ratified (made officially valid) the Agreement with a target to reduce emissions by 26-28% on 2005 levels by 2030. This is inadequate if Australia is to be net zero by 2050.

A special report issued by the International Panel on Climate Change (IPCC) in late 2018[1] identified that to remain below the 'safe' target of 1.5°C warming, emissions reductions of 45% on 2010 levels by 2030 are required before reaching net zero emissions by 2050 at the latest.

Whilst the federal government is doing little to advance action on the climate emergency, many states are leading the way with strong renewable energy targets and many have a target for net zero emissions by 2050.

The NSW government recently released the Net Zero Plan Stage 1: 2020 - 2030[2]. This outlines the NSW government's approach, over the next ten years, towards achieving their goal of net zero by 2050. The plan is heavily focused on technological solutions but does

[1] https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/sr15_headline_statements.pdf
[2] NSW Government Net Zero Plan Stage 1: 2020 -2030 https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan

include a priority action on 'empowering consumers and businesses to make sustainable choices', which includes reference to transport, electricity and buildings but does not mention education specifically.

Sustainable Development Goals

When looking at action on climate change the other interrelated aspects of sustainability also need to be encapsulated, to be sure that a positive action does not create any unanticipated negative impacts and that any co-benefits can be maximized.

Figure 2 - UN Sustainable Development goals

The United Nations Sustainable Development goals (UN SDGs) as shown in Figure 2, are an effective way of guiding decision-making and ensuring that decisions around reducing carbon emissions are made in a beneficial, equitable and sustainable way. In this way the UN SDGs form a very important framework when moving towards a low carbon future. It is recommended that AAEE NSW consider integrating the SDGs into their decision-making around net zero emissions planning, as well as more broadly.

Carbon emissions reduction hierarchy

Just as waste follows a well-known hierarchy of "refuse, reduce, reuse, recycle", reducing emissions and moving towards net zero (carbon neutral) can also follow a hierarchy of actions:

1) *Measure* the carbon footprint
2) *Avoid* using the energy in the first place e.g. switch off the lights, walk or cycle
3) *Reduce* energy demand through
    a. energy efficiency
    b. policy change
    c. behaviour change
4) *Replace* with a low carbon alternative
    a. 100% RE for electricity use (rooftop solar, purchase 100%RE)
    b. electric/hybrid vehicles charged by solar PV
5) *Offset* remaining carbon emissions
    a. carbon offsets e.g. through accredited tree planting programs
    b. offsite solar e.g. renewable corporate power purchase agreements (PPAs)
    c. purchase of accredited GreenPower
6) *Improve* verification and rigour – work towards measuring and including more emissions sources over time.

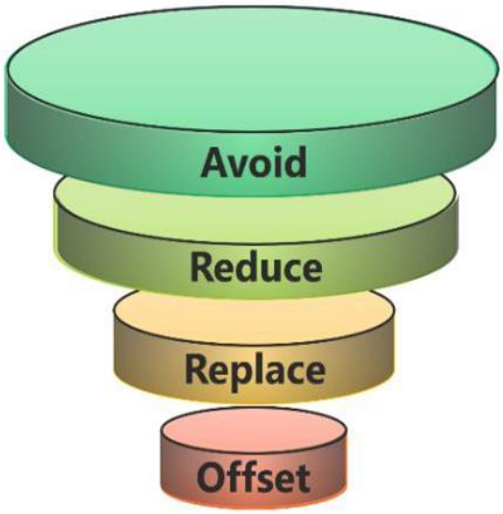

Figure 2: Carbon reduction hierarchy[3]

[3] Department of Planning (2019). *Net Zero Emissions Guidance for NSW Councils : Helping Councils Plan for a Low Emissions Future*. New South Wales Government - Office of Environment & Heritage, Sydney South

Scopes and emissions boundaries

The operations of AAEE NSW generate carbon emissions from a range of activities. The association is not a typical business in terms of carbon accounting. It does not have offices, it does not develop products and it is geographically dispersed. It is however a service provider and broadly consists of the following:

1. The **AAEE NSW Executive Committee** – the executive committee consists of eight members who run the organisation in a decentralized way, from their homes and/or places of work.
2. **AAEE members** – a diverse membership across NSW.
3. **Contractors** – individuals or companies that AAEE NSW contracts to run projects or programs on their behalf or from whom they buy services.

Reporting an organisation's emissions footprint is based on three "scopes" which are identified in the Climate Active Carbon Neutral Standard, the Australian accreditation system for becoming carbon neutral[4].

Scope 1 - **Direct Emissions** are those from sources that are owned or controlled by the association. Since the association does not have offices or own or control any vehicles there are currently no Scope 1 emissions.

Scope 2 - **Indirect Emissions** from the activities of the association that are generated offsite. This is generally purchased electricity. In the case of AAEE NSW this is electricity used directly by the association in running its day-to-day activities. It does not include electricity used by contractors or services used by AAEE NSW in running the association. Since AAEE NSW does not have offices their direct use of electricity is minimal.

Scope 3 - **Other Indirect Emissions** from activities of the association, occurring from sources that they do not own or control.

In the case of AAEE NSW Scope 3 emissions will be the greatest share of their carbon footprint (this is the case for most organisations). These include emissions associated with, for example, business travel, procurement of goods and services, digital activities, and waste and water use.

Table 1 below shows the areas where AAEE NSW generates carbon emissions and the appropriate scope in which they fall.

Scope	Emissions area	Comments
1	Currently none applicable	AAEE NSW does not directly own or control any vehicles.

[4] https://www.climateactive.org.au/

2	Purchased electricity	AAEE NSW does not have an electricity bill for the association. Any direct electricity use (lights, computers) form a part of each individual committee members' electricity bills. Some of this electricity use is captured within the estimation of carbon emissions from Information and Communications Technology within Scope 3. Excluded are the very small amounts of electricity from lights and running computers.
3	Committee car use for AAEE NSW business Contractors – running AAEE NSW projects/programs Paper Electricity use – Information and Communications Technology - digital footprint Waste Food/catering	If in the future community members are reimbursed for their fuel costs then car use will become a Scope 1 emission. Guidelines for procurement of contractors to be developed Paper use is considered negligible Conference – guidelines for the bi-annual conference to be developed

Table 1: *AAEE NSW main areas of carbon emissions*

AAEE NSW is not a 'typical' organisation in terms of calculating and reporting on carbon emissions. Since most of the emissions from the activities of AAEE NSW are within Scope 3, they are by definition outside of the direct control of the organisation. This means in many cases the actual emissions are not known and often cannot be discovered (unless the provider of the service or product has calculated their carbon footprint and/or is certified carbon neutral).

An example of this is emissions from electricity used by the data centres that currently host the association's three websites. Whilst the data centre owners may be able to comment on whether they use green energy to run their operations, unless they are 100% renewable or certified carbon neutral, it is very difficult (if not impossible) to calculate emissions. Most data centres do not report on their emissions and are not transparent in reporting on locations of their sites or the energy used to run their operations.

A pragmatic approach has therefore been taken whereby, if emissions can be easily calculated they have been. If they cannot, then a qualitative, action-based approach has been taken. Actions include:

- developing contractor guidelines (to encourage contractors to reduce their own carbon footprints);
- selecting the greenest website hosts where possible;
- moving away from providers who don't publish carbon emissions information or identify what they are doing to reduce emissions.

These approaches are outlined in the action plans for each emissions area.

AAEE NSW estimated carbon emissions 2019/20

The estimated carbon emissions in 2019/20 are **551kgCO2-e or 0.56tCO2-e**. The bulk of this is from car use, the remaining small portion from Information and Communications Technology use.

The year for which the carbon footprint has been calculated is 2019/20. This therefore forms the base year from which progress can be measured in following years. An estimate of the carbon footprint should be made every year.

Inclusions
Carbon emissions included in the footprint are:

- Fuel used by committee members (Scope 3)
- Electricity from Information and Communications Technology Use (Scope 3)

Exclusions
Carbon emissions currently excluded from the footprint include:

- Waste (Scope 3) – seen as being minimal
- Some electricity use by individual committee members (lights, computers) – seen as being minimal
- Most procured goods and services (Scope 3) – very difficult to assess
- Water use (Scope 3) – seen as being minimal

Action Plan

Fuel emissions

During 2019/20 executive committee members occasionally used their cars for activities associated with AAEE NSW work e.g. to attend meetings. The estimated carbon emissions during 2019/20 from vehicle use are **472kg CO2-e**.[5]

1. Reduce car use as much as possible by holding online meetings/events
2. Use public transport, walk or cycle
3. Car share
4. Use more fuel efficient vehicles (smaller engine size, lower emissions)
5. In time, move to electric vehicles, charged by solar photo voltaics (panels)
6. Avoid air travel

[5] https://ref.epa.vic.gov.au/about-us/environmental-performance/greenhouse-gas-inventory/activity-data-and-quantification-methods/scope-3-ghg-emissions

Information and Communications Technology emissions

The association's ICT emissions footprint includes electricity from the following:

- AAEE NSW websites – webhosting, design and users' equipment
- Video conferencing activities (Zoom)
- File storage systems (Dropbox etc)
- Emails
- Web searches

The energy footprint of the IT sector is already estimated to consume 7% of global electricity

ClickClean2017, Greenpeace

In general emissions from ICT were very difficult to measure or estimate due to lack of available data and confusing claims from ICT providers. See **Appendix A** for a discussion about the difficulty around this data.

ZOOM meetings in 2019/20 are estimated to have contributed carbon emissions of **79kgCO2-e**. This is only a very small amount, equivalent to driving a car 376km[6].

In just a minute, 150,000,000 emails are being sent globally, releasing a staggering 600,000 kg of carbon dioxide. That is almost as if we are burning 232,258 kg of coal every 60 seconds.[7]

Emissions source	**Information**	**Actions**
Websites – hosting	AAEE NSW has five websites that are hosted by different webhosts, using different data centres: aaeensw.org.au sustainableschoolsnsw.org.au takemeoutsidensw.org.au nsweeconference.org.au sustainabilityconnect – to be finalised.	Investigate relocating websites to green webhosts who use data centres that • Are powered directly by 100% renewable energy, and • report on their energy footprint annually, and • are carbon neutral accredited. Moving to datacenters powered by 100% renewable energy and carbon neutrality means that AAEE NSW can then report these emissions as zero. Greenpeace's ClickClean2017[8] rates different digital service providers and identifies which

[6] https://smarterbusiness.co.uk/blogs/how-much-energy-do-my-appliances-use-infographic/

[7] Viessmann The World's Digital Carbon Footprint www.viessmann.co.uk Accessed 23/06/2020

[8] Greenpeace Inc. Clicking Clean: Who is winning the race to build a green internet 2017 http://www.clickclean.org/ Downloaded June 2020

		data centres globally run on 100% renewable energy. Switch rates as 'A' as their data centres are 100% renewable (switch.com). However their data centres are located in the USA and ideally a local/Australian data centre running on 100% renewable energy would be the best option.
Websites – energy efficiency	The energy efficiency of a website is influenced by 1) design and content 2) development An average sized website uses over 2000kgCO2-e annually[9].	1. Review all websites for energy efficiency (design and content). A list of areas that affect energy efficiency are included in the following link https://www.wholegraindigital.com/blog/website-energy-efficiency/ 2. Review the development of the websites, again the Whole Grain Digital webpage above provides good guidance on this. 3. Consider having a banner that states the amount of CO_2-e that each AAEE website uses when it loads. This is a great educational tool. https://www.websitecarbon.com/
File/Data Storage	AAEE NSW currently uses both DropBox and Google Drive for storing information and has approximately 7GB of data. Dropbox uses AWS (Amazon Web Services) for their data centres. AWS was rated 'C' by ClickClean in 2017 as they continue to be un-transparent about their energy use in their data centres. By comparison Google were rated 'A'.	1.Store data on a "green" cloud provider if possible. Consider QLoudSync (100% renewable without carbon offsets). Google Drive, although 100% renewable, also has relationships with the coal industry (as does Amazon Web Services (AWS) and Microsoft)[10] 2.Review and rationalize data stored to reduce as much as possible

[9] Web Neutral Project www.webneutral project.com Accessed July 2020

[10] https://www.wired.com/story/amazon-google-microsoft-green-clouds-and-hyperscale-data-centers/#:~:text=The%20top%20three%20cloud%20providers%E2%80%94Amazon%20Web%20Services%2C%20Google%20Cloud,What%20Makes%20a%20Cloud%20Green%3F Accessed July 2020

Emails	It is estimated that one email generates 4gCO2-e and if it has a large attachment it could be as high as 50gCO2-e[11] AAEE NSW exchanged approximately 20 emails per month in 2019/20, a total of 240 annually. This is a very small amount and not considered a significant contributor to their carbon footprint.	The general advice is to practice good email habits including: 1. Limit the number of emails sent as much as possible 2. Don't send unnecessary 'thank you' or 'received' emails 3. Limit "reply all" and the number of people you 'cc' in an email – they soon add up 4. Limit attachments where possible – locate these on the AAEE NSW storage area so they can be accessed when required 5. Remove AAEE NSW from all unnecessary e-newsletters/circulars where possible
Video conferencing	AAEE NSW use Zoom for their meetings. In 2019/20 AAEE NSW held 832 participant hours of Zoom meetings. Zoom has stated the sustainability benefits of virtual meetings for years, but has said very little about the energy used to support its services. Its strategic data centre partner is the world's biggest provider, Equinix, which supports a 100% clean energy goal (as of its latest sustainability report)[12] In fact most of the energy used from video conferencing is that of the user appliance (with smartphones and laptops using far less energy than a desktop) rather than the	1. Avoid/minimise meetings where possible – can the discussion be held by phone or is it even necessary? 2. Use audio rather than video, as this uses far less data and hence has lower electricity intensity 3. Use a smartphone or laptop in preference to a desktop 4. Charge appliances using renewable energy if possible 5. Continue to place pressure on Zoom to be transparent about their carbon footprint and lobby for them to use data centres that use 100% renewable energy

[11] https://climatecare.org/infographic-the-carbon-footprint-of-the-internet/ Accessed 15 July 2020

[12] https://www.greenbiz.com/article/coronavirus-stay-home-workstyle-and-cloud-energy-consumption Accessed 15 July 2020

	data streaming.	
Web searches using e.g. Google	One Google search uses between 0.7 – 4.5g CO2-e[13] (depending on the equipment you are using to carry out the search) As a comparison boiling a kettle uses about 7gCo2-e.	1. Use Ecosia as the preferred search engine (www.ecosia.org) - Ecosia is a search engine based in Berlin, Germany, that donates 80% or more of its profits to non-profit organizations that focus on reforestation. It considers itself a social business, is CO_2-negative and claims to support full financial transparency and protect the privacy of its users. 2. Bookmark commonly used webpages or type in the website URL directly to limit unnecessary Goggle searches 3. Use a smartphone or tablet for quick searches as they use less energy
Phone plans and Broadband	AAEE NSW members currently use their own phones and have their own internet plans.	1. Consider changing phone and internet plans to Belong https://www.belong.com.au/ which is Australia's first certified carbon neutral telco.
Computers, laptops, tablets and smartphones	AAEE NSW does not own any appliances. Committee members use their own.	1. Use a smartphone, tablet or laptop (in that order) in preference to a desktop as they use far more energy 2. Charge with rooftop solar where possible 3. Use a 100% renewable electricity contract/GreenPower. Check www.greenelectricityguide.org.au/ for the greenest electricity retail companies
Xero	Xero talk about their sustainability credentials and have a program Net Zero @ Xero.[14] In 2019 they offset 100% of their carbon emissions and claim they will continue to do so. However they are not certified carbon neutral	1. Consider alternatives to Xero. 2. Lobby Xero to publish their footprint and to become certified carbon neutral

[13] Berners Lee, Mike. 2010. *How bad are bananas? The carbon footprint of everything* Green Profile

[14] https://www.xero.com/au/about/social-and-environmental-impact/environmental-sustainability/ Accessed July 2020

	and do not publish an annual report, nor have they yet set specific targets. Xero uses Amazon Web Services (AWS) data centres for their cloud storage. AWS state that as of 2018 they are running on 50% renewable energy and they have a goal of 100% renewable (but don't state by when)[15]	

[15] https://aws.amazon.com/about-aws/sustainability/ Accessed July 2020

Waste emissions

AAEE NSW generates very little waste. The most significant activity would be the bi-annual running of the AAEE NSW Conference, where there will be some waste from printing and food catering.

Guidelines for the biennial conference will be developed but in general rules for minimizing waste include:

- Use compostable packaging, cutlery etc and make sure that they are put in to the composting bin.
- Seasonal, local vegetarian food and local suppliers for catering.
- Minimise printing and paper wherever possible.

AAEE NSW Conference

AAEE NSW holds a state conference once every two years (biennial) with the next conference being due in 2021.

The carbon emissions footprint from this conference will depend very much on its design and planning.

It is recommended that the conference be considered as a separate entity in terms of its carbon footprint. The footprint of the conference can then be estimated, and any excess carbon emissions remaining after all planning has been carried out, can then be offset. In this way the conference can then be marketed as 'net zero'.

In planning for a Net Zero Conference the focus will be on minimizing carbon emissions without impacting negatively on the values of the conference itself. The following areas should be considered as a minimum:

- Mode of delivery – face-to-face, digital or mixed
- Location (if face-to-face) – travel of committee and delegates
- Printing
- Catering
- Accommodation of committee members and delegates
- Waste

AAEE NSW Contractors

At present AAEE NSW engages contractors for delivering its education programs and any carbon emissions generated by their work on projects will fall under Scope 3 emissions.

AAEE NSW runs a variety of different programs from time to time and each will vary in its scope and delivery methods. This means that calculating scope 3 emissions from contractors would involve calculating emissions on a project by project basis. Whilst an estimation of these emissions is feasible, it would be very time consuming and would need to be updated for each new program.

A more pragmatic approach is suggested, in the development of a set of Contractor Guidelines. These guidelines would:

- Clearly outline the aims and values base of AAEE NSW in moving towards net zero
- Express AAEE NSW expectations of contractors
- Identify ways in which contractors can reduce their own carbon footprints, both whilst participating in AAEE NSW programs and more broadly.
- Encourage and educate contractors to move towards net zero or carbon neutrality.

Over time AAEE NSW can encourage contractors to become net zero for work they undertake for AAEE NSW.

Education and Engagement

The role of AAEE NSW is that of environmental education. The development of this plan offers significant opportunities to raise awareness and educate members about reducing carbon emissions and moving towards net zero. These members then have a huge reach to influence and educate their stakeholders.

The carbon emissions of AAEE NSW are very small when compared with other organisations however the strength in moving towards Net Zero is in the leadership shown and the opportunities to share information and learning along the way with AAEE NSW members and others.

There are many opportunities to share information and it's suggested that AAEE NSW review this plan with a view to identify the different opportunities for sharing the ideas and the data within it. This could be, for example, through a series of educational blogs or articles, development of a net zero schools education program or dissemination of relevant materials concerning best practice climate change education. AAEE NSW already has a Climate Crisis Resources Hub to serve as a site for dissemination of educational materials around Net Zero and carbon emissions reduction actions.

Carbon Offsets

A **carbon offset** (or **carbon** credit) is generated from an activity that prevents, reduces or removes greenhouse gas emissions from being released into the atmosphere to compensate for emissions occurring elsewhere. Carbon offsetting should always be the last step in a carbon neutral/net zero plan, after avoid, reduce and replace (as per the carbon hierarchy).

Carbon offsetting is a market-based mechanism and is typically transacted in metric tonnes of carbon dioxide equivalent (CO2-e). Purchasing one tonne of carbon offset means there will be one less tonne of carbon dioxide (or an equivalent greenhouse gas) in the atmosphere than there otherwise would have been. Once a carbon offset is purchased it is retired permanently.[16]

Types of carbon offsets

There are many different ways to offset carbon emissions. These include:

- Buying carbon credits from an emissions trading scheme and then retiring them (take them out of circulation).
- Environmental projects in overseas countries
- Environmental projects within Australia
- Environmental projects locally.

Environmental projects could a broad range of activities including new renewable energy projects, energy efficiency, tree planting or other biodiversity projects, changes to farming methods and others. Many offset schemes can have other impacts beyond carbon emissions reduction, including biodiversity, ecosystems services or social outcomes.

All carbon offsets should be verified or certified by an approved scheme. The approved offset units as listed in the Climate Active standard (previously the National Carbon Offset Standard) are:

- Australian Carbon Credit Units (ACCUs)
- Certified Emissions Reductions (CERs)
- Removal Units (RMUs)
- Gold Standard - Verified Emissions Reductions (VERs)
- Verified Carbon Standard - Verified Carbon Units (VCUs)

Organisations can choose to offset particular activities e.g. flights, or offset the whole of their estimated footprint (again based on the carbon hierarchy).

[16] https://carbonneutral.com.au/wp-content/uploads/2015/01/Carbon-Offsetting-and-Carbon-Neutralilty-Explained.pdf

It is recommended that local carbon offsets are chosen wherever possible, ideally within NSW and at the least, within Australia. However there are also a range of accredited overseas carbon offsetting programs. The choice depends on what co-benefits AAEE NSW's would like to achieve e.g. increasing biodiversity, assisting developing countries, job creation.

AAEE NSW carbon offset requirements

In order to achieve carbon zero AAEE NSW will need to offset it estimated carbon footprint for each year. Therefore for 2019-2020 AAEE NSW would need to offset, as a minimum, **0.56tonnes CO_2-e**.

It is recommended that the organisation also offset an extra amount to cover the emissions that cannot currently be calculated due to limits in data availability and Scope 3 emissions from contractors and other procurement services. Given the small carbon footprint of AAEE NSW, the association could offset, for example, a further **5tonnes CO_2-e**.

The emissions from the biennial conference should be estimated and offset separately so that the conference can be marketed as a 'net zero conference'. The amount offset will depend on decisions made about the conference location, number of attendees, presentation style etc.

Assessing carbon offset projects

Many organisations offer offset schemes. Offsets projects should be assessed against the following criteria:

- **Real**. There should be an actual offset project already in place.
- **Permanent.** This involves ensuring that the emissions won't be released back into the atmosphere (for example, if a forest is damaged by fire, drought, disease or some other event and so releases captured carbon).
- **Additional.** This means that the carbon offsets should not already be required by existing legislation but be *in addition* to any other requirements.
- **Accurate**. That all the offsetting choices can be accurately quantified and supported by evidence.
- **Verified.** An independent third party should verify the offsets with best practice standards and methodologies.
- **Registered.** Every offset should be unambiguously owned and tracked in a registry.
- **Social and environmental co-benefits.** Consider any detrimental or beneficial environmental or social effects from the implementation of the carbon offset project.

A full list of carbon offsets registered in Australia with contact details are available at the Carbon Project Registry www.marketplace.carbonmarketinstitute.org/registry/

Some examples of companies that offer offset units in Australia that are worth considering are:

https://www.greeningaustralia.org.au/
Greening Australia is a not-for-profit organisation. Their carbon offset social enterprise program "Biodiverse Carbon Conservation" offers carbon offsetting across a range of Australian programs.

https://carbonneutral.com.au/
Carbon Neutral offers carbon offsets programs across the world. Within Australia they offer Australian native reforestation through broad-scale planting within the Yarra Yarra Biodiversity Corridor in Western Australia. Carbon credits purchased are then retired so they cannot be resold.

Where to from here?

In order to become and stay net zero, AAEE NSW will need to review and re-measure their carbon footprint every year. This plan should also be reviewed annually as technology changes fast and other opportunities may become available to the association to further reduce emissions. For example new players may appear on the Information and Communications Technology stage, who offer certified carbon neutral options.

A process of measurement, action, reporting and evaluation, should be undertaken annually. Over time the rigorousness of the carbon footprint measurement can be increased, as data becomes more widely available and more Scope 3 emissions can be included in the calculations.

Beyond net zero, AAEE NSW, as a climate leader should also consider balancing out their historical emissions as well as thinking about becoming 'carbon-negative' or 'climate positive' which means removing more carbon emissions from the atmosphere than is being added by the association. This could be done by investing further in tree planting projects, green energy, energy efficiency projects and other carbon offsets.

Appendix A - Decoding Green Energy Commitments

Not all "100% renewable" claims made by Information and Communications Technology companies are the same. As Greenpeace, in their ClickClean2017 report[17] point out, many are erroneously trying to receive similar recognition to leaders such as Apple, Google and Facebook by using shortcuts – ultimately this threatens to undermine the high impact set by those leaders.

The Greenpeace report talks in detail about this issue. As the report states

'Without a deeper investigation, it is increasingly difficult to tell the difference between the renewable claims of a company who is actually pursuing a high impact strategy that is changing the energy mix on the grid from a similar sounding claim to be renewably powered, but is green in name only, as the electricity being consumed remains unchanged but as a general guide, a company that truly wants to make an impact will choose'

Evaluating 100% Renewable Strategies

Companies should outline clear principles for how they intend to pursue their 100% renewable energy goals in order to establish a clear standard and build momentum toward higher impact strategies. Companies pursuing a high impact strategy to reach their renewable goals should adopt the following elements:

- Local: Renewable energy supply located on the same grid as the company's demand
- Driving New Investment: Renewables energy credits are bundled with underlying electricity, displacing demand for existing dirty electricity generation.
- Additional: Renewable energy is new and "additional" from what would have occurred
- Renewables Advocate: Advocate for change with utilities, regulators or with elected officials for policies to increase the supply of renewable energy on the grid in locations where the company has operations.

Similarly not all 'carbon neutral' claims are equivalent. A company can claim to be carbon neutral by merely purchasing offsets without following the carbon hierarchy of reducing emissions first.

One of the best ways to ensure that the AAEE NSW is selecting a good product is by seeking products or companies that are *certified* carbon neutral and/or a 'B-Corp' if possible.

Finally 100% renewable or carbon neutrality does not necessarily mean a company is good in other sustainability areas. The company should also be reviewed across a range of other sustainability areas. Reviewing the company against the UN Sustainable Development Goals is a good guide here.

From Clicking Clean

[17] Greenpeace Inc. *Clicking Clean: Who is winning the race to build a green internet* 2017 http://www.clickclean.org/ Downloaded June 2020