



P.O. Box 656
Kalamunda
W.A. 6926
<http://nrpg.org.au/>
<https://www.facebook.com/KalamundaNRPG>
<https://www.facebook.com/nrpg.bushcare>

**Nature Reserves Preservation Group
of Kalamunda, Inc.**

10 Aug 2022

TO: enquiries@kalamunda.wa.gov.au
CC: All Councillors

SUBJECT: SUBMISSION – KALAMUNDA DRAFT CLIMATE CHANGE ACTION PLAN

The NRPG welcomes the City of Kalamunda's (City) "draft Climate Change Action Plan" (CCAP).

However we are concerned about the time it has taken to achieve this 'draft', given the "Climate Change Emergency Declaration" Motion was overwhelmingly carried at a Council Electors meeting in 2019, and adopted by Council in 2020.

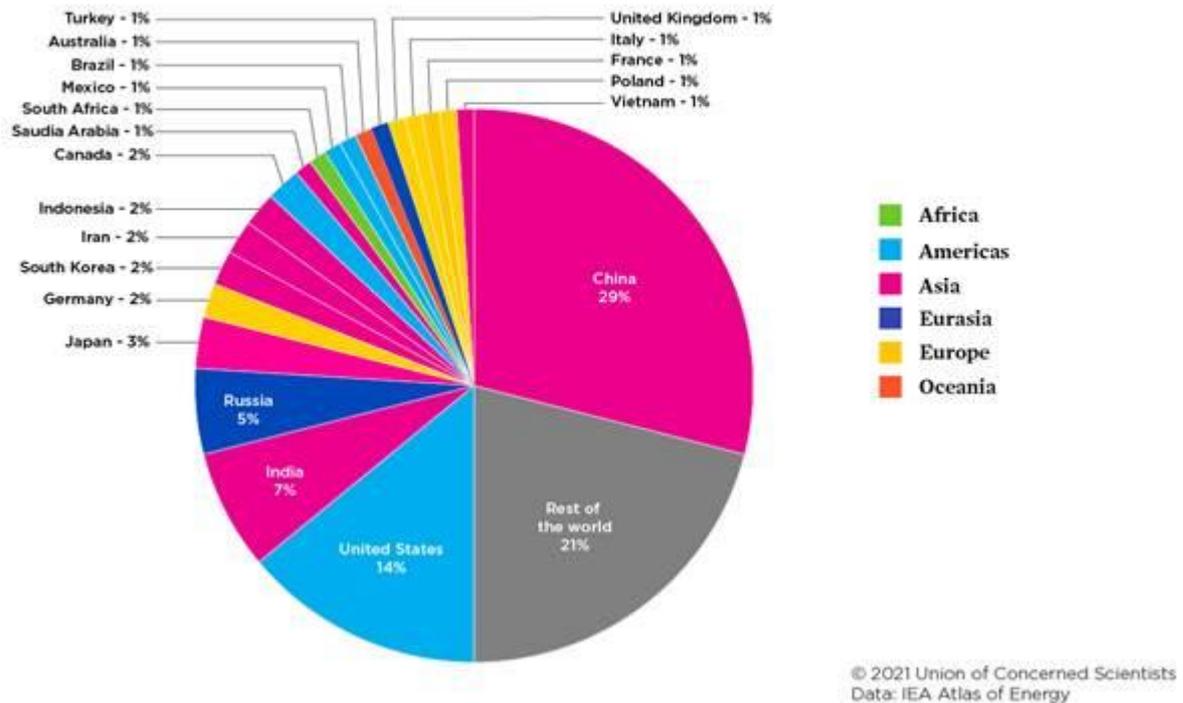
The recently released "State of the Environment Report 2021" by the Federal Environment Minister, shows we are in a dire climate change and extinction 'crisis'. It is therefore a concern that the City's "Climate Change Declaration" omits the need for 'urgent action', because the impacts of climate change we are currently experiencing will become increasingly worse as the planet heats from the greenhouse gas (GHG) emissions from human activities. (To provide a local perspective, it is known that for every 1 deg C increase in global average temperature, the weather pattern in W Australia shifts southward about 150km. This means that 2 deg C warming means we will have weather like Geraldton, which does not bode well for our environment or infrastructure). (Ref: Dr Ray Wills, Future Smart Strategies <http://futuresmart.com.au/>).

It appears the 'final' CCAP plan will not be completed until June 2023. While this is in progress, the NRPG urges the City continue existing actions, and commence new actions, which not only address Climate Change 'Mitigation' and 'Adaption', but also provide economic, social and/or environmental benefits, including those discussed in this submission. This is a 'no-regrets' way forward.

It is useful to note that although Kalamunda's contribution to global greenhouse gas emissions is small, leadership is required by all to 'do their bit'. To illustrate why this is necessary, the figure below shows that the sum of all nations which emit less than 2% of global emissions, is 44% of total global emissions from fossil fuels. Therefore, unless small emitters are part of the solution, the IPCC targets cannot be met. Kalamunda's leadership can serve as an example to encourage others by demonstrating the additional tangible benefits which can be realized by taking early and bold actions.

Top Annual CO₂ Emitting countries, 2019

(from fossil fuels)



NRPG provides the following comments.

GENERAL:

The CCAP has good intent as a draft, but needs further details, including that:

- Timeframes of 'short term' and 'medium term' are not defined
- There is a lack of commitment to some actions, because they are stated to be dependent on budget constraints, which is a serious concern
- No Budget, Resources or Program Management have been defined
- Review/updates every 2 years are too far between in the first few years, but may be sufficient once the plan is in progress
- There should an emphasis on the 'urgency' of the need to reduce our GHG emissions

NRPG suggests that given the existence of the City of Kalamunda's Climate Change Declaration, and this CCAP, the document 'layout' should move directly from the 'Introduction' to the details of the Plan, rather than re-establish the need for an Action Plan. It is suggested to simply move the following sections to an appendix, for reference:

- What is Climate Change?
- Why is Climate Change a threat?
- What is the potential impact on the City of Kalamunda?

EXPEDITE A DETAILED 'FINAL' CLIMATE CHANGE ACTION PLAN:

It is necessary to confirm when the 'final' detailed plan that can be implemented, will be available, particularly in the Focus of Carbon emissions reduction. We note the mention of developing SMART targets (Specific, Measurable, Attainable, Realistic, Timely) "...for these actions as part of finalisation of this action plan" under Focus 1 "And the City itself", which implies that a 'final plan' is still to be developed.

Does the City imply under “Focus 2, the City’s development of a 2020 Baseline Carbon Footprint Measurement”, that the final plan will be by June 30, 2023 and ready for implementation?

TARGETS, MILESTONES AND TRAJECTORY:

The emissions reduction targets are presently only mentioned in the details, but should be specifically and boldly stated at the front of the document to establish the goals of:

- **40% by 2030 from 2020 ‘carbon footprint’ baseline, and**
- **‘Carbon Neutral’ (Net Zero) by 2035** (NRPG suggests mentioning that this target is only a milestone on the way to becoming ‘carbon negative’ or ‘net negative’ which will be needed to remove enough greenhouse gases to limit global warming to 1.5deg C, after an overshoot of the 1.5deg C limit. (Ref: IPCC <https://www.ipcc.ch/sr15/> and “Council and Community Action in the Climate Emergency” <https://www.caceonline.org/your-climate-emergency-plan.html>) It should be cautioned that if it is intended to achieve this goal by the use of ‘carbon offsets’ it can be undermined by numerous factors, and so the most certain method to achieve this goal is to minimise emissions in the first instance.

These are good targets, but efforts to accelerate them must be considered as the implementation and reviews occur. The opportunities and benefits are likely to continue to improve with time for many of the actions associated with technology improvements and scale of deployment.

It should also be noted that in many cases there are multiple benefits of addressing climate change, and as such, carbon emissions reduction efforts may be able to utilise parts of other budgets to share environmental, social and economic costs for a greater benefit. For example, there is a ‘Triple’ benefit of ‘reforesting/revegetating’ which not only improves our environment but also bio-sequesters CO2 from the atmosphere and also reduces ‘heat islands’, which can reduce air-conditioning energy costs significantly in Summer.

COMMENT ON FOCUSES:

The order of the four ‘Focuses’ should not necessarily imply the importance of each, because all focuses should occur in parallel, however early action in some, such as reducing Carbon footprint, are also likely to provide wider benefits and in the other Focuses.

NRPG suggests changing the order and titles of the Focuses, and comments as follows:

- Change Focus 2 to **Focus 1** and rename to **“Carbon Footprint Reduction/Mitigation”**. This should be Focus 1 because Kalamunda’s early leadership in this area would encourage other collective actions (locally, nationally and globally), which will help to reduce the amount of Adaption which will be ultimately needed.
 - Comments: In addition to converting the vehicle fleet to electric, it should be investigated to stop the practice of leaving combustion vehicles idling (particularly diesel) for long periods of time. It is wasteful, polluting, and the microparticles exhausted are toxic to humans, especially children. (Ref: Dr George Crisp, Doctors for the Environment <https://dea.org.au/>).
 - See also dedicated topics under “Carbon Footprint Mitigation” below.
- Change Focus 4 to **Focus 2** and rename to **“Sustainable Development and Conservation and Regeneration of Natural Areas”**.
 - Comments: Development decisions and land-use/land-clearing have long-term impacts and if done poorly will ‘lock-in’ high emissions consequences, which make

emissions reductions targets much harder and likely more expensive to achieve. Therefore this should also be a high priority focus for early action.

- This is an opportunity to integrate Kalamunda’s numerous environmental strategies and policies into a positive outcomes for our Environment and Society.
- Retain **Focus 3** and rename to “**Waste and Consumption**”.
 - Comments: It should include maximising the longevity of assets by purchasing ‘quality’, and emphasizing repair, refurbishment and maintenance. For example instead of demolishing a building, can it be repurposed or renovated?
 - NRPNG agrees with the nominated actions and more can be added, such as installation of free drinking-water fountains or filling stations in all public places, to reduce the consumption of water in disposable containers.
- Change Focus 1 to **Focus 4** and rename to “**Adaption and Resiliency to Changing Climate Patterns**”.
 - Comments: NRPNG agrees with the stated adaption actions, and confirms that many of these are useful in meeting numerous other strategies including revegetation and canopy cover, water and energy savings, etc.
 - Educate the community and business of the benefits of solar-passive/active design principles.
 - Improve rainwater harvesting and aquifer recharge from runoff from impervious surfaces, using Water Sensitive Urban Design (WSUD). Existing curbing of roads and other hard surfaces have exacerbated the storm water peak discharge and erosion in streams, and wasted an opportunity to capture water to help restore longer stream-flow into summer, as happened prior to developments. This is relevant to the City of Kalamunda’s “Wetlands and Waterways LPP”, as well as “Kalamunda Flowing”.

CARBON FOOTPRINT MITIGATION

METHODOLOGY AND OTHER EXAMPLES – WALGA TEMPLATES:

The WALGA Climate Action planning templates are useful and should be referenced for the Mitigation and Adaption actions, including how to assess carbon abatement costs and determining the ‘low hanging fruit’ options to start implementation. (Ref: WALGA Climate Action Planning Tool <https://walga.asn.au/policy-advice-and-advocacy/environment/climate-change/templates-and-tools.aspx> and the Mitigation templates and Adaption templates at <https://walga.asn.au/policy-advice-and-advocacy/environment/climate-change/templates-and-tools.aspx>).

ENSURE ALL LIFECYCLE GREENHOUSE GAS (GHG) EMISSIONS ARE ACCOUNTED FOR:

All GHG life-cycle emissions (under the general description of ‘Carbon Footprint’ in the draft Plan) must be accounted for and include all:

- Scopes of emissions: (Ref: <https://fairsupply.com.au/articles/articlecarbonemissionsoview> and WALGA Templates)
 - Scope 1 emissions are generated directly from an organisation's operations, for example through the combustion of fuel in vehicles, the use of fertilisers in farming, or the combustion of other energy-carriers by the organisation itself.
 - Scope 2 emissions are the emissions associated with the production of energy that the organisation consumes. This main component is often the combustion of coal at the power station for the production of electricity that the organisation consumes, but it also includes the production of fuels and steam that the organisation consumes.
 - Scope 3 emissions include upstream and downstream indirect emissions in an organisation’s value chain that are not covered by scope 1 and 2, including all supply-

chain emissions associated with the consumption of goods and services, commercial air travel, waste disposal and leased assets etc.

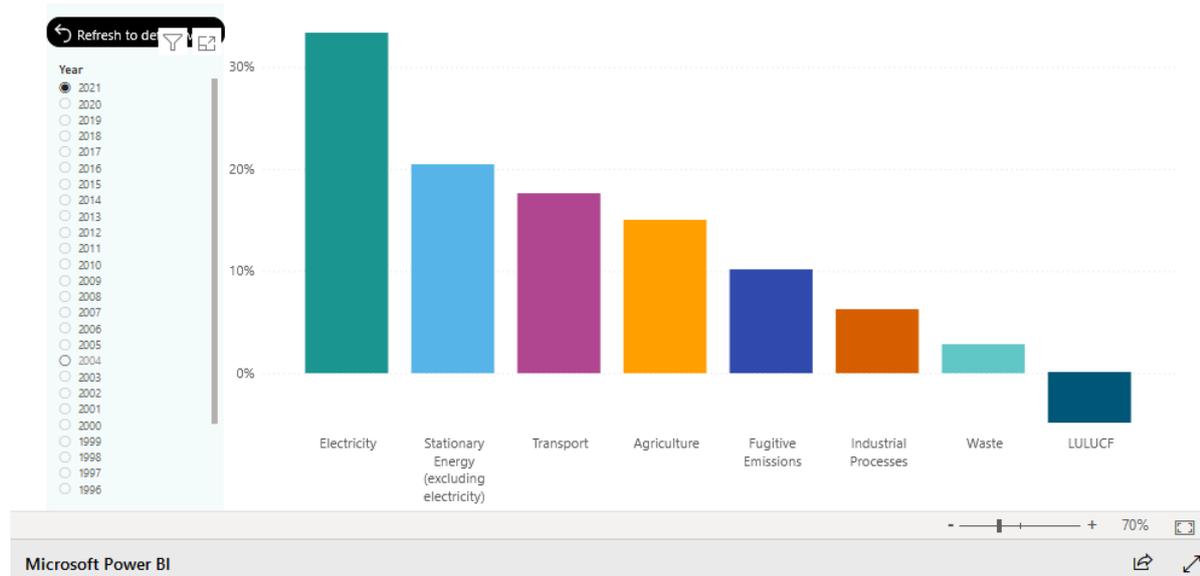
- Sectors of emissions:
 - Electricity
 - Stationary energy
 - Transport
 - Agriculture
 - Fugitive emissions
 - Industrial Processes
 - Waste
 - Land use/Land use change, Forestry (including vegetation conservation/rehabilitation)

As an example, the graph below illustrates the Australia's relative emissions by Sectors, which will be somewhat different for the City's activities and within its boundaries:

Annual emissions data by sector

This interactive graph shows annual emissions by sector from 1990 to 2021.

You can select data by year to see how sectoral contributions to total emissions have changed over time.



Source: Department of Industry, Science, Energy and Resources (2021)

(Ref: <https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-update-march-2021>)

'CARBON BUDGET' INTEGRATED WITH THE 'ACCOUNTING BUDGET':

The City of Kalamunda 'budget' process must include the carbon footprint of all Budget line items. This association should be used to guide all decisions to ensure that no expenditure will compromise the City's ability to meet its annual carbon-reduction trajectory, which could 'lock-in' ongoing high emissions or risk the City being caught with stranded 'high-emissions' assets.

Examples of 'carbon footprint' impacts of Budget expenditures:

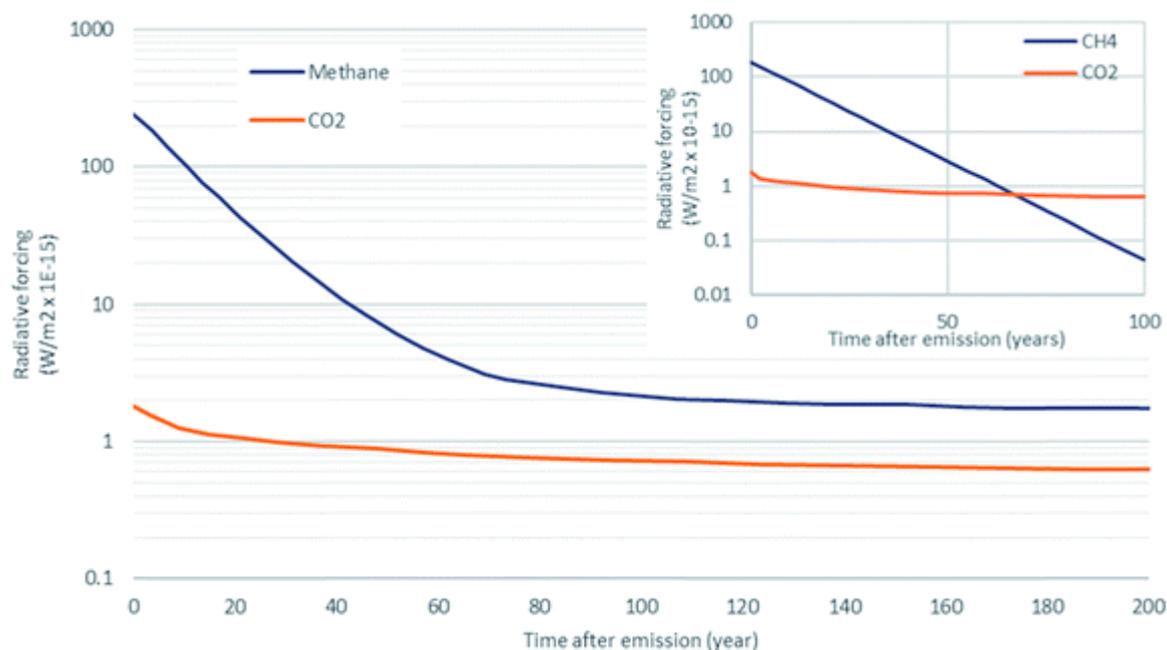
- The new mall upgrade in Kalamunda has replaced all the red brick pavers with grey cement pavers, which has a significant carbon footprint, unless all used pavers were recycled. Some of the low walls are quadruple-brick wide, when it appears a double-brick would have been adequate – a small change in this design could have reduced cost and emissions.

- The new Community Centre uses what appears are large amounts of concrete which has a high carbon footprint. Could it have used other materials to reduce the concrete use, while still providing the same functions?

The carbon footprint/emissions calculation must include all Sectors and Scopes (1, 2 and 3), using full 'life-cycle' analysis to determine annual emissions. This is a complex process and best done by an entity with expertise and experience with the methodology.

It should be noted that 'Natural gas' (commonly called 'gas'), is methane, and while it is often claimed as being 'clean', it has two serious problems:

- It is a fossil fuel (unless from biomass) and is generally used very inefficiently when burned, plus it emits toxic by-products.
- It is a very powerful Greenhouse gas (GHG) with a Global Warming Potential (GWP) equivalent to 84-100 times that of CO₂, in the most critical near-term of 10-20 years. (Ref: Howarth, R.W. Howarth advised on methane portions of New York's climate law. 2019 [cited 2019 31 August]; Available from: <http://news.cornell.edu/stories/2019/07/howarth-advised-methane-portions-nys-new-climate-law>, and: "Methane emissions: choosing the right climate metric and time horizon" <https://pubs.rsc.org/en/content/articlehtml/2018/em/c8em00414e>). As such it can cause high global warming effects even from very small leakage and venting between the source through the supply chain to point of combustion, (or by anaerobic decomposition of waste or biomass). For example, gas leakage of just 2-3% in the supply chain can make it as bad, or worse, than burning coal for electricity generation.



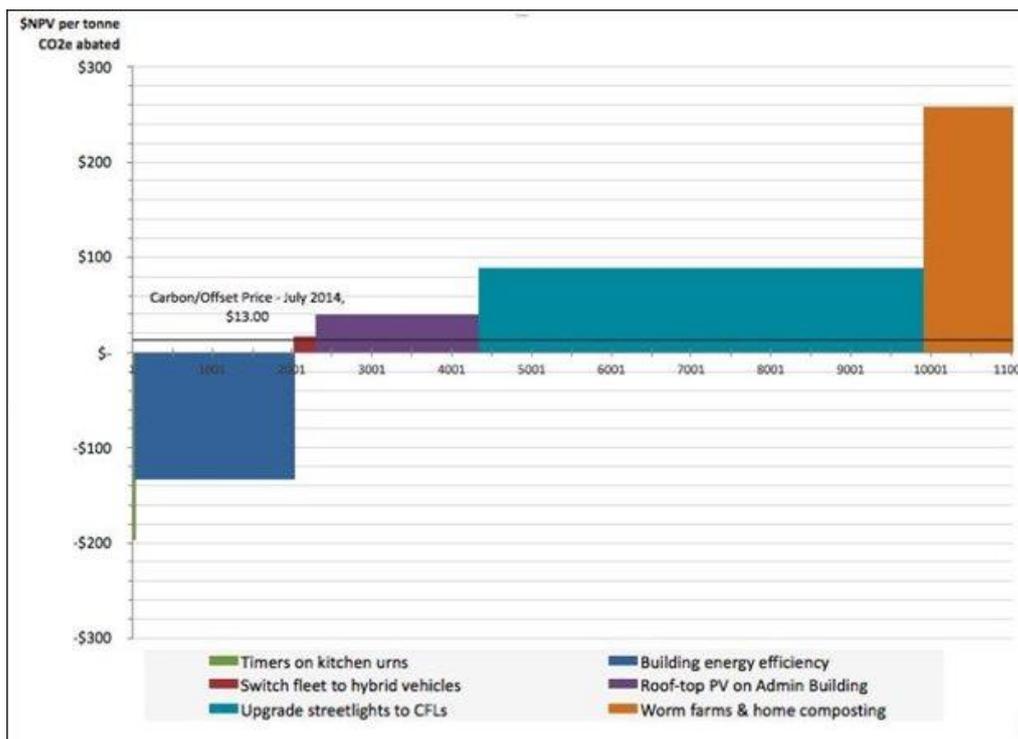
Graph: "Radiative forcing of a 1kg pulse emission of methane and carbon dioxide over time" (Ref: <https://pubs.rsc.org/en/content/articlehtml/2018/em/c8em00414e>)

OPPORTUNITIES FOR WIN-WIN:

The transition to low-carbon future has many opportunities for win-win outcomes for Society, Economy and Environment. Examples include:

- Every dollar spent has an associated carbon footprint (and environmental footprint), so reducing consumption and making careful choices (with 'triple-bottom line' life-cycle analyses) in expenditure can also reduce carbon emissions in many cases.

- Increasing the re-use or re-purposing of materials, buildings and other items also reduces the cost and impacts of dealing with waste.
- The cost of reducing a tonne of CO2 emissions is illustrated by the carbon “Marginal Abatement Cost Curve” (MACC), which shows that some actions also provide economic and other benefits. (Ref WALGA example graph below: <https://walga.asn.au/policy-advice-and-advocacy/environment/climate-change/templates-and-tools.aspx>). The City should calculate the MACC for Kalamunda’s circumstance and start actions of greatest opportunity to reduce emissions which also provide lifecycle-cost savings. Improvements in efficiency are an example, but it should be cautioned that it is tempting to use more of something when it becomes more efficient. (For example installation of LEDs will dramatically reduce energy use, but often in this case, the amount of lighting is increased, which reduces savings and results in more light pollution, causing is problems for our native wildlife (Ref: <https://www.dcceew.gov.au/environment/biodiversity/publications/national-light-pollution-guidelines-wildlife> , and is not necessarily healthy or pleasant for humans (Ref: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2627884/>)). However, if the LEDs are ‘intelligent’ so they sense motion, they are normally ‘dimmed’ to say 10-25% intensity, until a vehicle or person triggers the sensor to turn the light to full power. This way, energy savings are even higher and light pollution is reduced. Kalamunda and the Perth metro area’s light pollution is increasing, so this is a ‘win-win’ option. (Ref: <https://en.reset.org/town-norway-saving-energy-using-auto-dimming-street-lights-01032018/#:~:text=Their%20job%20is%20to%20sense,down%20to%2020%20per%20cent.>)



- Fuel-switch facilities, appliances and developments from gas (‘natural gas’ / Methane) to ‘all-electric’, which reduces utility infrastructure costs, and benefits consumers and business with lower energy and utility connection costs, improved safety and health, and higher performance. Refer to:
 - Renew (Alternative Technology Assn) article appended and: <https://renew.org.au/advocacy/climate-resilient-homes/creating-victorias-first-gas-free-suburbs/>
 - Beyond Zero Emissions:
 - “Energy Efficient Buildings Plan” https://bze.org.au/research_release/energy-efficient-buildings-plan/

- “Electrifying Industry’ https://bze.org.au/research_release/electrifying-industry/).
- Doctors for the Environment: Home gas appliances and your health fact sheet: <https://dea.org.au/home-gas-appliances-and-your-health-fact-sheet/>

NRPG urges the City to:

- Ban gas infrastructure in all new developments, as is being done elsewhere. (Ref: <https://www.theguardian.com/environment/2022/may/26/ban-on-new-gas-connections-will-help-transition-victoria-away-from-fossil-fuels-inquiry-finds>)
- Urgently phase out existing gas use in City, residential, industry and commercial sites
- Install solar PV farm which should provide lower amortised electricity cost (Levelised Cost of Electricity – LCoE)
- Purchase 100% renewable energy for all electrical energy not provided by solar farm, through Synergy (GreenPower) or other commercial renewable energy ‘aggregators’. Note that if this costs more than the City’s existing electricity rates, then the additional cost may be offset by the amortised savings in electricity costs from the solar farm and savings from other actions. Purchasing 100% renewable energy should be able to commence immediately.
- Encourage the uptake of Electric Vehicles (EVs) by:
 - Promoting to residents and ratepayers, the incentives from the state and commonwealth, and also the opportunity for access to reduced capital finance interest rates for ‘green technologies’. (Lifecycle analysis will show benefits also, from much lower ‘fuel’ (electricity) and operation & maintenance costs).
 - Installing a few EV Fast Charge stations to help make Kalamunda an ‘EV-friendly’ tourist destination. (These can be installed and operated by existing local commercial EV charge businesses, with little or no cost to the City).

MONITORING AND FEEDBACK:

To successfully meet the targets, the Plan must specifically include regular monitoring of emissions and other parameters, and provide feedback to the City, businesses and the community, so that each can take corrective actions as needed. (Examples of feedback are the Watercorp and Synergy consumption graphs in the media and on bills).

The City should graph trends which show the ‘actual trajectory’ versus the ‘planned trajectory’ from:

- Decisions and operations under the City’s influence, including:
 - Carbon emissions from all Sectors
 - Waste to landfill
 - Native vegetation and tree canopy gain/loss
 - Land use and land use changes
 - Other parameters in the Plan
- Businesses, residents/ratepayers (possibly by suburb):
 - Electricity use (supplied by Synergy and or other contestable energy providers)
 - Gas use (supplied by the gas suppliers)
 - Water use (supplied by Water Corp)
 - Waste to landfill (not recycled or re-used)
 - Petrol and Diesel sold in the City boundary (supplied by the fuel stations in the City boundary)
 - Others?

To be most effective, feedback needs to be frequent enough so that people have an immediate awareness, and timely actions can be taken.

Furthermore, it is important to provide longer-term trend graphic feedback to all constituents electronically as well as on public/shopping display monitors where it will be widely seen and understood on a regular basis.

EXPERTISE/CONSULTANTS:

The NRPNG suggests that in addition to working to the WALGA guidelines, it may be useful to the City in developing and managing the transition, to initially engage with organisations with expertise in this area to avoid potential pitfalls and help expedite the process.

One organisation which specialises in this is Future Smart Strategies (<http://futuresmart.com.au/>). Dr Ray Wills is well versed and has engaged with other local governments on this topic. He suggests the typical Items of importance to Councils are:

- Operation costs to council
- City constituents (ratepayers etc) aspirations & costs
- Interaction with neighbouring councils and having relatively lower rates to attract people to the City (of Kalamunda)

GENERAL REFERENCES:

The following additional references may be useful:

- Example of a local government Climate Change Mitigation/Adaption plan: City of Wollongong: <https://wollongong.nsw.gov.au/about/environment/climate-change/climate-change-mitigation>
- US National Renewable Energy Laboratory (US Dept of Energy) “Preparing a Climate Action Plan and Setting Priorities“ <https://www.nrel.gov/climate-neutral/plan-prioritize.html>
- Climate Emergency Plans development: <https://www.caceonline.org/your-climate-emergency-plan.html>
- Beyond Zero Emissions reports detailing benefits in all sectors of the clean energy transition: <https://bze.org.au/research-releases/all-research-releases/>
- “All-electric homes are cheaper to run in WA – just like everywhere else”, Renew Magazine Issue 156, Pg 15 (Alternative Technology Assn, Australia): <https://renew.org.au/>

Sincerely,

Steve Gates
President, Nature Reserves Preservation Group Inc.
admin@nrpg.org.au
0400-870-887

ATTACHMENTS:

“All-electric homes are cheaper to run in WA – just like everywhere else”, Renew Magazine Issue 156, Pg 15 (Alternative Technology Assn, Australia): <https://renew.org.au/>

All-electric homes are cheaper to run in WA—just like everywhere else



Dean Lombard

Dean is Renew's Policy and Research Manager. He's responsible for policy analysis and advocacy in national and state energy markets, with an emphasis on making the energy system work better for residential consumers while also reducing its environmental impact.

Many *Renew* readers will be familiar with the research we undertook in 2018, which found that all-electric homes are cheaper to run than dual-fuel homes in every eastern and southern state in Australia. The research found that both those building new homes and those modifying existing ones are hundreds of dollars a year better off if they ditch gas.

More recently we've done the same analysis in Western Australia—and we can report that, like in the eastern states, all-electric is the way to go.

Our new report, "Affordable energy choices for WA households", looks into the most cost-effective source of energy for heating, hot water and cooking for households in the South West Interconnected System (SWIS) of WA. The research, based on a detailed simulation of energy consumption and generation for a range of households in both Perth and Albany, was prompted by ongoing consumer confusion about which type of energy was cheaper overall.

The report shows that for both new and existing homes, the most economic options are reverse-cycle air conditioners, heat-pump hot water systems, and induction cooktops. Households can make savings by selecting efficient electric appliances for hot water, heating and cooking when it's time to replace

old gas appliances—and savings are even higher for households with a rooftop solar system.

A medium-sized Perth household that replaces old gas heaters with heat pumps (reverse-cycle air conditioners) but retains gas for hot water and cooking can expect to save around \$1000 over ten years, while a similar household that disconnects completely from gas can expect to save \$2400 over the same period. In Albany, savings are two to three times higher—this is because of higher gas prices and a greater need for heating due to the colder climate.

New home buyers stand to gain even more. Over ten years, those who install electric appliances instead of gas for heating, cooking and hot water—and also install a rooftop solar system—will be between \$7500 (for a small home in Perth) and \$10,500 (for

a large home in Albany) better off than those installing gas appliances without solar.

On the basis of the study, *Renew* recommends that households consider efficient electric appliances when an old gas appliance needs replacing, as in almost all cases they will save money over the life of the appliance. It also recommends that new homes are built to be all-electric. Connecting housing estates to gas would just lock new home buyers into significantly higher energy costs for the medium to long term.

Renew also recommends that:

- households with a reverse-cycle air conditioner and a gas heater try heating with the air conditioner instead of the gas heater to see the difference in running costs;
- assistance is provided to disadvantaged consumers, in order to allow them to replace expensive-to-run/ageing appliances;
- the energy industry accounts for rational consumer appliance choices in its forecasts of future demand for gas and electricity.

The full report can be found on our website: renew.org.au/research/report-affordable-energy-choices-for-wa-households



Households can make savings by selecting efficient electric appliances for hot water, heating and cooking ... and savings are even higher ... with a rooftop solar system.



*Renew welcomes expert opinion pieces, which can be submitted to opinion@renew.org.au. The views expressed in these pieces are those of the authors, and do not necessarily represent the views of *Renew* magazine or its parent organisation, the Alternative Technology Association (trading as *Renew* Australia).*