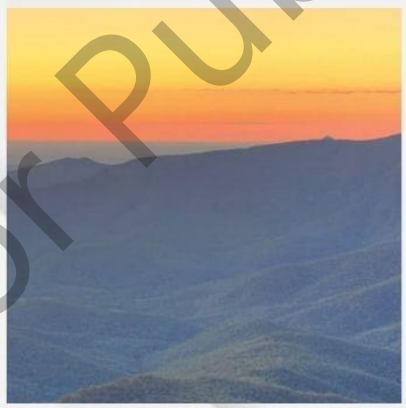
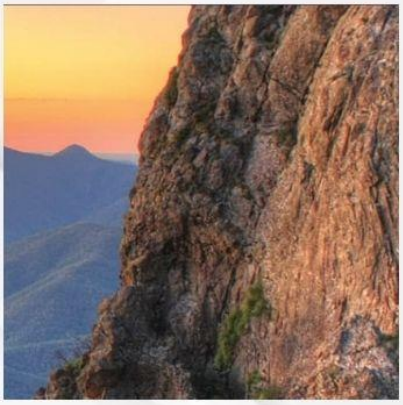
100% renewables

Narrabri Shire Council

Renewable Energy Implementation Plan CONSULTATION PAPER

NARRABRI SHIRE





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1 Introduction

1.1 Purpose

The purpose of this Consultation Paper is to seek input and feedback from the community on the proposed actions identified for potential inclusion in the Narrabri Shire Council Renewable Energy Implementation Plan, currently being developed by Council.

This Consultation Paper is intended to serve as a platform for engaging with residents, businesses, and stakeholders within the Narrabri Shire, inviting them to share their insights, concerns, and suggestions regarding the proposed measures aimed at reducing emissions and advancing renewable energy and sustainability initiatives.

Through this consultation process, Council aims to ensure that the Plan accurately reflects the needs, priorities, and aspirations of the community, fostering a sense of ownership and collaboration in shaping a sustainable energy future for the region.

1.2 Background

The potential actions proposed in this document were identified through a process of in-depth research, analysis, and engagement, as described and presented in a separate, accompanying document, the Narrabri Shire Council Renewable Energy Action Plan.

The Implementation Plan will build on the findings of the Action Plan, to deliver a specific, detailed, and actionable roadmap to guide Council in achieving its objectives. The actions identified for potential inclusion in the Implementation Plan are grounded in a robust evidence base but can still be usefully reconsidered and refined in response to community feedback.

1.3 What kind of input are we seeking?

In this Consultation Paper, we are seeking input from a diverse cross section of the community to enrich and refine Council's Renewable Energy Implementation Plan.

We welcome feedback on the feasibility of proposed actions, including your insights into the practicality of implementing renewable energy initiatives within our community. Your perspectives on the optimal timing for executing these measures are valued, as we strive to prioritise actions that align with the evolving needs and dynamics of the Narrabri Shire.

Additionally, we invite you to share any objections or concerns you may have regarding specific actions outlined in the plan. Identifying potential obstacles or challenges is essential for crafting effective strategies that can effectively navigate barriers and ensure the success of our renewable energy endeavours.

Furthermore, we encourage you to contribute your ideas and suggestions for refining and improving the proposed actions. Your innovative solutions and perspectives can help us enhance the practicality and impact of the plan, ensuring that it resonates with the aspirations and values of our community.

By actively engaging in this consultation process, you play a vital role in shaping the future of renewable energy and environmental action in the Narrabri Shire. Your input will inform the finalisation of the Implementation Plan, empowering us to collectively work towards a more sustainable and resilient energy landscape for generations to come.

1.4 How will the consultation findings be used?

The outcomes of the consultation process will help Council to determine the most feasible and beneficial actions to pursue and will inform decisions around the optimal timing of each action.

A pivotal aspect of the Implementation Plan will be its structured approach. By delineating short, medium, and long-term implementation schedules, and by assigning responsibility for implementation, the Plan will help ensure transparency and strategic alignment with economic and technological trends while maximising value for money outcomes for Council and the community.

2 Context

2.1 Global context for climate action and targets

At a global level, the call to action for countries to act on climate change has been increasing for several years. According to the IPCC's report, *Climate Change 2021: the Physical Science Basis* we have emitted over 85% of all emissions we can emit if we are to have a chance of remaining within 1.5°C of warming in the long term. Key agreements and reports that underpin international consensus to act include:

1. Sustainable Development Goals (SDGs)[1]
2. Paris Agreement[2]
3. Special IPCC report on 1.5°C warming (SR15)[3], and
4. IPCC Sixth Assessment Reporting cycle (AR6)[4]

FIGURE 1: GLOBAL CONTEXT FOR ACTION ON CLIMATE

[1] Sourced from https://www.un.org/sustainabledevelopment/development-agenda/
[2] Sourced from https://www.un.org/sustainabledevelopment/climatechange/
[3] Sourced from https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_HR.pdf
[4] Sourced from https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf

2.2 Changing national and local context

In Australia, the commitment to addressing climate change is becoming more uniform and aligned towards international goals across all levels of government. This includes ambitious efforts towards decarbonisation by the middle of the century.

- The Federal Government has legislated emissions reduction of 43% by 2030 (from 2005 levels) and is committed to net zero by 2050.
- NSW Government has a target of 50% emissions reduction by 2030, 70% emissions reduction by 2035, and net zero by 2050.
- A large number of regional local governments and communities representing more than two thirds of NSW population are committed to deep emissions cuts.

2.3 Grid decarbonisation

Over the coming decades, coal-fired power stations in Australia, including NSW, will be replaced by renewable energy generation technologies such as solar, wind, pumped hydro, and grid-scale batteries.

The Australian Government's forecast Scope 2 & 3 combined grid emission factors (t CO_2-e / MWh) for and each jurisdiction and grid system are shown in the table below.

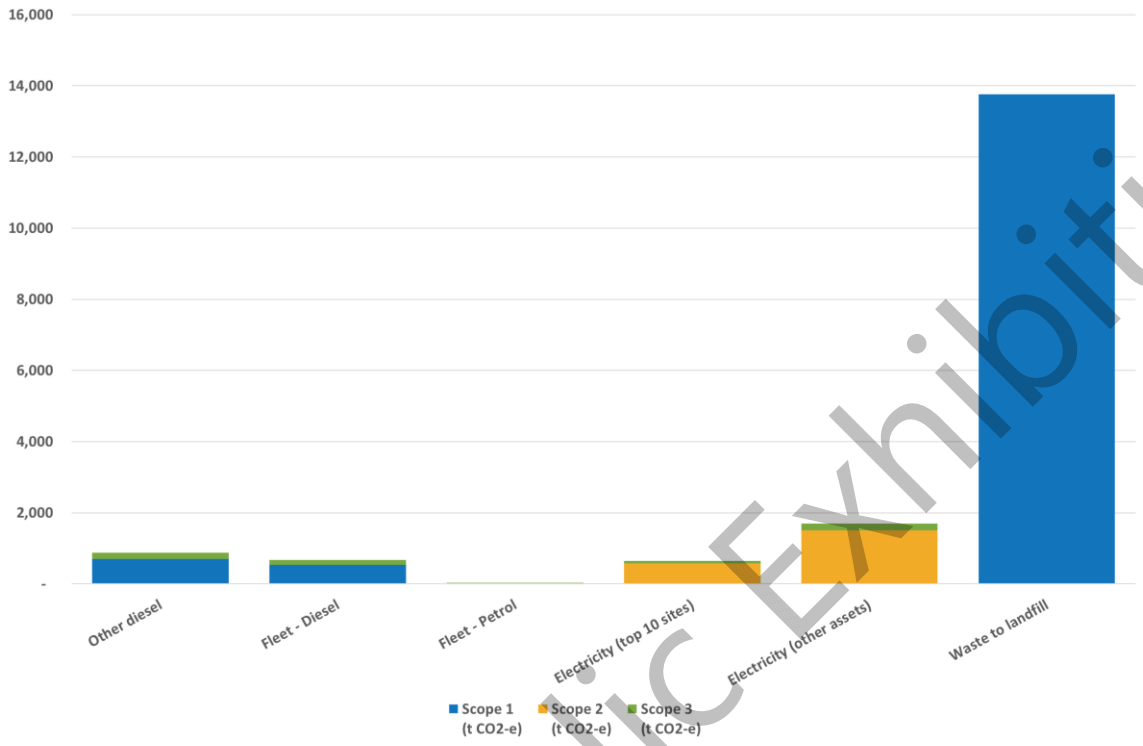
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Australia, all grid connected	0.77	0.71	0.65	0.56	0.51	0.47	0.41	0.35	0.29	0.27	0.25	0.24	0.21	0.20
NEM	0.62	0.57	0.52	0.44	0.40	0.37	0.32	0.27	0.23	0.21	0.19	0.18	0.16	0.15
NSW/ACT	0.78	0.75	0.64	0.53	0.42	0.36	0.25	0.22	0.13	0.12	0.11	0.13	0.02	0.02
QLD	0.88	0.81	0.77	0.61	0.58	0.54	0.54	0.50	0.46	0.42	0.36	0.29	0.26	0.24
SA	0.33	0.31	0.26	0.23	0.15	0.16	0.11	0.08	0.02	0.02	0.02	0.02	0.10	0.11
VIC	0.92	0.82	0.78	0.72	0.72	0.67	0.59	0.44	0.40	0.38	0.35	0.37	0.41	0.39
TAS	0.18	0.03	0.06	0.02	0.06	0.05	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02
SWIS	0.55	0.52	0.50	0.44	0.41	0.38	0.34	0.31	0.26	0.25	0.24	0.24	0.23	0.22
NWIS	0.62	0.59	0.57	0.55	0.51	0.50	0.48	0.47	0.46	0.45	0.44	0.42	0.41	0.40
DKIS	0.61	0.57	0.53	0.50	0.48	0.47	0.45	0.42	0.38	0.38	0.36	0.35	0.32	0.23

2.4 Council's emissions profile

For this project, an indicative emission profile was developed for Council's immediate operations. The analysis considered relevant emission sources from operations conducted by Narrabri Shire Council but did not quantify emissions from Council's supply chain.

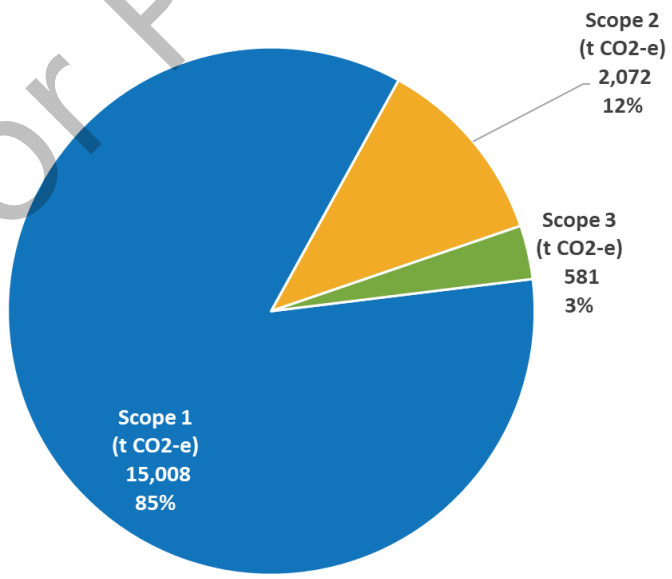
The indicative carbon footprint for Council was calculated to be 17,661 tCO_2-e.

The most significant emission sources are waste diverted to landfill which represents 78% of the total emissions, electricity use of Council assets other than the top 10 sites (10%) and other diesel use (5%). The top 10 energy using sites represent around 4% of emissions. The breakdown of Council's emissions is illustrated below.

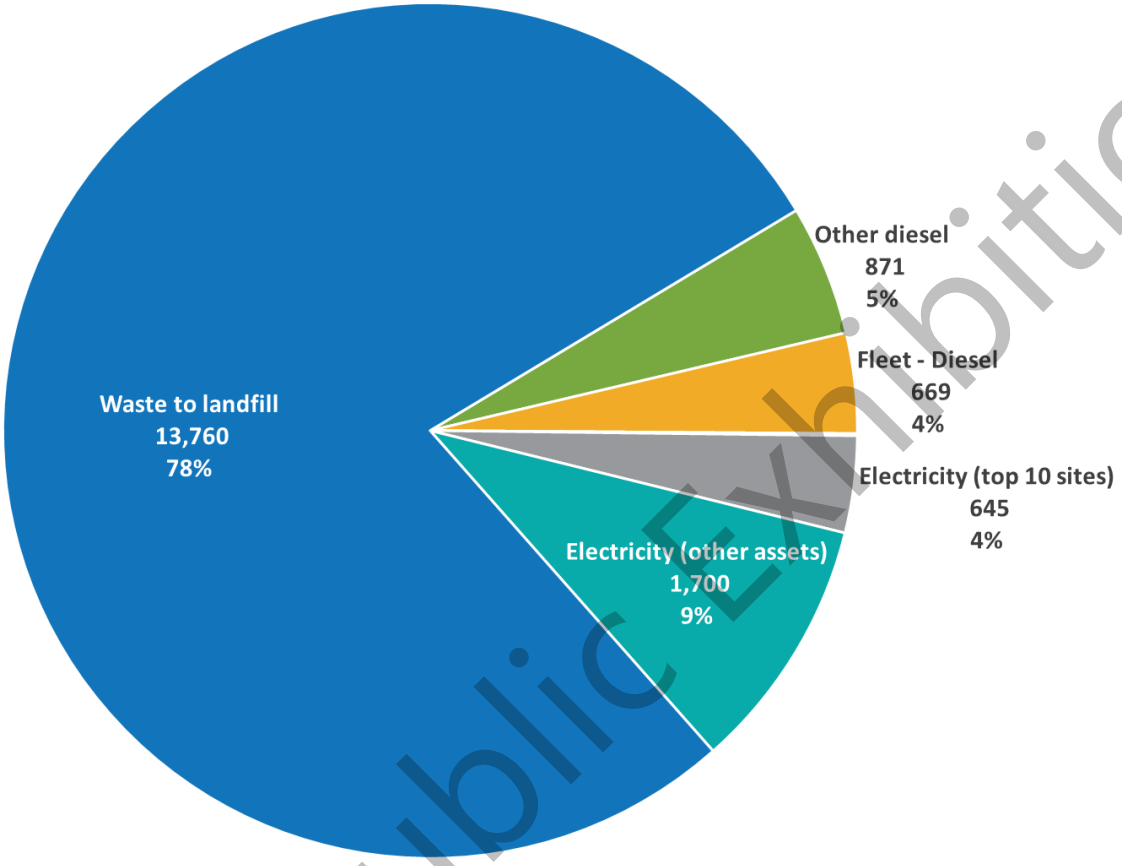


NARRABRI SHIRE COUNCIL'S INDICATIVE EMISSIONS PROFILE

Overall, scope 1 greenhouse gas emissions make up the biggest proportion of Narrabri Shire Council's carbon footprint (85%) followed by scope 2 emissions (12%). Scope 3 indirect emissions (emissions from transmission and generation of energy) are small in comparison to other sources.



INDICATIVE CARBON INVENTORY BY SCOPE



INDICATIVE CONTRIBUTION TO THE INVENTORY IN PERCENTAGES

3 Consultation issues

The following sections outline key areas of focus that Council is seeking feedback on for the development the Renewable Energy Action Plan.

3.1 Site specific actions

Description

100% Renewables conducted site visits to explore opportunities for reducing energy consumption in Council's top 10 energy-consuming facilities. The objective was to analyse potential actions that the Council could implement to curtail its energy usage.

Main barriers

Below are the main barriers for Council in implementing site specific actions to curtail energy use:

- **Solar PV structural challenges**: Concerns about structural compatibility for solar PV and battery storage systems at multiple sites.
- **Solar PV location and viability**: Identifying suitable locations for solar PV arrays considering available space, energy demand patterns, and aesthetic concerns.
- **HVAC system age and replacement**: Uncertainty regarding benefits of bringing forward replacement of older HVAC units at several locations, affecting energy-efficient air conditioning upgrades.
- **Load shifting efficiency**: Load shifting strategies can reduce energy costs but need to avoid compromising service delivery.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

1. **Swimming Pool**
   - Installing a solar PV system, noting roof structural assessment is advised.
   - As an alternative to PV, doubling the solar hot water matting surface area, noting this requires consideration regarding any structural or other constraints.
   - Explore funding opportunities such as grant programs and assess the potential to fund major asset upgrades.
2. **The Crossing Theatre**
   - Installing a solar PV system, noting this requires confirmation if there are any constraints on installing solar on the theatre roofs.

- Installing a Power Factor Correction (PFC) unit, noting space needs to be confirmed.
- Develop a plan for the replacement of R22 HVAC systems or older HVAC units.

3. **Water Treatment Works**
   - Install a 100 kW solar array, noting this requires confirmation considering future upgrade plans and factors such as flood risk.
   - Plan for the long-term replacement of the water treatment plant with energy-efficient alternatives.
4. **Water Tanks**
   - Install a Power Factor Correction unit at the main switchboard, noting available space needs to be confirmed.
   - Install a solar PV system, noting Council needs to advise on preferred locations for solar installation.
5. **Bore Pump, Elizabeth St**
   - Implement load shifting strategies, noting Council needs to confirm if there is flexibility in the selection of the water supply source to maintain energy use below 160 MWh.
   - Feasibility of a 5-8pm weekday lockout needs confirmation.
   - Install a power factor Correction unit, noting available space needs to be confirmed.
6. **Depot Narrabri**
   - Install up to 50kW of solar PV, noting that underground infrastructure, site access, and other factors may make solar installation unviable, and Council needs to confirm.
   - Conduct a feasibility study to assess the viability of solar installation considering underground infrastructure and site access.
   - Collaborate with stakeholders to plan for future pump upgrades and incorporate energy-efficient solutions.
7. **Bore Pump, Tibbereena St**
   - As with the Elizabeth St bore pump, discuss water supply flexibility and evaluate the feasibility of load scheduling.
   - Install a power factor Correction unit, noting available space needs to be confirmed.
8. **Administration Building(s)**
   - Install as solar PV system, noting council needs to confirm the most suitable building for solar installation.
   - Determine the most suitable building for solar installation based on inverter location and electrical connection requirements.
9. **New Visitor Information Centre**
   - Install a solar PV system, noting the suitability of the main roof for solar installation needs confirmation from the Council.

Key opportunities

- Consider alternative options such as flat roof or carport arrays.
- Confirm or develop a plan for R22 HVAC system replacement for older HVAC units.

3.2 Energy efficiency and renewables (general actions)

Description

Energy efficiency is a cost-effective way to cut energy use and emissions across Council's facilities. Upgrades like LED lighting and HVAC (Heating Ventilation and Cooling) improvements offer benefits such as lower costs and improved service.

Main barriers

Below are the main barriers for councils in implementing energy efficiency and renewable energy projects at Council sites:

- **Limited time and staff capacity**: Insufficient resources available to dedicate to energy initiatives.
- **Uncertainties about opportunities**: Challenges in identifying and evaluating potential energy-saving opportunities.
- **Finance accessibility**: Difficulties in obtaining financing for energy efficiency projects for example bringing forward equipment replacement.
- **Technical complexity**: Dealing with the technical complexities of implementing energy-related upgrades without sacrificing operations and service delivery.
- **Stakeholder alignment**: Achieving alignment and buy-in from all stakeholders involved in energy initiatives.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

10. **Electricity generation**
    - Prioritise well-sized local onsite renewable energy systems initially over centralised electricity generation to reduce grid energy demand and maximise cost savings.
    - Consider a hybrid approach in the longer term that supports a limited number of the most cost-effective centralised proposals to demonstrate leadership and foster green economic development while still capitalising on the benefit of well-sized local renewable energy systems.
11. **Battery storage and solar expansion**
    - Focus on solar installation initially and plan for the expansion of solar arrays with battery storage in the medium term (after

2030) to coincide with the decline in battery prices and expected increase in electrical load from electric vehicles.
    - For sites where solar PV capacity is high enough to generate substantial surplus energy, and energy load remains substantial after-hours, consider rolling out battery solutions before 2030, especially where grant funding can be obtained to reduce upfront costs.
12. **Energy efficiency across council sites**
    - Implement energy efficiency measures across all council sites, recognising that it is cost-effective in the long run and delivers multiple benefits beyond just reducing energy consumption.
    - Prioritise bringing forward simple measures with the fastest payback, while larger more complex upgrades can be implemented in line with asset replacement cycles.

Key opportunities

13. **Load shifting**
    - Further investigate identified load shifting opportunities and consult stakeholders to determine feasibility, as load shifting shows potential as a beneficial strategy.
14. **Tariff optimisation**
    - Implement easy win options for tariff optimisation.
    - Continue to monitor changes in tariff structure in line with changes to energy demand.
15. **Power Purchase Agreements (PPAs)**
    - Pursue a PPA as a group member to increase purchasing power and feasibility.
    - Consider current offers in comparison to current electricity bills.
    - Factor in future needs regarding transition to electric vehicles.
16. **GreenPower adoption**
    - Where appropriate, such as certain sites or EV charging facilities, consider limited GreenPower adoption as a means to demonstrate leadership quickly and easily, noting its relatively higher cost as a method to reduce emissions.

3.3 Waste

Description

Like many local governments, Narrabri Shire Council faces challenges related to waste related environmental impacts and greenhouse gas emissions. Council is currently addressing critical decisions concerning its waste management strategy. Achieving ambitious targets in line with NSW Government policy would be difficult, but important for Council to make deep cuts to its emissions and to reach net zero emissions by 2050 in a manner that minimises the need for carbon offsetting.

Main barriers

Below are the main barriers for councils in reducing waste-related emissions:

- **Infrastructure limitations**: Costly to develop and maintain necessary waste management infrastructure.
- **Technological constraints**: Lack of expertise and resources for advanced waste management technologies.
- **Behavioural challenges**: Encouraging sustainable waste management practices among residents and businesses.
- **Regulatory compliance**: Meeting complex regulatory requirements and obligations.
- **Community opposition**: Facing resistance from local communities regarding new waste management facilities.
- **Financial constraints**: Limited budgets and competing priorities for investment in emissions reduction initiatives.
- **Data and monitoring**: Difficulty in collecting accurate data on waste generation and emissions for informed decision-making.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

17. **Gas capture and flaring**
    - Proceed with installation of gas capture system up to economic capacity.
18. **Food and Organics Diversion**
    - Facilitate the maximum diversion of organic waste to composting facilities to avoid anaerobic decomposition according to best practice guidance.
19. **Consider landfill gas for energy generation**
    - Investigate the feasibility of combustion technologies to generate electricity from landfill gas.
    - Leverage financial support from governments where feasible, for example through the Emissions Reduction Fund.
20. **Promote sustainable practices**
    - Advocate for avoidance and reduction of waste through sustainable consumption practices and product design.

- Encourage reuse, recycling, and recovery initiatives to minimise waste generation.

21. **Explore long term waste management options including waste to energy**
    - Investigate thermal treatment and electricity generation technologies to reduce reliance on traditional landfilling.
    - Undertake emissions lifecycle analyses to assess the environmental impacts of waste management options.
    - Investigate the feasibility of phytocapping or impermeable membranes as landfill cover to reduce emissions and enhance biodiversity following landfill closure.
22. **Support policy implementation**
    - Collaborate with the NSW Government to align with the Energy from Waste Policy Statement and seek funding support where possible.
23. **Cost-effective monitoring**
    - Track progress on waste policies through comprehensive data capture, including gas capture data and regular waste mix audits.
    - Update waste emissions calculations on a regular basis, including leveraging the NGER solid waste calculator results in this report as a baseline.
    - Complement surface emission monitoring techniques with other techniques as needed for accurate assessment.

Key opportunities

3.4 Fleet transition

Description

The majority of Council's fleet comprises diesel-powered utes and SUVs, making up over 60% of the total fleet. Additionally, there is one van and one passenger vehicle, with the rest consisting of plant and equipment vehicles such as backhoes, diggers, excavators, graders, mowers, etc. The development of a transition plan for Council's fleet can be informed by considering various scenarios, which hinge on various factors such as Council's urgency to mitigate emissions, allocated budget for the transition, and the availability of appropriate sustainable vehicle options in the market.

Main barriers

Below are the main barriers for councils in reducing fleet-related emissions:

- **Resource allocation challenges**: Allocating sufficient funds and resources for developing necessary infrastructure, such as charging stations or fuelling points, and electrical system upgrades such as substations and circuit boards.
- **Technological concerns**: Addressing the lack of knowledge about and confidence in the reliability and performance of new technology, including safety considerations.
- **Cultural shift**: Addressing resistance or scepticism among drivers, fleet managers, and other stakeholders regarding the adoption of alternative fuel vehicles and new operational practices.
- **Financial strain**: Managing the upfront costs of purchasing or leasing sustainable vehicles against constrained budgets and competing investment priorities.
- **Administration changes**: Establishing new data collection and integration systems to monitor fleet performance, and adjustments to budget and accounting processes to better consider “whole of life” costs.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

24. **Assessment of charging needs**
    - Evaluate the current and projected future demand for EV charging infrastructure based on the fleet transition plan and anticipated growth in EV adoption.
    - Consider the different levels of charging (Level 1, Level 2, and Level 3 DC Fast Charging) and their respective requirements/locations.

Key opportunities

25. **Infrastructure planning and installation**
    - Prioritise the installation of Level 2 chargers at key Council facilities, including depots, offices, and popular destinations identified in the Narrabri Shire EV Charging Feasibility Assessment.
        - □ Ensure that the number of charging stations is adequate to meet the growing demand for EV charging.
        - □ Collaborate with infrastructure providers to determine equipment and installation costs and explore opportunities for various business models and branding strategies.
    - Assess appetite for/ feasibility of installing solar PV covered charging/carparking at administration/operational sites to leverage renewable energy and reduce grid electricity consumption.
26. **Funding and financing**
    - Pursue funding opportunities for charging infrastructure, including grant funding from the NSW Government for "destination" infrastructure development, or the Commonwealth's Community Energy Upgrade Fund.
    - If necessary, consider financing solutions offered by infrastructure providers to cover the upfront costs of EV charging installations.
27. **Electrical infrastructure upgrades**
    - Assess the impact of EV charging on the local electrical grid and plan for necessary upgrades to substations, switchboards, and conduit systems to accommodate the increased electrical load.
    - Mitigate potential strain on electrical infrastructure through energy efficiency measures, energy management, load shifting, and integration of onsite solar PV systems.
28. **Fuel efficiency and low emission vehicle trials**
    - Undertake rationalisation of vehicle performance and functional requirements against current and future service delivery needs
    - Trial potential low-emissions alternatives including hybrid and full EVs.
    - Coordinate the transition to electric outdoor equipment alongside the fleet transition plan, including equipment trials.
    - Optimise routes and trip frequencies and implement driver efficiency training.
29. **Procurement and fleet replacement policy**
    - Include low-emission vehicle mandates in future Council fleet policies and procurement plans.

3.5 Water

Description

Narrabri Shire, situated in the outback of New South Wales, faces unique challenges related to water management and sustainability, necessitating the implementation of effective water management and monitoring systems. With Narrabri Shire being reliant on water for agricultural activities, livestock, and the well-being of its communities, the need for a resilient water management strategy becomes paramount.

Main barriers

Below are the main barriers for Council in managing water resources:

- **Climate variability and uncertainty:** The unpredictable nature of climate change leads to increased variability in rainfall patterns, affecting water availability.
- **Increased water demand:** As temperatures rise, water demand for agriculture, industry, and households also increases. Balancing supply and demand become more challenging, especially during prolonged dry spells.
- **Groundwater depletion:** Rising temperatures and prolonged droughts can lead to over-extraction of groundwater, depleting aquifers. Council needs sustainable strategies to manage groundwater resources effectively.
- **Water quality:** Climate change impacts water quality by altering temperature, nutrient levels, and salinity. The council must monitor and address contamination, especially in surface water ecosystems.
- **Infrastructure vulnerability:** Extreme weather events (such as floods and storms) can damage water infrastructure. The council needs resilient systems to withstand climate-related impacts.
- **Legal and regulatory challenges:** Adapting water management practices to climate change requires navigating complex legal frameworks and regulations.
- **Community engagement:** Educating and involving the community in water conservation efforts is crucial. Council faces challenges in promoting sustainable practices and behaviour change**.**
- **Financial constraints:** Implementing climate-resilient water management strategies requires funding.
- **Integrated planning:** Coordinating efforts across different sectors (e.g., agriculture, environment, urban planning) is essential for effective water resource management in a changing climate**.**

We are seeking your view on the feasibility and possible timing of the following potential actions:

Key opportunities

30. **Planning for multiple water demand scenarios**
    - Further investigate and plan for multiple scenarios encompassing different levels of industrial growth, economic development, and population changes.
    - Design and replace water infrastructure with energy efficiency, renewable energy, and flexibility, in mind.
31. **Establishment of a framework for water demand and climate projection and monitoring**
    - Integrate climate resilience strategies into water planning.
    - Establish a framework for regular review and updates of water demand projections.
    - Invest in robust monitoring systems and data collection methods.
32. **Community engagement**
    - Implement and monitor community education programs and water conservation initiatives.
    - Collaborate with key stakeholders, including industries, community representatives, and water management experts.

3.6 Urban Greening

Description

Narrabri Shire Council aims to create a sustainable and compatible natural and built environment by 2032, including implementing measures to address urban heat. A pivotal strategy in achieving this objective is urban greening. However, challenges such as a changing climate, space limitations, and fostering public support must be addressed. By proactively tackling these obstacles and collaborating with stakeholders, Council can realise its vision of a resilient, green, and liveable community.

Main barriers

Below are the main barriers for councils in implementing urban greening initiatives:

- **Infrastructure limitations**: Urban areas may lack suitable spaces for urban greening, such as ground covers, trees, parks or green roofs, due to existing built environment constraints or competing land use demands.
- **Limited resources and budget constraints**: Urban greening projects often require significant investment in infrastructure, maintenance, and ongoing management. Councils may have limited staff, expertise, and time to dedicate to planning and implementing urban greening initiatives effectively.
- **Public opposition**: Public stakeholders may resist urban greening initiatives due to concerns about changes to their neighbourhoods, potential disruptions, or perceived conflicts with other priorities.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

33. **Biodiversity, and landscaping integration**
    - Collaborate with environmental experts to identify areas suitable for wildlife corridor strengthening and integrated green spaces.
    - Develop a plan to enhance biodiversity through the strategic placement of native vegetation.
34. **Public engagement and consultation**
    - Organise community forums and workshops to discuss the urban greening strategy.
    - Establish an online platform for community input on design preferences and species selection.
    - Create educational materials to inform the public about the benefits of the proposed initiatives.

Key opportunities

35. **Street design and planting islands**
    - Assess current canopy coverage for all main streets and identify key areas for planting islands.
    - Collaborate with urban designers to integrate planting islands as traffic dividers.
36. **Reduce hard pavement surfaces with low vegetation**
    - Identify high-visibility intersections and areas with excessive hard surfaces.
    - Introduce ground cover and planter boxes in strategic locations to mitigate urban heat.
    - Engage the community and local businesses in selecting low-maintenance vegetation for these installations.
37. **Mapping technologies**
    - Establish a more comprehensive tree canopy baseline using i-Tree Canopy or other appropriate tools.
    - Utilise thermal imaging during heat events to map temperature distribution, leveraging drone technology.
    - Leverage Council's internal capacity for mapping work to support ongoing monitoring and planning.
38. **Greenery in commercial spaces**
    - Collaborate with local businesses to integrate greenery into outdoor commercial spaces.
    - Provide incentives for businesses to adopt and maintain green infrastructure.
    - Host community events in green spaces to promote public engagement.
39. **Rainwater capture and funnelling**
    - Analyse drainage patterns and identify areas for rainwater capture.
    - Collaborate with local engineers to design and implement efficient rainwater funnels and other distribution infrastructure.
40. **Climate-resilient species selection**
    - Establish a task force comprising arborists, climate experts, and community representatives.
    - Use climate projection tools to simulate future conditions and inform species selection.
    - Develop guidelines for selecting and planting resilient species that can thrive in changing climates.
    - Collaborate with local nurseries to ensure a sustainable supply of diverse tree species.
41. **Avenue plantings**
    - Identify key roads for avenue plantings.
    - Seek community input on the preferred aesthetic.

3.7 Land management

Description

Agriculture stands out as a cornerstone of Narrabri's economic, environmental, and social landscape. Recognising the crucial role that local governments can play in shaping land use and environmental policies is paramount. Increasingly, local councils are spearheading efforts in sustainable land management through comprehensive strategies. Their focus lies on community engagement and education, aimed at promoting awareness of responsible land use practices and helping facilitate access to relevant organisations and funding sources.

Main barriers

Below are the main barriers for councils in supporting sustainable land management practices:

- **Limited funding:** Insufficient financial resources often hinder councils' ability to invest in community land management projects, including infrastructure development, conservation efforts, and educational programs.
- **Community opposition:** Resistance from local residents, businesses, or interest groups may arise due to concerns about perceived impacts on property values, livelihoods, or personal freedoms, thereby hindering the adoption of sustainable practices.
- **Lack of expertise and capacity:** Councils may lack the necessary expertise, staff, or technical capabilities to effectively plan, implement, and monitor sustainable land management practices.
- **Short-term planning horizons:** Political cycles and budgetary constraints often prioritise short-term objectives over long-term sustainability goals, making it challenging for councils to commit to and sustain efforts towards sustainable land management.
- **Land ownership and fragmentation:** Fragmentation of land ownership and jurisdictional boundaries can complicate coordination and collaboration among stakeholders, inhibiting integrated approaches to sustainable land management.
- **Climate change and uncertainty:** The increasing impacts of climate change, such as extreme weather events and shifting environmental conditions, introduce additional complexities and uncertainties, making it challenging for councils to develop resilient and adaptive land management strategies.

We are seeking your view on the feasibility and possible timing of the following potential actions:

Key opportunities

42. **Quickly establish foundational efforts and secure immediate support**
    - Identify and apply for relevant grants.
    - Review and align local policies with broader frameworks.
    - Initiate contact with relevant organisations for partnerships.
    - Implement capacity building programs to enhance sustainable land management skills within Council and the community.
    - Participate in short-term research projects.
43. **Deepen collaborative efforts and enhance capabilities**
    - Lead larger joint projects.
    - Develop long-term technical partnerships.
    - Integrate data into decision-making.
44. **Scale up successful practices for long-term sustainability**
    - Integrate local and regional policies.
    - Establish regional collaboration models.
    - Create a culture of continuous learning.

3.8 Economic development

Description

Many residents and businesses across the LGA understand that there are emissions reduction and energy cost savings opportunities available to them, and some have acted to reduce their emissions. However, many likely require education and support to enable them to understand and implement opportunities that best fit with their situation. Council, other levels of government, and local and regional collaborations can play a key role in providing this support. Councils typically have several levers available to them to help with the transition to net zero emissions.

Main barriers

Below are the main barriers for councils in supporting a low carbon economy:

- **Resource allocation challenges**: Insufficient funding and labour power can hinder councils' ability to invest in low carbon initiatives, such as renewable energy projects or energy efficiency programs.
- **Technological challenges**: Limited access to suitable technologies or expertise required for renewable energy generation, energy efficiency improvements, or carbon reduction strategies.
- **Financial strain**: Economic factors such as upfront costs, payback periods, and uncertainties about long-term returns on investment can deter councils from pursuing low carbon projects, especially in financially constrained environments.
- **Lack of data and planning**: Inadequate data availability or gaps in understanding local carbon emissions profiles and mitigation opportunities can hinder councils' ability to develop informed and effective low carbon strategies.

Key opportunities

We are seeking your view on the feasibility and possible timing of the following potential actions:

45. **Set a community emissions reduction target**
    - Adopt a 2050 net zero target for greenhouse gas emissions reduction by the Shire community.
    - Consider sub-targets such as goals for solar PV, battery storage, and electric vehicle uptake in the community.
46. **Allocate resources to support community emissions reduction**
    - Support and enable community action on climate change by providing tools and resources through Council's business planning processes.

47. **Measure and monitor community emissions**
    - Establish a process to regularly re-assess the emissions of greenhouse gases by the community, and trends in both overall emissions and in metrics such as solar and EV uptake (e.g. every three years for community emissions, annually for solar and EV metrics).
48. **Administer Council's Renewable Energy Implementation Plan to completion**
    - Adopt, implement, and report on Council's carbon footprint, plus progress on emissions reduction targets and plans.
    - Share success stories from Council's emissions reduction plan with the community to demonstrate leadership and inspire the community.

Key opportunities

49. **Recognise community and local industry leaders in climate action**
    - Identify local community and industry leaders in sustainability and climate action and draw on their expertise and achievements to educate and inspire the wider community.
50. **Industry-specific education**
    - Develop and deliver general as well as industry-specific education and resources on climate change and emissions reduction plans & opportunities for businesses (incl not for profits and schools).
    - Consider a range of approaches to delivering resources to business, including webpage content and links, online and face-to-face workshops, and technology expos.