

Renewable Energy and Emissions Reduction Plan

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Recommendation:

That Council note and receive the report and:

1. Endorse the adoption of the Renewable Energy and Emissions Reduction Plan (2023) with its recommendations, including achieving net zero for Rous by 2050.
2. Endorse the allocation of budgets to the Renewable Energy Projects as listed in the report and inclusion of the projects in the capital works program out to 2028.

Background

Rous County Council's Greenhouse Gas (GHG) Abatement Strategy for its operational carbon footprint was adopted in 2018.

The focus over the past 5 years has been the installation of Solar PV systems on various sites to reduce consumption of grid electricity. Solar PV systems were installed at Rous's water treatment plants, a pump station, water filling stations and operational depots. Rous has also started transitioning Council vehicle fleet to Hybrid Electrical Vehicles. These initiatives have been very successful, contributing to a 13% reduction in GHG emissions between 2017 and 2022.

100% Renewables was engaged in February 2023 to:

- provide an overview of progress to date;
- perform an energy and carbon footprint comparison of the current (2022) and 2016/17 baseline position; and
- prepare a Renewable Energy and Emissions Reduction Plan (REERP).

Figure 1 – GHG emissions reduction trends 2017 to 2022

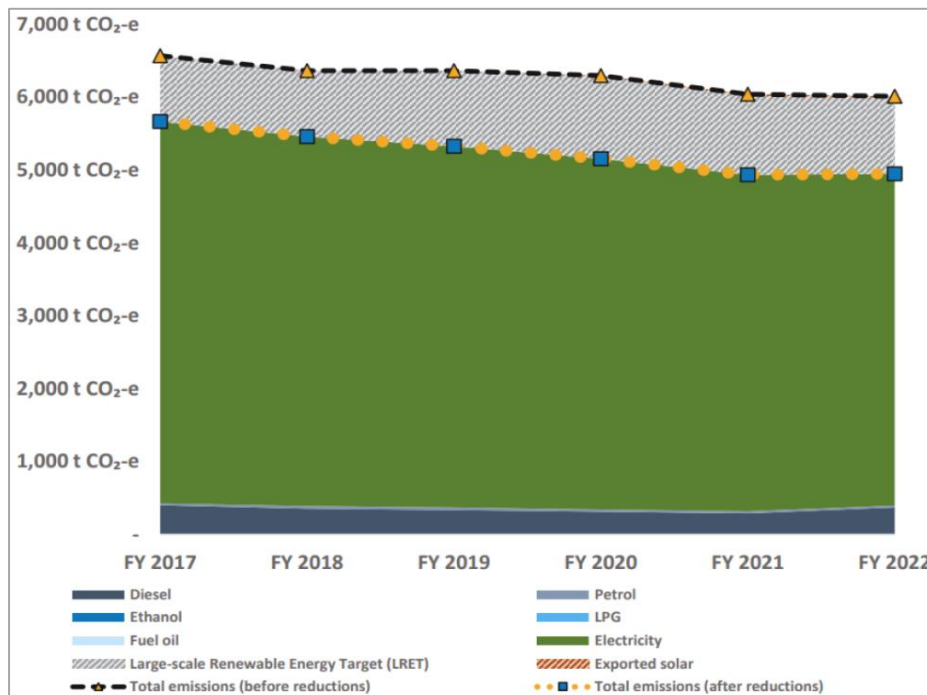


Figure 2 – Progress with renewable energy goals 2017 to 2023



Current

The REERP aims to identify and assess various opportunities for reducing greenhouse gas (GHG) emissions originating from Council’s operations, aligns with Council’s adopted Business Activity Strategic Plan (BASP) 2022-2032, and builds upon RCC’s GHG Abatement Strategy from 2018.

The purpose of the REERP is to provide an overview of current viable abatement opportunities available for Rous’s operations that in turn, can enable Rous to align with the NSW Government’s objective of reaching state-wide net zero emissions by 2050.

The GHG emissions for Rous have reduced from 5,663 tCO₂-e (2017) to 4,945 tCO₂-e (2022), and when considering the uncertified sequestration for 2022 (through bush regeneration), the GHG emissions reduce by an additional ~36% to ~3165 tCO₂-e (2022).

The REERP considered an assessment of the feasibility for installing battery energy storage system (BESS) technologies and recommended target dates for the replacement of light vehicles, plant and equipment with zero emissions vehicles.

Projects have been identified and modelled in the REERP to achieve a further reduction in operational electricity use and to reach renewable energy goals. These projects comprise the installation of Solar PV and BESS on a number of sites where suitable Return on Investments and acceptable payback periods could be achieved.

The following projects are recommended for implementation.

Table 1 – Renewable Energy Projects for Completion through to 2028

Project name	Description of potential opportunity	Solar PV size	Battery capacity	Indicative capital costs (\$) *
Gallans Road Admin Offices Solar PV	Option 1: Install a 35.9 kW roof-mounted solar PV at the north-facing roof to offset most of the site’s daytime grid imports.	35.9 kW	-	\$55,000
Newrybar Pump Station BESS	Augment existing 30 kW solar PV system with a 45 kWh BESS to capture a portion of the system’s exports.	-	45 kWh	\$45,000
Emigrant Creek WTP BESS	Investigate a 30 kWh BESS to capture a portion of the 40 kW solar array exports.	-	30 kWh	\$30,000
Rocky Creek Dam aerator Solar PV	Install a ground-mount 97.5 kW solar array in a small area south of the aerator. Additionally, consider adjusting the site’s operational hours to maximise daytime use.	97.5 kW	-	\$220,000
Nightcap WTP Clear Water Storage Reservoir Solar PV & BESS	Installing ~100 kW solar PV system on the roof of the clear water storage reservoir. Investigate the potential of augmenting the system with a BESS for capturing exports during daytime.	~100 kW	68 kWh	\$270,000
(Proposed) Russellton Estate Water Treatment Plant Solar PV and BESS	As party of planning for a new WTP at Russellton Estate (Alstonville), plan for a roof-mounted solar PV system of 90-100 kWh capacity with a ~200 kWh BESS.	93.6 kW	210 kWh	\$330,000
TOTAL COST FOR PROJECTS FUNDED BY CAPITAL BUDGETS				\$385,000
TOTAL COST FOR PROJECTS FUNDED WITHIN REVOLVING ENERGY FUND				\$565,000
TOTAL OVERALL COST				\$950,000

* Note – Indicative costs sourced from the REERP report and have been rounded-up

The above project proposals will need to be reassessed for Solar PV size and Battery capacity at the time of installation as electricity demand and scheduling may change. An example of this is the Gallans Road Administration Offices where not all staff have relocated to these offices as yet.

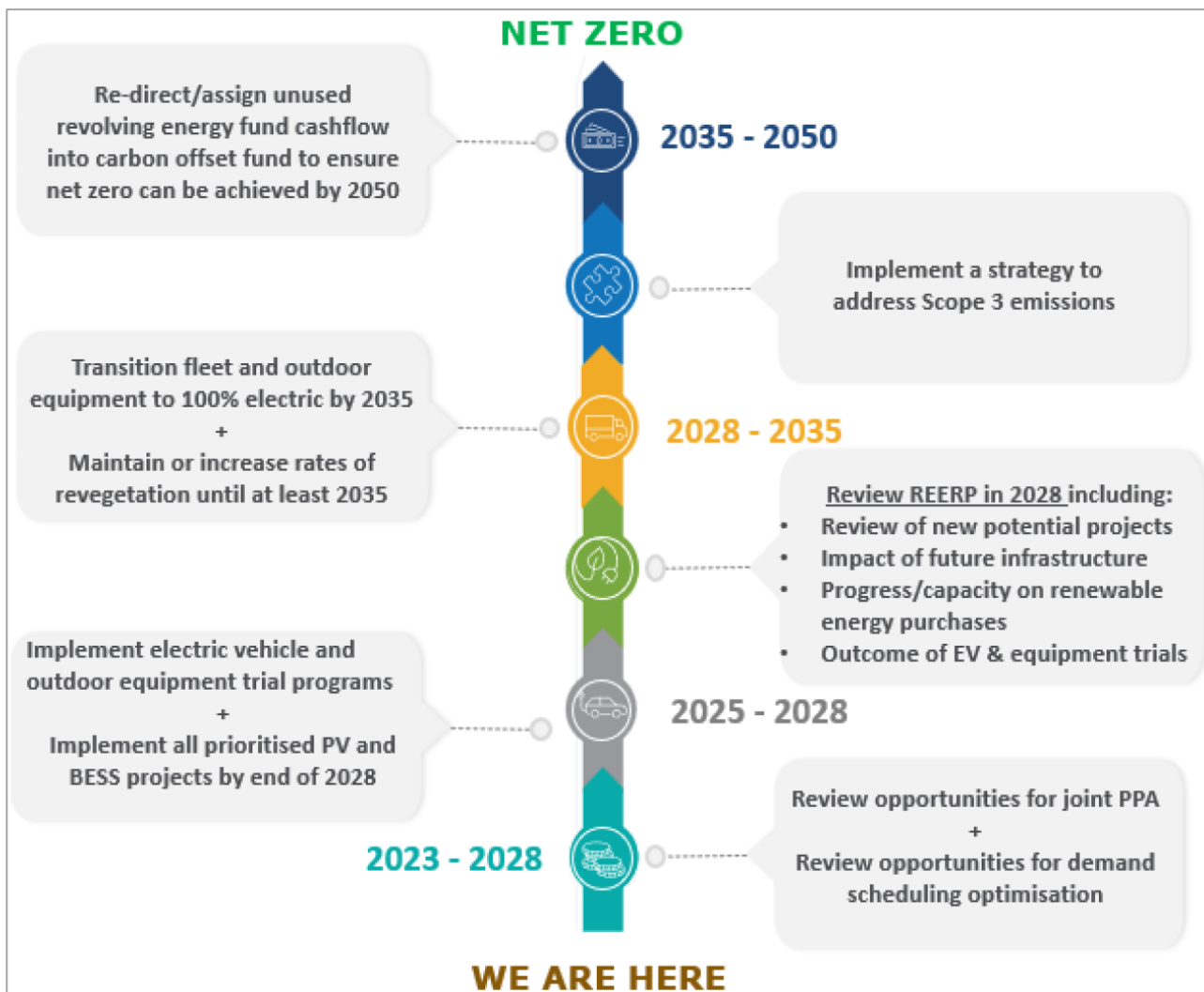
Funding for the Gallans Road Administration Offices solar PV and proposed Russellton Estate Water Treatment Plant solar PV and BESS would be funded under the capital works allocations for each of these projects as planning proceeds. The remaining projects can be funded through the balance and future savings deposited in the Revolving Energy Fund.

When considering the current energy and carbon footprint, the benefits of sequestration through Rous’s tree planting activities were assessed in a preliminary manner, which was an additional consideration since the 2018 GHG Abatement Strategy.

Sequestration potentially contributes significantly towards emissions reduction. The abatement outcomes were determined using a sophisticated software program developed by the CSIRO called FullCAM.

Working towards third-party recognition of sequestration quantification in the longer term is the ideal goal, and the work in the REERP provides the necessary foundation and pathway to move towards that goal. In addition to calculating the impact of sequestration on Rous’s carbon footprint, the REERP provides advice on the steps required to formalise the crediting of sequestration in a way that would allow for tree planting to contribute towards official Carbon Neutral certification in the future, should Council ever wish to pursue that ambition. It is not proposed to pursue this activity at this time as part of the REERP implementation, however, staff will collect data to support any future certification where practical.

The following timeline depicts a program of activities necessary for reaching the emissions reduction targets contained in the REERP, including net zero by 2050.



Renewable Energy and Emissions Reduction Plan – recommended actions

Based on feedback during the REERP development and to align with NSW and Federal government targets, the recommended emissions reduction targets for Rous are:

- Target net zero emissions by 2050.
- Target 70% emissions reduction by 2035 compared to the baseline period (2005 -2017).
- Seek to increase the proportion of renewable electricity, where cost effective to do so.

Additional recommended actions include:

1. Tree planting / revegetation
 - Maintain current rates of revegetation until at least 2035 in order to ensure significant rates of cumulative sequestration can be supported through to 2050.
 - Consider measures to support the resilience of revegetated areas to possible future disturbance by fire to avoid any negative “step change” impacts on Council’s carbon footprint.
2. Energy efficiency
 - By 2025, review options for demand scheduling optimisation.
3. Renewable electricity Solar PV & BESS projects
 - By 2028, implement priority projects listed in Table 1. Prioritisation should consider:
 - Economic feasibility as indicated by payback period, Net Present Value (NPV), and other financial metrics.
 - Scale of additional renewable energy generation and emissions reductions.
 - Potential for “bundling” or scheduling with other infrastructure projects, where clear synergies or efficiencies can be identified.
4. Fleet and outdoor equipment transition
 - Implement a trial program to run between 2025 and 2028.
 - Trial findings to inform full scale transition to be implemented between 2028 and 2035.
 - Target for all new vehicle and equipment purchases to be electric by 2035.
5. Residual emissions
 - From 2028 to 2035, implement a strategy to reduce emissions from suppliers in order to address any of Rous’s residual scope 3 emissions.
 - From 2035, progressively build a quality carbon offset portfolio to offset any remaining emissions by 2050.
6. Renewable Energy and Emissions Reduction Plan Review
 - Undertake a review of this Plan in 2028 to include at a minimum:
 - Review of progress on implementing Solar PV/BESS projects and assessment of additional opportunities in relation to new / planned infrastructure or building works.
 - Assessment of the impact of, and opportunities to reduce emissions from, any future desalination plants or source or treatment plants.
 - Review of progress on Power Purchase Agreements (PPA) implementation. In the absence of a PPA, and with consideration of positive cashflow forecasts from projects, agreements, and EV transition, revisit capacity for Greenpower purchases.

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- A detailed business case analysis for a ground-mounted PV array at the Gallans Road site. This is to include assessment of financial performance under various contracting arrangements and comparison to other potential larger-scale projects such as pumped hydro.
 - Assessment of potential Scope 3 emissions to be targeted for implementation post-2028.

Finance

An amount of \$284,229.50 is available in the Revolving Energy Fund (currently named the Greenhouse Gas Abatement reserve) as at 30 June 2023. It is proposed that the reserve will be eliminated, and the funds held in a notional reserve as part of a larger pool of Bulk Water Reporting Unit funds. The balance of the Revolving Energy Fund will be calculated annually based on the planned expenditure offset by the forecast savings on energy costs. The amounts listed in Table 1 of this report are for projects up until the 2027/28 financial year and are based on calculations performed by an external consultant and as such are subject to change. The projects listed for the Gallans Road Administration offices and the (Proposed) Russellton Estate Water Treatment Plant project will need to be funded through the specific capital budget allocated to these two projects.

This funding arrangement will need to be reviewed in 2027/28 for projects beyond this timeframe.

Governance

The development of this REERP was an activity of the Operational Plan 2022-2023, within Council's adopted Integrated Planning and Reporting (IP&R) framework.

Regular progress reporting of the REERP activities as approved, will be integrated into future IP&R framework documents.

Consultation

Councillors and the Leadership Team have been consulted through questionnaires early in the project and a workshop held on 20 September 2023.

Once adopted, the REERP would be made available on Council's website for the community.

Conclusion

By implementing the feasible solar PV/BESS projects, transition to Electrical Vehicles (EV) and continuing with the tree planting / revegetation projects, Rous is on track to meet the 70% emissions reduction by 2035 and net zero by 2050 targets.

Attachment:

1. Renewable Energy and Emissions Reduction Plan