

# TATURA ENERGY OPPORTUNITY STUDY

## Executive summary



**TATURA ENERGY OPPORTUNITY STUDY**  
**Final Report**  
**Executive Summary**  
Prepared by: Contex Group  
Commissioned by: GV Community Energy  
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**Disclaimer**

The Contex Group advises that this report has been prepared as outlined within the scope and is intended only for GV Community Energy and the selected individuals from the Tatura community making up the review group called the Study Group.

The findings in this report are based on a qualitative study and the reported results reflect a perception of the community participants interviewed, supporting documentation provided within the timeframe of the study and research information available during the study period and referenced within this report.

The Contex Group has indicated within the report the sources of information provided by the stakeholders consulted as part of the process and research references. We have not sought to independently verify those sources otherwise noted in the report. The Contex Group has also provided industry related desktop research sources and this report is based on those sources that were available during the time of the study and as referenced.

Any projection to the wider stakeholders is subject to the level of bias in the method of sample selection.

The reader is advised and needs to be aware that such information may be incomplete or unable to be used in any specific situation. No reliance or actions must therefore be made on that information without seeking prior expert professional, scientific and technical advice

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The findings in this report have been formed on the above basis.

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## Forward

The authors of this report would like to acknowledge the financial contributions made by the following organisations that made commissioning this report a reality – Regional Development Victoria (RDV), Tatura Milk Industries, Unilever, Goulburn Valley Water and Greater Shepparton City Council.

The group would also like to thank and acknowledge the support from the working group which included the following organizations: Tatura Milk Industries, Unilever, Goulburn Valley Water, Greater Shepparton City Council, Resource Resolution, Transition Tatura and GV Community Energy. This group helped to review and develop the report and contributed valuable comment and direction ensuring the report's objectives included perspectives from their relative positions in the community.

## Purpose

Within the Tatura community residents and businesses have concerns that current power and gas supplies are insufficient to support growth within the town and the surrounding region. There is also the additional concern of the recent and predicted rising costs of the energy. If these issues are not addressed, the consequence could well lead to economic decline with the loss of jobs and industry within the region.

This is the experience with many regional areas in Australia which, after a long history of stable energy prices and supply, is currently going through major changes and uncertainty. The difficulty in navigating through this period while ensuring ongoing economic growth is also being challenged by inconsistent and changing policy within the Federal and State Governments, the uncertain future of energy production and supply within Australia along with the uncertainty of future costs.

This uncertainty has resulted in a reduction of investment within the clean energy sector in Australia which in turn now requires an alternative approach and ownership model to define a new business model, value proposition and strategy to ensure sufficient energy generation, matching supply capacity to meet consumption requirements within the community today and into the future.

In answer to this challenge, GVCE, with identified stakeholders from the community providing governance and direction, commissioned an opportunity study to identify and validate the community's concerns, consider possible options and opportunities for further investigation, and propose a sustainable business model and recommended program of work, with the final outcome being the delivery of energy related solutions that address the concerns raised and ensure ongoing business viability and growth.

This report has attempted to address the full range of concerns raised by the stakeholders but the ability to define a solution for one or all of them in a single program is too simplistic because of the dependencies between them and the need for investment in a challenging economic climate.

The approach of this report is to define a roadmap with recommendations that are commercially viable and derive the best economical outcome for the range of concerns and an incremental plan for delivering them. The recommendations need to have substantial analysis to articulate a value proposition that addresses the dependencies and attracts investment ahead of those that stipulates point solutions for the shorter term view.

The strategy for business growth in the recommendations is to identify supply chain linkages where business value is increased, benefiting multiple industries and develop the local work force through training as a prerequisite part of the delivery. This way the range of concerns contribute to the overall requirement for improvement and are prioritised in an optimised plan.

The opportunity study and resulting business report (this report) was seen by the community as the first of a number of stages aimed at improving regional energy reliability and security of supply within the short, medium and long term timeframes.

A secondary aim of the study was to understand, to the degree possible, available waste streams that are generated in the area. The purpose of this aim was to investigate the potential feasibility of waste to be used as a source of feed-in material for the generation of energy and revenue through Bio-generation systems.

In meeting these aims and objectives, the study conducted a number of interviews with many of the higher profile organisations and community groups located or involved in the local Tatura region to understand their usage, concerns and future requirements. The study also undertook background industry based research and spoke with regional and energy related stakeholders including local and state government departments, energy distribution and transmission operators (Powercor, Ausnet services and APA) and other industry participants such as Australian Energy Market Operator (AEMO) and the Clean Energy Regulator to understand their perspective on the current state of energy and its impact on the Tatura region.

### Main Findings

Based on available information provided through interviews and research, the key findings of the study are:

1. the cost of power (electricity) has increased in real terms by 50% over the last five years across the National Electricity Market (NEM).
2. the largest contributor of this increase has been in increased costs of transmission and distribution (poles and wires) from generation facilities to places of consumption.
3. on average, roughly 36% of a consumer's electricity household bill in Victoria will be for associated network (transmission and distribution) costs, which is lower than the average 42% across the whole NEM.
4. the town's electricity supply is close to capacity and the current infrastructure (both distribution and transmission) does not support known future growth requirements. This is despite an overall surplus of available electricity in Victoria due to a number of factors such as reduced manufacturing, increased energy efficiencies, uptake of solar panels and reduced consumption due to the increased costs.
5. of the businesses interviewed, one in particular consumes a greater proportion of the town's available electricity and gas by a significant factor (roughly around 60-85% depending on general consumption levels). This business has a dual concern of improving energy efficiencies as well as how to best supply sufficient, cost effective energy to meet its future demand.
6. of the businesses interviewed, a minority (four organisations) have an additional need for energy in the short to medium term.
7. current energy consumption for Tatura is approximately 50-85GWh per of electricity and 800,000-1,000,000 Gigajoules of gas per annum.
8. based on available information from businesses interviewed and the local power distributor, Powercor, it is understood that there is a projected combined additional demand for electricity of between 30-35 MW over the next five years.
9. all the businesses interviewed are focused on improving operational energy efficiencies and reducing the increasing cost of both electricity and gas.
10. although there are minimal electricity outages reported, there is a concern regarding the quality of supply to businesses in the township which is causing higher costs of running machinery and equipment, and reducing asset lifespan.

11. The Australian Energy Market Operator (AEMO) has identified emerging transmission constraints (Dederang-Shepparton line), which will affect Tatura, within the medium term, but will be reassessed once solutions for other known constraints (Ballarat-Bendigo line) have been provided.
12. the town's gas supply infrastructure will adequately support residential and business demand today and into the foreseeable future.
13. gas prices are predicted to rise dramatically in the short to medium future with industrial increases of between 30-100% and residential increases of up to 20% being stated by researchers.
14. a small number of industrial clean energy operators in the area, generating energy from existing bio-sources and with a potential generation of roughly 3.5 MW of installed capacity that is fed back into the power grid.
15. a number of PV solar panels have been installed on the top of resident and businesses roofs and in Tatura accounts for around 386 installations and around 19% penetration rate.
16. there is currently a fragmented approach to dealing with energy distributors. Each business deals with Powercor separately and efficiencies could be achieved through approaching Powercor as a single consortium with aggregated requirements for the township.
17. the Australian Energy Market Operator (AEMO), which manages the energy market, has recently introduced the Power of Choice program that incentivises demand side solutions to areas known to have capacity constraints. Power of Choice solutions include energy generation or voluntary energy shedding during peak energy periods. This provides additional funding for the possible building of energy generation plants close to required consumption as an option, alongside traditional poles and wire options or payment for organisations to voluntarily shed energy consumption when required. Based on this there is an emerging opportunity for organisations and communities to take advantage of the program as part of funding in introducing demand management and alternative, distributed energy within the region.
18. from a waste perspective, the most significant types of biomass from industry within the region would include biosolids, manures and other organic sludges generated from wastewater treatment plants, intensive production and food production, followed by solid organics from agriculture and food processing industries. Although some of this is currently diverted from landfill to other uses including the generation of power, there is still a significant opportunity to divert further waste to alternative uses such as the generation of bioenergy either as fuel or power over the medium to long term due to the supply chain complexities.
19. based on a recent waste survey undertaken by the Greater Shepparton City Council, Tatura residents generate an indicative average of 266,400kg of residential waste a year. This consisted of around 21% of food waste (by weight) which equates to an indicative 56 tones available for bio transformation.
20. there is an opportunity to more effectively manage waste products produced by businesses located in the region with the potential to divert identified waste products from landfill to be reused as a component of bio-energy generation or to investigate keeping and processing generated waste in the region rather than transporting it to other regions.

21. in the recognition of the waste opportunity, one locally based business has commenced operations within the area to convert rejected food-stocks from businesses to animal feedstock and considering other value transformation such as biofuels from plastic containers.
22. Tatura residents have set a visionary target of improving energy efficiencies by between 15-50% over the next few years and believe that a centrally managed group will assist them in achieving this target through the identification and implementation of a prioritised program of work.
23. there was overwhelming support from the interviews for the introduction of a centrally managed energy focused group, working on behalf of the community (both residents and businesses). Based on the interviews, such a group should focus on the management of energy, improving energy efficiencies and investigating the implementation of regional alternative energy to assist in meeting future demand. Many also thought such a group should focus on improving the level of sustainability within the region, looking at how to best divert waste from landfill to alternative value creating uses such as a source of biomass for energy or fuel.

Additional information on the findings can be found in [Section 2.4 Prefeasibility study interviews on page 36 of the extended report](#).

## Recommendations

The scope for the study and the resulting report was considered broad in intent and rather than providing specific and static responses to each area at a superficial level, it was agreed, by the sponsor and consultants to provide additional depth around building a sustainable operational model, in response to interview findings, which included the provision of overall direction to dynamically address stated community concerns, acting on their behalf as a central consortium. In doing so it was thought that the recommendations would focus on providing a sustainable foundation and direction for the group to progress and provide energy related solutions on behalf of the community.

This regionally based, energy focused group, based on a Not-for-Profit model, will provide a central point to either manage or undertake initiatives on behalf of and as mandated by the town's businesses and residents. Within this report this group is referred to as the "Tatura Energy Group" or TEG for short.

A number of benefits for the creation of a TEG were discussed and the key benefits included:

1. providing an ongoing support structure for the recommended, community approved initiatives to be actioned and outcomes realised within the community.
2. ability to scale in size to attract funding and investment through government, industry and private sectors.
3. reduction of costs for energy through working as a consortium, or buying syndicate, to negotiate the cost of energy supply to the town's residents and industry.
4. as a single entity or consortium, address future energy needs for individual businesses and, where possible, provide the opportunity to share costs of required infrastructure.
5. improve energy efficiencies and reduce landfill of residents and business.

6. greater accountability for regional carbon reductions and sustainable outcomes.
7. allow the community to take greater ownership into their future of energy.
8. being a co-ordination point for the implementation of clean renewable energy to meet current and future needs.
9. ability to achieve the best outcomes through group participation and ownership to the whole community, fostering a sense of ownership, social inclusion and community.
10. provide opportunities for localised employment and training.

A business model for the TEG was recommended that would support this program of work and achieve the stated benefits. This model is illustrated below in figure 1.

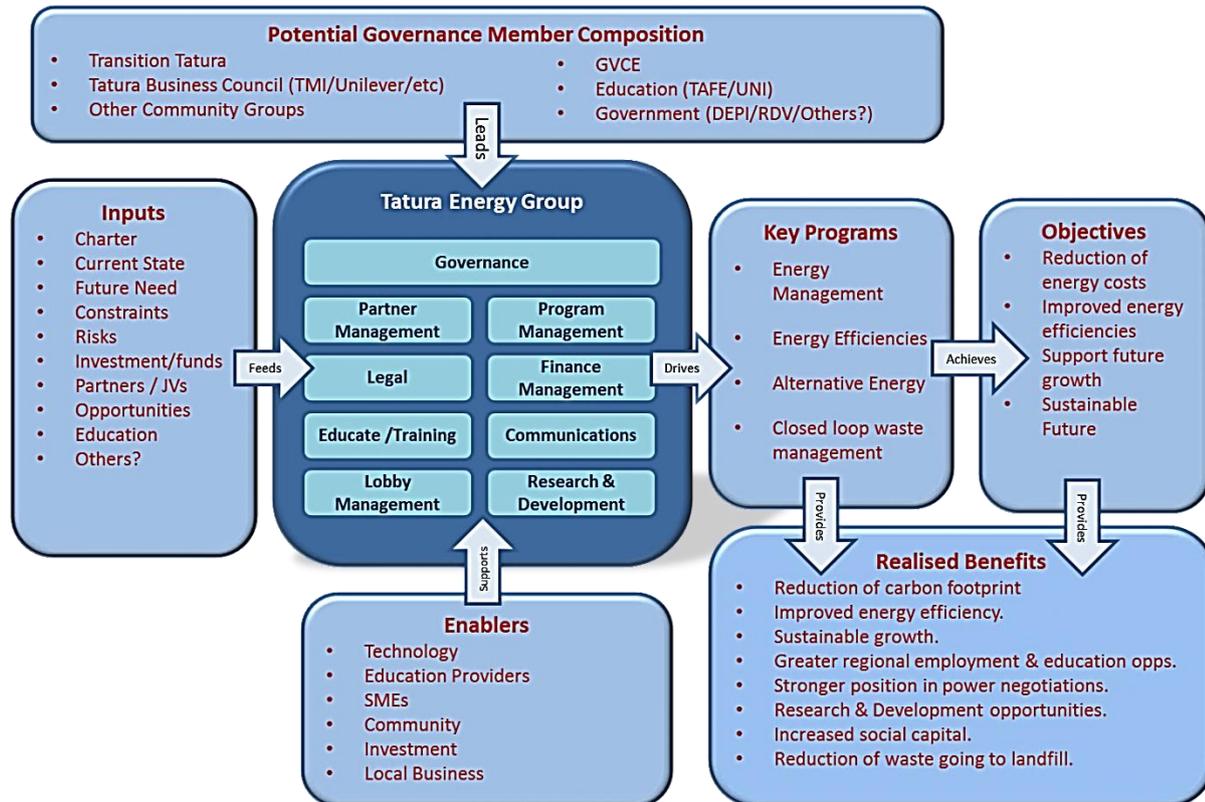


Figure 1: Tatura Energy Group (TEG) Business Model

Although the model is complex on first impression, further explanation on how the model works is discussed in section [4: TEG Operational Model on page 71 of the extended report](#).

In addition to the business model, in line of making the Tatura Energy Group (TEG) self-sustainable, a number of revenue possibilities are suggested for further consideration, depending on the final model that will become operational in the short term.

An opportunity exists to reduce set-up time and costs for the TEG and provide the ability to tap into an established energy network. The Study Group, which provided governance and direction for the study, should approach GV Community Energy, an existing industry focused community based group operating in the area, to understand how it could best assist in building such a group.

Although initial funds to set-up the TEG still need to be thought through and decided, a number of potential revenue streams have been identified with the objective of ensuring the TEG becomes self-sustainable. Each identified revenue stream will need

to be further assessed to ensure the needs of the community are balanced with revenue opportunities for mutual benefit.

The TEG group would focus delivering outcomes based on the community’s stated requirements and would include the following program of work:

1. **Energy management:** investigating and implementing methods to reduce the current costs associated with power consumption through the reduction of tariffs and costs of energy companies as part of an energy consortium.
2. **Increase energy efficiencies:** linked with reducing energy costs and focused on investigating and implementing methods and technologies aimed at using less energy for both residents and industry.
3. **Alternative energy:** investigating and implementing alternative energy technologies to supplement current usage and support future demand.

As part of this program the study assessed main alternative energy technologies available and recommended additional cost/benefits assessment on the following technologies

- a. Bio energy
- b. Solar energy
- c. Hydro energy

4. **Sustainable future:** working with residents and industry to more effectively and efficiently manage waste from industry and residential sources with the aim of reducing landfill through the reduction, reuse and recycling of waste - this includes the identification and implementation of efficient supply chain networks that feed waste into other value streams.

The main program of work along with key initiatives over the short medium and long term is illustrated below in Figure 2

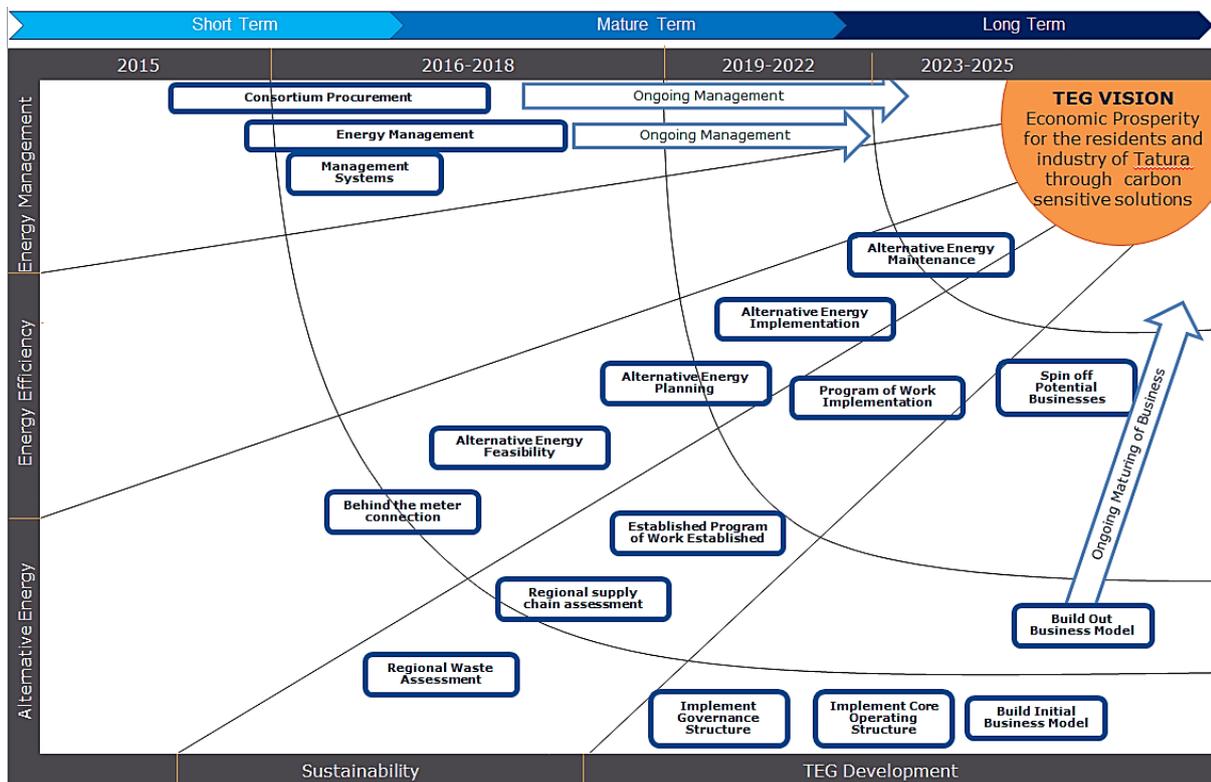


Figure 2: Tatura Energy Group (TEG) Proposed Roadmap

As shown, a number of initiatives under each program of work are recommended along with expected benefits that will be realised as initiatives progress in the short, medium and long term. To ensure this program of work is effectively undertaken and benefits are realised, a fifth program, energy group building, is required. This program focuses on building the ability of the group to deliver effective and efficient outcomes to the Tatura community. A full business model for the formation of such a group is discussed as part of the recommendations. Additional information on the Program of Work can be found in [Section 3: Future State Modelling on page 46 of the extended report](#).

The outcomes the TEG would achieve through this program of work would include:

1. Reduction of carbon footprint.
2. Improved energy efficiency.
3. Sustainable growth.
4. Greater regional employment and education opportunities.
5. Stronger position in power negotiations.
6. Research and development opportunities.
7. Increased social capital.
8. Reduction of waste going to landfill.

As stated in the introduction, this is not an easy problem to solve. It is large, has many moving parts and requires an approach that is communicated well with the community. This is why the first initiatives focus on qualifying the most important demographic and economic information. This information is required to articulate the best business case to achieve the range of initiatives which will deliver the benefits and build a sustainable economy for community and industry.

The purpose of the TEG is to manage and implement the initiatives and ensure the benefits are realised through outcomes such as cheaper energy, new jobs, training opportunities and building a sustainable future for Tatura as a part of the community.

At the time of completion of this report one recent change in the region has been the appointment of an Independent Victorian MP who is known to support the need for better energy outcomes for the region and this could be a catalyst for gaining vital support where it's needed.



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