



## **GLENELG SHIRE COUNCIL**

### **Expression of Interest Description:**

**PORTLAND BIO-ENERGY PLANT -  
EOI FOR THE SUPPLY OF BIOMASS AND THE OFF-TAKE OF BIOCHAR AND WOOD  
VINEGAR FOR THE PERIOD 2022-27**

**Expression of Interest No: 2020-21-09**

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### **EXPRESSION OF INTEREST DOCUMENTS**

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These Schedules are to be completed as the basis of your response

## EXPRESSION OF INTEREST DETAILS

### Overview

The Glenelg Shire covers an area of 6,212 square kilometres and is nestled in Victoria's far south west corner and is named after the Glenelg River which flows from the north of the shire through to Nelson on Victoria's Discovery Coast. The traditional owners of the region comprise of the Gunditjimarara, Bunganditj and Jarwadjali people. The Shire is renowned for its landscapes which include the Budj Bim National Heritage Landscape, expansive beaches, scenic and rugged coast with large national parks.

Glenelg Shire Council (**Council**) is inviting expressions of interest from any person interested in undertaking a contract for the provision of the Contracted Services described below (or all, or any part of, the Contracted Services).

Details of the purpose of the contract are also set out below.

### Contracted Services and purpose of proposed contract

#### Background:

Glenelg Shire Council operates a district heating system heated by two gas fired water boilers. There are currently six buildings connected to the 1.5km district heating network being the Portland Arts Centre, Portland Aquatic Centre, Fawthrop Community Centre, Municipal Offices, Civic Hall and SES Building.

Due to the age of current district heating system it is now requiring a major overhaul providing Council the opportunity to implement an innovative and modern technology with a holistic approach.

The proposal is to replace the two gas boilers with a well-researched biomass system, ECHO2 from Rainbow Bee Eater. This will potentially use local timber industry and Council wood waste as the fuel source and bring about significant advantages economically, technically and environmentally. ECHO2 is designed and manufactured in Australia by Rainbow Bee Eater and SDA Engineering.

The ECHO2 module converts the woodchip 'biomass' into syngas (a fuel gas), biochar and wood vinegar through pyrolysis (a process where the material is exposed to high temperature in the absence of oxygen which goes through a chemical and physical separation into different molecules). It is a modular system so can be scaled. This will save Council significant costs currently experienced for gas usage.

Council is actively promoting and applying for funding opportunities to assist in the development and construction of the Portland Bio-Energy Plant. It is proposed that the Bio-Energy Plant will be up and running by 2022.

This call for expression of interest is to determine the market for the supply and cost of biomass to run the plant and market for the off-take of biochar and wood vinegar. This information will be utilised in funding opportunities.

Details of the plant:

The proposed Portland Bio-Energy Plant will operate continuously throughout the year converting biomass into energy and biochar 24 hours a day.

Once fully commissioned the Bio-Energy Plant will require 7,000 – 10,000 tonnes a year of suitable clean consistent biomass delivered on a regular just in time basis. Depending on moisture content this means around 20 - 30 tonnes per day. This will require 'just in time' deliveries of biomass to the plant every day or two.

The proposed location for the Bio-Energy Plant is Henty Park, Portland and will have on-site storage of biomass for 1 to 2 days.

Biomass size reduction, screening and sorting will need to be done remotely by the biomass supplier.

### Biomass Requirement:

- Suitable biomass that will be considered include wood or straw residues from local forestry, farming or weed eradication
- Supply needs to be from a renewable and sustainable source
- As close to zero impurities as possible (non-wood material)
- Preferably less than 25% moisture content
- 90% to be of 15mm size (+/- 2mm with nil >120mm)
- Supply (quantity, particle size, moisture content, minimal impurities) need to be consistent – this will allow the ECHO2 module to produce the highest quality biochar, syngas and wood vinegar at lowest cost

The ECHO2 process works most efficiently when the biomass contains a mix of particle sizes with a top size of about 15mm and as little dust (> 2mm) as possible. Biomass containing significant amounts of dry leaf matter may have excessive fines and need to be blended with more woody biomass. Experience to date is that industrial chippers or tub grinders and screens are likely to produce a suitable size distribution from woody biomass.

Impurities:

Small (<10mm) metal and mineral impurities such as sand, rocks, metal fragments will tend to pass through ECHO2 and end up in the biochar – reducing the purity and potentially the value of the biochar.

Larger (>10mm) metal and mineral impurities have the potential to cause blockages and system shutdowns designed to protect the ECHO2 equipment.

Contamination from chemicals such as CCA treated wood (copper chrome arsenate), lead based paints and some plastics are not acceptable. These contaminants reduce the purity and value of the biochar, the quality of the syngas and the overall performance of the ECHO2 module.

Moisture content:

The ECHO2 module processes and produces more kW's of energy from dry biomass than wet biomass. As long as the other requirements above are satisfied, dry biomass (<25% moisture) is more beneficial than wet biomass (>25% moisture).

Local freshly produced biomass residues are likely to be >40% moisture and require some pre-drying before supply and use by the ECHO2 module. A pre-dryer that uses some of the heat generated by the ECHO2 module may be installed at the Bio-Energy Plant if required. This will be assessed once Biomass Supply responses have been obtained.

The Biomass Supply contractor will need to supply the biomass 'just in time' about every one or two days as required by the Bio-Energy Plant.

Interested suppliers should indicate:

- Biomass type and source
- Preferred delivery system
- Moisture content range during the year
- Price per tonne delivered in bulk 'just in time' into the Bio-Energy Plant storage.

## Biochar Off-take

Biochar is charcoal made from renewable resources. Biochar occurs naturally in many soils (bushfires) and is one of Nature's beneficial ways of carbon capture and storage. Approximately 13% of existing organic carbon in soil world-wide is charcoal. Globally, biochar is one of only three commercially viable methods available today for large scale drawdown of atmospheric carbon - along with carbon forestry and soil carbon.

Multiple commercial biochar markets are emerging in many countries, including Australia, EU, US and China, with high economic, social and environmental value.

Biochar increases the biological activity, fertility and crop performance of many soils, organically. Addition of biochar to animal feed shows health benefits to animals, air, soil and water. Biochar added to compost or added to the composting process shows improvements to soil health and reduced greenhouse gas emissions. Biochar substituted for 10 to 30% of the bitumen in asphalt reduces road surface oxidation, penetration and softening and will lower road costs.

The biochar will meet Australian, EU and International Biochar Standards and will be nominally 80% carbon of 2mm size and 45% moisture. The detailed chemical analysis of the biochar will be influenced by the biomass that is supplied and by the level of contamination.

The proposed Portland Bio-Energy Plant will produce biochar continuously throughout the year (~ 2,500-3,500 tonnes per year or 7-10 tonnes a day of high carbon biochar). The Plant will have on-site storage capacity of biochar for 1 to 2 days.

The Biochar off-take contractor will need to collect the biochar about every one or two days as required by the Bio-Energy Plant. In the case of multiple contractors, co-operative scheduling between the contractors will be essential.

Interested buyers should indicate:

- preferred collection method
- price per tonne\* collected in bulk 'just in time' from the Bio-Energy Plant storage.

\*Carbon credits attached to the biochar production process, up to the point of delivery to the Buyer at the Bio-Energy Plant, remain the property of the Bio-Energy Plant. Carbon credits attached to the 'biochar in use, after production' e.g. reduced emissions from farm soils, animals or road construction, may be available to the Buyer.

### Wood Vinegar Off-take

As part of the process of the ECHO2 converting the woodchip 'biomass' into syngas the small amount of moisture content in the supplied biomass is recovered. This aqueous by-product is known as Wood Vinegar or Smoke Water and contains acetic acid (~3%) and small amounts of other 'smoke' chemicals from the pyrolysis process.

Some of the uses and benefits that have been shown from Wood Vinegar include:

- Better propagation of certain Australian native plant species
- 50% reduction of fertilisers and pesticides with the use of 1:500 WV water mix
- Enhances roots development and uptake of nutrients and water
- Ester darkens leaves to increase photosynthesis
- Regulates nutrients and microbiological population in soil
- Better tasting and higher sugar contents in fruits
- Increases resistance to disease
- Speeds up composting and improves soil health

The Bio-Energy Plant is expected to produce around 1,000 tonnes a year of wood vinegar or approximately 3 tonnes a day depending on the moisture content of the incoming biomass.

The Plant will have on-site storage capacity of Wood Vinegar for 1 to 2 days.

The off-take contractor will need to collect the wood vinegar about every one or two days as required by the Bio-Energy Plant. In the case of multiple contractors, co-operative scheduling between the contractors will be essential.

Interested buyers should indicate:

- preferred delivery method
- price per tonne collected in bulk 'just in time' from the Bio-Energy Plant storage.

Council anticipates evaluating invited tenders according to the following scale:

Price / Management Fee	<b>30%</b>
Resource Capacity	<b>15%</b>
Service Delivery	<b>15%</b>
Innovation	<b>5%</b>
OHS & Risk Management	<b>10%</b>
The level of commitment demonstrated to maximise environmental sustainability	<b>10%</b>
Economic contribution to the Glenelg Shire Council	<b>15%</b>

### **Expressions of interest**

Persons interested in undertaking the contract (or all, or any part of, the Contracted Services) should complete and lodge an expression of interest using the attached Schedules.

The time and date by which expressions of interest must be lodged are:

**28 August 2020 (3pm, Melbourne time)**

Expressions of interest lodged after this date will not be considered.

The contact person for the expression of interest process is:

Name: Adam Smith  
 Title: Environmental Sustainability Coordinator  
 Phone: (03) 5522 2203  
 Email: [asmith@glenelg.vic.gov.au](mailto:asmith@glenelg.vic.gov.au)

**SCHEDULE 1**

**RESPONDENT INFORMATION**

**1 Respondent Details**

Respondent's ABN: \_\_\_\_\_

Respondent's Full Name: \_\_\_\_\_  
(must be the registered holder of ABN ie legal entity (name of individual, partnership, company or other body corporate)

ACN Number  
(if applicable): \_\_\_\_\_

If the respondent is submitting its expression of interest as agent for a third party or trustee of a trust, it must nominate the relationship and the name of the principal for which it is the agent or the trust of which it is the trustee:

\_\_\_\_\_  
\_\_\_\_\_

Business (Trading)  
Name  
(if applicable): \_\_\_\_\_  
(only business names linked to the respondent's ABN & registered at ASIC will be accepted)

Business Name  
Registration Number: \_\_\_\_\_  
(ASIC registration number for the business name must be provided)

Principal Place of  
Business: \_\_\_\_\_  
(address of principal location at which business is conducted)

Postal Address  
(if different): \_\_\_\_\_

Post Code: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Telephone No: \_\_\_\_\_

Mobile Tel No: \_\_\_\_\_

Facsimile No: \_\_\_\_\_

Generic E-mail address  
of the respondent: \_\_\_\_\_

Note: Respondents must fully complete details required in clause 1 above.

Respondents may be required to provide additional information, to the satisfaction of Council, should the above details conflict with those details currently registered with government bodies.

## 2 Organisational Profile:

What type of business / legal entity is the respondent? (indicate below)

Company limited by shares  Individual  Partnership   
 Other Body Corporate  Trustee of a Trust

**If a partnership**, give name and address of partners:

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**If the expression of interest is submitted by the respondent in its capacity as the trustee of a trust**, provide the full names of trust and the trustee of the trust, as well as a copy of the trust deed.

Trust Name: \_\_\_\_\_

Name of trustee of the trust: \_\_\_\_\_

## 3 Submission of Expression of Interest

The respondent named above submits this expression of interest for the contract named on the cover sheet to these Expression of Interest Schedules.

The respondent warrants that it has not submitted this expression of interest as agent of a third party or as agent of a trust, unless expressly stated otherwise in the Respondent Details in clause 1 of this Schedule 1.

The respondent acknowledges that while valid expressions of interest will be registered, Council is not obliged to enter into a contract for the services.

The respondent also acknowledges that when ready to enter into a contract, Council may not invite tenders from each person who has registered their interest in undertaking the contract (or the part of the Contracted Services to which the contract relates).

Signed for and on behalf of the respondent

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Name

The person signing above, warrants that he or she has the authority of the respondent to submit this expression of interest on the respondent's behalf.





**Key Selection Criteria: Environmental Sustainability:**

Details of any environmental sustainability actions proposed applicable to the service delivery.

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**Key Selection Criteria: Economic Contribution to the Glenelg Shire**

Details of local content and services used to deliver the service.

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