



19 June 2015  
Market Announcements Platform  
ASX Limited,  
Exchange Centre,  
20 Bridge Street,  
Sydney NSW 2000



## MOU SUPPORTS STONEHENGE VISION FOR COMMERCIAL PROTEAN WAVE FARM

- MOU with Yanchep Beach Joint Venture to collaborate on wave farm development
- Staged development concept with a vision to create a commercially viable wave farm
- Project to start with single 1.5kW buoy followed by a 30x1.5kW buoy (45kW) demonstration wave farm

Stonehenge Metals Limited (**Stonehenge** or the **Company**) advises that a Memorandum of Understanding (**MOU**) has been executed with Yanchep Beach Joint Venture (**YBJV**) for collaboration on the development of a Protean Wave Energy Converter (**WEC**) wave farm off the coast of Western Australia to potentially supply the community at Two Rocks (**Wave Farm**).

YBJV is part of one of the largest metropolitan urban development projects in Australia, SunCity, at Yanchep in Perth's northern coastal transport corridor. YBJV believe that SunCity will emerge as possibly the only sustainable Clean Green Community in a strategic regional city centre within a metropolitan area in Australia. The project has been given rightful acknowledgement at national level through the Federal Government's Major Project Facilitation (**MPF**) status.

The MOU creates a collaborative relationship to support Stonehenge as it strives to commercialise the Protean WEC technology in Australia. The Wave Farm project is expected to progress in phases involving an initial single 1.5kW demonstration buoy followed by a demonstration Wave Farm array of 30 x 1.5kW buoys (45kW). It is expected that any subsequent larger capacity deployment would be based on a feasibility study conducted as part of the initial phases. The ultimate vision for the project involves working with the community to develop an appropriate model to create a Wave Farm to supply energy and/or water to the community.

The available wave energy resource in the vicinity of the Two Rocks Marina Breakwater, based on previous work conducted, is estimated to be in the order of 20kW per metre. Using this estimate of 20kW per metre and an approximate Breakwater length of 1km, the inferred mean potential wave power resource within the vicinity of the Breakwater could be in the order of 20MW, amounting to 87GWh per annum of clean, renewable energy.

Stonehenge MD, Bruce Lane said *"We are very pleased to have the opportunity to work with the team at YBJV. We identified early on that Two Rocks would be an ideal location to demonstrate the Protean WEC technology. To be able to demonstrate the technology at Two Rocks, in the context of a potentially significant commercial project, with the support of an influential partner of YBJV's calibre is a significant bonus for the Company."*

YBJV CEO, Gin Wah Ang said, *"We are happy to be able to support Stonehenge in their efforts to move towards proving and commercialising this exciting renewable energy technology. I believe wave energy technology has the potential to deliver real benefits for the community at Yanchep and Two Rocks. We have always*

viewed wave energy as a potential solution for the sustainable provision of energy and fresh water to the community.”

For further information see [www.stonehengemetals.com.au](http://www.stonehengemetals.com.au), [www.proteanwaveenergy.com.au](http://www.proteanwaveenergy.com.au) or contact:

**Bruce Lane – Managing Director**

T: + 61 8 9481 2276

E: [blane@stonehengemetals.com.au](mailto:blane@stonehengemetals.com.au)

## ABOUT YANCHEP BEACH JOINT VENTURE

Yanchep Beach Joint Venture (**YBJV**) commenced operations in 2007 and is committed to creating a benchmark sustainable city centre at Yanchep within the Shire of Wanneroo, Western Australia. This project is one of the largest urban land development projects in Australia. Geographically located approximately 53 kilometres from Perth CBD and strategically located between the Indian Ocean and the Yanchep National Park, the new city centre of Yanchep (SunCity at Yanchep) will emerge as possibly the only sustainable Clean Green Community in a strategic regional city centre within a metropolitan area in Australia.

Taking advantage of its proximity to the coast, SunCity at Yanchep will be one of the region’s most exciting sustainable developments, anchoring the Perth North West Corridor and providing a hub of excellence for knowledge based industries.

In terms of high level strategic support, SunCity at Yanchep is party to the State Cooperation Agreement (**SCA**) signed between the Government of Western Australia, the City of Wanneroo, the West Australian Planning Commission and Tokyu Corporation. The project has been given rightful acknowledgement at the national level through its Major Project Facilitation (**MPF**) status with the Federal Government. At the planning level, the District Structure Plan (**DSP**) has been approved by the West Australian Planning Commission (**WAPC**), and the Local Structure Plan (**LSP**) has been approved by the City of Wanneroo, and is out for public advertising.

YBJV is developing strategies through the considered and deliberate combination of urban planning, economic development, sustainability and community health and wellness. This combination will offer the best possible chance to deliver long term sustainable results as urban growth unfolds. The strategies and actions will demonstrate the value of looking at developing the land asset from the point of view of both sustainable urban and economic development.

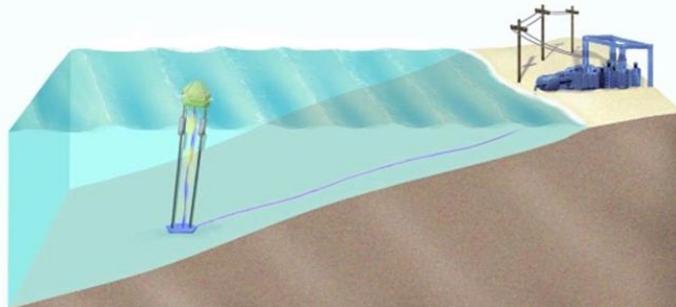
The first stage of the Clean Energy Park (technology park precinct south) is being developed along Yanchep Beach Rd. on a 1.8Ha site. A mix of institutional and private tenants is expected within this environmentally sensitive development.



## ABOUT THE PROTEAN WAVE ENERGY CONVERTER (WEC) TECHNOLOGY

Stonehenge has entered into an option agreement to purchase the Protean WEC technology. The Protean WEC system is based upon a point-absorber wave energy converter buoy device which floats at the water surface and extracts energy from the waves by the extension and retraction of a tether to its anchoring weight on the seabed. The device is unique in that it optimises the conversion of energy from waves at the surface through **all six degrees of wave movement**.

**Figure 1:**  
Protean WEC  
technology



The Protean WEC has been developed to use compact architecture to produce power from a small, low cost, scalable design targeted at keeping the projected levelised cost of energy (LCOE)<sup>1</sup> down. The Protean WEC has been designed to be cost competitive to manufacture, deploy, maintain and retrieve. The future plans for the Protean WEC include the deployment of a pre-commercial demonstration of a dynamic, configurable and scalable power array prior to moving the technology into early commercialisation. During the Option period the Stonehenge assessment program aims to:

1. **Refine** the tried and proven scale device to produce a suitable pre-commercial model;
2. **Create** a scalable power array so as to provide the power requirements of a prospective customer;
3. **Test** the scalable power array for its potential to deliver cost effective power;
4. **Verify** the results, including commissioning of an independent expert to qualify the testing results; and
5. **Commence** commercialisation of the scalable array for small to medium customers.

### Protean Wave Energy Converter (WEC) Design, Fabrication and Deployment

<b>PAST</b> <b>Successfully Tested Prototype</b>	<b>PRESENT AND FUTURE</b> <b>Deploy Demonstration Wave Farm</b>
	 <p data-bbox="935 1626 1310 1648"><a href="http://proteanwaveenergy.com.au/technical/">http://proteanwaveenergy.com.au/technical/</a></p>
<ul style="list-style-type: none"> <li>➤ 1.5m wide proof-of-concept device successfully tested.</li> <li>➤ Device operation validated in varied depths and sea states.</li> <li>➤ Design principles independently verified from test results.</li> <li>➤ Simple patented deployment system demonstrated.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Identify and secure deployment sites and customers.</li> <li>➤ Deploy 1m wide "proof of commercial applicability" unit.</li> <li>➤ Demonstrate key design improvements.</li> <li>➤ Deploy an array (farm) of Protean WEC devices.</li> <li>➤ Confirm Protean as scalable power/water solution.</li> </ul>

For further information visit: [www.proteanwaveenergy.com.au](http://www.proteanwaveenergy.com.au) or [www.stonehengemetals.com.au](http://www.stonehengemetals.com.au)

<sup>1</sup> Levelised cost of energy is one of the industry's main metrics for the cost of electricity produced. It accounts for all of a system's expected lifetime costs (incl. construction, finance, fuel, maintenance, tax, insurance & incentives), which are then divided by the system's lifetime expected power output (kWh) & discounted for inflation & time cost of money.