



2 November 2015



STONEHENGE-SUPPORTED CALWAVESM PROJECT SELECTED TO RECEIVE US\$1.5M FUNDING FROM U.S. DEPT. OF ENERGY

- California Polytechnic University (**Cal Poly**) selected to receive a US\$1.5 million grant from the U.S. Department of Energy (**DOE**) to assess feasibility of locating a National Wave Energy Test Facility offshore of California (**CalWave Project**).
- Stonehenge joins CalWave as a team member, technology contributor and provider of critical project management services.
- Mr William Toman of Stonehenge's Protean Wave Energy, Inc. seconded to Cal Poly to serve as CalWave Project Manager and to provide wave energy expertise and advice.
- CalWave Project provides access to a wealth of expertise within the U.S. wave energy market and opens up further opportunities for the ProteanTM wave energy technology in California.

Stonehenge Metals Limited (**Stonehenge**, or the **Company**) advises that the U.S Department of Energy (**DOE**) has now selected California Polytechnic University, San Luis Obispo (**Cal Poly**) to receive US\$1.5 million in additional funding, subject to final negotiations, for the California Wave Energy Test Center (**CalWave**) project, of which Stonehenge is a team member.

The CalWave initiative has been funded to date by DOE, with an initial US\$750,000 grant. The Cal Poly team, which includes Stonehenge, answered a specific request by DOE for an application for an additional US\$1.5 million award to continue its work on CalWave.

The US\$1.5m award is targeted by the DOE to support the next phase of the CalWave initiative which will include detailed engineering, permitting and stakeholder process delineation for the CalWave Project.

Mr William Toman, President of Protean's U.S. subsidiary (Protean Wave Energy, Inc.), will continue on the CalWave team as Project Manager and will serve to provide insight into wave energy technologies, utility operations and the wave energy industry. Stonehenge has provided a Letter of Commitment to Cal Poly for the contributed management advisory services of Mr Toman.

Other members of the CalWave team include: Pacific Gas and Electric Co. (**PG&E**) – California's largest power utility, Vandenberg Air Force Base – purchaser of wave test-centre generated power and host of its shorebased operations, and the California Natural Resources Agency – a cabinet-level policy and regulatory body of the State of California.

Stonehenge MD, Bruce Lane said: *"We are excited that DOE has now selected Cal Poly for an additional US\$1.5 million funding award for the CalWave project. Once final award negotiations are complete, the continuation of the project provides us the opportunity to work alongside some of California's leading institutions and opens up opportunities for Protean. This is a unique opportunity for Stonehenge to take up a technology leadership position with a top tier team operating at the forefront of wave energy development in the U.S."*

For personal use only

CalWave Principal Investigator, Honourable Dr. Sam Blakeslee said: *“We are delighted here at Cal Poly to confirm that DOE has selected Cal Poly’s grant application for an additional US\$1.5 million award covering the next phase of the CalWavesm initiative, once final award negotiations are complete. We are excited to be working with Stonehenge and our other team members to accelerate development of wave energy technology in the U.S. Our findings and knowledge already created within the CalWavesm project, especially in terms of California environmental permitting and marine/port engineering, will prove to be both relevant and useful in this undertaking.”*

The Company notes that neither Stonehenge Metals Limited, Protean Energy Pty Ltd, Protean Energy Australia Pty Ltd, Protean Wave Energy, Inc., Sean Moore nor Cal Poly are associated in any way with a wave energy converter (**WEC**) technology developer, based in Berkeley, California, and also going by the name CalWave. The Cal Poly CalWave Feasibility Study and this other similarly named company are not related.

For further information see www.stonehengemetals.com.au, www.proteanwaveenergy.com or contact:

Stonehenge:

Bruce Lane – MD

T: + 61 8 9481 2276

E: blane@stonehengemetals.com.au

Protean Wave Energy Inc:

Bill Toman – President

T: + 11 1 707 731 9261

E: bill.toman@proteanwaveenergy.com

Media Queries:

Fran Foo - M&C Partners

T: +61 416 302 719

E: fran.foo@mcpartners.com.au

MORE ON: CALWAVE

The California Wave Energy Test Center (**CalWave**) is one of a number of projects created under the auspices of the [Institute for Advanced Technology and Public Policy](#) (IATPP) at California Polytechnic University at San Luis Obispo (Cal Poly). The mission of the Institute is to develop and promote practical solutions to real-world problems by informing and driving public policy through advanced technology. Interdisciplinary teams of students, faculty, industry leaders, State and Federal governments and policy experts adept at removing barriers apply technology to craft practical yet transformative solutions ripe for implementation.

The CalWave project was originally created partly in response to the U.S. Department of Energy’s (**DOE**) indication of its intention to accelerate the development of wave-energy technologies in the United States and to construct a world-class National Wave Energy Testing Facility where technology manufacturers can pilot their devices in a true commercial, grid connected marine setting. In June 2014, Cal Poly’s IATPP received a US\$750,000 grant (known as **CalWave 1.0**) from DOE to assess the feasibility of siting the planned National Wave Energy Test Facility offshore of Vandenberg Air Force Base in California. A map of the CalWave Feasibility Study project area showing five candidate sites can be accessed [here](#).

As part of the Feasibility Study, the project team is assessing preliminary facility design, determining the environmental studies and permitting requirements, and developing a public stakeholder engagement plan for project implementation, in anticipation of the next phase being funded by DOE.

The CalWave grants awarded to IATPP at Cal Poly, combined with other cost share matching funds, is being used to estimate the costs, schedule and stakeholder impacts related to the development, construction and operation of the National Wave Energy Testing Facility.

The DOE has now selected Cal Poly to an additional funding round of US\$ 1.5m to extend the CalWave project for another 12 months (known as **CalWave 1.5**), subject to final negotiations.

The CalWave leadership team includes:

- Honourable Dr. Sam Blakeslee, Project Director, Founding Director of IATPP, Former California State Senator and Assemblyman.
- William Toman, Project Manager, President of Stonehenge's US subsidiary, Protean Wave Energy Inc. and seconded to IATPP.
- Dr. Dean Wendt, Faculty Scholar, Dean of Research & Director of the Center for Coastal Marine Sciences at Cal Poly.
- Dr. Dale Dolan, Faculty Scholar, Hood Associate Professor of Electrical Engineering at Cal Poly.
- Honourable George P. Schultz, IATPP Advisor, U.S. Secretary of State (former).
- Honourable Gavin Newsom, IATPP Advisor, California Lieutenant Governor.
- Mike Florio, IATPP Advisor, California Public Utilities Commissioner.
- Carl Guardino, IATPP Advisor, President and CEO of Silicon Valley Leadership Group.
- James Boyd, IATPP Advisor, California Energy Commissioner (former).
- Dian Grueneich, IATPP Advisor, California Public Utilities Commissioner (former).
- Delaney Hunter, IATPP Advisor, Director of Governmental Affairs, California Public Utilities Commission (former).

Other working group members of the CalWave team include:

- Pacific Gas and Electric Co. (PG&E) – California's largest power utility,
- U.S. Air Force via Vandenberg Air Force Base – purchaser of wave test centre generated power and host of its shorebased operations,
- California Natural Resources Agency – a cabinet-level policy and regulatory body of the State of California,
- Sandia National Laboratory and the National Renewable Energy Laboratory (DOE national labs)
- Scripps Institution of Oceanography at the University of California at San Diego, University of California at Davis, California State University at Humboldt, and the Virginia Polytechnic Institute and State University (Virginia Tech),
- The Electric Power Research Institute – the research and development arm of the US utility industry
- Industrial firms Leidos, Inc (marine and systems integration engineering), CH2M (marine environmental permitting) and Kearns & West, Inc. (stakeholder involvement),
- Columbia Power Technologies – US based wave energy technology developer

MORE ON: THE PROTEAN™ WAVE ENERGY CONVERTER (WEC) TECHNOLOGY



Stonehenge has exercised its option to acquire the Protean™ WEC technology and completion of the acquisition is now subject to Stonehenge successfully re-complying with ASX Listing Rules.

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 cost of energy down. The Protean™ WEC has been designed to be cost competitive to manufacture, deploy and maintain. The future plans for the Protean™ WEC include the deployment of a pre-commercial demonstration of a scalable power array (wave farm) prior to moving the technology into early commercialisation. The Stonehenge assessment program aims to:

1. **Refine** the 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 demonstration** wave farm for its potential to deliver cost effective power;
4. **Verify** the results, including commissioning an independent expert to qualify the testing results; and
5. **Commence commercialisation** of the scalable array (wave farm) for small to medium customers.

ACHIEVEMENTS TO DATE Successfully Tested Prototype	PRESENT AND FUTURE OBJECTIVES Deploy Demonstration Wave Farm
<ul style="list-style-type: none"> ➤ 1.5m wide proof-of-concept device successfully tested. ➤ Device operation validated in varied depths and sea states. ➤ Design principles verified from test results. ➤ Simple patented deployment system demonstrated. ➤ 1m wide “proof of commercial applicability” unit with key design improvements successfully demonstrated. 	<ul style="list-style-type: none"> ➤ Identify and secure deployment sites and customers. ➤ Deploy 30 buoy demonstration Protean™ wave farm. ➤ Verify Protean as scalable power/water supply solution. ➤ Commence commercial pilot project. ➤ Target remote island, port and coastal industry users

For further information visit: www.proteanwaveenergy.com or www.stonehengemetals.com.au

For personal use only