ASX:SHE



Company Presentation

October 2015

Protean WAVE ENERGY

Stonehenge METALS LTD

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Minerals Exploration: This presentation may describe Measured, Indicated and/or Inferred Resources. Inferred Resources have a greater amount of uncertainty as to their existence and greater uncertainty as to their economic feasibility. It cannot be assumed that all or any part of any Inferred Resource will ever be upgraded to a higher category. The potential quantity and grade of the Daejon Uranium Project Conceptual Exploration Targets is conceptual in nature and there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource.

Exploration is an inherently risky proposition and investors are advised that most exploration projects fail to identify economic resources. The Company has at present not confirmed the economic viability of any resources at the project. The Company plans further drilling programmes and studies with the objective of confirmation of any deposits and ultimately completing a feasibility study to demonstrate the economics of the resources.

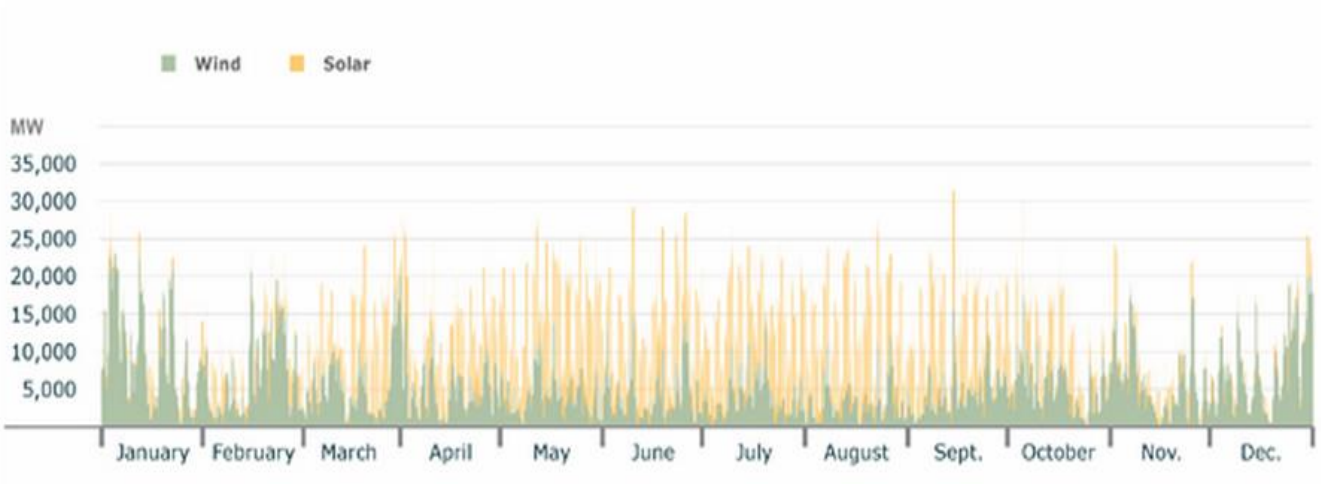
Competent Person Statement: The information contained in this ASX release relating to exploration results and Mineral Resources has been compiled by Mr. Ian Glacken of Optiro Ltd. Mr. Glacken is a Fellow of The Australian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Glacken consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Investment Proposition – Wave Energy Technology

- **Renewable energy technology with unique IP** − exclusive IP rights and international patents based on over 10 years in development
- **Significant market opportunity** − wave energy industry estimated by The UK Carbon Trust to be worth $50 billion by 2050
- **Focused commercialisation strategy in large niche's** - initially targeting diesel displacement for remote islands, coastal communities, ports and coastal industry
- **Technology validation** - through historical prototyping, independent reviews, testing results. Leading U.S Wave Technology University, California Polytechnic (Cal Poly) has selected Protean as part of a testing and evaluation program under the Stonehenge – Cal Poly MOU
- **Targeting sustainable energy production** − aim is to provide a better way to convert wave energy with significant cost saving potential for clients and users
- **Strong leadership team** - track record in wave energy, energy industry, electric and water utilities, international business and corporate

Why Wave Energy

Wind Power and Solar PV Core Challenges	
Intermittency	Predictability

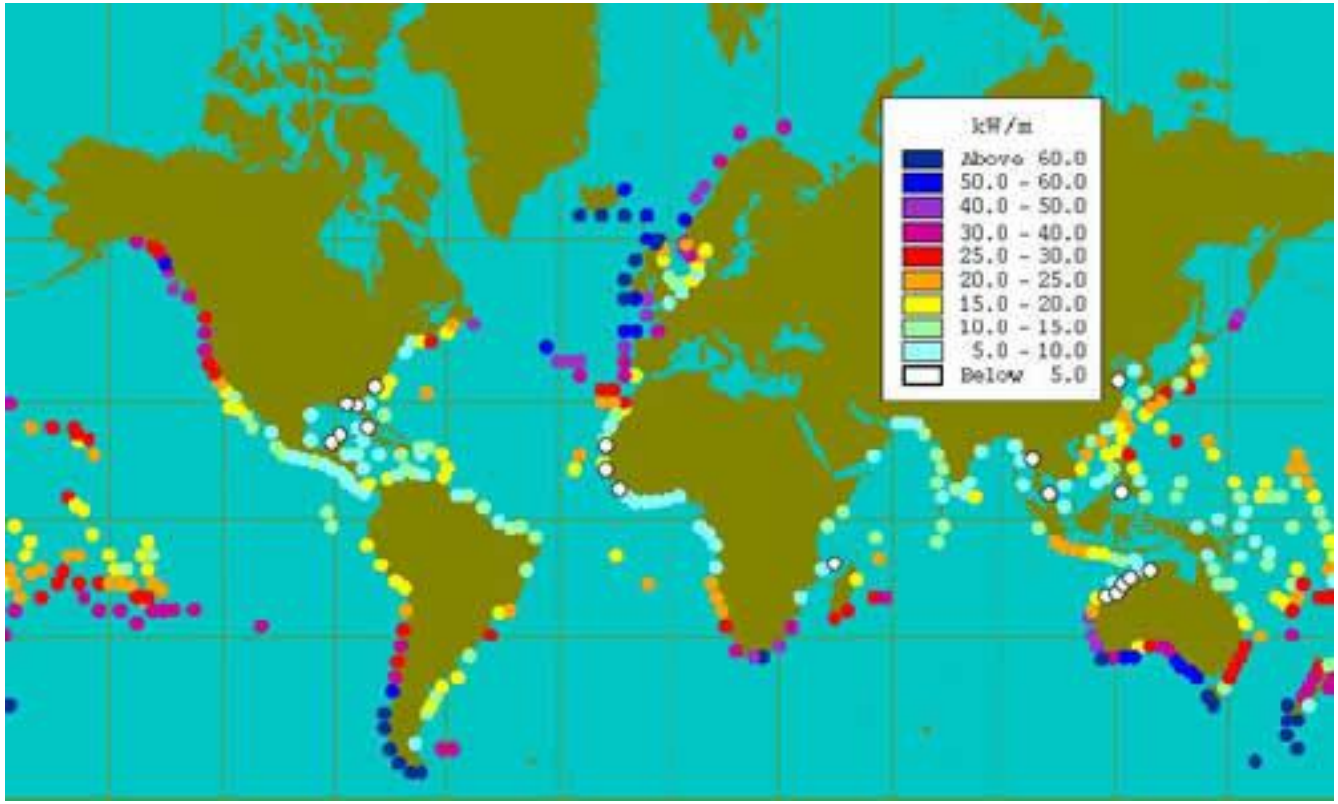


Though Germany can count on significant generation from wind and solar most of the time, this data from 2012 shows many days in the fall and winter when combined output falls to much lower levels. Courtesy: Fraunhofer Institute

Source: www.powermag.com/renewable-intermittency-is-real/?pagenum=3

Annual Coastal Power Potential

The Protean™ WEC could be deployed in a wide variety of locations globally

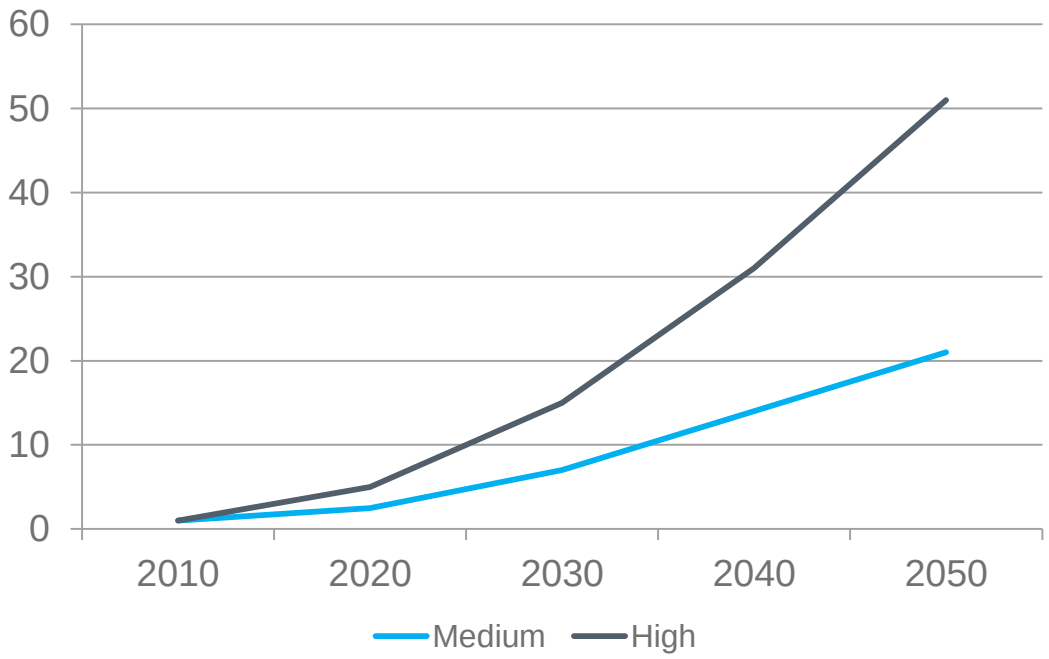


Source - http://www.oceanor.com/related/59149/paper_OMAW_2010_20473_final.pdf

Wave Energy Potential

The World Energy Council estimates global wave resources at around 2 million megawatt (MV) or twice the world's power consumption per annum

Wave – Global Market Size 2010–2050



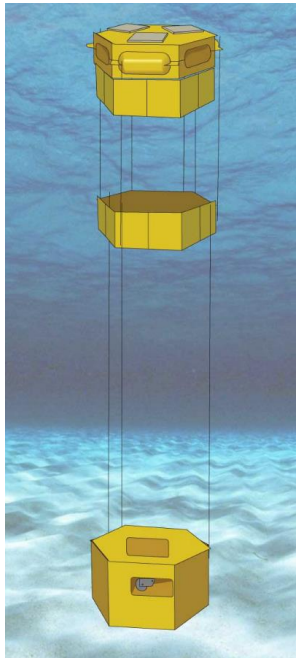
The wave energy market is predicted to be worth up to **$50bn** by **2050**

Report on the market for renewable energy by The UK Carbon Trust.
http://www.carbontrust.com/media/597981/marine-green-growth-carbon-trust.pdf

What is the Protean™ WEC



- Unique proprietary technology, which is designed to convert waves effectively into energy, using all six degrees of freedom*. Protean™ uses compact architecture to produce power from a small, low cost design
- The Protean™ WEC is positioned to penetrate the global renewable energy sector through its potential to produce scalable cost effective energy. The Protean™ is;
  - Designed to be cost effective due to an ability to utilise all 6 degrees of wave motion combined with low set up and maintenance costs
  - Designed to scale easily by adding extra devices to grow capacity
  - Designed to minimise environmental impact during project lifecycles



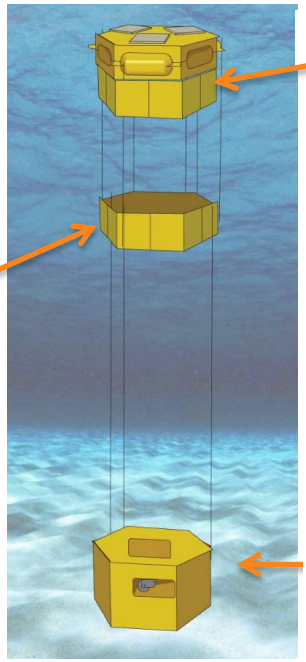
*** Utilizes all 6 degrees of Wave Movement**

1. Up-down (heave)
2. Back-and-forth (surge)
3. Side-to side (sway)
4. Yaw
5. Pitch
6. Roll

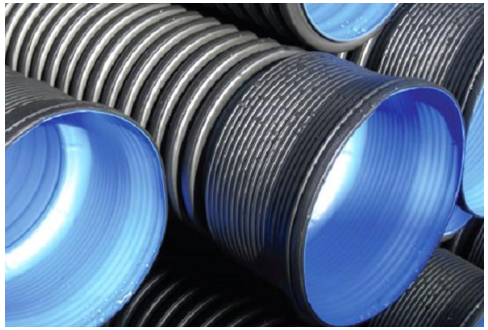
How it Works

From as little as a half a metre wave the Protean™ WEC is designed to generate up to 1.5kWp of energy through the conversion of wave energy into air pressure

1. The motion created from the wave causes the counterweights to move and the pulleys to rotate.



2. The rotation from the pulleys creates shaft power, which is converted into air pressure, stored and sent to a connected generator via a poly pipe.



Cost effective poly pipe transmission & storage lines

3. Air pressure drives a motor, which in turn powers either a generator supplying electricity and/or a water pump to drive a reverse osmosis desalination unit.



Air Motor



Generator

Air Driven Water Pump



Reverse Osmosis Desalination Unit



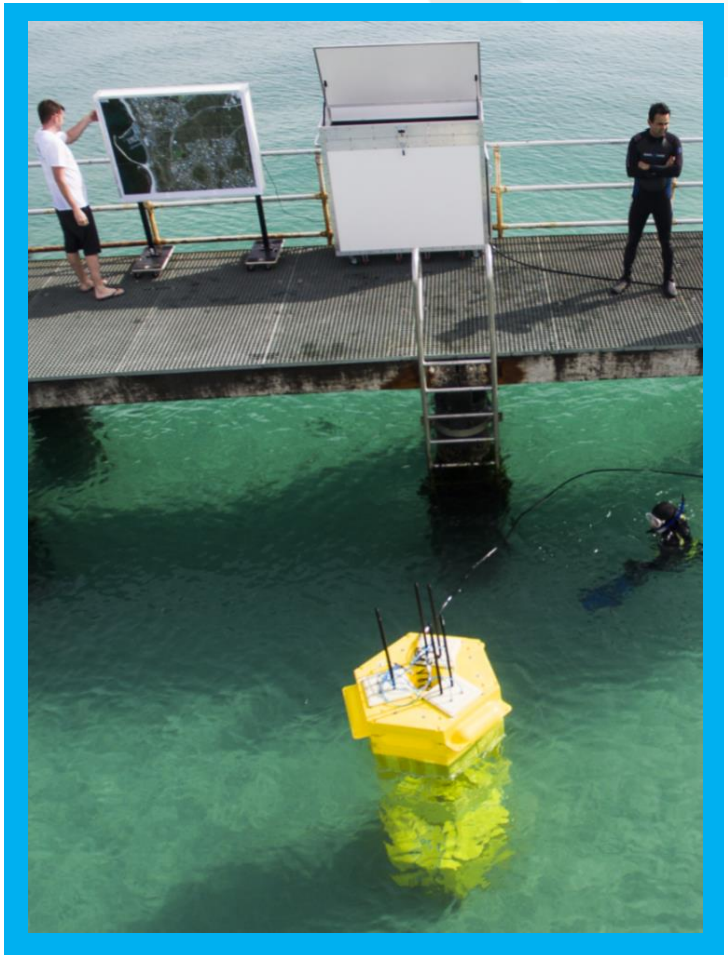
Technology Status

Functional ocean testing successfully completed:

- Beach launching equipment
- Protean™ mooring system
- Counterweights
- Buoy and energy conversion mechanism

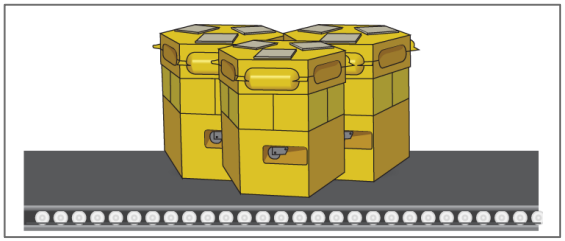
Energy transmission and storage system prototype with associated compressed air electrical generator tested, to power a lit display box

Next Phase of Commercialisation Program
30 x 1.5kW Protean™ WEC buoys for deployment of a 45kW pre-commercial demonstration wave farm at Bunbury Port.

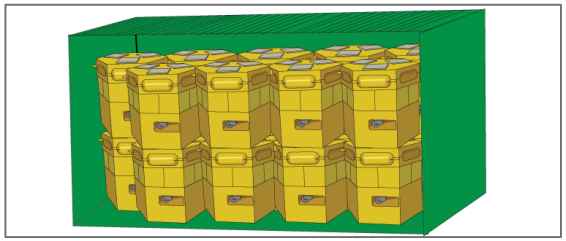


Simple* to Manufacture, Deploy and Maintain

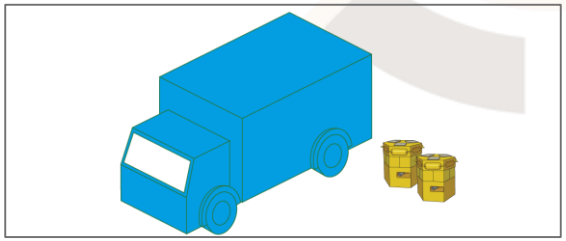
Manufacture components 1



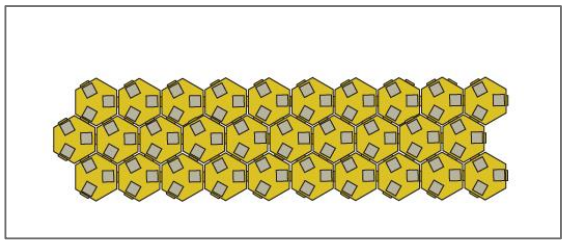
Pack in sea containers 2



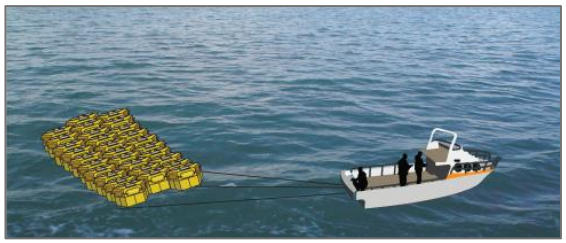
Transport – road, rail or sea 3



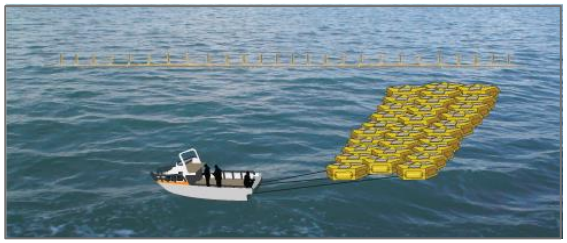
Assemble array in harbour 4



Tow array out to deployment site 5



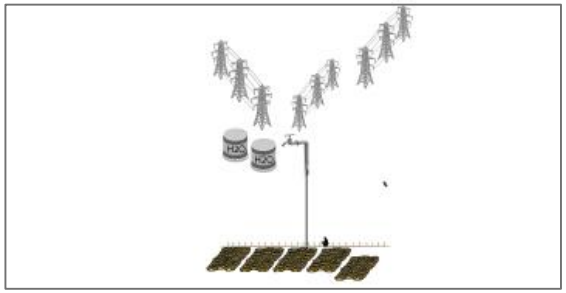
Deploy devices in ocean 6



Add arrays to create “Wave Farm” 7



Connection to shore 8



Maintain – tow array back to shore 9

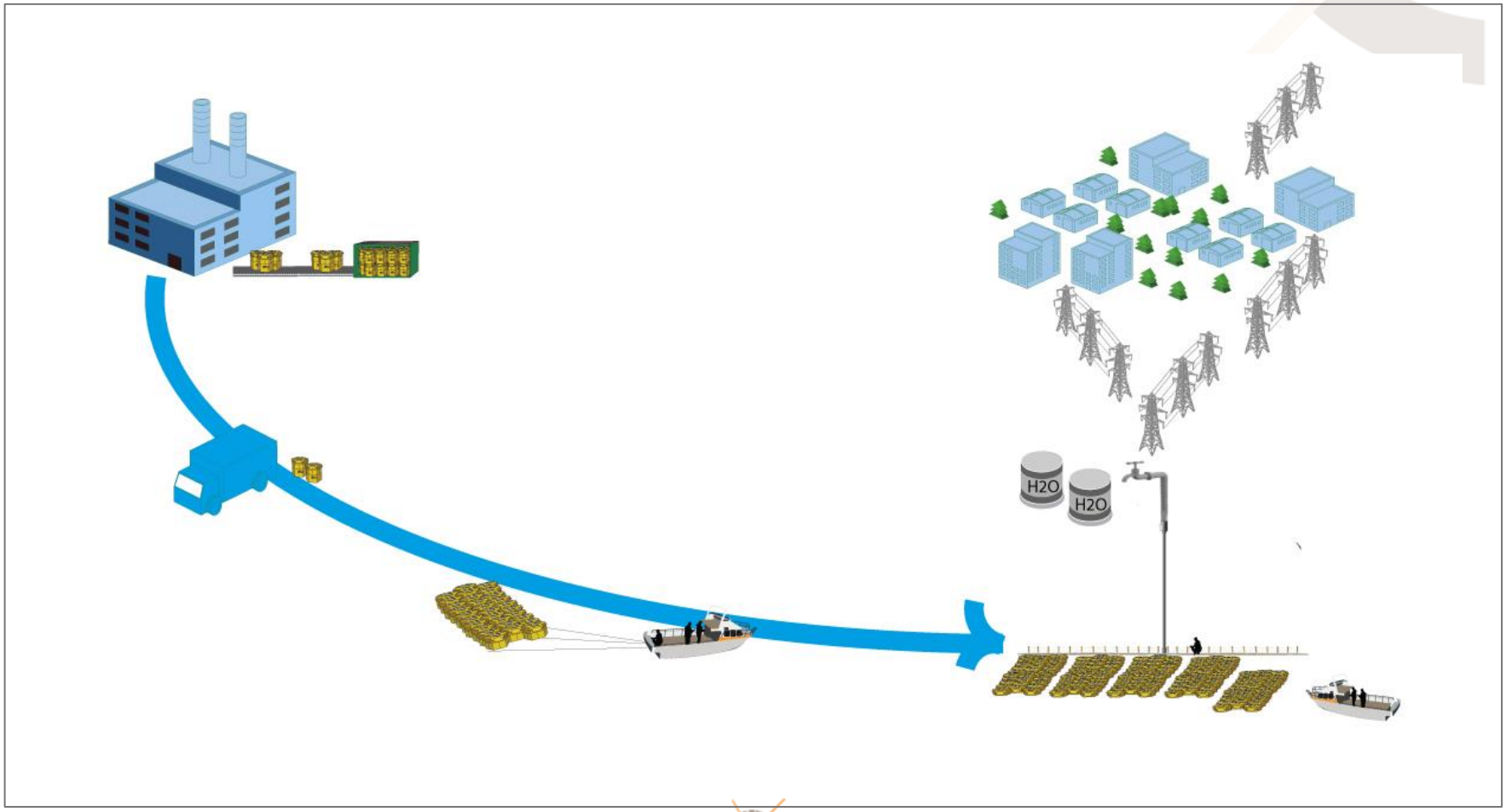


*The planned pre-commercial demonstration wave farm is targeting testing to verify these design features and benefits

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Process to Deploy

Protean™ WEC Value Chain Concept



Wave Energy Industry Challenges

JRC* estimates that 45 WEC's are in advanced development globally but none have been properly commercialised to date due to the inherent challenges faced.

Industry Challenges

Efficient conversion of waves into energy	Installation and permitting	Adaptability – ability to deploy into the seabed	Survivability and high costs	High barriers to adoption
Designs often compromise optimum conversion of maximum available wave movement	Can require substantial seabed works and expensive specialist installation equipment - damage is likely if moorings fail. Permitting in many locations has proven to be an expensive and lengthy process	Operation is often limited to certain sea states, seafloors and depths	Costly engineering solutions and long distances from shore drive up installation and submarine cabling costs. Most are large and very costly to deploy, retrieve or relocate. Maintenance at sea is very expensive	Require significant capital to build and expensive specialist capabilities to install – this can create a significant barrier to adoption

* JRC Ocean Energy Status Report, 2014 - https://setis.ec.europa.eu/system/files/2014%20JRC%20Ocean%20Energy%20Status%20Report.pdf

The Protean™ Solution*

Protean's WEC is designed for natural advantages in energy and water production.

Protean™ Response



Effective wave energy conversion

Designed to convert all 6 degrees of movement at the ocean's surface into energy whether in light, heavy or extreme seas



Easy to install & environmentally friendly

Designed to be environmentally benign with a small ocean and seabed footprint, easily installed, retrieved or relocated, facilitating permitting and approvals



Adaptable

Designed to adapt to varied sea states, seabeds, distances from shore and depths



Low cost to build and maintain

Designed for cost effective construction and operation to reduce installation costs. Designed to be easy to install and relocate using patented deployment technology. Maintenance designed to be simple and done onshore



Reduces barriers to adoption

Designed to require less capital up-front therefore reducing adoption barriers. Wave farms can start small and scale incrementally.

*The planned pre-commercial demonstration wave farm is targeting testing to verify these design features and benefits

Target Markets

Remote coastal communities and islands

- World Resource Institute CAIT* estimates there are over 60 small Island Nations
- Pacific Islands and Indian Ocean Islands
- Developed Islands (Utility, Military and Governments)
- Remote Islands (Towns and Resorts)
- Developing Islands (Utility, Banks Governments)
- Typically run on expensive diesel fuel at up to ~A$1.60 per litre

Industrials – i.e., ports, mining and off-shore oil rigs

- Ports seeking ocean surge mitigation, breakwater protection, power and water
- There are 27** oil rigs off the coast of California with most grid connected back to the coast – ripe for repurposing for alternative energy production
- Currently, there are more than 2,400*** production platforms, drilling rigs and other facilities in the Gulf of Mexico that could benefit from diesel displacement by wave energy generators

Sources:

* World Resource Institute CAIT - http://cait.wri.org/

** www.oceansciencetrust.org/wp-content/uploads/2015/04/oil-and-gas-decommissioning.pdf

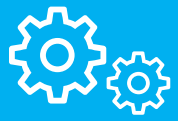
*** www.nrel.gov/

Island Nations Market Value Could Be Substantial



~60 small island nations around the world consume* ~31 billion

kilowatt-hours of electricity*



The majority of their power needs are currently supplied by diesel generators



The average electricity tariff paid by consumers can be well above that of large centralised utility prices charged in developed countries



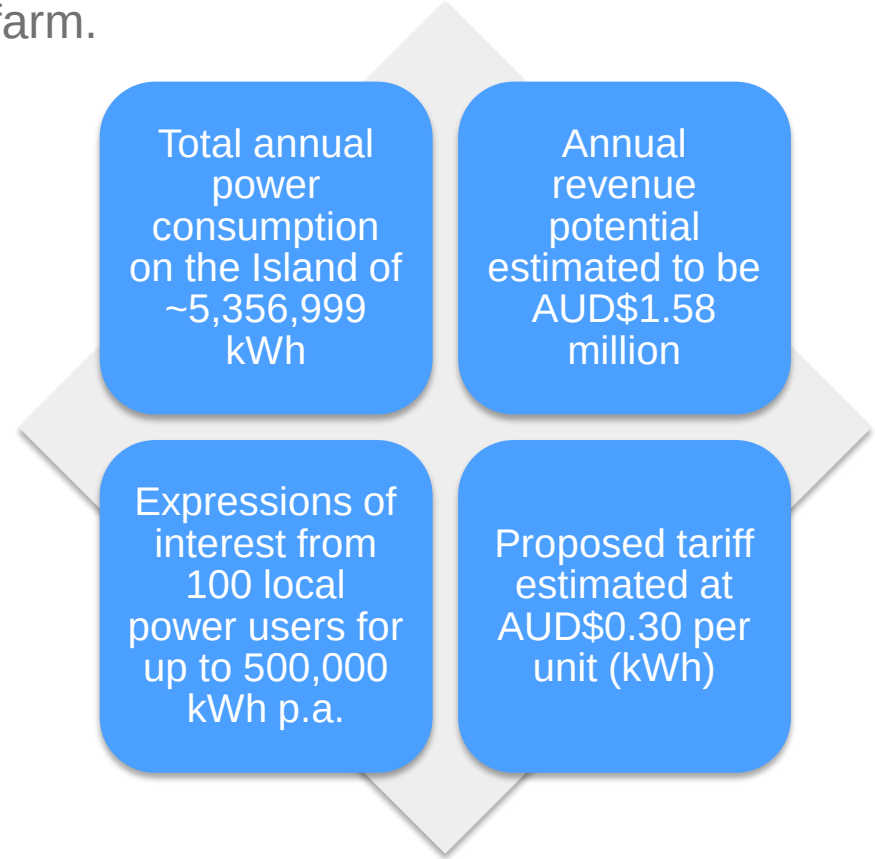
Annual expenditure on electricity for these ~60 small island nations could be as high as **A$9.3 billion****

* Source: World Resource Institute CAIT: http://cait.wri.org/

** Calculated using a nominal 30 cents per kW-hr energy price estimate

Wave Farm Approval – Maldives (Hanimaadhoo Island)

- Clean Energy Maldives (CEM) approval & support to facilitate a commercial wave farm.



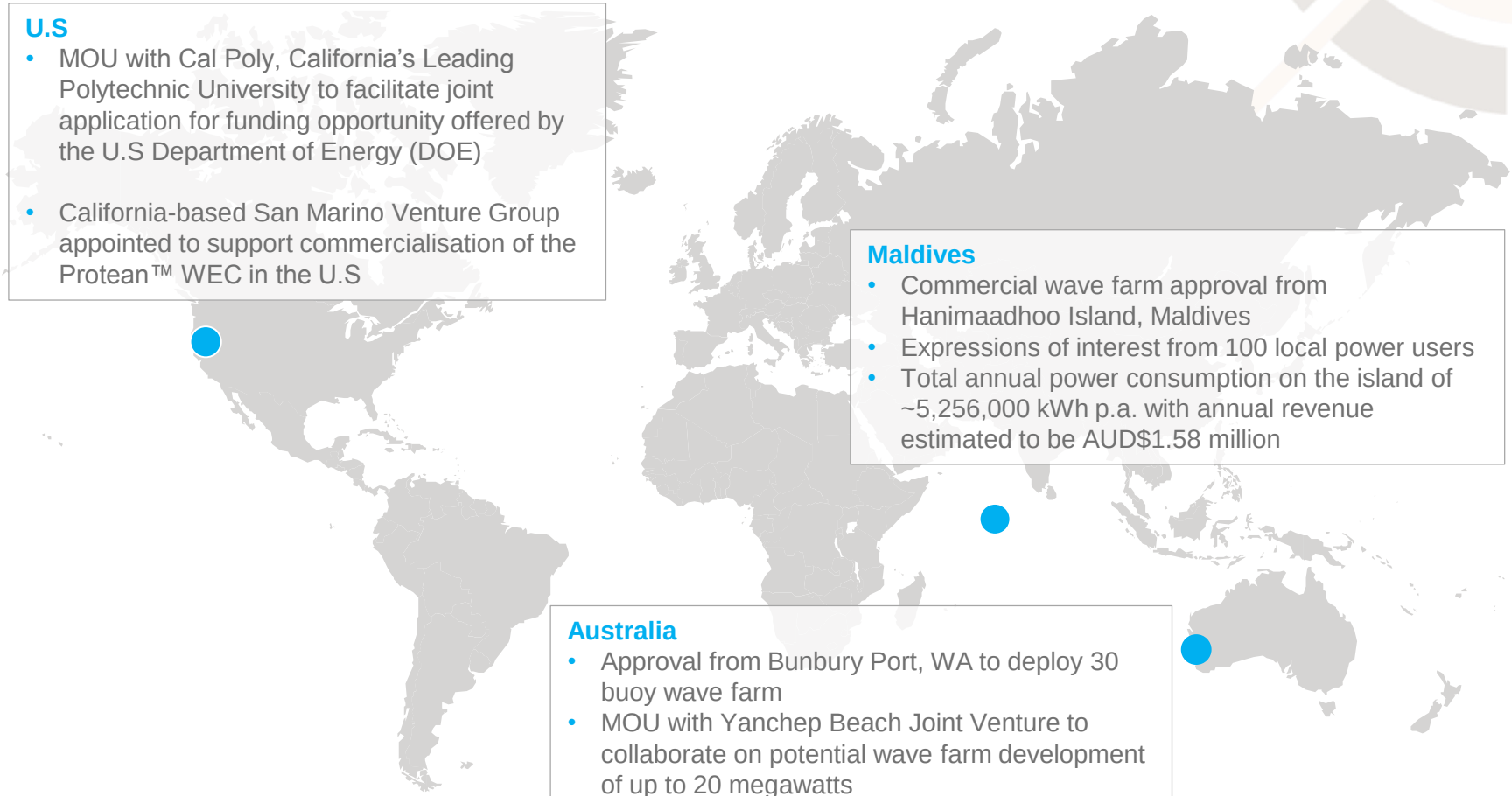
First step towards establishing a commercial wave farm and desalination facility for an Island nation.

- Exclusive option to acquire 100% of CEM

Validation with Key Partnerships

U.S

- MOU with Cal Poly, California's Leading Polytechnic University to facilitate joint application for funding opportunity offered by the U.S Department of Energy (DOE)
- California-based San Marino Venture Group appointed to support commercialisation of the Protean™ WEC in the U.S



Maldives

- Commercial wave farm approval from Hanimaadhoo Island, Maldives
- Expressions of interest from 100 local power users
- Total annual power consumption on the island of ~5,256,000 kWh p.a. with annual revenue estimated to be AUD$1.58 million

Australia

- Approval from Bunbury Port, WA to deploy 30 buoy wave farm
- MOU with Yanchep Beach Joint Venture to collaborate on potential wave farm development of up to 20 megawatts

Why California?

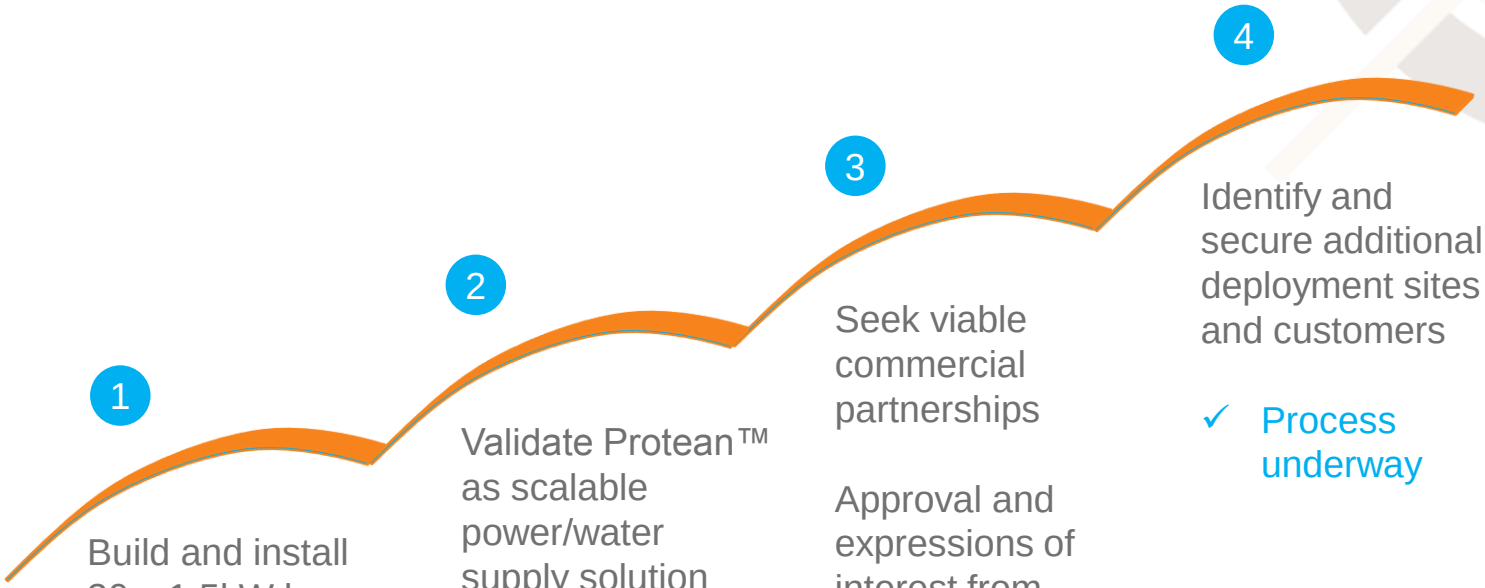


The Perfect Storm

Increased Renewable Energy Mandates and Historic Drought	Powerful Political Commitment	Searching for a viable wave energy converter	Strategic Relationships and Assets
High power market prices Fossil fuels aggressively phased out Severe ongoing “once in a millennia” drought Hydro generation scaled back Existing nuclear and coal generation being phased out	Current law is 33% of electricity from renewables by 2020 increasing to 50% by 2030 Governor Brown aims to reduce petroleum use by half by 2030*; enacting legislation is in process Strong commitment to leverage ocean energy resource	Searching for viable WEC system to supply electricity & desalinated water to population est. to be 44 million by 2030 Lt Governor Gavin Newsom leading advisor to Cal Poly’s CalWave team	Established US Office in California. Strong relationships, reputation and network with Cal Poly MOU, DOE and San Marino Venture Group 27 oil rigs off the coast of California ripe for repurposing for alternative energy production Industrial coastal supply chain and support assets

- http://www.arb.ca.gov/newsrel/petroleum_reductions.pdf, http://gov.ca.gov/news.php?id=18828

Targeted Next Steps



1

Build and install 30 x 1.5kW buoy (45 kW) pre-commercial demonstration wave farm off Bunbury Port, WA, Australia

✓ Process underway

2

Validate Protean™ as scalable power/water supply solution

✓ 45kW pre-commercial demonstration wave farm testing

3

Seek viable commercial partnerships

Approval and expressions of interest from Hanimaadhoo Island, Maldives

✓ Process underway

4

Identify and secure additional deployment sites and customers

✓ Process underway

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Growth Strategy

Scale & Commercialise

Complete an initial feasibility study based on results from the pre-commercial demonstration wave farm and commission a larger scale commercial Protean™ wave farm

Expand

Expand operations around Australia and globally by targeting regional and remote islands, ports and coastal communities and industry

Partner

Maximise penetration of the Protean™ WEC technology in multiple market segments and geographies with strategic alliance partners:

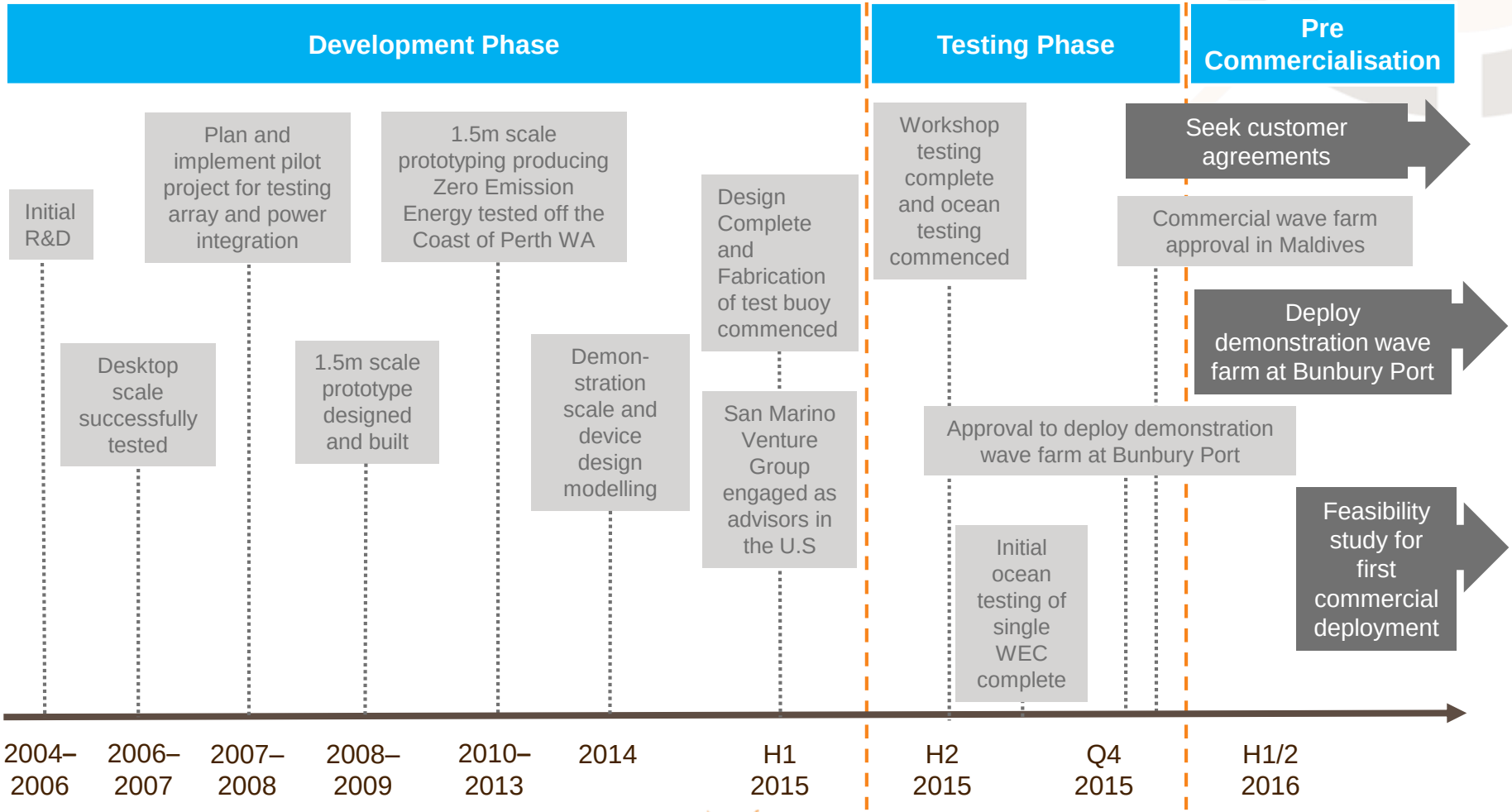
- Cal Poly* (USA)
- Yanchep Beach Joint Venture (land developers)
- Microgrid design and deployment partners
- Ports (Bunbury Port)
- Government and military
- Oil companies
- Power industry companies

* California Polytechnic University At San Luis Obispo

Early Commercialisation Strategy - Business Models

Stage One		Stage Two		Outcome
Design, Build, Deploy By funding deployments up-front. the company will then receive the income generated from the energy and water produced Sell power and water	+	**Operate and Maintain** Once the wave farms are established and producing energy the asset could be sold, either to the customer or an infrastructure fund Ongoing maintenance & support role	=	Prove technology in commercial setting Capital efficient business model Designed to scale fast Licensing potential

Milestones and Technology Development Pathway



Board and Management

Mr Brendan Hammond
Non-Executive Chairman
Cit.WA

Mr Hammond spent 24 years with Rio Tinto culminating in his appointment as Managing Director at Argyle Diamonds Limited where he led a turnaround to create a highly profitable business. Brendan was subsequently appointed as Chairman of Horizon Power (WA's largest regional power company) and Dampier Port Authority Boards. He has also been a member of Western Australian Watercorp Board and is currently Chairman of Centric Digital International Ltd and Professor Adj. of Sustainability at Curtin University, WA.

Mr Bruce Lane
Managing Director
B.Com, MSc, GAICD

Mr Lane has a broad range of operational, management and corporate experience including past roles as Director of a number of listed companies. Mr Lane has worked with several early stage technology and minerals exploration companies as an advisor, investor, director and manager. Prior to completing a Sloan Fellowship Master's degree at London Business School (LBS) Mr Lane gained 13 years of international management experience with global 'blue chip' companies.

Sean Moore
BEng, BSc
Chief Technology Officer (Inventor of Protean™ WEC)

Sean Moore is the founder and inventor of the Protean™ wave energy converter technology and has over 60 international patent applications on ocean energy technologies. Sean has been the recipient of many awards and scholarships and is recognized for his expertise in ocean energy. He was a panellist on the highly popular Ocean Energy Panel at the inaugural 2009 Asia Pacific Clean Energy Summit in Hawaii. Sean holds a Bachelor of Engineering (Honours), and a Bachelor of Science, from Edith Cowan University.

Mr William (Bill) Toman
President of US Subsidiary (Protean Wave Energy Inc.)

Mr Toman has developed over 2,000 MW of generating capacity in the USA and overseas. He led a U.S. Department of Energy (DOE) funded study investigating siting, cost and feasibility issues for developing a national wave energy test centre off California's coast for Pacific Gas and Electric Company. Mr Toman also led development of the U.S.'s first open ocean, grid-connected wave energy testing and demonstration facility (Humboldt WaveConnect), a 5 MW project.

Board and Management (continued)

Mr Scott Davis
General Manager
Business Development*

Mr Davis has over 20 years' experience across the Electricity and Resource sectors in Australia, Canada and the Solomon Islands. He led the introduction of a location based renewable energy buyback tariff for Regional Western Australia together with the introduction of generation management requirements for solar – a first for Australia. He also led innovation in the design of Power Purchase Agreements to facilitate significant cost reductions, balance sheet benefits, and more effective management of customer demand and renewable energy integration.

Mr Young Yu
Director & CEO Korea
B.Bus, MBA, CPA

Mr Yu has extensive private and public sector experience in finance, consulting, trade and international business in both Australia and Korea. Mr Yu worked as the Trade Commissioner to the Australian Trade Commission within the Australian Embassy in Seoul, Korea and was the Regional Director/Representative for the Western Australian Trade and Investment Office in Seoul, Korea.

Mr Bevan Tarratt
Non-Executive Director
B.Com

Mr Tarratt has an extensive background in the accounting and financial services industries having worked in various local accounting and broking firms for the past 10 years. He has been a director of a number of ASX listed companies. He has a breadth of corporate experience with a deep understanding of capital markets and international taxation.

* Subject to ASX re-compliance

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- **Targeting sustainable energy production** − aim is to provide a better way to convert wave energy with significant cost saving potential for clients and users
- **Strong leadership team** - track record in wave energy, energy industry, electric and water utilities, international business and corporate

Company Overview – Transitioning To Renewable Energy

Stonehenge Metals (ASX:SHE) has exercised its option to acquire 100% of Protean Energy Australia Pty Ltd, (PEA) which owns the intellectual property rights to the Protean™ Wave Energy Converter (WEC).

ASX	SHE
Shares on issue:	~861 million
Market capitalisation:	~$20 million
52-week Share Price	$0.004 - $0.06
Cash 11/08/2015	~$800k*

Top Shareholders	
• Protean Energy Ltd (Vendors)	7.6%
• Directors and management	~12.0%**
• Slade Technologies	7.4%
** Including JLC Corporation Pty Ltd	6.24%

Top 20 holds ~37% of issued shares

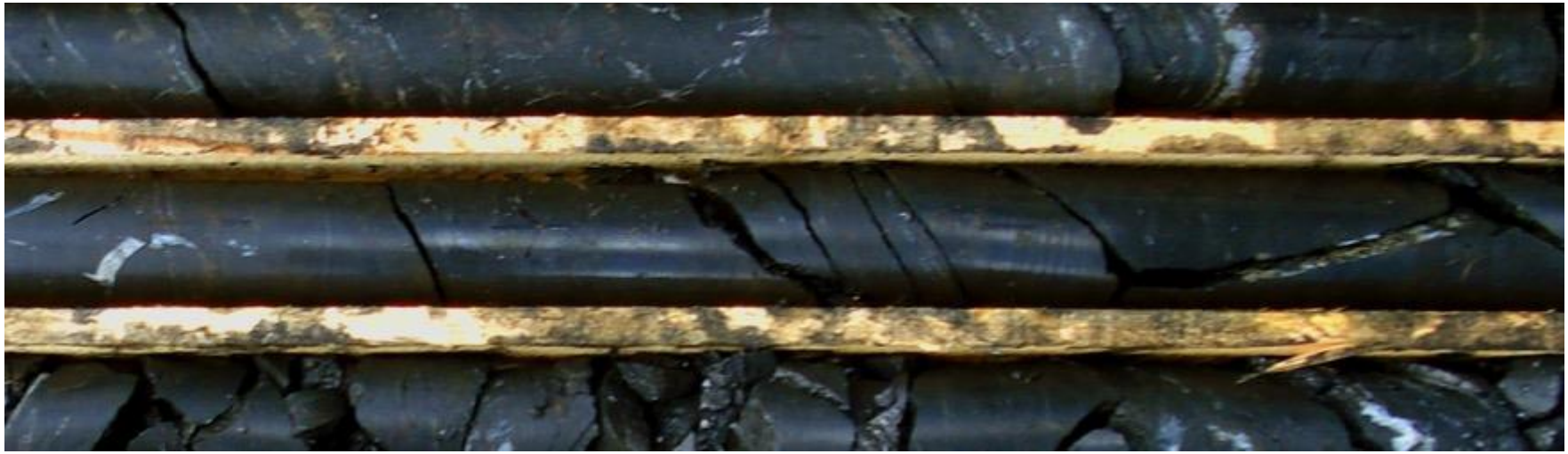
Path to Recompliance and Capitalisation

- Exercise of Option over PEA will result in a change in the Company's nature and scale of activities and will require shareholder approval under Chapter 11 of the ASX Listing Rules.

- The Company intends to re-comply with Chapters 1 and 2 of the ASX Listing Rules and expects to seek shareholder approval to issue a re-compliance prospectus to raise sufficient funds to accelerate commercialisation of the Protean WEC technology.

- A notice of meeting with a timetable for the re-compliance is expected to be dispatched to seek approval for the above matters including changing the company name to **Protean Wave Energy Limited.**

Stonehenge Korea Ltd (50/50 JV Company)



50/50 Joint Venture (JV) in South Korea

- JV completed with Korean listed partner[1] via 50% sale of Stonehenge's Korean subsidiary for $2.5m listed scrip and $300k in year 1 placements – JV self funded
- Leading Korean nuclear and power engineering company BHI Co Ltd has bought into the JV by acquiring 20% of KORID's 50% for ~$1m
- Significant resources upgrade potential by testing 36,000m of core held at KIGAM[2] – targeting much larger vanadium resource
- Aim to move vanadium/uranium project into feasibility stage
- Work to secure strategic partnerships with Korean customers
  - Nuclear power industry
  - Steel makers
  - Vanadium redox battery manufacturers

[1] KORID (Korea Resources Investment & Development Inc.)
[2] Subject to approval from Korea Institute of Geoscience and Mineral Resources

Protean™ and Wave Energy References

- Australian Government. “Clean Energy Future.” *Renewable Energy* 2011 www.cleanenergyfuture.gov.au (accessed 21/10/2011).
- *Carbon Trust.* http://www.carbontrust.co.uk.
- Danish Energy Association. “Danish Energy Supply 09 Statistical Survey.” *Danish Energy Association.* 24 August 2010. http://www.danishenergyassociation.com (accessed October 20, 2011).
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