ASX ANNOUNCEMENT

7 October 2020

Corporate Update

- Promising advancements in development of Intelligent Control and PTO products
- Blue Economy CRC awards funding to Mooring Tensioner project led by Carnegie
- New Strategic Business Plan completed with Churchill Consulting
- Strategy Focused on Value Creation and Reducing Time to Market

Carnegie is pleased to provide shareholders with an update on achievements made along CETO Digital Development Pathway over the last six months and present Carnegie's refreshed business plan.

Carnegie has been focused on delivery of three key milestones of the Digital Development Pathway:

- Development of the Intelligent Control Products (Wave Predictor, Wave Solver and Wave Controller)
- Advancement of the Power Take-Off (PTO) concept
- Definition of the CETO Architecture

Each of the above key milestones is its own project encompassing a range of innovative and complex activities. The team has made significant progress including the following recent highlights:

- Blue Economy CRC awards funding to Mooring Tensioner project led by Carnegie and building on Carnegie's initial work to develop the Mooring Tensioner concept
- Wave Predictor developed and validated via wave tank testing
- Wave Solver development commenced (the Wave Solver is the link in the Intelligent Control Products between the Wave Predictor and Wave Controller)
- Wave Controller technical opportunities progressed (including both machine learning and physics-based Wave Controllers)
- Power Take-Off (PTO) generator supplier discussions advanced alongside ongoing performance and economic assessments
- Carnegie's techno-economic modelling tool refined and updated to support the definition of the CETO architecture

These achievements are explained in more detail in the following pages.

In addition to advancing these Digital Development Pathway innovations, senior management and the Board of Directors have worked through a process to refresh and refine Carnegie's Strategic Business Plan as outlined below.

Digital Development Pathway Achievements

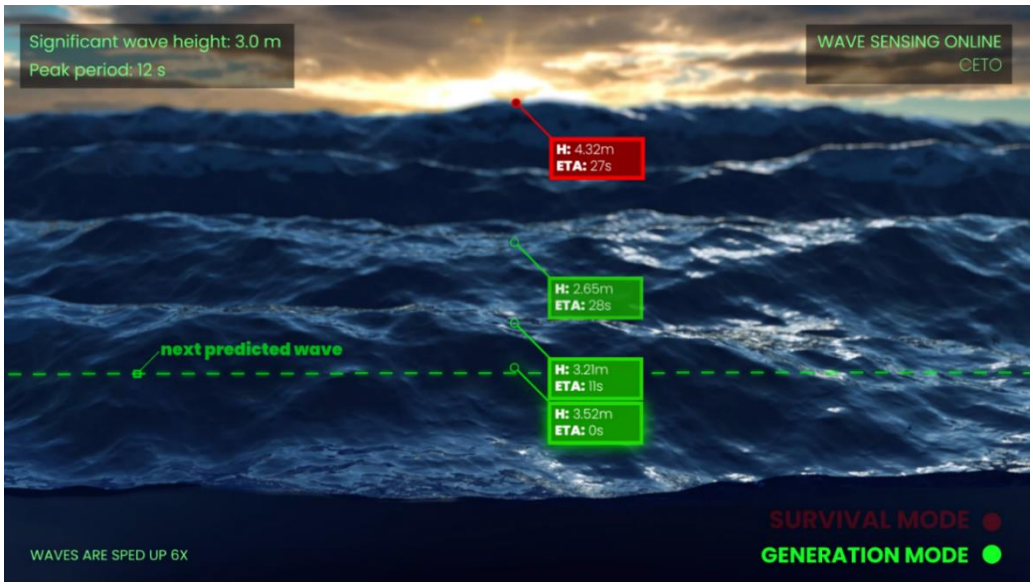
Development of the Intelligent Control Products

Carnegie's strategy to develop an Intelligent Controller for the CETO technology relies on three main sub-components / products:

1. **Wave Predictor** - A machine learning (ML) based wave predictor that can predict the precise surface of waves 30 seconds into the future. This provides data that can be used to determine the waves forces that will be applied to the CETO Unit in the next step, the Wave Solver.
2. **Wave Solver** - An ML based hydrodynamic solver which utilises the output of the Wave Predictor to compute, in real time, the hydrodynamic forces applied by the waves on the system. This provides data that can be used by the next step, the Wave Controller, to decide how the CETO device should react to upcoming waves in order to maximise power production.
3. **Wave Controller** - A controller utilising the outputs of the Wave Solver to optimally control the power take off (PTO) and maximise a CETO Unit's energy capture.

Wave Predictor

Following on from the successful development of the Wave Predictor in Q1 2020, a tank testing campaign was undertaken to validate the tool on physical waves. Access to the Cantabria Coastal and Ocean Basin, located in Santander, Spain, was secured through the MARINET2 European funding mechanism, at no cost. The campaign, initially scheduled to take place in Q2 2020, took place between 13th and 21st July 2020 and delivered over 15 GB of data (refer ASX announcement 23 July 2020). The technical team is currently finalising the analysis of the test results but is now confident that the wave predictor is able to accurately predict long and short crested waves, including extreme waves, for a range of sea states.



Carnegie's Wave Predictor animation

21 North MoleDrive, North Fremantle WA 6159
PO Box 39, North Fremantle WA 6159
+61 8 6168 8400
www.carnegiece.com

ABN 69 009 237 736

Wave Solver

Internal work has been performed to progress the development of the machine learning based hydrodynamic wave solver, the link between knowing the upcoming conditions via the wave predictor and then optimising the performance of the CETO Unit via the Wave Controller. Progress on the Wave Solver was slowed by the challenge of recruiting Hydrodynamic Engineering resources imposed by the COVID19 pandemic. Carnegie has now hired a new recruit to fill this gap. Carnegie has also been working with control industry partners on the development of an alternative wave solver which uses a different set of inputs.

Wave Controller

The Carnegie team has made encouraging progress on the development of the Wave Controller for CETO. This work is being undertaken through an internal process as well as via additional parallel controller development efforts being undertaken together with external collaborative partners.

Internally, the Carnegie team has developed and proven a controller for a simplified model of CETO (one degree of freedom). The controller has been tested numerically and is able to operate the model within PTO force and displacement constraints, while delivering an increase in annual average power over the reference controller previously utilised for CETO. The team is now increasing the complexity of the model to further develop and test the controller for real world application.

In addition to this, Carnegie has been collaborating with University of Adelaide's (UoA) world-leading control team on the development of a physics-based advanced controller. This work has also delivered promising results with increases in annual average power over the reference controller. Additional work is being undertaken to explore options to further improve these results.

Finally, Carnegie is investigating the option of making use of an alternative Machine Learning technique, called Reinforcement Learning (RL), in the CETO controller. Carnegie is liaising with key industrial stakeholders in the field of RL as well as with academic partners to advance this work.

Carnegie will continue to progress these controller developments with the aim to select the controller that is best able to optimise performance of the CETO Unit.

Advancement of the PTO Concept

Development of an electrified PTO solution during the last six months is highlighted by the extended engagement with electrical generator suppliers, progression of collaborative efforts in the area of the translation system, and advancement of opportunities for the development of the mooring tensioner.

Detailed cost modelling of the electrical generator landscape has been analysed to narrow down to a short-list of preferred generator suppliers. This down-selection has necessarily traversed the scale-space currently under consideration in the CETO scale study, and has focused upon market available solutions, avoiding costly bespoke engineering. Short-listed candidates are delivering electrical generator / motor solutions at volume to a number of

industries, including electrified heavy vehicles, machine tools and automation, marine electric propulsion, and wind power. Engagement with short-listed candidates has now been extended into detailed technical discussions, to ensure optimised fit with CETO requirements. This work continues, and includes detailed costing analysis, efficiency assessment, reliability checks, and integration discussions.

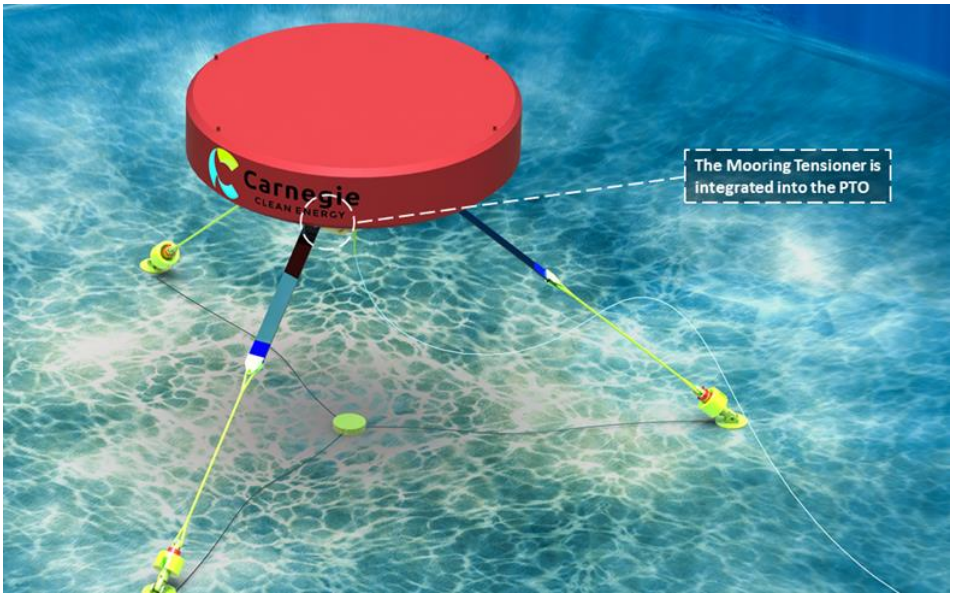
Selection of the preferred supplier was intended to be completed end Q3 2020. This milestone is postponed due to delays in the scale study feed in. It is now expected that a preferred generator supplier will be selected end Q4 2020.

Carnegie has also engaged with local engineering firms to explore opportunities for leveraging local expertise in heavy industry for development of PTO solutions. This includes explorations of electrification solutions transferred from the mining industry. Exploration of locally sourced solutions is particularly important at this present moment, with uncertainty associated to international manufacture and trade.

Progress is noted on the translation system, where collaborative developments with other wave energy converter developers is maturing. Carnegie anticipates announcing some movement in this area prior to the end of Q4 2020.

Capitalising on initial development work, Carnegie has recently kicked-off the Mooring Tensioner project that was announced 1 October 2020. The project, funded predominantly by the Blue Economy CRC, delivers a key component of the PTO and will allow considerably more testing and expertise to be applied to this component.

Recruitment challenges have impacted these activities in the last quarter, with specialist electrical machine expertise proving difficult to source in this constrained period. New resources have recently joined the team to support PTO innovation activities and expertise in this area may grow further according to need and availability over the next quarter.

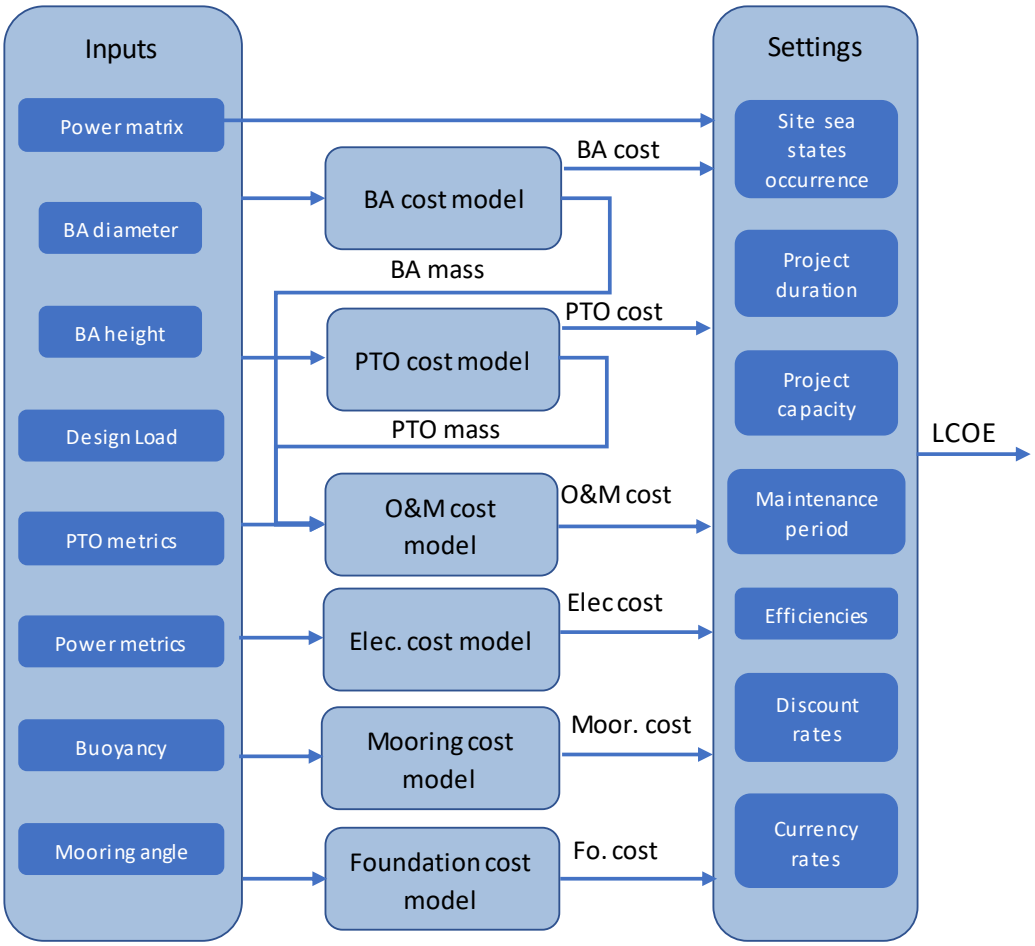


CETO Unit with PTO location circled

Definition of the CETO Architecture

All of the activities being undertaken, including those detailed above, feed into the definition of the system architecture of the optimised CETO Technology which will be deployed in future commercial projects. This architecture selection includes the use of Carnegie's parametric levelised cost of energy (LCOE) model which considers parameters such as the optimised unit dimensions, the buoyant actuator shape and number of PTOs to optimise for the lowest LCOE (see more detail in graphic below).

Any changes to those parameters typically has an impact on several drivers of the cost of energy such as power production, efficiency and/or cost. Assessing the magnitude of the impact of a design parameter change on those drivers is non-trivial. Design decisions almost always involve a trade-off between cost and performance, so it is important to make those decisions based on the best outcome for the cost of energy. Having a tool allowing Carnegie's design team to make informed decisions based on accurate cost of energy estimates is crucial to fast track the development of a technology. To facilitate these assessments, Carnegie has developed a techno-economic modelling tool that can evaluate the impact on the cost of energy of different architecture choices.



Schematic representation of Carnegie's LCOE parametric model

21 North MoleDrive, North Fremantle WA 6159
PO Box 39, North Fremantle WA 6159
+61 8 6168 8400
www.carnegiece.com

ABN 69 009 237 736

The first block of this tool computes the hydrodynamic performance of different architectures to be evaluated. Progress on this front was slowed by the challenge to recruit a qualified hydrodynamic engineer to complete this work. The highly specific skills required for this type of role often requires an international talent search which was hindered given travel restrictions imposed by the COVID-19 pandemic. Carnegie has recently employed a talented and suitably qualified engineer and the work on this front is now progressing well.

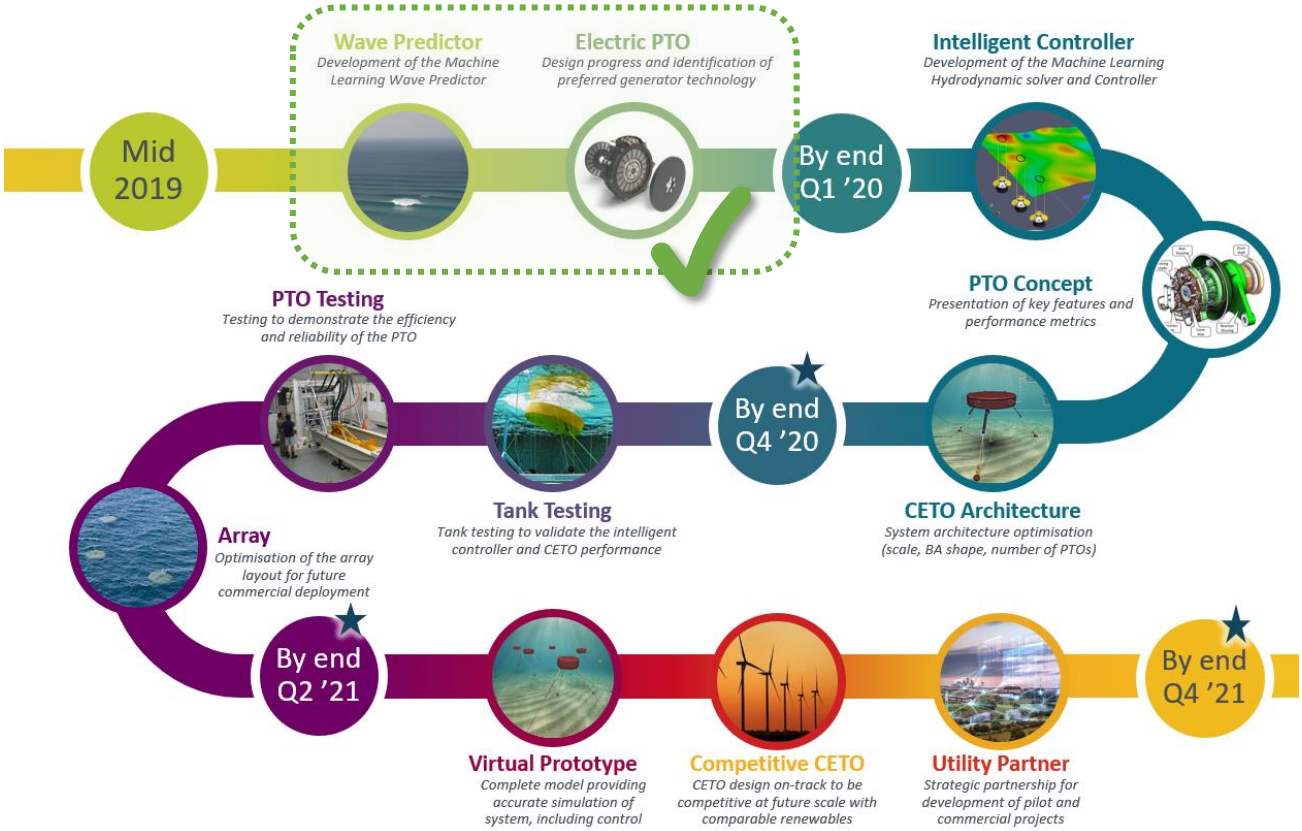
The second block of the tool is composed of multiple cost models developed for each component of the technology. To develop these models the technical team is leveraging the vast amount of costing and design data accumulated during previous projects completed and also by engaging with its unique network of design contractors and equipment manufacturers. For example, the landscaping study completed on the electrical generator for the PTO feeds directly into the cost model of the PTO (which represents a large proportion of the cost of a wave energy converter).

The techno-economic modelling tool is now complete, and the team is currently focused on producing performance data that will be fed in this tool for different architecture choices. Assessment of these different architectures and their impact on the cost of energy will take place during the next quarter with the objective to select an LCOE optimised configuration that sets the technology on a commercial pathway.

Pathway Timeline

Valuable progress has been made along each of the innovation workstreams above with many activities completed. Due to COVID and related recruitment delays, some of these activities are continuing into the next quarter. For instance, the two-month delay to the tank testing campaign had a knock-on impact to some of the intelligent controller activities. Work on these activities is ongoing and is expected to be complete at the end of Q4 2020.

The knock-on effects of these delays have also pushed the balance of the programme back by a quarter. It is expected with the recently recruited staff more than doubling the technical capacity, the rate of progress will increase dramatically, and some milestones can be delivered ahead of the new dates. An updated Digital Development Pathway is provided below.



*Carnegie's Digital Development Pathway with updated dates**

21 North MoleDrive, North Fremantle WA 6159
PO Box 39, North Fremantle WA 6159
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New Carnegie Strategic Business Plan

Carnegie recently worked with local business consultancy, Churchill Consulting to review operations and strategy and to update its business plan. The updated plan is built on Carnegie's Digital Development Plan. This included refreshing Carnegie's purpose and vision.

An organisation's purpose is what drives and focuses the team on the achievement of a common goal. It is what gets them out of bed each morning. Carnegie has defined our purpose as:

OUR PURPOSE:

We harness ocean energy to make the world more sustainable

Key word	Definition
"We"	This is a team effort. We share the journey with our partners, supporters and shareholders
"Harness"	The ocean is an untamed force requiring the best technology and engineering to capture its energy
"Ocean energy"	Ocean energy is abundant, diverse and untapped. Carnegie's role is to commercialise energy from the waves
"the world"	The resource is global, as is the growing need for electricity
"more sustainable"	Wave energy is part of the climate solution and augments other renewable energy sources

The long-term picture of success for Carnegie is described by our updated vision:

OUR VISION:

To be the most successful ocean energy company on Earth

Key word	Definition
"Successful"	Success to us is to be the industry leader with a financially sustainable business delivering positive impact
"Ocean energy"	Ocean waves contain immense energy in reach of many communities and industries
"Technology"	We are a technology company, that is our strength. We collaborate with partners who share our purpose
"Earth"	The Earth is where we live and what we care most about

The new strategy was developed by key management and Directors targeting to build a roadmap to success by achieving specific milestones and objectives and maximising value from our products. The next CETO project targets generation of initial and growing operational revenue and long-term sustainable profitability.

The Churchill led process focussed on identifying 5 strategic themes with 14 key initiatives to deliver Carnegie's goals, these themes are outlined below and illustrated in the Strategy on a page below are:

1. **Create Unique Competitive Products:** develop wave energy technology and IP that drives Carnegie's position as the most successful ocean energy company and preferred partner to project developers.
2. **Build a Market for Wave Energy:** create demand for wave energy through market intelligence, education and increasing awareness of the wave energy potential worldwide
3. **Foster the Carnegie Ecosystem:** drive success of Carnegie's wave energy technology through fostering a collaborative network and developing key partnerships
4. **Secure Financial Stability:** secure long-term financial sustainability through a focus on technology realisation and commercialisation in a lean operating environment
5. **Cultivate an Aligned and High Performing Team:** ensure Carnegie has the skills, culture and capability required to deliver on its business plan and strategic initiatives

Carnegie's strategy on a page

21 North MoleDrive, North Fremantle WA 6159
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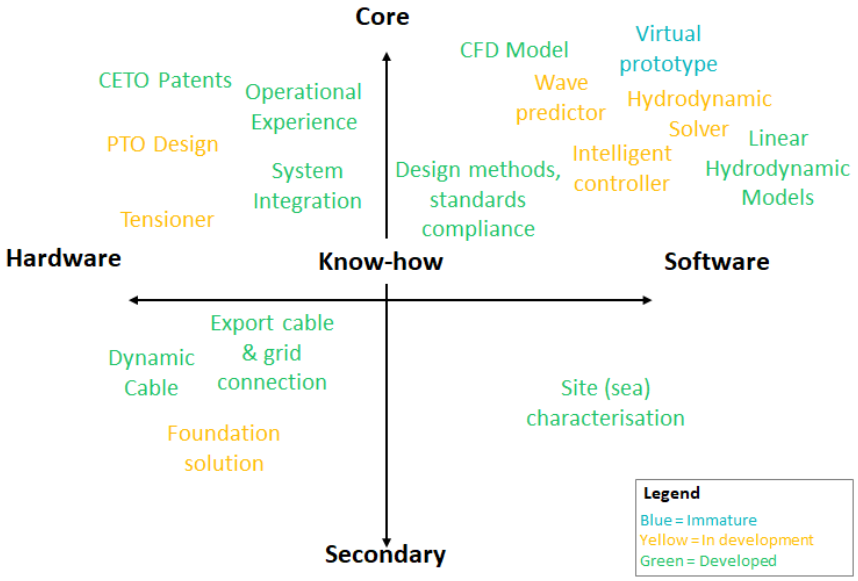
Carnegie is an evolving technology business that uses state of the art computing, modelling, design and engineering to help owners, developers, financiers and other partners build and operate ocean energy projects. Carnegie's primary near-term market opportunities are in island and remote communities as well as demand customers (i.e. aquaculture, offshore oil & gas). Ultimately, utility scale grid markets remain a significant opportunity for wave energy.

Target markets

Carnegie is pursuing a smarter, more cost-efficient Digital Development Pathway (as seen above). Under this revised model, Carnegie is focused on innovations to optimise the design of the CETO Unit, such as electrification of the power take off and the use of machine learning to increase energy capture. The intent of this rapid innovation phase is to improve CETO performance, driving to create a competitive renewable energy alternative by reducing costs, time to market and risks associated with future project deployment and commercialisation.

As a technology developer, Carnegie's intellectual property and products are the foundation of its business. Whilst the CETO technology system (hardware & software) is the cornerstone of Carnegie's strategy, individual components of CETO may hold value in their own right with applications and potential markets for royalties and engineering and design revenue beyond the CETO system and wave industry. While focused on delivering CETO along the Digital Development Pathway, management and the Board will also keep a watching brief on these other opportunities to maximise the value of Carnegie's unique and competitive products.

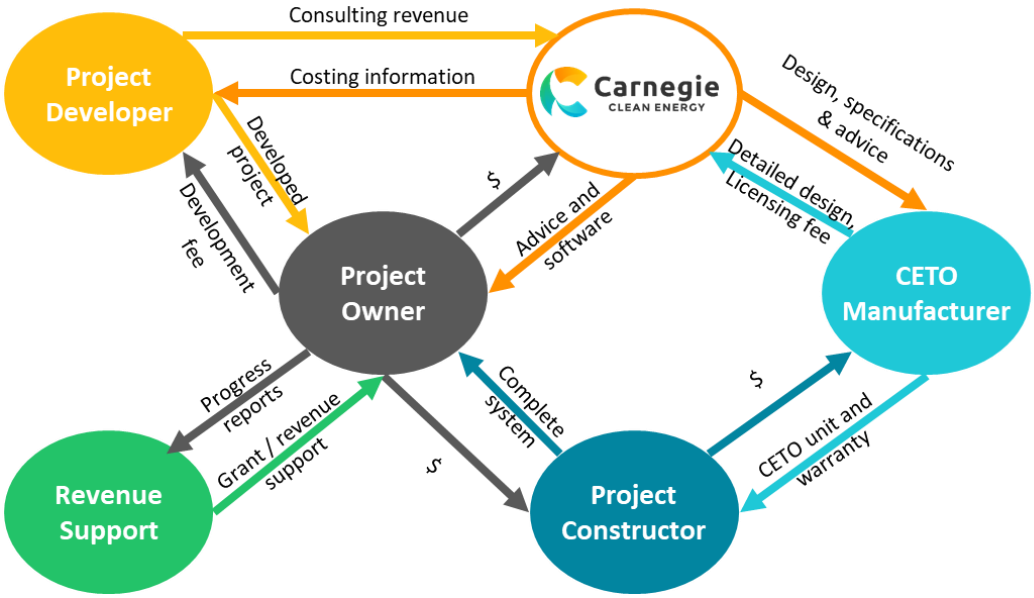


Carnegie Products and Know-how

21 North MoleDrive, North Fremantle WA 6159
PO Box 39, North Fremantle WA 6159
+61 8 6168 8400
www.carnegiece.com

ABN 69 009 237 736

At the completion of the Digital Development Phase, Carnegie will seek to partner with a project developer(s), providing license for the CETO technology to the developer(s) in return for licensing, royalties and technical / engineering services fees. Whilst there are many ways in which these relationships could be configured, Carnegie has demonstrated one possible future CETO Project 'ecosytem' configuration below:



A potential CETO Project Ecosystem Configuration

Carnegie's Strategic Business Plan themes and key initiatives are accompanied by detailed roadmaps, specific KPI's and a proprietary performance tracking system being utilised by Senior Management.

Key Dates Update

The Company wishes to advise the following key anticipated dates for the remainder of 2020:

Last date for new Director nominations to be received	13 October 2020
Release of Notice of Annual General Meeting	20 October 2020
Annual General Meeting	20 November 2020

For more information

Carnegie Clean Energy Limited

+61 8 6168 8400

enquiries@carnegiece.com

www.carnegiece.com