

Written evidence submitted by Sustainable Marine Energy (CGE0013)

1. We are writing as tidal energy technology company formed in 2012 in the Isle of Wight and now based in Edinburgh. We develop, build and install tidal energy platforms that host third party turbines. We have also developed innovative subsea anchoring and connectivity solutions with a broad range of application in the offshore renewable energy and aquaculture industries. Currently we are partnering with the German company SCHOTTEL to host their turbines and power electronics on board our platforms. Our first development, a submerged buoyant taught-moored platform called PLAT-O and rated at 100kW was tested off the Isle of Wight and then prepared for deployment at the European Marine Energy Centre in Orkney.



PLAT-O Submerged Tidal Energy Converter

2. However, following a change in government policy with the effective withdrawal of revenue support¹ we switched to developing a floating platform, PLAT-I, specifically designed for markets outside the UK. The first 280kW PLAT-I was built in Peterhead and deployed off Connel in Argyll and Bute in late 2017 for a period of 6 months.



PLAT-I Floating Tidal Energy Converter

3. However, without an effective revenue support system we will not be carrying out further R&D or commercial deployments in the UK. We have relocated PLAT-I to Nova Scotia, Canada, for

¹ Revenue support allows low carbon energy generators to sell their power over the wholesale cost. Tidal energy originally had access to ring-fenced CFDs. However, in 2016 this ringfence was withdrawn so that the tidal projects had to compete with offshore wind a far more mature technology able to access economies of scale and long term operating experience.

further testing which is currently ongoing. In 2019 we intend to install a second, 420kW PLAT-I unit in tandem with the existing 280kW machine which will lead to the creation of the world's first floating tidal energy array. We are doing this in Canada because we are provided with suitable revenue support. We expect to deploy 5MW of PLAT-I systems in Canada over the next three years and we are in talks with an additional project developer customer about increasing this figure to 9MW over the same period. This, a minimum £25-30m project, will lead to the deployment of 12 420kW PLAT-I systems (or 22 systems under 9MW scenario). Under our current strategy, none of these systems will be built in the UK but we will carry out design work and assembly and integration of high-value components in Scotland for export.

4. By developing our expertise in Canada, that will become our centre of experience and deployment. It is from there that we will target other parts of the world such as South East Asia. If we are to deploy into a UK market when it recovers then the UK will be treated as an export opportunity from Canada.
5. Historically the UK has been a project developer in renewable energy. We have used our services sectors, banks, lawyers, consultants and contractors, to deliver projects whether they be wind, solar, hydro or biomass. However, we have imported the technology from outside the UK to deliver those projects. By investing in new renewable energy technology, we can move from being a nation of project developers to a nation of technology and project developers. 48% UK content in offshore wind might be seen as impressive but it is diminished by estimates that we have that less than 5% share of the global wind energy sector. By developing the technology, we gain the exports.
6. Tidal stream energy (not to be confused with tidal lagoons) is a sector in which the UK should dominate. We have a natural advantage with 50% of Europe's resource, the skills and operational experience of a maritime nation and for now a leadership position. The recently published Offshore Renewable Energy Catapult (OREC) report² has demonstrated that the technology can be cost competitive with other forms of renewable energy. This is within the UK's grasp.
7. As a company we were much encouraged by the Government's Industrial Strategy and this initial view was supported by the OREC report. We believe that we can align with its Five Foundations and Grand Challenges, in particular around clean growth and development of "place", ideas and people.
8. Our main concern with the Industrial Strategy is that the government's financial support focuses on capital grants rather than revenue support. Capital grants are good for helping new technology move from the modelling and prototyping towards their first working device. However, for devices to become viable and reduce costs there needs to be significant deployment. For this there needs to be market willing to buy the products. That market exists in tidal energy with project developers looking for new projects, but they cannot justify their investment until there is revenue stream that delivers against their cost of capital. That is why the sector needs predictable but declining revenue support over the coming years. Revenue support has the additional advantages of being highly efficient in only compensating those who deliver and also avoids forcing grant funding agencies to 'pick winners' – a strategy that has had mixed success in the past.

² Tidal Stream and Wave Energy Cost Reduction and Industrial Benefit. April 2018

9. The industry has been in dialogue with BEIS to suggest how this new innovative technology could access revenue support without loading costs onto consumer bills and has proposed a mechanism known as an Innovation Power Purchase Agreement (IPPA). This allows energy buyers to pay a higher cost for their power but then reclaim that excess cost against tax. The IPPA would allow technology developers to deploy arrays of up to 5MW getting their costs down, and would compliment the use of CFDs for project developers. These would be for larger projects and could be set in a minima for tidal projects in the 2019 CFD auction (as was previously available), or in a larger technology grouping for the new technologies which are not yet able to compete with CFD (eg floating wind, wave, ACT).
10. Lastly, I reiterate that we remain committed to the UK, but without a suitable revenue support mechanism we will continue to focus internationally and our R&D and commercial activity here will be severely curtailed. Should a suitable revenue support mechanism, such as the IPPA, materialise then this unfortunate situation may be remedied but in the meantime the UK's hard-won leadership position is being eroded.

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