

DeltaStream has the benefit of a number of features compared to other tidal devices currently in development including:

- 01.** It uses standard, off the shelf components.
- 02.** The device is simple to manufacture, install and recover using readily available construction equipment.
- 03.** A DeltaStream unit is completely modular and the individual components are easily transported by road, rail or sea and can be assembled at a local quay/dock within one week.
- 04.** Commissioning can be done on land prior to deployment.
- 05.** The device is lifted in its entirety from the ocean bed for maintenance. The three nacelle modules can be removed and replaced quickly at the deployment location, allowing a fast return of the device to power generation. The nacelles will be taken to a shore base and overhauled in a factory environment.
- 06.** The method of deployment allows the 11KV grid cable to be connected using an oil filled junction box at the surface therefore obviating the need for expensive subsea connections, which would require divers or Remote Operating Vehicles (ROVs) that are difficult, if not impossible, to use in fast flowing currents. It avoids fatigue from wave action. It is best suited to a site with a clear height above the rotor to enable passage of vessels above. This also avoids the turbulent forces of wind and wave action on the surface. The rotor will extract the energy from the water flow at an elevation of between approximately 5 and 20 meters above the seabed (for a 15m diameter rotor).
- 07.** A farm of units forms a simple compact pattern with spurs to a common central power transmission line.
- 08.** The device can be installed in a range of water depths including deep sea where currents are strongest. There is no real upper limit to the depth of water that DeltaStream can be installed in and it is capable of being deployed in all UK waters with suitable tidal velocities. The vast majority of the tidal resource in UK waters occurs at depths greater than 45m which is too deep for jack-up barges and thus devices requiring piled foundations.
- 09.** Deployment: DeltaStream does not require jack-up barges or stability legs.
- 10.** DeltaStream research was initially funded by Pembrokeshire Coast National Park Marine Nature Reserve with a specific requirement to minimise any impact on the marine environment. DeltaStream has significantly less environmental impact than alternative solutions and should therefore be the preferred solution for the regulatory authorities. This is expected to result in DeltaStream being acceptable for deployment at a greater number of potential sites than its competitors, particularly some of the more sensitive sites,
- 11.** As a developer of wind farms, Eco2 is acutely aware of the cost and resources dedicated to obtaining consents for development sites. DeltaStream's potentially faster track through the consenting processes, compared to its competitors, was an important consideration for Eco2 in its assessment of the device for development support. Eco2 also expects this to be an important consideration for other developers.
- 12.** DeltaStream's oscillating nacelle allows maximisation of energy transfer. The device utilises fixed pitch blades designed to maximise the energy extracted from the tidal flow distribution at the deployment site. A mechanical yaw system has been designed to allow the nacelles to oscillate by a control system, which is programmed to seek the optimum flow.
- 13.** DeltaStream has a potentially higher energy production per km² compared to competitors or existing technology.
- 14.** DeltaStream devices will have minimal decommissioning liability; they can be removed from the seabed at minimal cost in accordance with the standard method statement for a planned service operation.
- 15.** With three individual turbines on a single device, DeltaStream naturally has a redundancy of operation.
- 16.** The generator and power electronics are designed to be fully grid code compliant in accordance with UK transmission distribution requirements.