HarborVolt: Eco-Maritime Training Platform

Deep Innovation Report

Executive Summary

HarborVolt is a visionary 2030 eco-maritime training program designed to clean and regenerate BCP's waters while offering hands-on engineering and operational skills directly to NEET and SEND individuals.

By retrofitting electric-powered tugboats to perform vital harbour maintenance in Poole Harbour, the initiative transforms marine conservation into a supportive and accessible classroom.

The dossier outlines how local educators, marine manufacturers, and harbour authorities can coordinate to test, fund, and scale this highly localized green transition model.

The Better Everyday

What if the transition to zero-emission marine transport became a hands-on gateway to lifelong skills for local young people who need them most?

- The participant's concept, HarborVolt, is an inclusive green maritime training platform operating directly in Poole Harbour. By deploying electric-powered tugboats, the initiative combines essential harbour regeneration tasks with hands-on skills training. This practical program is specifically designed to support local young people who are currently NEET or navigating SEND.
- Imagine standing on Poole Quay in 2030, watching a quiet, zero-emission electric tugboat glide smoothly across the water. A crew of young local trainees operates the vessel, confidently monitoring the battery levels and guiding the boat to clear floating debris from the harbour channels. No diesel fumes fill the air, and these young people are no longer separated from the local marine economy but are actively driving its sustainable future.
- Young people with neurodivergent needs or disjointed educational paths often struggle to find practical, supportive routes into meaningful work. The traditional workaround relies on classroom-based training or generic work experience placements that fail to accommodate different learning styles or provide real maritime experience. These routes fall short because they lack hands-on, tangible responsibility and do not connect directly to emerging green-tech jobs.
- This program could transform how the local community views vocational training, establishing a new expectation that environmental regeneration and inclusive education can reinforce each other. If practical learning can be delivered successfully on a working electric vessel, this expectation of active, supportive learning could spread to other sectors like sustainable construction and green tourism across Christchurch and Bournemouth.

Who It Could Matter To

Connecting neurodivergent young people and maritime operators creates a supportive pathway into the growing coastal green economy.

The Aspiring Marine Engineer

- A nineteen-year-old school leaver living in Poole who struggles with written exams but has a natural talent for working with mechanical and electrical systems.
- They need a practical learning environment where they can touch the equipment and understand electric propulsion systems without the pressure of a traditional classroom.
- They gain a clear, supported route into a specialized technical career, giving them the confidence and credentials to apply for marine engineering roles.

The Local Harbour Operator

- A commercial vessel operator based in Poole Harbour who wants to transition to electric power but struggles to find crew members trained in low-emission marine tech.
- They encounter the HarborVolt team during routine port maintenance and need a reliable, skilled pool of local operators who understand zero-emission vessels.
- They secure a trusted, locally trained pipeline of eco-conscious mariners, helping their business meet environmental regulations while supporting the community.

The Dedicated SEND Support Worker

- A support practitioner at Bournemouth & Poole College looking for practical, real-world work placements that accommodate students with sensory sensitivities and diverse learning needs.
- They seek opportunities where students can build confidence through structured, repetitive, yet deeply rewarding physical tasks on the water.
- They find a safe, structured partnership where students are respected, protected, and given genuine responsibility that translates directly into independent living skills.

What This Could Change for BCP

Harnessing the natural asset of Poole Harbour can align inclusive education with the local transition to zero-carbon marine operations.

- This initiative directly leverages Poole Harbour, one of the largest natural harbours in the world, as a living classroom. By using the harbour as a training ground, the platform aligns perfectly with BCP Council's stated regeneration ambition to foster inclusive, sustainable growth that supports year-round employment.
- The immediate impact would be the creation of a dedicated, locally grown workforce specializing in green maritime maintenance. As electric tugboats begin operating, young people who previously felt excluded from the job market will gain highly relevant, future-proof skills in electric propulsion and coastal conservation.
- Over time, the presence of a skilled green-vessel maintenance crew could encourage private boat owners and commercial ferries in the region to accelerate their transition to electric power. This shift could position Poole Quay as a leading regional hub for eco-maritime innovation, attracting further green technology investment.
- This focus on practical, on-water training means resources must be directed toward specialized vessel safety and adaptive coaching rather than traditional classroom facilities. This choice benefits neurodivergent learners who thrive in active settings, but it requires careful coordination with maritime safety authorities to manage the inherent risks of harbour operations.

Who Must Connect

Bringing together marine engineering expertise, inclusive educators, and harbour authorities turns a training platform into a vital working service.

- A specialized marine training provider would act as the lead operator, partnering closely with local electric vessel manufacturers to supply the adapted electric tugboats. The manufacturer would provide the technical specifications and initial engineering support, while the training provider delivers the structured learning framework.
- Local NEET and SEND advocacy groups must actively shape the training environment, ensuring that the vessel layout, communication style, and shift patterns respect the trainees' sensory and physical needs. This ongoing feedback loop ensures that the program remains accessible and supportive rather than imposing rigid commercial pressures too quickly.
- The harbour authority must grant the necessary operational permissions and access to designated berths along Poole Quay, integrating the training vessel into daily harbour management. This relationship allows the trainees to work on genuine maintenance and cleaning tasks under professional supervision, validating their contribution to the port.
- Bournemouth & Poole College could act as the primary educational partner, aligning the practical vessel hours with formal vocational qualifications and securing long-term funding through adult education budgets. This partnership ensures that the program remains financially viable and recognized by mainstream employers.
- **The missing link** is the connection between local marine tech startups and inclusive education coordinators, two groups that rarely interact. To bridge this gap, a regional maritime business network must make the first move by hosting an open forum to discuss the skills shortage in electric propulsion systems.

Why This Fails

Unrealistic commercial pressures, complex maritime regulations, and rigid academic frameworks represent the primary risks to this inclusive program.

- **Inflexible academic structures** might undermine the program if the funding requires rigid, classroom-based examinations that do not suit the learning styles of SEND and NEET trainees. If the curriculum cannot adapt to hands-on assessment methods, trainees may lose interest and disengage, which you would first notice through a sudden drop in weekly attendance and low module completion rates.
- **Regulatory gridlock** could occur if maritime safety authorities treat the training vessel under standard commercial shipping laws without considering adaptive learning provisions. This lack of coordination would delay operations indefinitely, and you would see the early warning sign of the tugboat remaining moored at the dock for months while paperwork stalls.
- **High operational strain** on a single electric vessel could lead to frequent mechanical downtime if battery maintenance and charging infrastructure are not managed carefully. Without dedicated technical support, the training schedule will collapse, and the first warning sign will be trainees arriving at the harbour only to find the vessel out of service due to low power.

One Experiment to Start

Testing the combination of basic electric vessel maintenance and adapted learning styles on dry land can prove the concept before launching on water.

- The primary uncertainty to resolve is whether neurodivergent trainees can safely and comfortably engage with complex electric propulsion interfaces in a hands-on learning format. If trainees find the physical setup confusing or overwhelming, the operational model must be redesigned before investing in a fully functional electric tugboat.
- You can run a small test over a fortnight using a stationary, land-based electric motor simulation rig at Bournemouth & Poole College, involving a small group of SEND students. Trainees will interact with the simplified controls, practice basic wiring tasks, and guide the simulated system through basic harbour manoeuvres under the supervision of a supportive instructor.
- Keep going if the trainees demonstrate high engagement, complete the basic motor tasks with minimal anxiety, and express excitement about working on a real boat. Stop or rethink if the interface causes sensory overload, or if the instructional steps require too much reading, indicating that the training materials need a more visual, tactile redesign.
- **Next step:** A curriculum coordinator at Bournemouth & Poole College could contact a local electric marine propulsion engineer within 90 days to secure a loaned motor assembly for this initial hands-on pilot.