
Seaweed to Scale: A Financial and Market Approach to Scaling Ocean Biorefineries

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Abstract

Ocean-based biorefineries can play a key role in decarbonizing food systems by replacing carbon-intensive conventional ingredients and unsustainable sources of fishmeal in animal feed. Ocean Era's Partially Deconstructed Macro-Algae (PDMA) product uses the microbiome of tropical reef fish to convert macroalgae into a nutrient-rich, low-emission feedstuff for poultry, swine, and farmed fish. Yet, like other marine bioenergy innovations, PDMA's success to drive climate impact at scale hinges not only on biological efficacy but also on viable, finance-supported commercialization pathways. **This presentation will outline a financial and market-based strategy to scale PDMA and similar seaweed-derived products.** We examine (1) the impacts of protein price volatility on livestock systems and the opportunity for macroalgae to stabilize input costs; (2) pricing scenarios and competitive positioning under which PDMA can achieve cost parity with conventional feeds, unlocking capital investment for scale; and (3) the economic challenges of sub-scale production and practical staging models that help early ventures reach break-even milestones. Ultimately, we frame PDMA not just as a promising feed innovation, but as a scalable, cross-sector model for how ocean-based biorefineries can attract mainstream investment and deliver climate-relevant impact at the pace and scale the challenge demands.

Keywords: finance, investment, scale, up, seaweed, macroalgae, animal feed, biorefinery, marine bioeconomy, commercialization, sustainable aquaculture, climate impact, feed innovation

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