Bridging regulatory pressure and business continuity

by Frederik Lerche-Tornoe, *CEO, Oceanly*

The Baltic Sea has long been a focal point for maritime environmental policy. Designated a Special Area under multiple MARPOL annexes, the region has seen aggressive regulatory efforts to curb emissions, protect marine ecosystems, and modernise port-to-port operations. Against this backdrop, Oceanly has introduced a new tool, ECOPAC (Emissions Control and Operational Performance Assessment and Compliance), poised to help shipping companies meet mounting compliance demands while advancing operational and commercial goals.

As regulatory momentum grows across the EU and the International Maritime Organization's (IMO) frameworks, ECOPAC aims to deliver more than just digital reporting. It functions as a performance-enhancing compliance engine, tailored to regional complexities, such as dense shipping traffic, diverse fleet types, seasonal challenges, and the introduction of market-based measures like the EU Emissions Trading System (EU ETS) and FuelEU Maritime.

The Baltic Sea is one of the busiest maritime corridors in Europe. Short-sea shipping, ferry and ro-ro services, feeder traffic, and ice-class operations converge in a highly interdependent ecosystem. While this makes the region a showcase for operational efficiency, it also leaves stakeholders exposed to mounting regulatory risks.

The phased inclusion of shipping into the EU ETS has introduced new obligations for voyage emissions monitoring, verified reporting, and carbon allowance surrender. Simultaneously, FuelEU Maritime will enforce new standards on greenhouse gas intensity from shipboard energy use. Add to this the IMO's Carbon Intensity Indicator (CII) requirements, and the region's operators face a regulatory minefield. For many mid-sized and smaller operators, especially those without large in-house sustainability or digitalisation teams, this presents a serious operational burden.

Data-led actionable insights

We have developed ECOPAC to tackle these challenges. As an integrated compliance and performance solution, the platform supports automated EU ETS data capture and reporting, FuelEU Maritime-readiness assessments, CII tracking with operational optimisation tools, and system-wide digitalisation with minimal crew burden.

The system works by consolidating onboard and shore-side data (such as fuel consumption, voyage information, port calls, and weather routing) and applying real-time analytics to generate actionable insights. With seamless integrations into most vessel management systems and direct links to accredited verifiers and registries, ECOPAC simplifies a process that was becoming increasingly fragmented and time-critical.

Baltic shipowners are already feeling the impact of the EU ETS. With carbon allowances priced between €60-100 per tonne of CO_2, even modest reporting errors can translate into significant financial exposure. ECOPAC ensures accurate emissions monitoring aligned with MRV/DCS protocols, while providing predictive forecasting tools to help owners manage allowance purchasing and surrender strategies. Real-time alerts notify operators of data anomalies, reducing the risk of non-compliance or financial penalties.

For regional operators exploring dual-fuel vessels, biofuels, or onboard power systems, FuelEU Maritime represents an additional layer of decision-making. ECOPAC evaluates the well-to-wake emissions profile of different fuels, providing scenario-based modelling for future compliance. Baltic shipping companies navigating early-stage alternative fuel deployments, such as methanol in Sweden or shore power in Finland, can use ECOPAC to validate investments and prove performance to both regulators and clients. Several operators have already used ECOPAC's FuelEU Maritime forecasting tools to secure charters from environmentally focused cargo owners in Denmark and the Netherlands, who now require demonstrable progress on emissions as part of tendering.

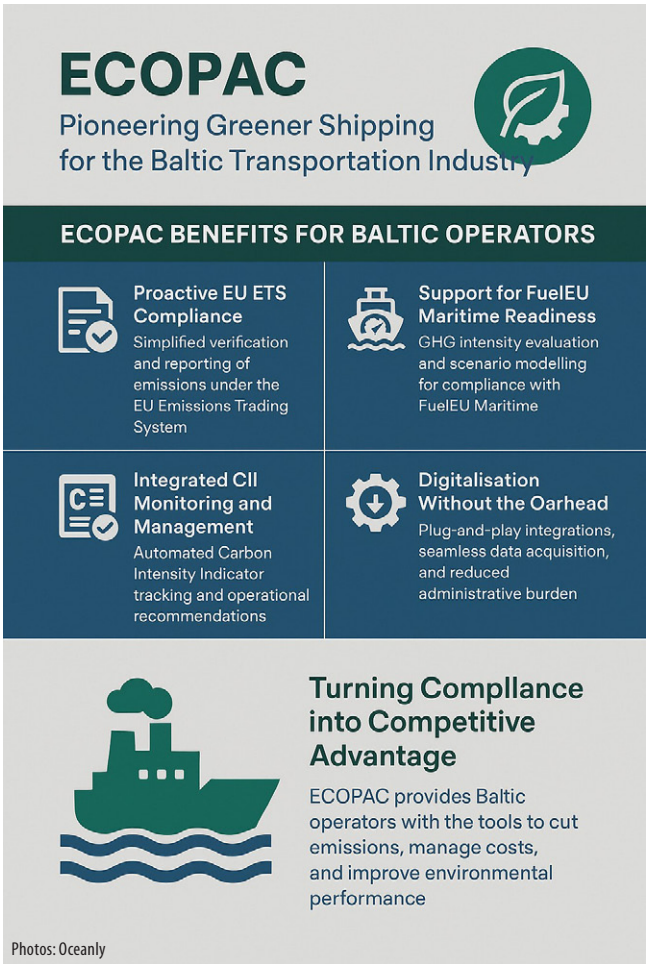
Passenger ferries and feeder container ships, common in the Baltic, are particularly vulnerable to CII degradation due to variable speed and port turnaround dynamics. ECOPAC tracks CII scores continuously and flags vessels trending toward lower ratings. With actionable insights, operators can adapt speed profiles, adjust voyage planning, or implement energy-saving technologies before commercial impact sets in.

Unified

A common barrier to compliance is the increased burden on seafarers and shore-side staff. ECOPAC is designed to reduce – not increase – manual workload and training requirements.

Rather than bolting on separate tools for each regulation, ECOPAC offers a unified platform. For smaller regional players, this means fewer administrative burdens, reduced crew workload, and consolidated audit trails. Integration with classification societies and chartering platforms also enables consistent ESG reporting across the supply chain.

The solution allows for mobile and offline data entry (crews can input data with offline syncing, reducing reliance on constant connectivity) and auto-validation checks (it catches data entry anomalies – e.g., unrealistic fuel use, inconsistent timestamps – before submission). There is also application-programming-interface integration with existing platforms (including ABS NS, DNV Navigator, and LR's OneOcean for harmonised workflows) and the option to



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set configurable alerts and KPIs (users can customise alert thresholds, e.g., fuel deviation >3%, CII slippage risk, to focus only on actionable events).

Quantifiable benefits

The Baltic region has long been a test bed for green maritime practices, through port electrification, LNG bunkering, slow-steaming initiatives, and collaborative governance. As a scalable and transparent platform, ECOPAC can support broader regional efforts by standardising emissions benchmarks across ports and flag states, facilitating cross-border reporting for voyages that span multiple Baltic jurisdictions, providing reliable data sets for public-private environmental initiatives and empowering logistics partners with clear, verifiable sustainability metrics.

These features position ECOPAC not just as a compliance tool but as a data infrastructure layer for broader decarbonisation strategies. Operators across Europe, particularly in emission-controlled and regulatory-heavy regions like the Baltic, North Sea, and Mediterranean, have already seen quantifiable benefits. For example, a mid-size container operator reduced average ETS costs by 8.7% across its EU-leg voyages through smarter routing and allowance forecasting, while a ro-pax operator improved its CII rating from D to C within two quarters using ECOPAC's degradation modelling and adaptive speed scheduling. Across all ECOPAC deployments to date, fuel savings of 3-6% have been consistently reported (depending on vessel type and operational flexibility).

From regulation to resilience

What makes ECOPAC especially relevant is its focus on pragmatism. While the energy transition brings long-term goals, shipping companies need solutions that deliver measurable results today. ECOPAC does not ask operators to overhaul their operations overnight. Instead, it gives them tools to understand, plan, and act accordingly. With environmental performance increasingly linked to chartering eligibility, access to finance, and customer loyalty, ECOPAC provides a bridge between regulatory pressure and business continuity.

The Baltic Sea is at the vanguard of maritime sustainability, and the pressure on operators is only set to increase. ECOPAC provides the tools to stay ahead by reducing emissions, optimising performance, and simplifying compliance. For stakeholders navigating this transition, it's not just about meeting the next regulation; it's about staying competitive in a sector that is being reshaped by climate policy, digitalisation, and market expectations. In this landscape, ECOPAC may well become a cornerstone for resilient and responsible shipping in the Baltic region.■

OCEANLY ECOPAC addresses a common inefficiency where vessels unnecessarily operate diesel generators at low load or keep electrical equipment active when it could be safely turned off. ECOPAC optimises onboard electrical systems to enhance operational sustainability. A standalone product, ECOPAC also works alongside Oceanly's other digital solutions, like Oceanly Performance for holistic fleet analytics and operational optimisation. Go to **theoceanly.com/ecopac** to discover more.