CONCEPT

Green Ports and Blue Economy: Port Emissions, Shore Power and Coastal Value

5 – 9 September 2027
Dammam - Eastern Province five-star



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Introduction:

Green ports and blue economy targets now reach port authorities through shipping lines, cargo owners, lenders and coastal communities, yet many ports still lack a berth-level emissions baseline, a shore power business case or a way to link port land and waters to fisheries, aquaculture, tourism and marine energy. This Core Concept course gives port environment, energy and planning staff the methods to quantify a port's carbon footprint, choose decarbonisation measures, control local impacts and position the port within a wider coastal economy. Participants produce a Green Port Roadmap for a case port.

Course Objectives:

- Compile a port emissions inventory that separates vessel-at-berth, cargo-handling, harbour craft, landside transport and building sources
- Evaluate shore power and electrified cargo-handling equipment options against grid capacity, vessel fitment and utilisation
- Assess readiness of a port to host alternative marine fuel bunkering and on-site renewable generation
- Control air quality, underwater and airborne noise, water discharge and dredged sediment impacts through an ISO 14001 environmental management system
- Design environmentally differentiated port dues and incentive schemes and screen blue finance options for port and coastal projects
- Build a phased Green Port Roadmap that links port decarbonisation to fisheries, aquaculture, coastal tourism and marine renewable energy stakeholders

Target Audience:

- Port authority environment and sustainability managers responsible for emissions reporting and environmental permits
- Terminal engineering and energy managers responsible for power supply, equipment electrification and utility contracts
- Port planning and development managers responsible for land use, expansion and coastal infrastructure projects
- Harbour master and marine services managers who coordinate berth operations, harbour craft and dredging campaigns
- Coastal and maritime economic development managers responsible for fisheries, aquaculture, tourism or marine energy zones
- Commercial and finance managers who set port dues and prepare funding applications for sustainability investments

Course Outline:

Day 1: Green Port Drivers and Port Carbon Footprint Baseline

- Green Port Drivers: Cargo Owner Demands, Lender Screening and Community Pressure
- Port Emission Source Map: Vessels at Berth, Harbour Craft, Yard Equipment and Trucks
- Activity-Based Emissions Inventory Method Using Fuel, Hours and Load Factors
- Scope 1, 2 and 3 Boundary Setting for Port Authority and Tenant Emissions
- Green Port Maturity Self-Assessment Grid for a Case Port

Day 2: Shore Power, Equipment Electrification and Clean Fuel Readiness

- Onshore Power Supply Architecture: Grid Connection, Frequency Conversion and Cable Management
- Shore Power Demand Profiling by Vessel Type, Call Frequency and Berth Time
- Electrified Cranes, Straddle Carriers and Yard Tractors: Charging and Duty Cycle Planning
- Alternative Marine Fuel Bunkering Readiness Checklist: Storage, Safety Zones and Supply Chains
- Harbour Craft and Port Fleet Transition Options Matrix

Day 3: Port Energy Management, Renewables and Environmental Management Systems

- Port Energy Balance and Load Curve Analysis for Terminals and Buildings
- Rooftop Solar, Wind and Battery Storage Siting on Port Land
- ISO 14001 Environmental Aspects Register for Port Activities
- Plan-Do-Check-Act Cycle Applied to Port Environmental Objectives and Audits
- Tenant Environmental Clauses and Contractor Environmental Performance Monitoring

Day 4: Local Impacts, Green Port Incentives and Blue Economy Finance

- Air Quality Monitoring Network Design Around Berths and Gates
- Underwater and Airborne Noise, Ballast and Stormwater Discharge Controls
- Dredging Impact Management: Turbidity Plumes, Contaminated Sediment and Beneficial Reuse
- Environmentally Differentiated Port Dues and Green Vessel Incentive Scheme Design
- Blue Economy Sector Linkages and Blue Finance Instruments for Coastal Projects

Day 5: Case Study Practice: Green Port Roadmap for a Case Port

- Fisheries Harbour, Aquaculture Zone and Coastal Tourism Interface Case Analysis
- Offshore Marine Renewables Service Port Opportunity Screening
- Stakeholder and Coastal Community Engagement Plan with Grievance Channel
- Green Port Roadmap Drafting: Measures, Phasing, Costs and Indicators
- Roadmap Defence Before a Port Board and Community Review Panel

Skills You Will Gain:

- Port Emissions Inventory Compilation
- Shore Power Feasibility Screening
- Cargo-Handling Equipment Electrification Planning
- Port Energy Load Analysis
- Environmental Aspects Assessment
- Dredged Sediment Impact Control
- Green Port Incentive Design
- Blue Economy Opportunity Mapping

Why Attend This Course:

- Take back a Green Port Roadmap with phased measures, indicators and funding routes for a port you know
- Answer shipping lines, cargo owners and lenders with a berth-level emissions baseline instead of estimates
- Judge vendor and consultant proposals for shore power, electrified equipment and renewables with confidence
- Exchange practice with port, terminal and coastal development managers from container, bulk, fishing and cruise ports

Conclusion:

A green port is measured by its emissions baseline, the power it supplies at the berth, the impacts it controls on water, air and seabed, and the value it creates for the coastal economy around it. The week moves from sustainability drivers and carbon footprint accounting, through shore power, equipment electrification and fuel readiness, to energy management and environmental management systems, then to local impacts, incentives and blue finance. The final day produces a Green Port Roadmap ready for review by a port board.