

Port Decarbonisation



Ports serve as the gateways for economic growth for the regions, cities and towns of which they are part. From modern industrial ports to small town harbours, port activities generate emissions of air pollutants and produce greenhouse gases through their operations.

Decarbonisation of port activities, together with controlling air pollution, are high priority issues that port operators, users and stakeholders must address. EARTH

Net Zero provides a platform for emissions visualisation and analytics, empowering Port Authorities, Port Operators, Shipping Operators and other stakeholders to monitor and evaluate air pollution and carbon emissions.

The EARTH Net Zero platform enables them to minimise environmental impacts, informs Decarbonisation and Air Quality Strategies and supports progress towards Port Net Zero and Port Clean Air goals.

EARTH Net Zero Services

Air Quality and GHG Emissions Baseline Audit

EARTH Net Zero comprises three services, the first is an audit providing a comprehensive baseline assessment of air quality and greenhouse gas (GHG) emissions associated with port operations. This approach enables prominent sources of emissions to be identified and provides unambiguous

evidence as to which emissions are the responsibilities of the port and which emissions originate from sources outside the port. Data generated by the EARTH Net Zero baseline audit include average yearly air quality and carbon dioxide emission rates, for analysing future trends in port emissions.

BENEFITS

Establish a Baseline: The basis for monitoring and assessing emissions to shape future strategies

Measure Emission Origins: Pinpoint primary emitters to inform control strategies

Support Informed Decision-Making: Set evidence-based targets for enhancing air quality

Promote Community Participation: Share air quality, emissions data and improvement initiatives with Port neighbours

DELIVERABLES

Technical Report on the current status of air quality and GHG emissions

An interactive dashboard to visualise the changing trends of emissions using near real time data

Recommendations for key elements to incorporate in Environmental Sustainability Plans

Consultancy services providing insights that inform and support the development of Strategic Plans

Air Quality and GHG Emission Continuous Monitoring

The second EARTH Net Zero service is continuous monitoring of air quality and GHG emissions postbaseline. This offers ports data-driven analytics for reporting on Scope 1, Scope 2, and Scope 3 carbon emissions.

This empowers port operators to showcase potential efficiency improvements and provides accurate data for reporting to verification authorities and stakeholders,

leveraging the capabilities of EARTH Net Zero for enhanced sustainability tracking.

Regular data collections provide the means to monitor prominent emitters for informing environmental sustainability strategies. Hourly monitoring illustrates cyclic dependencies on external factors such as seasonal activity, climate and weather-related factors.

BENEFITS

Identify Pollution Sources: Vessel, port and neighbourhood road traffic, and machinery emissions

Differentiate Port vs. Non-Port Emissions: Quantify local impact

Monthly, Seasonal and Annual Emission Inventories: Aids benchmarking and maintaining strategies

Demonstrate Efficiency Gains: Enhance service with continuous air quality monitoring

Hourly Monitoring and 24 Hour Forecasting: Near real-time emission concentrations in the port environment

DELIVERABLES

Continuous monitoring to distinguish between port and non-port emissions

Accurate data for carbon footprint reporting and emissions reduction

Cloud-based platform for visualising pollution with filtering

Secure API integration with existing environmental management system

Monthly/quarterly/annual summary reports



Clean Energy Audit

An extensive evaluation of port infrastructure and its vicinity to determine the viability of renewable energy production and incorporation. The EARTH Net Zero offers impartial technical and economic evaluations, such as

assessing rooftop solar energy potential and devising battery storage solutions to ensure round-the-clock renewable energy provision.

BENEFITS

Unbiased Assessment: Identifying technical and economic potential for 24/7 renewable energy

Clean Energy Potential: Focus on solar PV, battery storage, micro-wind, and water heat pumps

Economic Analysis: Evaluating cost-effectiveness of clean energy projects

Environmental Impact: Understanding carbon reduction potential

Community Engagement: Promoting clean air initiatives locally

DELIVERABLES

Stakeholder engagement sessions arranged throughout the feasibility study to gather insights on limitations and strategies

Suitable site assessments report on land, building and water locations for the installation of renewable energy solutions

Installation recommendations including proposals for actions based on assessments

Comprehensive findings report to provide detailed documentation of the study outcomes

