



BORNEO INTERNATIONAL MARITIME WEEK 2025

Gearing towards a sustainable Maritime Logistics Hub for BIMP EAGA

Date: Tuesday 28 to Thursday 30 October 2025





BORNEO INTERNATIONAL MARITIME WEEK 2025



28th to 30th October 2025 at Promenade Hotel Bintulu, Sarawak Malaysia



Hosted by Bintulu Port Authority and supported by MOTS, MIPD, Business Events Sarawak; BIMP-EAGA Transport and CILT(Sarawak)



Presenter: Capt. Zakhir Khan from Bintulu Port Authority, Malaysia

«THEME: INTEGRATING A SUSTAINABLE STRATEGIC FRAMEWORK IN OPTIMISING PORT MANAGEMENT SYSTEMS FOR IMPROVED TERMINAL EFFICIENCIES through BIMP-EAGA Region



CO₂

CO₂

CO₂

Leveraging Greenhouse Gas Inventory Management Systems to Drive Sustainable Port Operations and Enhance Terminal Productivity



Introduction

- The maritime and port industry faces mounting pressure to decarbonize
- Sustainability is now a core driver of operational strategy
- GHG Inventory Systems can align environmental and productivity goals



BINTULU SMART DIGITAL GREEN PORT

- Bintulu Port is one of the largest single point LNG export terminal in the world and serves as import export gateway for Sarawak and the Brunei – Indonesia – Malaysia – Philippines East ASEAN Region Growth Area.
- In 2019, we launched the 'SMART DIGITAL GREEN PORT BLUE PRINT
- A framework integrating UN SDG, target, ESG digitalization pillars and port productivity.
- Our phase:
 - Smart digital transformation, and
 - Certified Carbon Neutral port by year 2030





BINTULU PORT AUTHORITY

BINTULU SMART DIGITAL GREEN PORT – OUR JOURNEY

SUSTAINABILITY INITIATIVES BY PORT AUTHORITY

- Smart Digital Green Port (SDGP) Blueprint development
- SDGP Management Training
- SDGP MRV Training
- SDG Scoring Training
- SDGP Action Plan Workshop
- ESG Awareness Training
- 2023 Bintulu Port Air Emission Inventory Report
- Green Management System software development
- Air Quality Sensors Installation
- Air Emissions Reduction Strategy document

*Targeting
EcoPorts
Certified Green
Port*



2025

Covid-19 Period

2020

2022

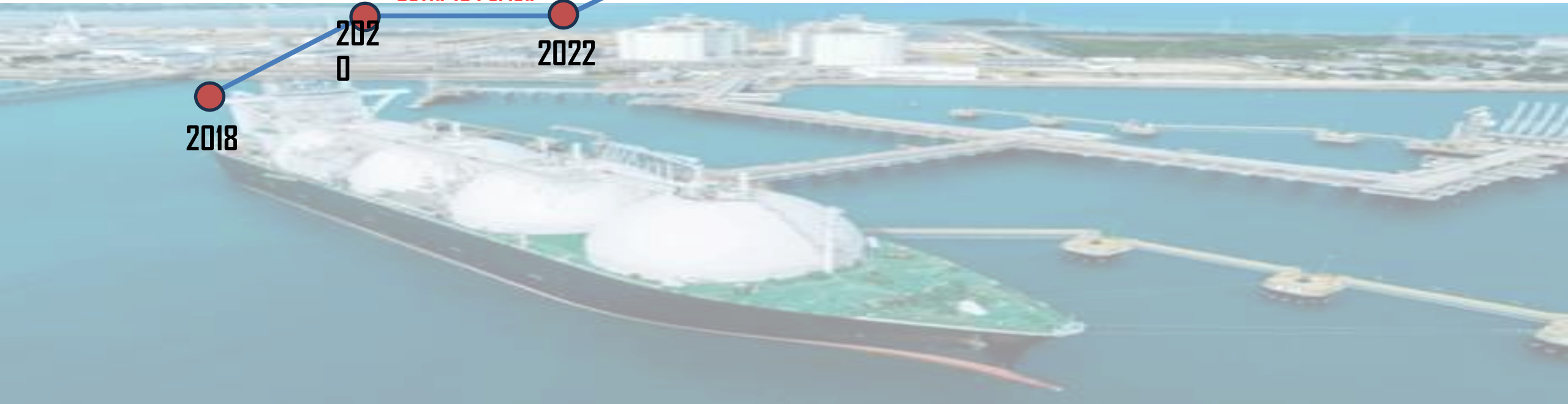
2018

2030

Aligning with IMO reducing at least 40% GHG Emissions compared to 2008 levels

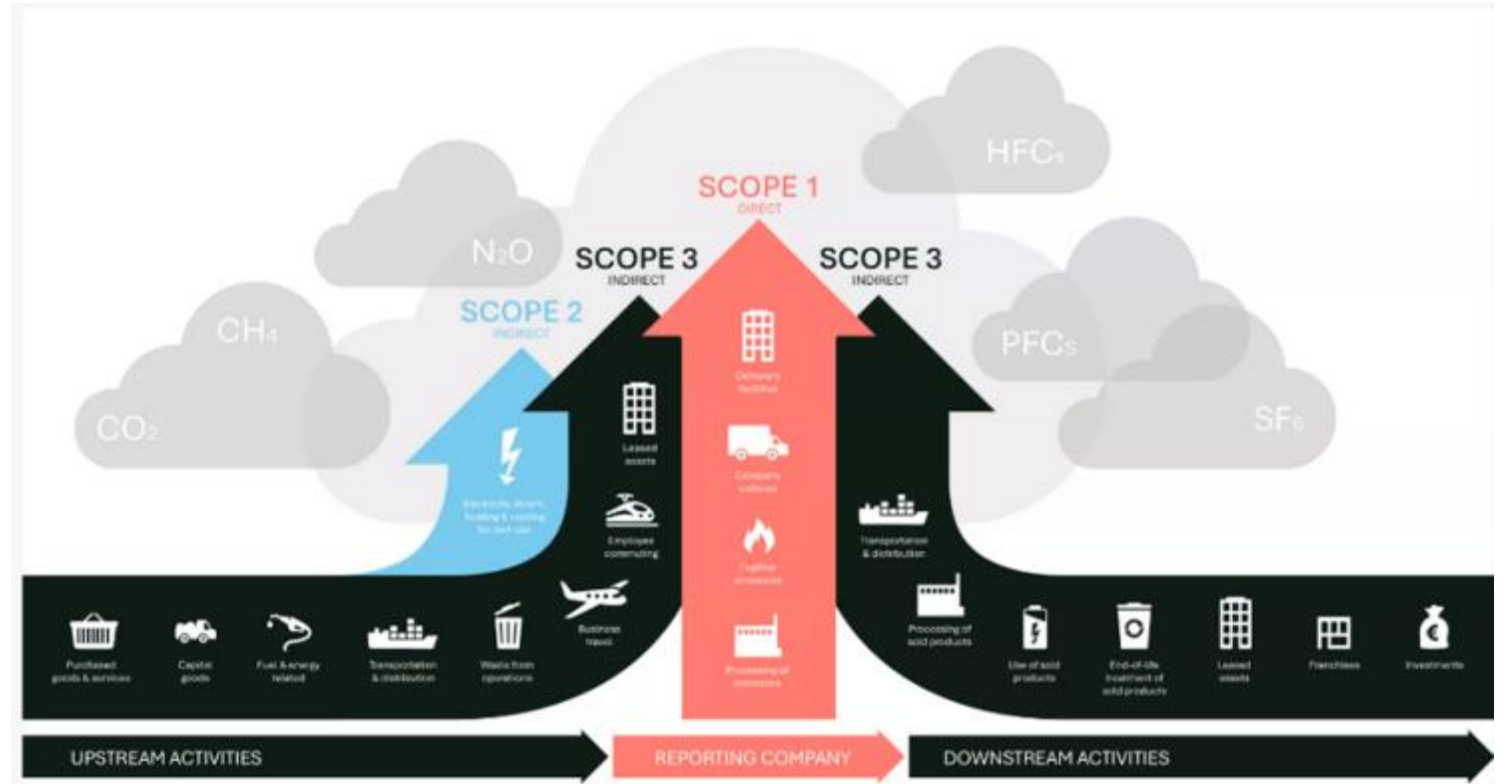
2050

Aligning with IMO Net-Zero GHG Emissions



What is a GHG Inventory Management System?

- A structured approach to measure, record, and report GHG emissions
- **Covers Scope 1** (direct),
- **Scope 2** (indirect from energy),
- **Scope 3** (supply chain, vessel emissions, etc.)
- Enables data-driven sustainability strategies
- Intensity – for comparison



Benefits of Emission Inventory Management

- Accurate Emission Tracking
- Informed Decision-Making
- Regulatory Compliance
- Operational Efficiency
- Enhanced Stakeholder Trust
- To align with the State Post-COVID-19 Development Strategy (PCDS) and Smart Sarawak Blueprint

F360 EIMS

WHAT'S NEW Just shipped version 0.1.0 >

Emission Inventory Management System (EIMS)

A centralized digital platform for monitoring, calculating, and managing greenhouse gas emissions across Bintulu Port's operations.

[Get Started](#)

Sign Up

BINTULU PORT AUTHORITY

GENERAL

- Dashboard
- Data Entry**

MAINTENANCE

- User Maintenance
- User Role Maintenance
- Sensor Maintenance
- Record & Data Maintenance
- Report Maintenance

Data Entry

STEP 1
Input Sectors Info

Sectors

Fuels Bioenergy Refrigerant & other

Electricity Electricity for EVs SECR k

Transmission & Distribution Electricity T&T

Business Travel - Air Business Travel - Sea

All Bin Abu

Bintulu Port Authorities

Sub-sector

INTRODUCING

About EIMS - Bintulu Port

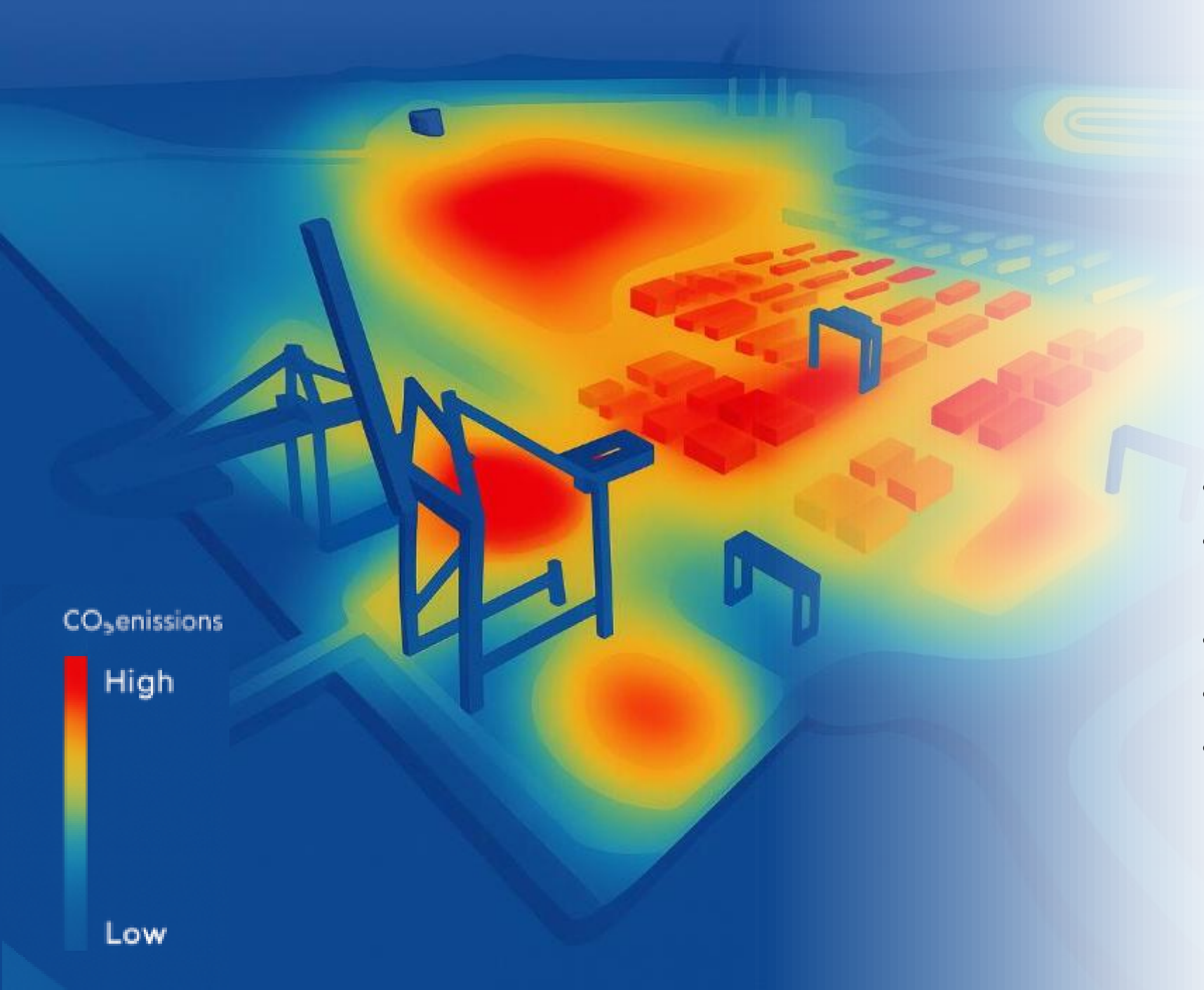
Emission Hotspots in Port Operations

- Cargo handling equipment
- Vessel berthing and auxiliary power
- Truck and rail operations
- On-site power generation
- Building energy consumption

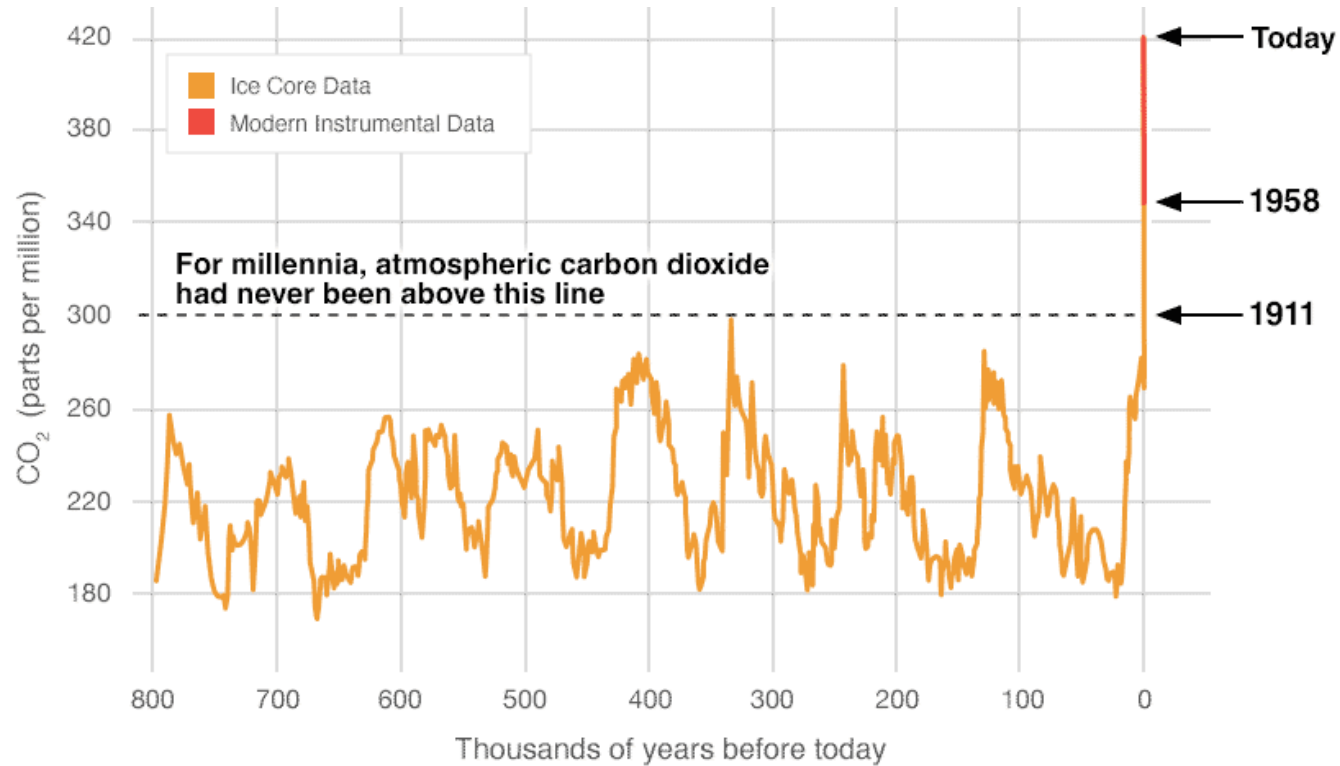
CO₂ emissions

High

Low



Enhancing Productivity with Emission Data



- Identify inefficiencies (e.g., fuel overuse, idle times)
- Optimize scheduling and equipment utilization
- Reduce energy waste = cost savings + lower emissions
- Comparison against Standards and Good Practices of other ports

Compliance & Reporting Advantages

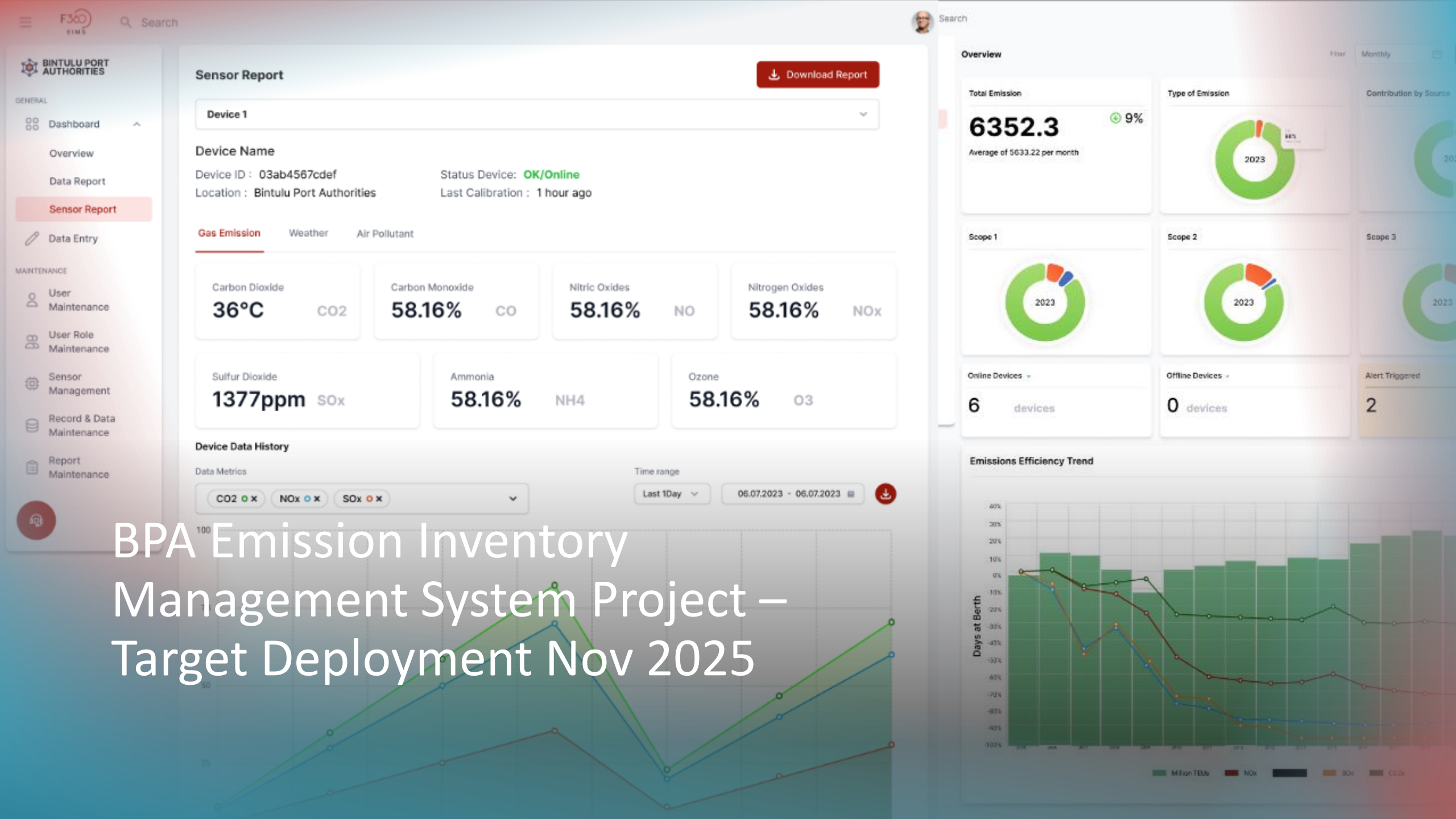
Reporting

- ✓ IMO DCS
- ✓ EU MRV
- ✓ ISO 14064

Optionals



- Meet international standards: IMO DCS, EU MRV.
- Green Port & Smart Port
- Automate reporting with integrated software
- Avoid fines and improve eligibility for green certifications





GENERAL



Dashboard



Overview

Data Report

Sensor Report



Data Entry



Overview

Filter

Monthly



Download

Total Emission

6352.3

↓ 9%

Average of 5633.22 per month

Type of Emission



Contribution by Source



Scope 1 by Gases



Scope 2 by Gases



Scope 3 by Gases



Online Devices

6 devices

Offline Devices

0 devices

Alert Triggered

2



Key Takeaways

- GHG inventory systems are essential for sustainable port operations
- They improve compliance, reduce costs, and support ESG goals
- Aligning environmental tracking with productivity makes ports more competitive

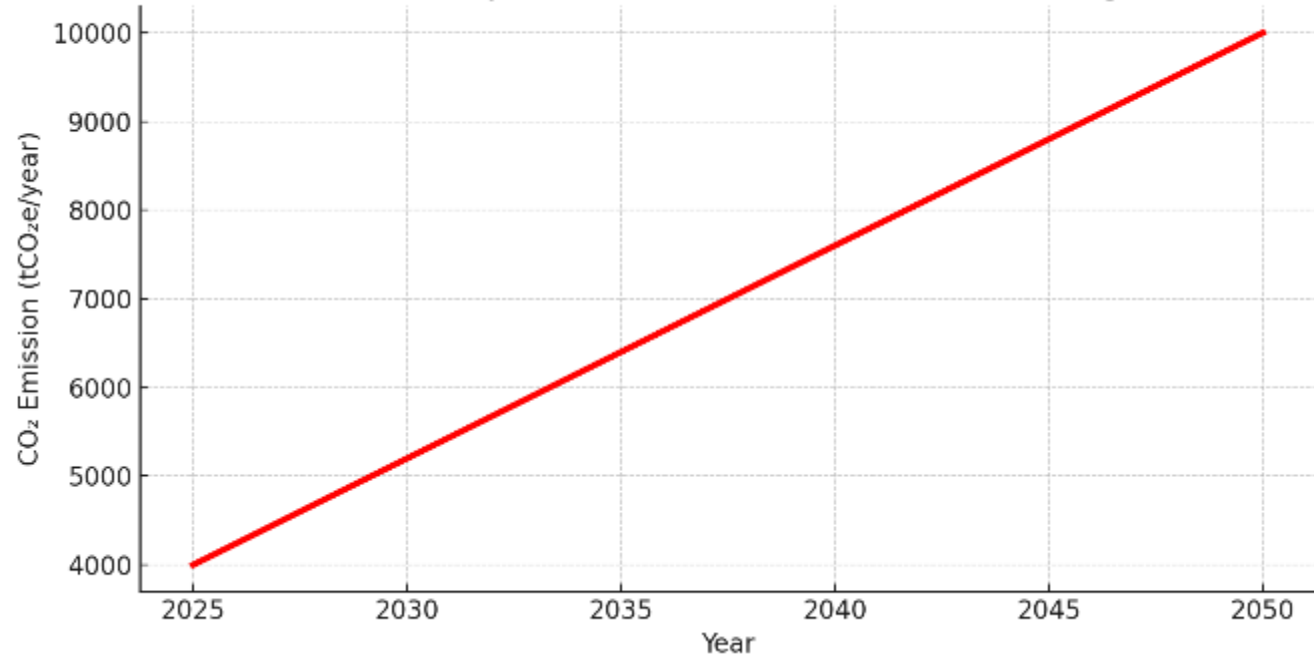
Next Steps

- Assess current GHG tracking capabilities
- Identify emission sources and data gaps
- Implement or upgrade to a scalable GHG inventory system
- Train teams and integrate into decision-making



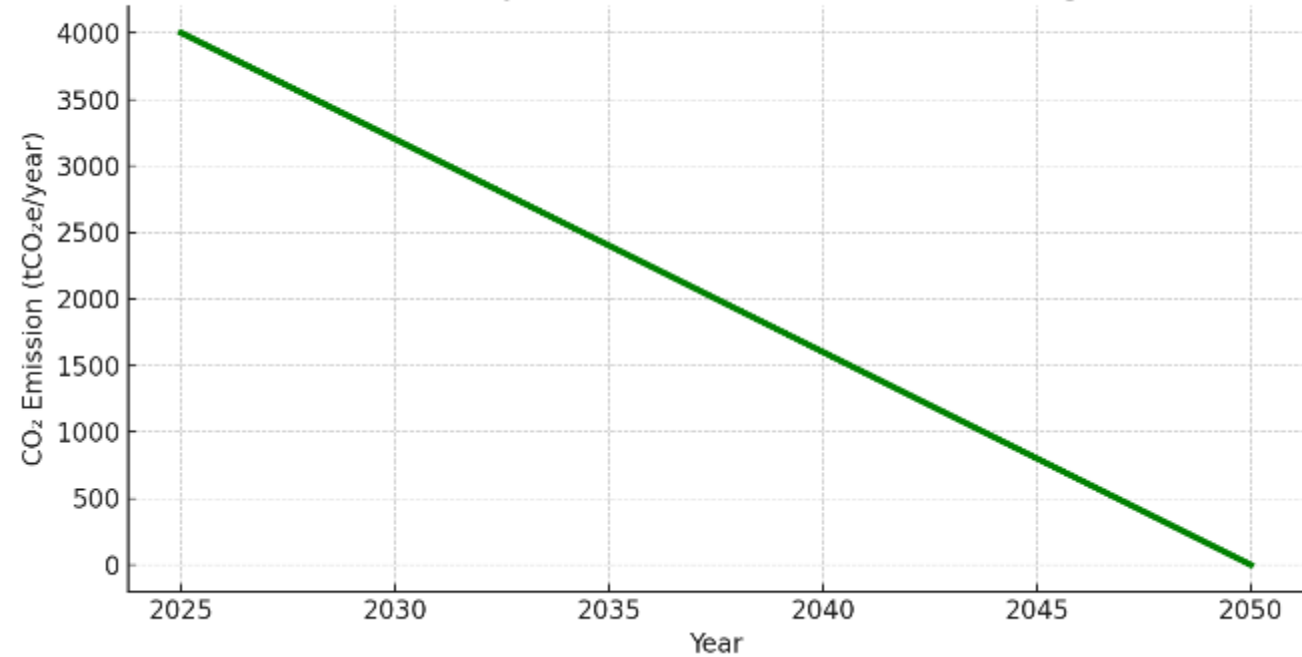
Scenario 1: CO₂
Emission
Projection without
Environmental
Management
(2025–2050)
Emission continue
to rise as cargo
volumes increase

Scenario 1: CO₂ Emission Projection without Environmental Management (2025–2050)

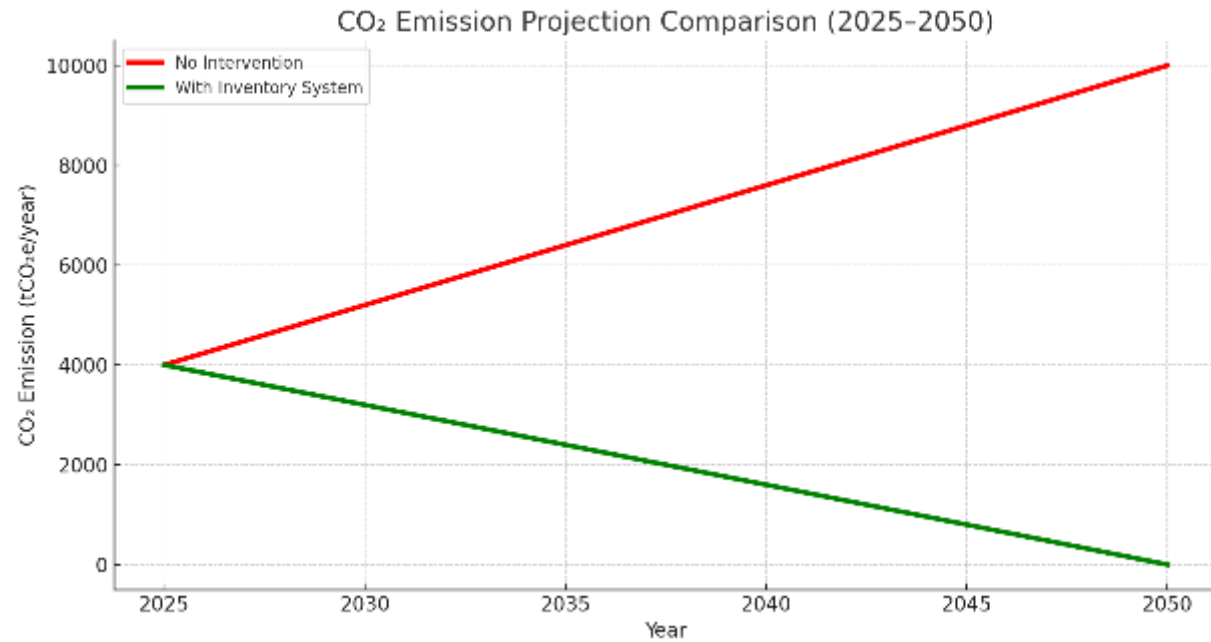


Scenario 2: Active Emission CO₂ Environmental Management (2025–2050)

Scenario 2: CO₂ Emission Projection with Environmental Management (2025–2050)



Scenario Comparison: CO₂ Emission Projection (2025–2050)



BPA EIMS Future Upgrades:

- Connect GHG inventory tools with Port Community Systems (PCS)
- Support predictive analytics and long-term planning through AI



EIMS + AI: The Next 12-Month Leap Forward by 2026

- Upgrade Timeline & Impact:
- Q1–Q2 2026: Integrate AI predictive modules → Detect anomalies, forecast emission
- Q3 2026: Automate compliance reporting (IMO DCS, EU ETS, Sarawak Ordinance)
- Q4 2026: Expand data exchange → Shared carbon intelligence platform

EIMS transforms Bintulu Port from a data collector to a catalyst — powering Sarawak's net-zero vision and connecting BIMP-EAGA ports into one green digital ecosystem.



Starakiny Initiatives

SET-P 2025

GHG accounting
→ policy feedback

SHER 2025

Verification for
hydrogen exports &
low-carbon logistics

Sustainability Blueprint 2030

State-wide ESG
transparency

Regional/Global Linkages

BIMP-EAGA GREEN CORRIDOR NETWORK

- Port-to-Port-CO₂ baseline sharing
- Green bunkering verification (H₂/ammonia) or smelter?
- Trade lane carbon-neutral certification

Outcome: Bintulu Port becomes the
Data Anchor Port for regional decarbonization

ENVIRONMENTAL INVENTORY MANAGEMENT SYSTEM EIMS (BPA)

- Real-time GHG tracking
- AI predictive analytics
- ESG dashboard & auto-reporting

Smart Port Data Sources



Cranes



EV
fleets



Vessels



Buildings



Renewable
Energy



Hydrogen
Refueling



Hydrogen
Refueling

Smart Port Data Sources

Environment Inventory System launch by Bintulu Port Authority directly supports and align with the Sarawak Government's sustainability, energy transition , hydrogen economic initiatives



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