



BHC3 Sustainability

AI-Enabled GHG Emissions Reduction and Energy Optimization

BHC3™ Sustainability is an AI-enabled SaaS application that provides oil and gas companies data-driven insights to meet their immediate and long-term sustainability objectives. BHC3 Sustainability leverages advanced AI and optimization approaches to model operations, baseline greenhouse gas (GHG) emissions, water, and waste across all plants, assets, and processes, identify high-value reduction opportunities, detect anomalies, and help both plant and sustainability managers prioritize sustainability improvements.

BHC3 Sustainability creates a unified federated image of data from all relevant data sources across upstream, midstream, and downstream activities including data historians, meters and sensors, industrial control and SCADA systems, energy and fuel purchases, process analyzers, mass balance systems, asset information (EAM, ERP), maintenance records, and custom, purchased, and public emission factors.

By applying advanced machine learning on top of the unified data, BHC3 Sustainability enables holistic monitoring and modeling of energy usage and emissions at the product, equipment, or facility level. Users can create projects, and automatically calculate emissions, waste, and water reduction ROI as projects are completed, and track progress against long-term targets. BHC3 Sustainability also utilizes advanced AI to identify operational anomalies that impact sustainability objectives (e.g., steam boilers that require operator intervention to reduce energy usage) and identify the highest value opportunities to meet energy, cost, and sustainability objective.

Feature Summary

- **Continuous GHG Emissions Analysis** – Continuously convert and analyze all energy and operational activities into Scope 1 and Scope 2 emissions (CO₂, CH₄, SO₂, N₂O) across the refinery, production fields, transport networks, or other assets
- **Product Carbon Labelling** – Calculate emissions generated upstream and during production for each O&G product offering and publish real-time emission factors to stakeholders (e.g., customers)
- **Continuous Energy, Fuel, and Process Impact Analysis** – Generate aggregate and granular insights on energy usage trends in near real-time using configurable KPIs, benchmarking, and time series visualization
- **Product Unit Emissions Benchmarking** – Benchmark units and production equipment across refineries and plants with configurable emissions and emissions production intensity KPIs to identify outliers
- **Methane Leaks Detection** – Detect, predict, and prevent methane leaks using sensor data and ML algorithms to detect anomalies in mass and flow balance
- **Flare Monitoring** – Utilize NIR process analyzers and flow meters to track, aggregate, analyze, and report on flare gas emissions across refineries and plants
- **Carbon Capture and Utilization for EOR** – Automatically calculate avoided emissions associated with both carbon capture and enhanced oil recovery (EOR) associated sequestration
- **Green Hydrogen Scenario Analysis** – Analyze emissions ROI from transition of existing grey H₂ production processes to blue (CCS) and green (electrolysis) hydrogen production
- **Project Analyzer** – Assemble, prioritize, and execute a portfolio of sustainability improvement projects
- **AI Measurement & Verification** – Leverage tailored ML models to continuously calculate cost and carbon savings due to sustainability projects

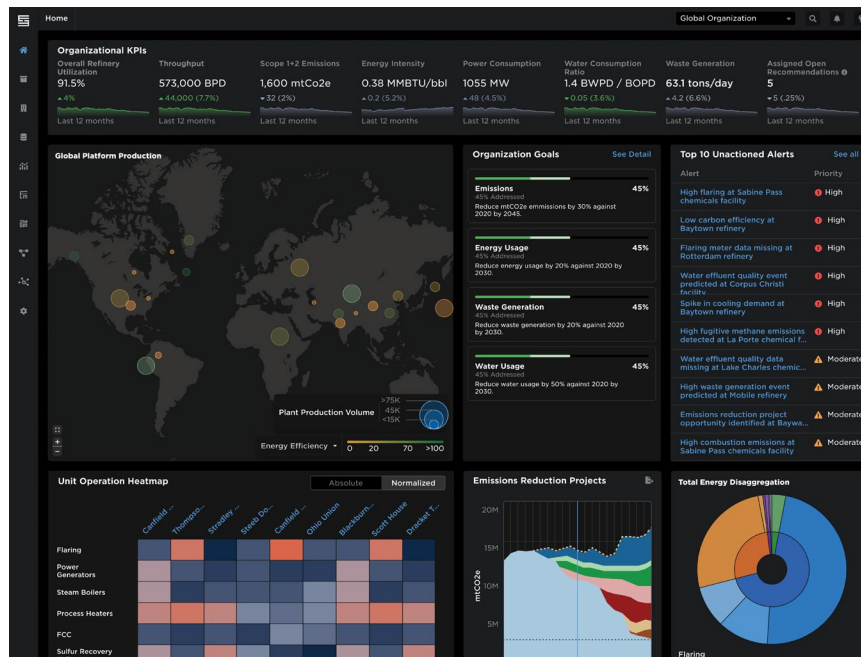


Figure 1. BHC3 Sustainability provides sustainability managers with a real-time dashboard to monitor enterprise-level sustainability performance.

Powerful Analytics to Enable Operational Insight and Sustained Progress Towards Emissions, Waste, and Water Reductions

With BHC3 Sustainability, oil and gas companies can:

- Accelerate the energy transition by gaining a comprehensive understanding of the carbon footprint through a streamlined analysis of Scope 1 and 2 emissions
- Gain visibility into emissions at various levels of the operation e.g., individual units, plants or O&G products
- Identify, manage, and prioritize sustainability initiatives and track against sustainability goals across the enterprise
- Demonstrate and disclose the impact of carbon capture and storage processes and associated equipment performance
- Reduce the likelihood, volume, and emissions impact of methane leaks, a major source of GHG emissions in the industry
- Rapidly configure and deploy solutions using intuitive self-service tools for analytics, dashboards, and data integrations

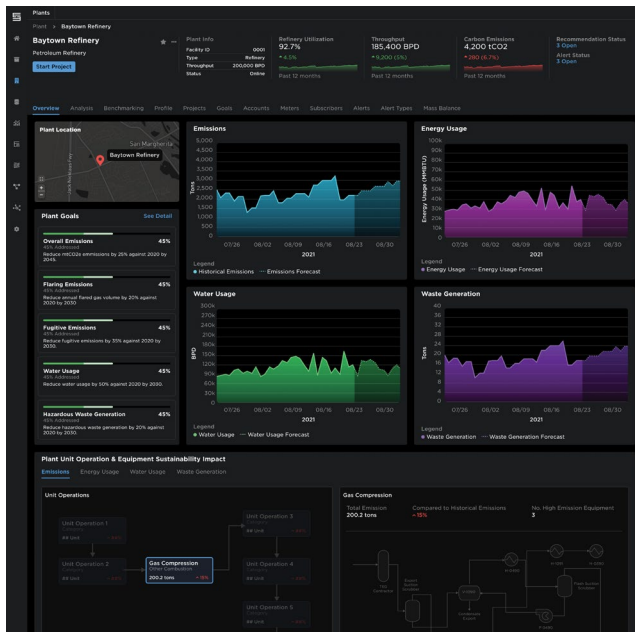


Figure 2. Using BHC3 Sustainability, plant and sustainability managers can create and track performance at the facility, unit, and major equipment level to identify improvements.

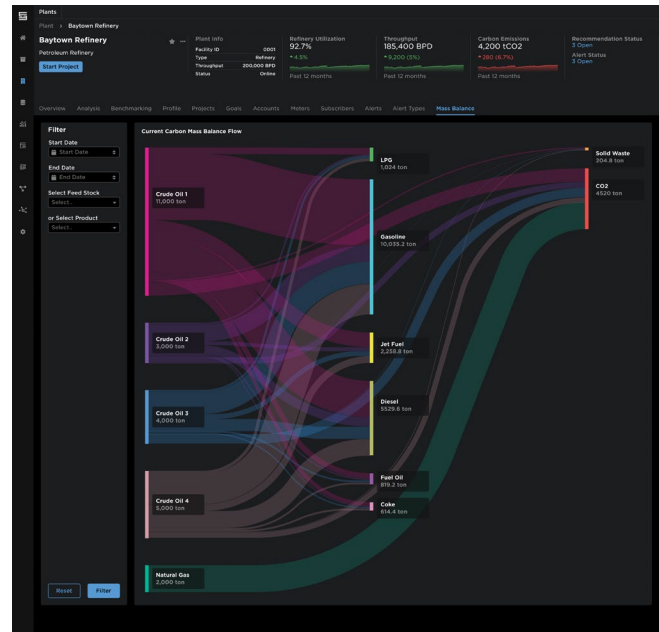


Figure 3. With BHC3 Sustainability, plant and sustainability teams can track emissions associated with individual feedstocks and products.

Proven Results in 8-12 Weeks

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