

BHC3 Production Optimization

Field-Wide Optimization of Well and Surface Network

BHC3™ Production Optimization is an AI-enabled application that enables production engineers to visualize, analyze, and optimize upstream production operations. With BHC3 Production Optimization, energy companies can leverage advanced AI and analytics to increase production volumes, improve visibility into dependencies between injection and production wells, back allocate well production more accurately, and investigate and prevent production losses.

BHC3 Production Optimization generates virtual meters to estimate flow rates and pressures throughout the production network, unifies disparate data to form a single pane of glass, and predicts the influence of injection wells to producers. The application can be configured for specific operating conditions to provide users with alerts, interpretable insights, and recommendations to optimize profitability across the field by maximizing production while minimizing capital and operational expenses.

Feature Summary

High Accuracy Virtual Metering

Leverages unique physics-based models of surface system networks coupled with AI-enabled meter estimations to generate a virtual metering network.

Prioritized Alerting with RCA Enablement

Reduces the number of unnecessary alerts through AI-enabled detection and categorization of sensor and production alerts.

Production Back Allocation

Enable users to back allocate flow and identify bottleneck and low-producing wells throughout the network.

Injection Well Optimization

Provides recommendations for operating conditions at an injection well level to optimize field production.

Surface Network Visualization

Visualizes the surface network by leveraging the surface system model and display measurements, predictions, and alerts.

Sensor Location Recommendation

Optimize where to install physical sensors to significantly increase accuracy across the network.

Data Integration and Visualization

Integrate disparate data sources such as surface network models, asset data, wellbore drilling data, reservoir and production models, time series historians, terminal, and SCADA data into a single view.

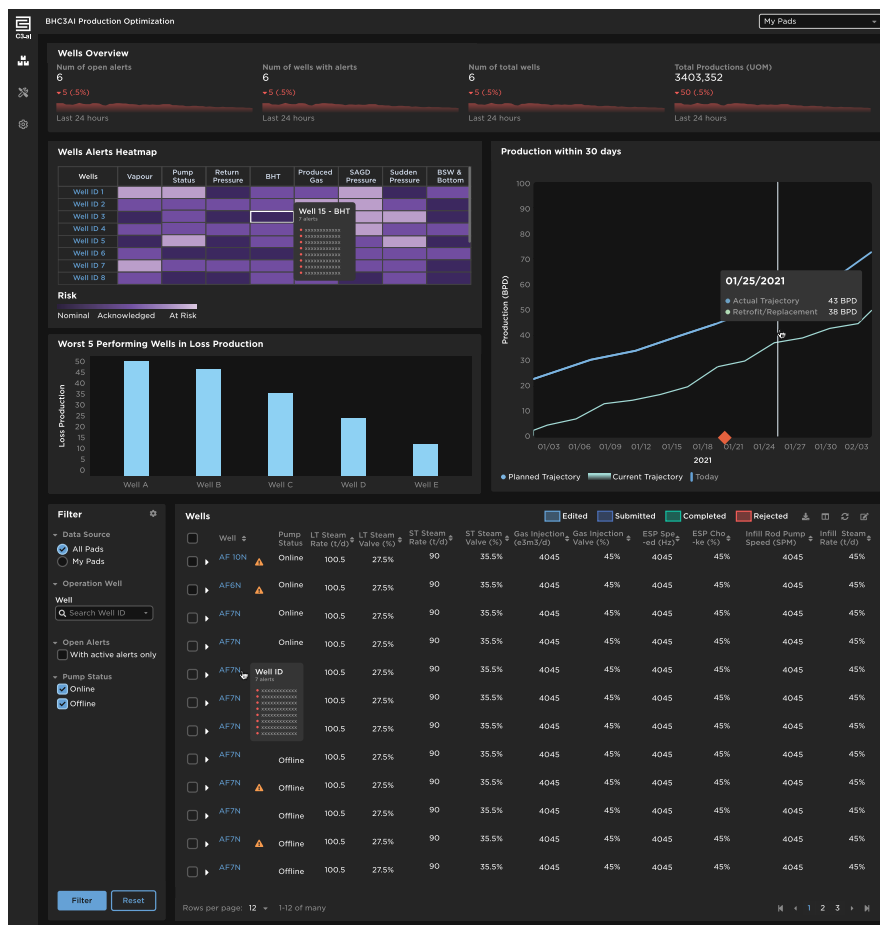


Figure 1. BHC3 Production Optimization dashboard provides a single source-of-truth with prioritized risks across wells, virtual metering performance, production forecasts, and recommended actions.

BHC3 Production Optimization Increases Production Rates and Reduces Operational Expenses

Using BHC3 Production Optimization, field engineers and operators gain the ability to:

- **Identify and prioritize production risks for each well** by identifying anomalies, deviations, and sudden changes (e.g., pressure, pump speed or temperature) at specific well sites or throughout the network.
- **Optimize gas lift wells** to improve gas allocation across wells in a reservoir.
- **Analyze a network of physical and virtual meters** by monitoring performance, estimating missing values from poorly or periodically instrumented wells, and predicting flow at wells and nodes.
- **Back allocate flow** to estimate well production and accurately predict individual well performance without adding physical sensors.
- **Forecast field-wide and individual well production** to predict future output and identify improvement areas to maximize production.
- **Quantify production uncertainty** by pinpointing sensors that require re-calibration, new placement, or replacement, and identify sensor issues or locations that are contributing to production losses.
- **Generate and immediately dispatch operations**, review standardized reports, and take action from within the application to resolve issues on the field.
- **Unify disparate data sources**, enabling users to view integrated operations, production, and physical and virtual sensor data in a single pane of glass.



With BHC3 Production Optimization, energy companies can:

- **Increase production rates** through improved field- and well-level analyses leading to optimal injection and investment decisions.
- **Reduce operational expenses** by improving artificial lift efficiency, prioritizing inspections, and leveraging virtual sensors to minimize physical sensor costs.
- **Reduce operational investigation** workload through AI-enabled production analysis tools.
- **Improve safety** due to enhanced visibility of production issues at both the individual well level and across the integrated oilfield.

Figure 2. BHC3 Production Optimization reservoir page presents a comprehensive view of reservoir and well pressure, and recent shut-ins across reservoir.

Proven Results in 8-12 Weeks

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