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a GE company

Improving Production Outcomes with AI

The Challenge

Optimizing multiple wells traditionally involved an operator who probed digital twins or models using point software solutions to find operating conditions that met a number of constraints.

In better deployments, this optimization was done with an optimization algorithm that probed these models. However, even when automated, optimization algorithms typically required a large number of runs on individual well models to test different permutations that worked under defined constraints.

For example, optimizing 20 wells simultaneously to find the global optimum operating condition could easily require 100 runs of each well model resulting in 2000 runs of well models. Depending on speed of individual models, this could easily take several hours or days.

BHGE Applied AI Benefits:

- Addresses the entire lifecycle of analytics development and deployment, at scale
- Automates access to disparate data silos
- Enables analysis in minutes vs. weeks/months with a vast catalog of data cleansing and analysis techniques
- Deep Learning techniques offer continual learning and refinement

The Solution

BHGE's multi-well optimization capabilities allow for ultra-fast optimization of electrical submersible pump (ESP) driven wells that share common topside infrastructure like water disposal, separators, and power supply.

With a focus on increasing oil recovery, efficiency, and profitability, as well as reducing cost and managing resources, IntelliStream drives production optimization across wells, networks, facilities, and people, while remaining equipment agnostic and leveraging AI at the heart of decision making.
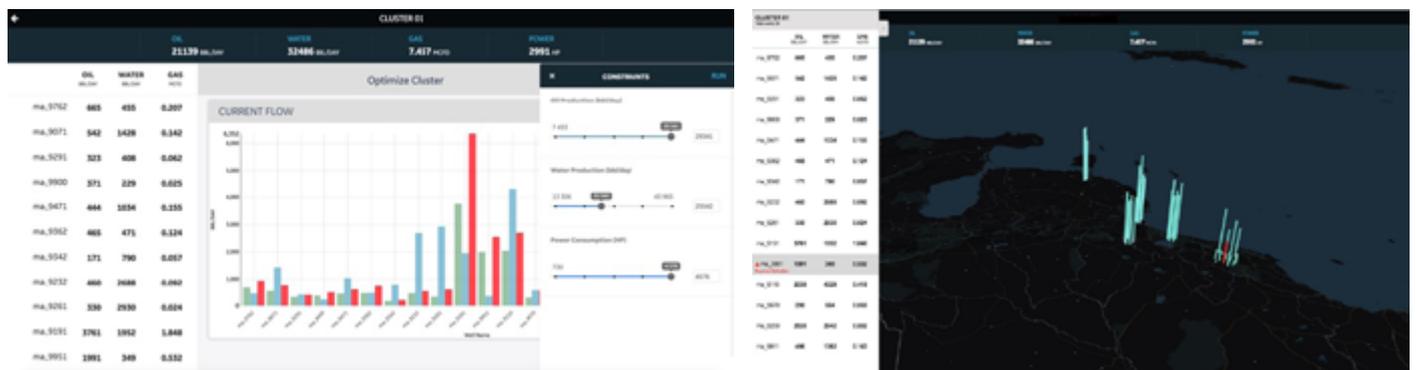
Ultra-fast Optimization

BHGE has developed an ultra-fast optimization technique that has been coupled with accelerated models that have been deployed on parallelized cloud computing systems to achieve the same outcome in seconds.

For example, a field of 20 ESP wells can now be optimized in under 10 seconds. This gives operators the ability to perform what-if analysis, by relaxing or adding constraints to envision different scenarios. Further, such an optimizer brings consistency and repeatability to optimization.

Combined with a state-of-the-art UI and cloud-based solution, operators can access well data, calibrate digital twins, and perform optimization in under a minute with a few clicks.

What is IntelliStream?

An enterprise production optimization solution, utilizing artificial intelligence at the core of decision making. IntelliStream enables truly predictive capabilities, delivering increases in oil and gas recovery and addressing non-productive, unplanned downtime and associated costs. It turns data from a client's assets, reservoir, operations, maintenance, and people into actionable insights to help customers deliver a step change in productivity.

Learn more at: bhge.com/IntelliStream

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