



## CUSTOMER CASE STUDY

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# bp sets up commercial CO<sub>2</sub> emission modeling for refinery operations using AVEVA supply chain optimization

bp - [www.bp.com](http://www.bp.com)  
Oil and Gas

## Goals

- Leverage advanced cloud computing and automation for a standardized approach across refinery operations, to deploy models faster and sustainably
- Introduce the ability to model CO<sub>2</sub> emissions within each bp-operated refinery to provide new insights to track and manage CO<sub>2</sub> emissions

## Challenges

- Providing a single, global tool and data set to align heritage work practices and provide improved planning performance with sharing of expertise and visibility of results across the refineries
- Standardizing modeling of CO<sub>2</sub> emissions globally across the network of bp-operated refineries

## Solution

- AVEVA™ Unified Supply Chain

## Results

- bp's refineries have implemented an improved and easy-to-use planning tool, with the capability to model many different scenarios and return results at pace
- Simplified decision-making that can be performed faster using one optimization tool, delivering competitive advantage
- Margin improvements through improved decision-making capabilities
- Improved CO<sub>2</sub> emissions modeling capabilities that can be used to plan, test and evaluate strategies for carbon reduction

bp is aiming to be a very different kind of energy company by 2030, from an international oil company to an integrated energy company. One component of its strategy is resilient hydrocarbons, from exploration and production to the transportation, refining and marketing of oil and gas. Underpinning its ambition, the company aims to be net zero across its entire operations on an absolute basis by 2050 or sooner.

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“Modernizing our digital capabilities is a fundamental enabler towards our sustainability goals. AVEVA’s latest software solutions - with more intuitive user experiences, greater levels of automation, and delivery in the cloud – helps what we can deliver and achieve.”

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**Rob Kelly**

VP Digital, Production, Manufacturing & Projects

## Improving supply chain management

bp drives value in its global business by identifying the optimal oil balance and operating plans for its refineries and downstream distribution networks. This is done by evaluating multiple scenarios in the cloud, using AVEVA’s Unified Supply Chain and calculation software. The solution enables bp’s teams to make fast and more informed decisions that consider live market and operating conditions, such as the crude spot price, refinery operational data and the optimal refinery production mix and distribution approach. In the past, it was challenging for energy companies to optimize both their supply and distribution networks and their plant operations as to do so typically required different models and software applications.

AVEVA Unified Supply Chain optimizes the entire value chain in one model. It can also be used to factor-in exchange agreements with other companies, the spot price and other external variables, meaning that bp can operate its refineries at an improved rate to drive value in end markets.

The net impact is that bp’s teams get the insight they need to make rapid, accurate decisions with confidence, knowing that refinery operations can flex with the model to meet bp’s requirements.

bp’s teams have found this approach to be beneficial, through a quick, accurate and transparent set of data and models. The time benefits are dramatic too – individual calculation times have fallen from seven hours to four minutes, while optimization decisions that used to take two days now take two hours. This enables bp’s trading teams to make more informed risk-based crude purchase decisions.

Adopting the solution as a standard in bp’s downstream business has improved global collaboration.

## Modeling CO<sub>2</sub> emissions to help drive reductions

bp’s digital manufacturing team chose to add CO<sub>2</sub> modeling capabilities into its existing AVEVA Unified Supply Chain solution, building on the existing strong co-innovation partnership. This would enable bp to understand the options that could potentially reduce CO<sub>2</sub> emissions within each of its seven refineries.

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“We’ve seen the commercial benefit from our cloud-based AVEVA Unified Supply Chain solution – improved margins, and faster data access and decision-making in our refineries – by modeling and optimizing our downstream value chain. We recognized that we could gain further value from our solution by introducing a CO<sub>2</sub> layer to model emissions.”

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**Richard Goddard**

Commercial Tools and Development Manager, bp

## Downstream business can identify robust operational strategies

bp introduced the enhancements to its AVEVA Unified Supply Chain solution running across seven refineries, taking only weeks to complete. AVEVA's solution models CO<sub>2</sub> emissions from the consumption of energy used to power the plants, and from the refinery operations themselves, using the data to build a pattern-based model of CO<sub>2</sub> emissions. This integrated model enables bp's teams to understand and evaluate the impact of CO<sub>2</sub> emissions for different scenarios.

As a result, the team uses AVEVA Unified Supply Chain to report on, model and optimize a refinery operational scenario. At the same time, the resulting CO<sub>2</sub> emissions can also be modeled, enabling bp to identify the most carbon-intensive aspects of any scenario.

“Introducing the potential to model CO<sub>2</sub> emissions across our refining operations with AVEVA Unified Supply Chain has been straightforward. By standardizing the general structure across all seven plants we will be in a position to make meaningful comparisons and share insights on potential operational options to reduce CO<sub>2</sub> emissions.”

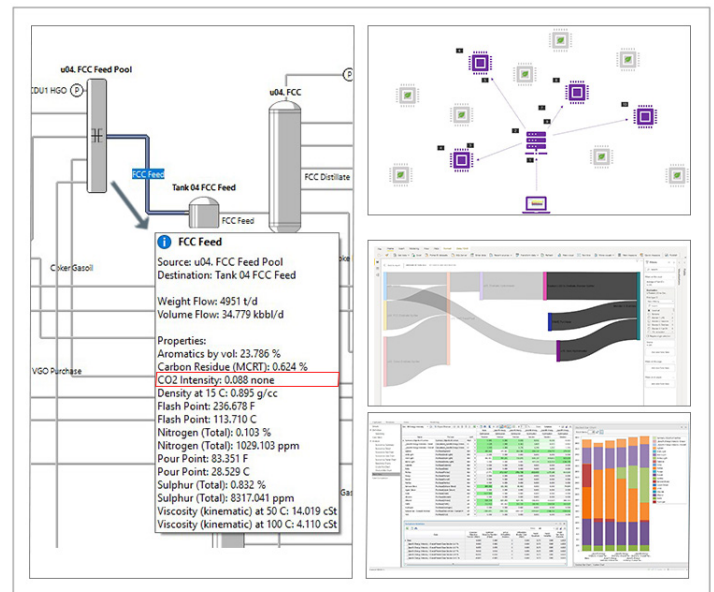
- **Richard Goddard**

Commercial Tools and Development Manager, bp

“What differentiates AVEVA Unified Supply Chain is that we can deploy new functions – such as CO<sub>2</sub> modeling - faster and maintain them more sustainably with less resources and more control because we have one global application used across two continents, running in the cloud. We are working in close partnership with AVEVA and its next-generation technology to drive our digital transformation in support of bp's sustainability goals.”

- **Richard Goddard**

Commercial Tools and Development Manager, bp



Finding the most profitable and green scenario with fast, comprehensive results and rapid interpretations