

Completion Optimization App

Key Benefits

1. **For the Executive:** Take comfort in achieving economics-based completion optimization without sacrificing technical sophistication. Plan a multi-year completion development strategy based on maximizing your chosen economic criteria.
2. **For the Engineer:** Design completions based on solid economic analysis and include operational risk in the assessment. Quantify the trade-off between operational risk and theoretical financial gains with more focused completions.
3. **For the Field Operator:** Prolong asset life while ensuring continual insight into improvements in field operations.
4. **For the Enterprise:** The Completion Optimization App can be used for any completion and is exceptionally well-suited for horizontal hydraulically fractured wells in tight rock formations.

Key Features

1. Automatic updating routines help users process newly acquired data effortlessly and efficiently
2. Create sophisticated models by combining data from various sources. Quickly run models and analysis that are shared across teams
3. Automation and MVR/ML (Multi-Variable Regression/Machine Learning) allow engineers to dedicate their time to making decisions to optimize asset performance

By utilizing the PetroVisor Completion Optimization App, companies can focus on improving the long-term economic output of their assets. The app amplifies a company's current technology investments by integrating all necessary production, completion, geology, and accounting data to run advanced multi-variable data analysis and economic processes in a single automated app.

The app contains user-defined sets of lateral spacings, and completion and geology parameters that define a large matrix of completion designs for rapid economic evaluation. Users quickly evaluate thousands of possible completion design scenarios to analyze and maximize the economic outcome of choice to lead a multi-year completion plan. Users focus on evaluating operational risk and maximizing economic potential by analyzing risk factors that may drive up the expected cost for the more aggressive completions being considered.

Included dashboards visualize the data for timely decision making and provide the important operational and economic data to compare and analyze completion analysis such as: design vs time, production rates, EUR, and operations attribute profiles.



A Simplified Approach To Completion Optimization



Data QA / QC

Use interactive maps, graphs, and tables to quickly understand the quality and quantity of available data to be used for predictive model training. You decide which datasets are relevant to your completion optimization.



Automated Predictive Model Training

Select the appropriate completion, spacing, and geologic parameters for automatically training MVR/ML models to predict well performance. Extensive petroleum and data science domain expertise is embedded in the automated workflows to provide useful models without expert intervention. Expert users have complete access and flexibility to modify default training settings for custom configurations.



MVR/ML Trained Production Type Curve Builder

Use trained MVR/ML models to predict 40-year monthly production forecasts for a given completion design at a given location. Models can be trained to predict IP90 and EUR and then converted into 40-yr monthly production forecasts by modifying local zero-time average production curves from existing nearby and/or analogous wells.



Completion Design Matrix

You decide the ranges of completion and geologic parameters for evaluation of potential completion designs. Every combination of parameters is evaluated, often resulting in thousands or tens of thousands of potential completion designs to include spacing and geologic parameters.





Well Cost Model

The Well Cost Model predicts the drilling & completion cost for a well using both historical and forward-looking financials such as your commodity price deck. Thus, as the completion design changes, the well cost changes.



Single & Multi-Well Economics

You decide the suitable economic parameters for optimization. A standard oilfield 40-year monthly cash flow analysis is conducted on every permutation in the Completion Design Matrix. The production type curve from the Type Curve Builder is combined with the well cost, fixed, and variable operating costs, abandonments costs, gathering and transportation fees, NGL fractions, commodity price decks, etc. to perform the economic analysis. When available, utilize internal accounting system data for operating and well costs.

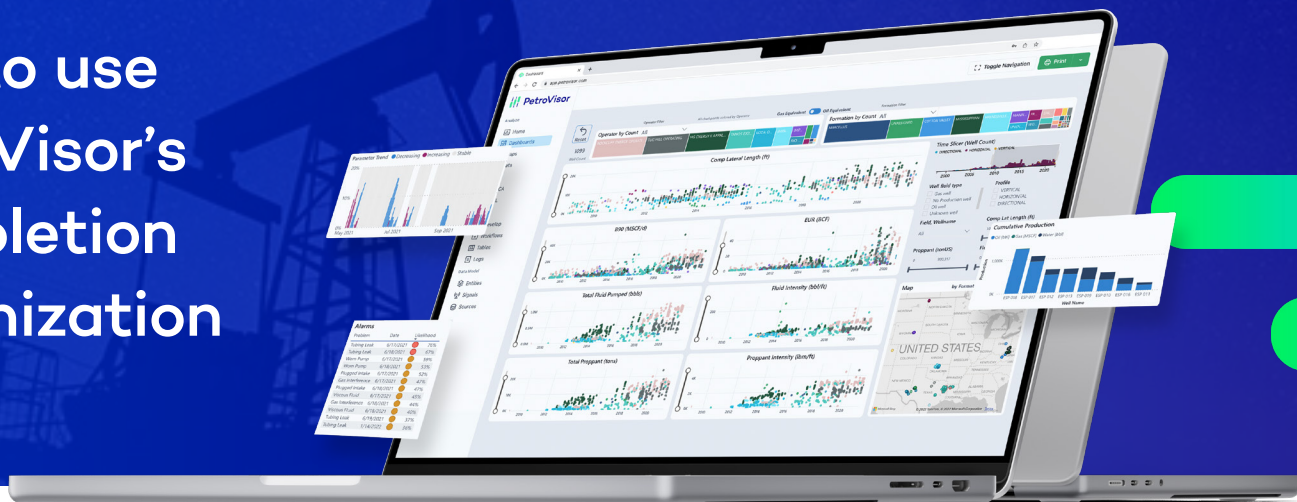


Visualizations For Decision Making

Interactive visualizations allow rapid understanding and communication of results for both technical and non-technical audiences. Isolate and convey multi-year optimization strategies and next-well expectations.



How to use PetroVisor's Completion Optimization App



Optimizing these plays requires advanced technology and sophisticated analysis methods coupled with increasingly complex data collection. Companies utilizing the PetroVisor platform can rapidly optimize completions, evaluate asset and corporate-level cash flows, and plan oil and gas capital expenditures. Within a single unified workflow, a user can combine complex data analytics, physics-based modeling, and sophisticated economic modeling processes.

PetroVisor has the capability to include a client-provided fracture propagation model and geologic property-based fluid flow model for physics-based predictive models.





- Optimize the completion design of a well and the overall asset investment
- Compare and analyze completion design vs time, production rates, EUR, and operation attribute profiles
- Understand parent/child well interference to optimize lateral spacing and multi-variable regression
- Automated machine learning to quantify and understand correlations between geology, completion practices and well performance
- Input data can be changed at any point and the outputs are automatically updated
- Build a capital investment schedule that incorporates debt, equity, working capital, asset retirement obligations, take-or-pay obligations, and funds flow back to the investor

Learn More

Learn more about how PetroVisor's Completion Optimization App automates, optimizes and evaluates completions in unconventional oil and gas plays by reading our [Use Cases](#) and [Whitepapers](#).

