

A Holistic Approach to Asset Development



Generating a production or capital forecast is comprised of more than just decline parameters and activity costs. A true forecast is representative of the inclusion of an entire network of data inputs and assumptions, all interdependent on one another. And let's face it, those assumptions can change more frequently than once a quarter.

The Client

CONSOL Energy's strategy of organic growth focuses on rapidly developing its natural gas and coal resources. Achieving that strategy hinges on understanding the exact potential and risks of all its assets at any moment, and over time.

The Challenge

The CONSOL Planning team decided to ask the question, "Is there a way to see a holistic corporate forecast across all assets in our company, taking into account every aspect of the business from a wellhead to a sales point?"

The Solution

In 2014, CONSOL adopted Enersight as their asset development solution. With Quorum software, they were able to consolidate their production and capital data from a corporate perspective, and incorporate input from all business functions to arrive at a cohesive and realistic forecast.





Single Asset Modelling

In some companies, one department will apply Enersight planning to model one asset and its network of production and scheduling parameters. For example, a reservoir engineer uses Enersight to model production and capital forecasts with what-if scenarios based on variables like type curve parameter changes or risk factors. Those forecasts are plugged into various spreadsheet models downstream of the reservoir engineer, that data is massaged in each sheet (be it shrink, top-level risking or downtime applied), and eventually reports are issued and decisions are made using this data. Ultimately, the reservoir engineers are responsible for the forecasted production values, but what happens in the intermediate steps between what Enersight outputs and a finalized forecast? How does a company ensure that the same assumptions are applied for every forecast, quarter by quarter or even asset by asset?

Integrated Asset Planning

CONSOL Energy took the approach that Enersight's model would be the means to centralize data and standardize assumptions that every business function uses into one location. What they saw was that not only does this impose a consistent "baseline" for which all outputs can refer to, but it highlights potential risk due to various industry factors and improves visibility across the company.

To achieve visibility and reliability in forecasting, CONSOL focused on four principles

Centralize and Standardize

CONSOL took the approach that while it is the Planning team's job to generate integrated forecasts, risks and what-if scenarios, those integrated forecasts should be comprised using the same data and method by every business team contributing their own department's portion of a forecast. If a production forecast is generated from the Reserves team using a certain lateral length, that same lateral length should be used in a production forecast issued from Planning. If Marketing is forecasting capacity volumes based on certain shrinkage or extraction values, those values need to match the values Planning is using. By forcing all these data points into each Enersight model, CONSOL can ensure that all forecasts and planning guidance out of Enersight is calculated using the same, standardized baseline assumptions.

The standardized planning model has both enforced data accuracy and completeness; and consistent assumptions about risk and opportunity the company can stand behind.

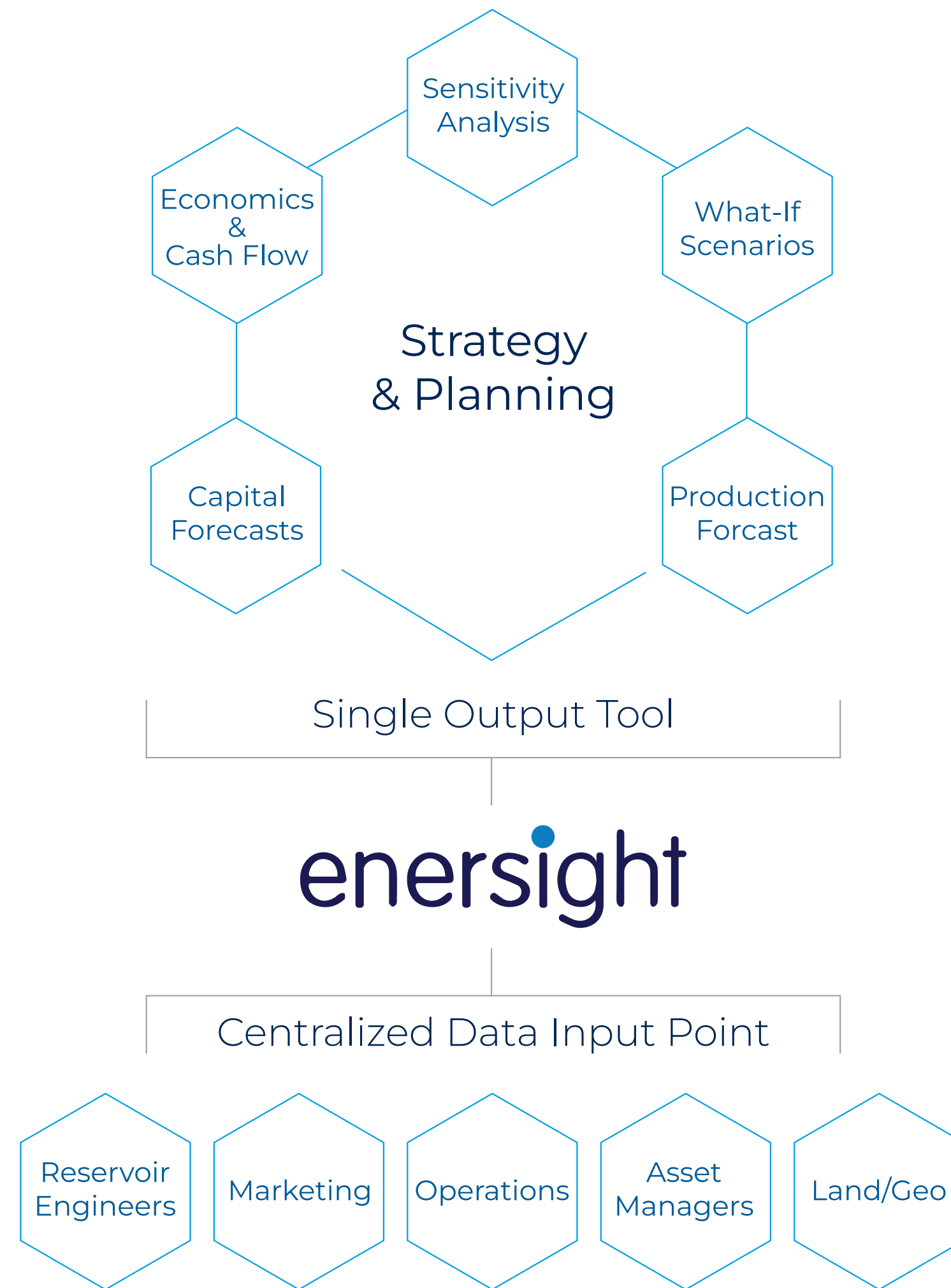


Figure 1: Data Centralization Using Enersight





Proactivity, Not Re-activity

Their goal in utilizing Enersight was to get a true-to-life model of the characteristics of a field and be able to generate what-if scenarios for potential events or changes, thus creating the ability to be proactive in their decision-making. To do so, they had to get not only the Planning team involved, but the Marketing team too. Having all data maintained and up to date allows CONSOL to generate a true reflection of how one aspect of the field is dependent upon another. They can leverage this continuous and thorough understanding of their operations to generate more accurate projections, foresee decision points, and ultimately manage their business more effectively.

In Order to Measure it, You Have to Manage It

Not only does CONSOL want to be able to stay ahead of situational changes, but the company also wants to be able to identify, define and measure key indicators of the industry. Using Enersight to divide activity on a well into customized steps with differing attributes, CONSOL was able to take generic lump-sum

cycle time data and split it into measurable parts to start pinpointing if and where bottlenecks were occurring, or where capital was being misallocated.

Using Enersight to model facility constraints and pipeline priorities and schedules, they were also able to visualize the subsequent influence on deferred production resulting from direct application of these constraints. Modeling this level of detail, as opposed to high level adjustments, provides the ability to measure their sensitivity to individual controls.

Once the company could visualize and measure these variables and their impact, they began to manage their assets accordingly, and gained the ability to take actions such as reducing cycle times and redistributing capital to improve returns on investment.



Figure 2: Before and After of Scheduling Steps.

Improve Visibility – Achieve a Holistic Approach

Now that CONSOL can see the granularity of both facility and well-level economics, as well as accurately report on the field through various simulations and what-if scenarios, their last step was to combine all these fields into a company-wide view. CONSOL used Enersight to address these questions:

- How does one field compare to another?
- What is our overall budget and where should we allocate our budget dollars?
- From an investment standpoint, where should we increase facility capacity, build infrastructure, or move rigs to?

By utilizing the ability to submit all official versions of each model in CONSOL to a Plan Data Set, CONSOL was able to pull consolidated reports and see a consolidated Gantt chart of the entire company and how each asset relates to another.

Secondly, CONSOL was able to compare over time how accurate their forecast is against reality by bringing in not only historical production data, but actual capital spend as well.





At this level, overall capital or scheduling constraints can be imposed from a corporate planning perspective. These constraints are then taken back down to the individual projects, modeled accordingly, and results immediately generated to report the viability of upper management's plan.

Integrated and Accurate Outlook for Decisions

CONSOL Energy chose Enersight as a critical means to verify the condition and potential of all of its assets to make collective, company-wide decisions to maximize profit for shareholders. Today, as industry and market shifts occur, and as operational challenges arise, CONSOL can investigate the details of its holistic corporate forecast at any level, from the field to the wellhead, to identify bottlenecks and economically nonviable situations or strategic opportunities.

With an industry-leading ability to monitor their assets and evaluate what-if scenarios, CONSOL is equipped to maximize shareholder value by adapting faster, minimizing risk, and, conclusively, making better business decisions.

enersight

Built to help asset level planners, engineers and economists make the right decisions with accurate data and defensible field development models.



Quorum Software powers growth and profitability for energy businesses by connecting people, workflows, and systems with decision-ready data.

For more information or to request a demo, visit quorumsoftware.com or email info@quorumsoftware.com.