

Eating the Upstream ERP Elephant

Connecting Enertia and production data in a first manageable bite

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Introduction

There is no lack of data in the oil and gas industry. In fact, data is everywhere. It is in a pickup truck traveling from well to well in West Texas. It is in the landman's office and accounting, engineering and planning departments. The challenge is not in creating data. The challenge is in using it intelligently.

To manage the data, oil and gas companies typically use a combination of specialized systems. Sometimes these systems are elaborate accounting packages or well management tools. Sometimes they are spreadsheets and documents. Whatever they are, they are rarely coordinated and connected in a way that allows the company to leverage all well data for better decisions.

Enterprise Resource Planning (ERP) introduced the idea that all related data should be tied together in a system. Unfortunately, the classic implementation required adoption of new software and associated processes, often forcing 'rip and replace' of existing systems. When acquisitions introduced new systems and data, integration was problematic.

Now companies like RAAM Global Energy (RAAM) are embracing a new vision for ERP—one that focuses on the data itself. Rather than try to force their data into a single system, RAAM is implementing a flexible model that can connect to their systems now and in the future. Those systems include Enertia, ARIES™, WellView®,

FieldDIRECT® and production data recorded in spreadsheets. RAAM can pick and choose what and when to connect for more informed decision making.

A bit about RAAM

RAAM has been around since 1986, when it started working shelf plays offshore New Orleans. The company extended into onshore Texas in the late 1990s.

Until recently, all operations were handled independently by three entities: Century New Orleans, Century Houston and Century Resources. In late 2012 the company began moving these entities together under single management for both operations and finance.

The new management team quickly realized that they needed better, faster access to production and financial data. Cash management is a critical component of any upstream oil and gas operation, and it depends on accurate information. All too often, management decision-making depends on details locked away in production reports, accounting systems, budgeting spreadsheets and other data stores.

RAAM executives manage the company's cash flow based on net BOE versus budget. Historically they have reviewed the data on a weekly basis, because that was when it was available. In their new vision, daily production data is combined with accounting data for review in real-time by anyone in the company at any time. And that's just the beginning.

Eventually RAAM will connect all key systems and data, and will be able to absorb new systems and data as they are acquired. Leveraging data for analysis and decision-making is the goal.

"By connecting our various systems we will get to the point where we can very accurately project future cash outgoes and incomes," says Sam Harms, RAAM Production Manager. "Anyone at any time will be able to calculate our net portion." The next step, he adds, will be to put a price on net production to forecast cash. "Cash is

“With only a little input from me Enerpact created a system right in line with my expectations”

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king in our business,” he says. “And the keys to the kingdom are data.”

Production intelligence

Daily production data from pumper and SCADA systems are vital to upstream operations. These daily actuals must be combined with cost actuals and compared with budgets to get even a basic understanding of operations and cash flow. When combined with economic forecasts, they show variance from expected recovery and indicate when action should be taken. Combined with ownership and accounting data, they reveal net revenue interest.

Yet getting regular, consistent access to the data behind these analyses is not as simple as it seems. Take RAAM for example. Pumpers in the field record production data in spreadsheets. Each well has its own spreadsheet and pumpers in different fields may have different ways of organizing the data. Spreadsheets are then sent to central operations, where until recently a tech entered the data into the master well production spreadsheet and again into Enertia.

Spreadsheets were also used to monitor field and business unit performance. If management wanted to know gross and net barrels for Century Houston, the data came from two different spreadsheets. To calculate all wells together, there were yet more spreadsheets. “Every time someone needed to know something, a spreadsheet had to be created,” says Harms. “Even so, it was hard to quickly calculate what we needed to know.”

Harms knew that some changes were needed to support RAAM’s continued growth in unconventional. “We needed one-click access,” he says. “Keeping production data on spreadsheets just wasn’t practical anymore.” We were overrunning ourselves with spreadsheets and people managing spreadsheets, he explains.

RAAM chose Enerpact as their ERP supplier. Enerpact will use a combination of connectors and applications to bridge all data sources for RAAM. Connectors pull data from wherever it is located to generate reports and support analysis.

“Our first priority for Enerpact was to replace our manual production data entry,” says Harms. Techs will now be able to upload field data directly to a production data application. From there it will be correlated with Enertia data and available for analysis via the production dashboard. Production and operations teams will use the dashboard for production surveillance, while the reservoir team will use it for reserves analysis. Eventually, forecasts and economics from ARIES could be available through the dashboard as well.

“By changing how we manage production data and tying it to Enertia, we can pull out the net NRIs and net BOEs with ease,” says Harms. “We can monitor performance of specific wells, entire fields, or individual business units.” Production data is available for immediate analysis. And all changes were made without disrupting field operations.

Innovation without disruption

Production data collection is an efficient and well understood process for RAAM. All pumpers—whether in New Orleans, Texas or California—are familiar with filling out their daily spreadsheet. They were not the bottleneck.

Rather than force a change on the pumpers, RAAM chose to change how incoming spreadsheets were handled upon arrival at the central office. “Our production data was handled a lot of times by a lot of people just to get the data recorded,” says Harms.

Data access was also gated by the process. “If the tech who entered all the production data was sick or on vacation, I would either have to wait or download the proper spreadsheets, type in data and plot it up myself.”

The new process is streamlined and automated. The tech simply downloads the spreadsheets, then uploads them to the production database provided by Enerpact. The data from each spreadsheet is automatically entered and pushed to Enertia. “What took hours to get all the data in now takes seconds,” describes Harms.

*“Enerpact
has delivered
better than I
expected for
cheaper than
I expected”*



In the future Harms would like to offer a mobile app for pumpers to enter well data directly into the production application. This could improve pumper efficiency and if they like the idea, could remove one more step in the upload process. Data would be available even faster.

He'd also like to connect his SCADA data. “When we're ready I'd like Enerpact to figure out how to get the SQL SCADA devices to talk to the production application so that all my gas numbers will get populated automatically.”

Long-term holistic solution

Getting away from spreadsheets for production analysis was an important first step in the long-term mission of empowering the organization with more actionable information. “One of the attractions of the Enerpact solution is its holistic approach,” says Harms.

RAAM has its share of preferred systems and connecting them will deliver broader value to RAAM. Harms is eyeing a project to automate lease operating statements. “Once our well work program WellView is connected we can start forecasting based on production data, well work and accounting details,” says Harms. All of this drives to the cash in cash out basis. “This work is just done by people right now who are using into their own spreadsheets or some other way of doing it.”

Budget data, currently entirely in spreadsheets, will also eventually be incorporated says Harms. Then RAAM will be able to match up well and fixed data to analyze budget versus actual.

Harms believes that eliminating the need for spreadsheets and data duplication will push error rates down. Techs will have more time to plot and check data. “We're less likely to have errors and more likely to find them,” observes Harms.

Harms also expects greater staff efficiency. Techs will no longer be doing redundant data entry. The accounting team won't have to run reports that are available on the dashboards. Operations and

reserve teams won't have to wait for others to run reports and will be able to do more in-depth analysis faster.

The value to RAAM is clear. "We can spend more time on analysis and decision-making and less time on correlation and data entry," says Harms. "We can start looking at the data earlier, more often and from more angles."

"Enerpact had a good value proposition. Their prices were exceptional for what I want to do," summarizes Harms. "They have experience with FieldDIRECT and Enertia. They've done it. They are a good fit for our approach."

"As we grow we will start to get all the pieces working together," concludes Harms. Enerpact lets RAAM eat the ERP elephant one bit at a time.

Technical details

RAAM has a typical range of systems for managing upstream operations. These include:

- Enertia for accounting and land records
- ARIES for reserves and forecasts
- IHS FieldDIRECT for direct data entry of daily production data associated with some wells
- Pumper sheets (spreadsheets) for daily production data associated with some wells
- WellView for well work data

In phase 1 of the project, Enerpact installed the following software on RAAM servers:

- Enerpact Production Data Manager for production records (including historical production data imported from ARIES)
- Enerpact Well Master for connecting to other systems
- Enerpact Production Dashboard for reporting of all connected data

Well Master provides connection to Enertia to extract NRI-related data for production netting. Data insert capability will be supported in later phases.

Well Master also connects to pumper sheets for easy upload. Spreadsheets are passed automatically and data is recorded in the Production Data Manager.

As part of the Well Master configuration, Enerpact provides a virtual warehouse. No data is duplicated in this model. Instead, the warehouse correlates well data in all systems using a unique 'alignment ID'. Data can then be extracted from or inserted into any of the source systems, as governed by RAAM rules.

For example, Enerpact can extract production data stored in IHS FieldDIRECT and correlate it with Enertia data to present in the Production Dashboard. This is done using the alignment ID.

In phase 1, the Production Dashboard is focused on reporting BOE actuals versus production reports. The dashboard provides an intuitive interface that allows users to set query criteria. Data is retrieved from the source systems in real time.

In future phases, RAAM is already considering:

- Uploading production data to Enertia
- Sharing both production and LOE data with ARIES
- Connecting SCADA data to make gas meter data available for in-depth analysis

Also available are several specialty applications from Enerpact that can automate data and processes now handled manually or in spreadsheets, including:

- Enerpact eAFE for AFE workflow management
- Enerpact Budget Master & Scheduler for budgets, schedules and forecasts
- Enerpact Hedge Manager for trades and settlement data
- Enerpact PayTRON for invoice processing management
- Enerpact GIS Translator for visualizing map data and documents
- Enerpact Wellfiles for well meta data

Enerpact prides itself on its agnostic design and small footprint. Its connectors, dashboards and applications tie together disparate systems for effective upstream ERP. Customer pick and choose the components they need.



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