Origin Energy Saves Over $AUD100m with Portfolio Management

Origin ran their short-term forecasts in Enersight, and their long-term forecasts using an ad-hoc Excel based process fed by datasets stored in a number of SQL databases. The cycle time to generate a LoF plan was very long, and output data was very difficult to compare to previous plans. Running multiple scenarios to compare options for the LoF plan was virtually impossible due to the amount of effort required to generate a single valid scenario.

Phase 1

- Implemented CASH as an economic engine to run option (groups of 10-30 wells) economics, fed by SQL and excel based input data capture tools
- Implemented PS Portfolio, fed by CASH, to run portfolio optimizations

Key Outcomes

Phase 1 did not resolve any of the existing data management issues, but it was very successful in providing the business with the ability to run a large number of scenarios for the LoF plan. Where previously a single scenario was run and formed the basis of the development plan, PS Portfolio provided the ability to run many. In 2017, the project ran more than 35 scenarios, several of which went to the executive for review and feedback.

> Tracy Boyes, the manager of the project at the time, estimated that the additional optionality provided on the strategic portfolio view was worth at least $AUD100m in savings to the organization.

Phase 2

- Implemented Planning Space Decline to store and organize performance curve data imported from Harmony, Eclipse, and Excel based tools.
- Implemented Planning Space Dataflow to replace the existing SQL based tools for LoF production forecasting.
  - Planning Space Dataflow stores production linked to performance curves at a well level - ~6000 wells, monthly.
  - Well data is aggregated upward to the option level for analysis and portfolio optimization. Case Study - Origin Energy by Quorum
- Implemented Planning Space Dataflow to replace the existing Excel based tools for managing restoration data - all existing wells and facilities that require future remediation.
  - ~1200 wells, ~500 facilities
- Implemented Planning Space Dataflow and Planning Space Economics to store, manage, and calculate the economics of options.
- Systemized a large number of interfaces with data sources and data consuming systems to enforce quality controlled, approved data is used for the upstream development plan.

Key Outcomes

The second phase of the project began to tackle the major data management issues underpinning the Upstream Development Plan. The project moved from dealing with pre-aggregated option level information to importing individual wells, associating them with performance curves, and becoming the trusted source of truth for production information in the business. Planning Space Dataflow coupled with Planning Space Economics provided a much simpler and user-friendly method for managing data and calculating economic results than had existed previously. Organizing the underlying datasets and tying them together in an integrated platform kept the power of Planning Space Portfolio for LoF planning but made feeding it with validated, quality-controlled data easier.

The principal benefit of Phase 2 was adding robust, well understood, and transparent input data to the existing portfolio optimization process.

Phase 3

Phase 3 will look to build on Phase 2's success by adding to the well-level data, systemizing, and improving capital and operating cost estimation for the LoF plan as well as the existing capability to forecast production.

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