Informed decision making to avoid risk and enhance return

Successful development of CSG resources requires a clear understanding of several complex systems, including the surface gathering network. Failure to match network capabilities with field production potential can lead to expensive retrofitting as well as delayed or unrealized gas recovery. Expert design analysis and surface network modeling promote fully informed decision making, effective risk management, superior asset performance, and robust investment returns.

Schlumberger Data & Consulting Services (DCS) and Flow Assurance have supported CSG resource development from the beginning, leading the industry to enhanced production scenarios and reliable flow assurance. Using a suite of best-in-class analytical tools to model CSG development projects, multidisciplinary teams from DCS and Flow Assurance capture the interactions among 100 or more production and injection wells, complex pipeline systems, and process equipment. The analysis identifies potential problems, such as bottlenecking and slugging, and generates efficient, cost-effective design solutions. Working closely with operators to achieve the best result, the team’s primary objective is to bring CSG plays onstream with optimal production volumes, trouble-free operation, and low overall cost.

For companies with in-house resource constraints, bringing in a Schlumberger consulting team can accelerate the facility engineering and design schedule and shorten the time to production startup—while also boosting project economics.

Sample of gas gathering network model.
Full-field network modeling

DCS CSG workflows include generating models for enhanced well performance and multiphase gathering networks to support full-field surface network analysis, field planning, and production optimization. CSG experts combine multiphase pipeline design models with various production scenarios to analyze the gathering, distribution, and/or injection systems for gas and water networks. Once a production network design is complete, the team can introduce a time element to examine the effect of reservoir performance on the entire field development strategy.

To ensure maximum production throughout the life of the CSG asset, the team further optimizes the network through:
- detailed analysis of potential production bottlenecks
- network configuration alternatives
- modified development scenarios with additional wells and/or surface infrastructure
- placement of HPVs and LPDs.

Transient analysis of the gathering network can be performed to assess the impact of LPDs, the potential for liquid surge and slug flow into the field compression system, and hydraulic shock.

With the right data available and our expert multidisciplinary approach, Schlumberger DCS and Flow Assurance can deliver surface network modeling and analysis of a field gathering network with more than 100 wells in a matter of weeks rather than months.

Extracting maximum value

Schlumberger DCS and Flow Assurance can help extract maximum value from multidomain data to support robust recommendations and management decisions for all aspects of CSG field development and production activities. CSG project teams have access to the unparalleled range and depth of Schlumberger worldwide engineering and consulting services. Drawing upon expertise from across the organization, DCS can provide fully integrated asset models that connect the production workflow with reservoir and process simulators. The integrated CSG approach handles the increasing complexity of well design and pipeline simulation analyses with unrivaled speed and accuracy. We create solutions for our clients that reduce risk, enhance project economics, and increase life cycle asset value.