

# Gazprom Dobycha Nadym Responds to the Challenge of World Gas Demands

Avocet IAM software and innovative computing technologies help develop and optimize complex gas field

## CHALLENGE

Provide necessary production levels of natural gas; create environment for effective interaction between various specialists to address the problems associated with gas production, treatment, and transportation.

## SOLUTION

Use the following software and hardware to implement a fully integrated gas field model:

- Petrel\* to create static and dynamic model
- ECLIPSE\* to simulate dynamic model
- MEPO® to perform history-matching
- PIPESIM\* to create well and gathering system model
- HYSYS® to create processing system model
- Merak\* to perform economic modeling
- Avocet\* Integrated Asset Modeler (IAM) to create an integrated gas field model
- High-performance computer cluster provided by Schlumberger for the project.

## RESULTS

Implemented new, automated platform for faster decision-making at different levels of the company; improved quality of production forecasting; enhanced economics, expressed through more informed management decisions.

**“This is a new way to make E&P decisions, and it is the right way to deliver field development and optimization projects through the efforts of a joint team.”**

Haritonov Andrey Nikolaevich  
Gazprom dobycha Nadym

## Efficient system of field management

OJSC Gazprom is the largest gas company in the world, with the richest natural gas reserves. Gazprom dobycha Nadym LLC (GDN), a subsidiary of Gazprom, is the oldest production and transportation enterprise of natural gas in Western Siberia, recovering over 60 bcm of natural gas per year.

The company’s main objective is to ensure efficient gas production at its existing fields and prepare for its new Bovanenkovskoye, Kharasaveyskoye, and Novoportovskoye fields by obtaining appropriate development licenses.

GDN selected Schlumberger Information Solutions (SIS) as a key solution provider to expand asset operational capabilities, optimize production, and improve economic performance.

## Pilot project

GDN and SIS identified Avocet IAM software as a key tool to improve field management. This provided a platform for the integration of reservoirs, wells, and surface infrastructure models in a single cycle for accurate decision making to control field production, optimization, and planning. Understanding field problems as a whole, rather than individual parts, would lead to efficient production, both now and in the future.

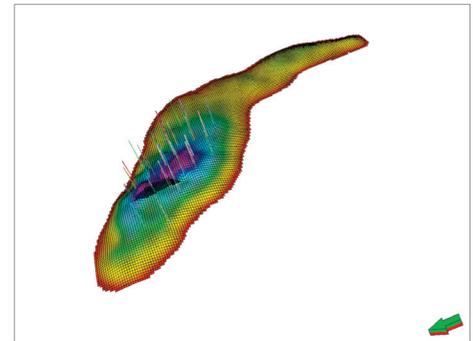
Together, GDN and SIS specialists conducted a pilot project on the Yamsoveyskoye gas field, during which they thoroughly tested the effectiveness of Avocet IAM technology before applying it to other new fields.

## Project team

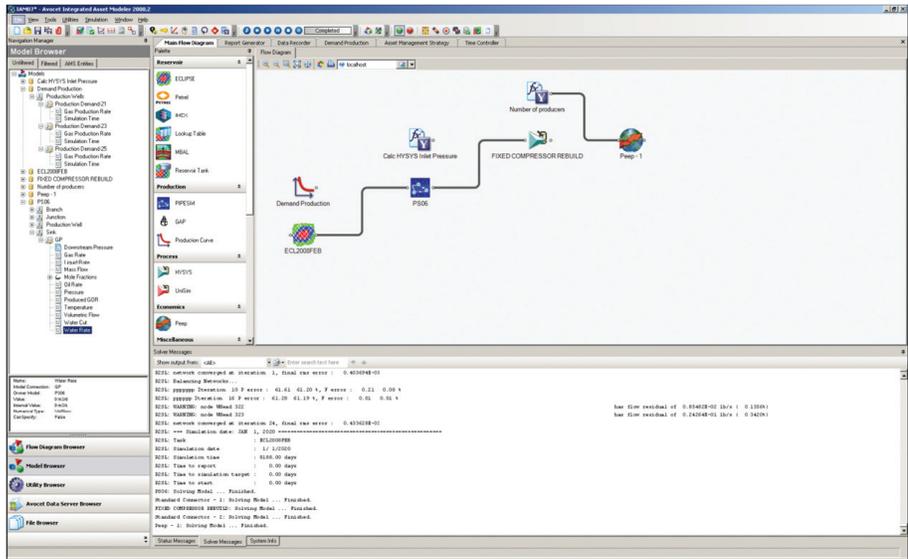
The pilot project team consisted of participants from SIS and Gazprom dobycha Nadym. This joint, multidisciplinary team (including reservoir, production, and process facilities engineers, as well as economists) was challenged to work together for the first time and with an 11-hour time difference between their locations (Moscow, Tyumen, Calgary, and Nadym).



Overview of Gazprom dobycha Nadym assets.



A 3D model of the Yamsoveyskoye field.



Integrated model as shown in Avocet IAM software.

**“This was the first time the Russian gas industry created an integrated gas field model as a unified network for producing, gathering, and conditioning gas. Implementation of the new modeling system will empower the development of our hydrocarbon fields with peak efficiency and minimal environmental risk.”**

**Arhipov Yury Aleksandrovich  
Gazprom dobycha Nadym**

**Project scope**

SIS provided software and consulting services for delivery of a fully integrated asset model. The integrated model included models of the reservoir, wells, gathering system, surface equipment, and economics. Project deliverables were both short- and long-term production optimizations, which could be used for strategic and tactical purposes, supporting daily operations management and production planning.

Successful pilot results were achieved via the advanced infrastructure and integrated reservoir modeling technologies. Optimization capabilities of Avocet IAM allowed the team to perform on-the-fly calculations of operating schedules for the individual wells and the entire field.

**Benefits of integrated approach**

Implementation of Avocet IAM and associated software/hardware technology for the Yamsoveyskoye field allowed GDN to integrate all components of its production system into a single, holistic model. The project proved the effectiveness of this technology for solving problems of gas field optimization and forecasting.

The main benefits of the project included the following:

- For the first time in the Russian gas industry, an integrated reservoir model was created as a single workflow for gas production, treatment, and transportation analysis.
- The integrated modeling technique helped a multidisciplinary team determine the influence of reservoirs, surface pipeline networks, and processing equipment on one another.
- Engineers were able, on the basis of multivariant runs, to identify potential bottlenecks in the production system and develop solutions to justify the highest possible levels of gas production during maximum seasonal production periods.

- Creation and implementation of gas fields integrated models gave insight into the whole picture of available resources and provided a platform for cross-domain collaboration, which improved field management.

GDN will consider the positive results of the project when developing other new assets. Lessons learned will be applied next to the preparation of technical documentation and selection of software for building Bovanenkovskoye field’s integrated model.

**Schlumberger Information Solutions**

Schlumberger Information Solutions (SIS) is an operating unit of Schlumberger that provides software, information management, IT, and related services. SIS collaborates closely with oil and gas companies to solve today’s tough reservoir challenges with an open business approach and comprehensive solution deployment. Through our technologies and services, oil and gas companies empower their people to improve business performance by reducing exploration and development risk and optimizing operational efficiencies.

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