GPCM® Frequently Asked Questions

What does GPCM stand for?

GPCM stands for “Gas Pipeline Competition Model”. It was initially designed to forecast market shares among pipelines. Since then, GPCM has been expanded to include all sectors in the natural gas market. Hence, it is now called the GPCM® Natural Gas Market Forecasting System™.

What is the basic purpose of GPCM?

GPCM has been designed to give analysts and managers a tool for forecasting natural gas production, pipeline and storage utilization, delivery and price at points throughout the North American gas market in support of better analyses and better decisions for their firms. It has been designed to be both powerful and flexible, enabling users to analyze short term and long term patterns and trends at whatever level of detail is desired.

Who uses GPCM?

- Energy Consulting Companies
- Upstream E&P Companies
- Midstream Companies
- Downstream Companies
- Government Agencies
- Other (Investment, Trading, Banking)

Who designed GPCM?

Dr. Robert Brooks, Founder and President of RBAC, Inc. In 1975 Dr. Brooks received his Ph.D. from the Sloan School of Management at MIT for his original work in modeling the North American natural gas market. Most of his career has been devoted to improving and expanding upon this seminal work. In 1997 he developed GPCM for use by RDI of Boulder, Colorado, which assembled the first GPCM base case database. The following year RBAC and RDI released GPCM and the GPCM base case for licensing by other firms in the industry. RDI has since been absorbed into Platts and the gas forecasting function is being done by its Bentek Energy subsidiary. RBAC now provides the GPCM base case to its licensees, updated four times per year.

What exactly does GPCM do?

GPCM computes forecasts of natural gas industry activity. Output from a GPCM scenario run consists of forecasts of the following items:

- Production and spot market prices by region
- Pipeline receipts from producers by zone
- Pipeline flows and utilization
- Transfers between pipelines at interconnects
- Injections into and withdrawals from storage
- Deliveries by pipelines to customers
- Gas supply available to each customer in each region
- Market clearing prices in each supply and demand region
- Receipt and delivery price in each pipeline zone
- Capacity release market prices
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What is the periodicity of GPCM results?
The standard periodicity for a scenario is monthly. Monthly results can also be aggregated and presented by season (winter/summer) and year.

Where does the database come from?
Constructing a database from scratch can be an extremely time-consuming project. Therefore, RBAC provides GPCM licensees with a standard database model of the North American natural gas industry. Based on work begun in 1997 in conjunction with RDI and improved continuously ever since, this model is kept up to date and delivered to GPCM licensees as part of their quarterly GPCM Base Case Database Update Service.

Licensees have the freedom to modify the GPCM base case database model to fit the needs of their own projects and analyses. They can extend the model to include other existing or hypothesized supply areas or markets, even other countries.

What kinds of data are contained in GPCM Base Case?

For each pipeline
- Firm and interruptible tariffs by zone
- Receipt, delivery and throughput capacity by zone
- Pipeline fuel use fraction by zone
- Interconnect capacities with other pipelines by zone
- Injection and withdrawal capacities and costs in storage facilities by zone
- Receipt capacities from suppliers by supply region and zone
- Delivery capacities to customers by demand region and zone

For each supply region
- Relationship between production and price in that region, e.g. a supply curve

For each customer in each region
- Relationship between demand and price in that region, e.g. a demand curve

For each storage area
- Storage injection and withdrawal capacities, costs, and connecting pipes

What is the form of the output?
- There are about 20 pre-packaged on-screen and print reports
- Each report can be tailored and then exported to an Excel Workbook
- There is a powerful time series graphing capability for viewing trends and patterns of gas flows and prices
- The GDS Graphical Display System consists of several tools:
  - A mapping tool for drawing pipelines against a map of North America
  - Schematic drawings for each pipeline for presenting results graphically
  - A map for displaying market point prices, basis, and spreads across North America
  - A map for displaying the flows from any given supply basin to each census region
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- A map for displaying the flows from each supply basin to any given census region

What are the basic assumptions behind the forecasts?

- Competitive markets
- Prices will rise or fall to clear markets
- Gas will flow from production to consumption regions so as to minimize transportation and storage costs while clearing markets
- The resulting set of flows constitutes an "economic equilibrium" or “market clearing” solution for the natural gas industry

What kinds of "scenarios" ("what if’s") are possible?

- "Base" scenario using existing pipeline tariffs, capacities, and "normal" weather for demand regions
- "Severe winter" or "mild winter" demand cases
- New import/export pipelines from Canada and Alaska
- Pipeline expansions
- Proposed pipeline projects for new or growing supply sources to markets
- Proposed LNG import/export terminals and capacity expansions
- Increases or decreases of production capacity in traditional areas
- New storage fields or increases in existing storage capacity
- Increasing demand in the gas-fired generation sector
- Growing natural gas vehicle demand
- Effect on demand of slowing or rising economic growth rate

What software do you need for GPCM?

- Windows 7 or 8.1

What kind of computer do you need?

- 4 GHz Intel or equivalent multi core processor
- Desktop, notebook, or multi-processor server
- 16 gigabytes or more RAM
- Fast hard disk, minimum 500 gigabytes
- Internet connection

What human resources do you need to operate the system?

- A GPCM product manager to identify situations to study, design cases to be run, and analyze results.
- A hands-on analyst who will set up scenarios, run them, extract results, and prepare presentations.

What kinds of skill sets are needed?
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- Good facility with Excel. Experience with Access would be useful, but not required. Good math skills. Economics background. Good understanding of the natural gas industry. Likes to work with data and models.

What kind of training and support is available?
- On-site Basic GPCM Training Course for new licensees
- GPCM User Conferences held annually
- Advanced Training and on-site consultations available on request
- Telephone support available from 9:00 am through 5:00 pm Central Time
- E-mail support also available

What other types of modeling tools are available from RBAC?
- GPCM Daily™ for Intra-Month Stress Testing
- GPCM-PMI™ Power Model Interface
- GPCM Viewpoints® on Natural Gas
- Gas4Power®
- G2M2® Global Gas Market Modeling System™
- NGL-NA® North American Natural Gas Liquids Market Model with Global Implications

Who do I contact for more information about GPCM?
For additional information about GPCM® and any other RBAC product, contact James Brooks directly at (281) 506-0588 ext. 126 and visit www.rbac.com.