# GasAssure

## Integrated Networking Modelling & Gas Portfolio Management
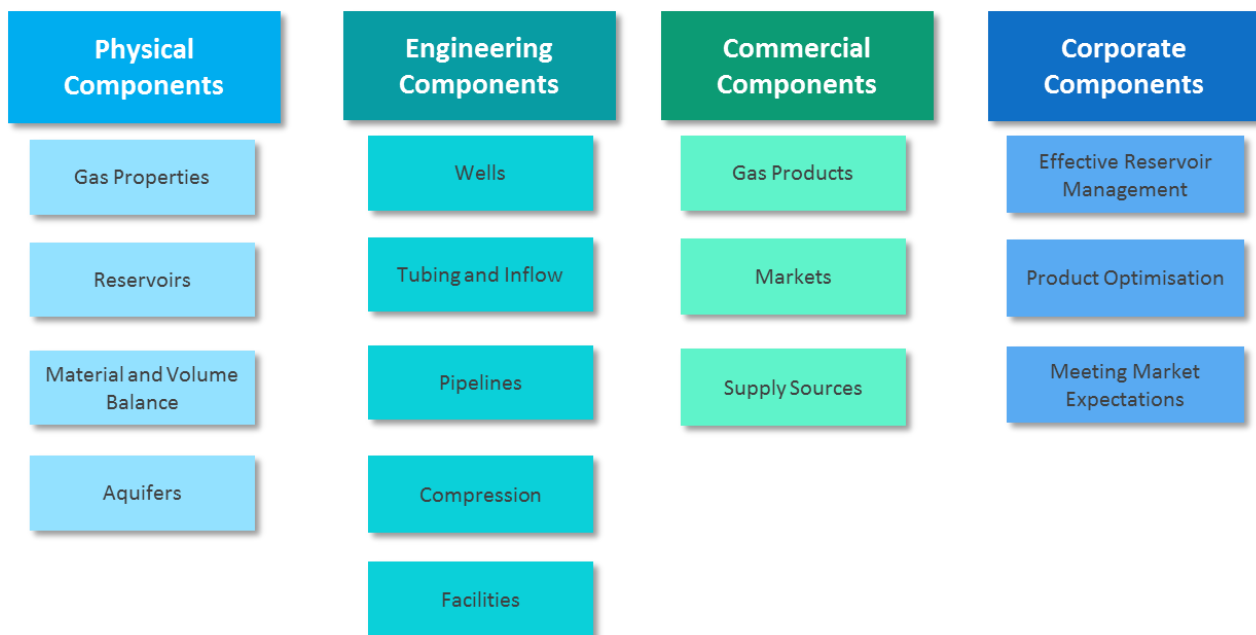
- "Reservoir to Market" Solution
- Market Driven Gas Planning Tool
- Performance Forecasting
- On Demand Modelling

## OVERVIEW

GasAssure is truly integrated, market driven gas planning software. It provides unique capabilities that deliver a "reservoir to market" solution, allowing planning from source, through processing and delivery, right up to allocation of resources to meet the market demand. GasAssure is able to define, characterise and explore what-if scenarios for large scale, multi-billion dollar gas projects in a fraction of the time taken by the currently available tools. Uniquely, GasAssure allows customers to model contract fulfilment, taking into account client prioritisation over the full life cycle of the field. GasAssure provides flexibility in how the surface and sub-surface networks can be modelled, including compression and comprehensive LNG gas plant modelling.

## What is "Reservoir to Market"?

For a complete integrated solution ensuring the market's demands are met, GasAssure captures the following features while generating a solution.

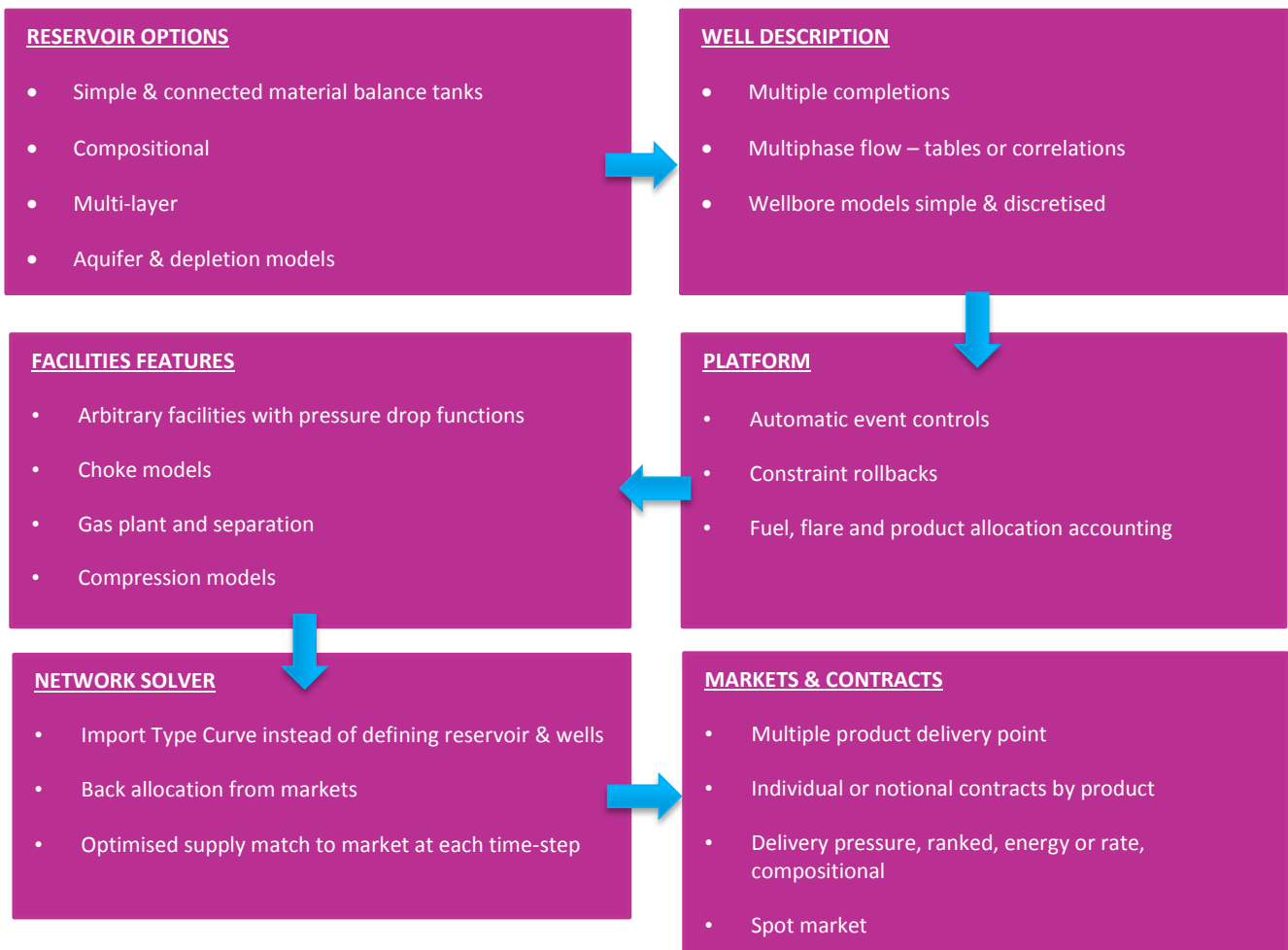| Physical Components | Engineering Components | Commercial Components | Corporate Components |
|---|---|---|---|
| Gas Properties | Wells | Gas Products | Effective Reservoir Management |
| Reservoirs | Tubing and Inflow | Markets | Product Optimisation |
| Material and Volume Balance | Pipelines | Supply Sources | Meeting Market Expectations |
| Aquifers | Compression | | |
| | Facilities | | |

GasAssure integrates aquifers, reservoirs, wells, processing plants, pipelines, compressors and the final market.

It is a market driven solution empowering the user to:

- Allocate gas to different markets as per specified ranking and priorities.
- Track composition of hydrocarbons based on a contract's gas specification.
- Specify different types of market. E.g. LNG, LPG, condensate, energy.
- Specify a trigger type either as peak or potential with the additional option to input mean, maximum and standard deviation.

## Overview of GasAssure Technical Features

**RESERVOIR OPTIONS**

- Simple & connected material balance tanks
- Compositional
- Multi-layer
- Aquifer & depletion models

**WELL DESCRIPTION**

- Multiple completions
- Multiphase flow – tables or correlations
- Wellbore models simple & discretised

**FACILITIES FEATURES**

- Arbitrary facilities with pressure drop functions
- Choke models
- Gas plant and separation
- Compression models

**PLATFORM**

- Automatic event controls
- Constraint rollbacks
- Fuel, flare and product allocation accounting

**NETWORK SOLVER**

- Import Type Curve instead of defining reservoir & wells
- Back allocation from markets
- Optimised supply match to market at each time-step

**MARKETS & CONTRACTS**

- Multiple product delivery point
- Individual or notional contracts by product
- Delivery pressure, ranked, energy or rate, compositional
- Spot market

## Why is GasAssure unique?

**Robust and Fast Algorithm -** GasAssure enables a user to plan the entire supply chain from reservoir to the final market and generates a solution in a fraction of time taken by current offerings.

**Component Tracking -** A user can track any component of the hydrocarbon at any stage of the entire supply chain enabling fast and easy quality checking. Allowing for changing field and operating conditions, GasAssure is suitable for short, medium and long-term planning.

**Control through priority and rank -** With the flexibility to prioritise how markets, reservoirs and facilities come on-stream, GasAssure provides complete control over production allocation.

**Product Focus (Complex Markets) -** GasAssure is capable of handling complex markets as a range of products (such as domestic gas, LPG and LNG) some or all of which must meet a stringent market specifications (a typical example being a tonnage and heating value constraint for LNG delivery).
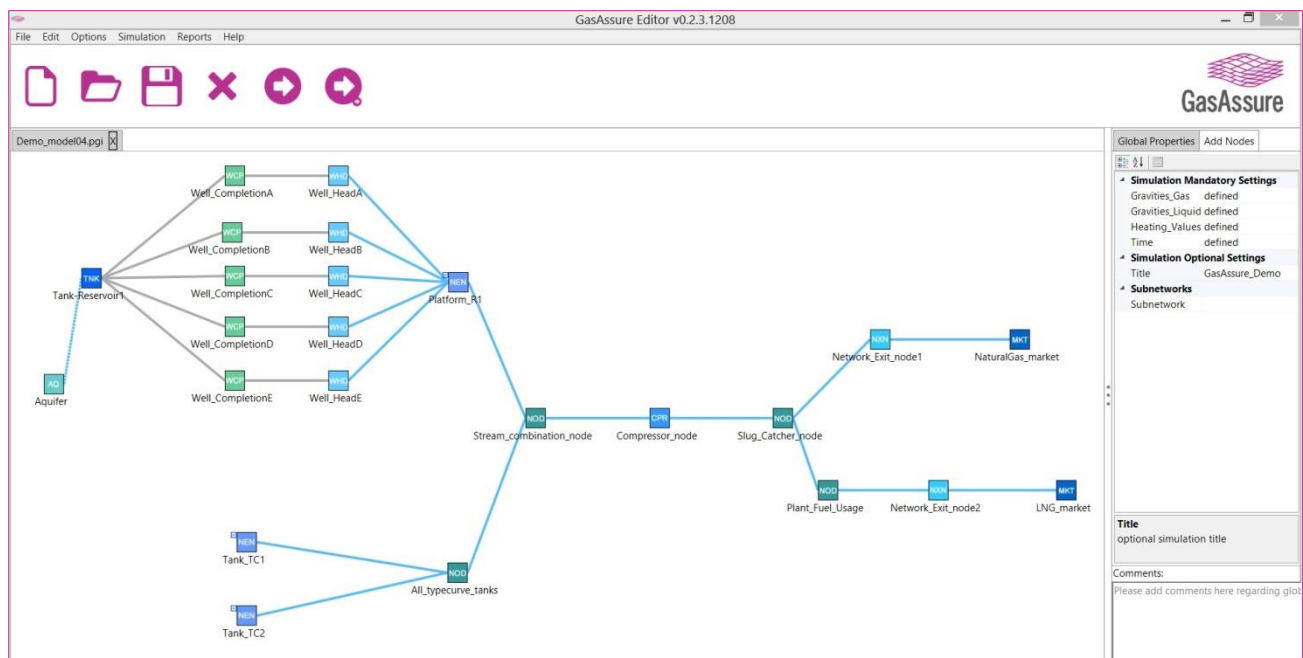
**Event Triggers -** GasAssure is market driven, handling various trigger options (peak, potential etc) inside the optimization engine to trigger multiple events in sequence (plan additional drilling of wells in the case of peak demand, maintenance shutdown, deliverability not meeting demand etc.) to ensure that gas contract obligations are met.

**Sub-Networks –** GasAssure allows the definition of sub-networks. This enables the user to evaluate a part of the network separately; ensuring engineers avoid cumbersome data handling or network modification issues.

**Advanced Data handling -** New data tables can be saved under different names and evaluated for a particular network. This saves time and money for an organization as an engineer's efforts can be spent on analysis rather than data handling/manipulation.

## The User Interface

**GasAssure** benefits from a simple, intuitive, graphical user interface, which has been developed to enable even a novice user the opportunity to build a representative gas system (comprising reservoirs, wells, surface equipment, major plant, pipelines and markets) in a quick and efficient way.
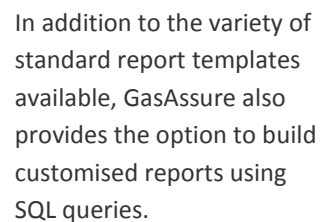


Other features include:

- A powerful algorithmic core which is launched separately for batch processing on the local network or secure private clouds
- An SQL database, implemented remotely or locally using MS Access, providing data consistency between input, output and run administration
- Plotting and QA of input and output within the GUI
- Transparent export of output results to MS Excel or other applications

## Results Visualization and Reporting

As GasAssure is capable of tracking hydrocarbons with individual components at any stage of the supply chain, it can generate a huge array of reports.

Track Component Rates at every node
eg. Platform DEVN shows gas rate

In addition to the variety of standard report templates available, GasAssure also provides the option to build customised reports using SQL queries.

A user can export this report to Microsoft Excel for further analysis and reporting, as well as graph and plot generation.

## Summary

| Features | Benefits |
|---|---|
| Advanced gas planning tool | • Assists in the planning of short, medium and long term projects<br>• Supports the widest range of gas planning issues |
| Controls and tracks hydrocarbon components from their source in the reservoirs | • Provides subsurface flexibility and can generate multiple "what-if" scenarios |
| Truly Integrated market driven solution | • A truly integrated view, rather than islands of information |
| Fully compositional | • Enables product based demand from markets to reservoirs |
| Technically robust solution to integrated production planning | • Provides an invaluable tool for engineers in, operations decision-making, facility management, handling seasonal demand changes, scenario planning |
| Models fulfilment of competing supply contracts | • Users can plan response to competing contractual obligations, based on prioritisation |
| Computationally efficient and fast (minutes not hours) | • Saves valuable time and money<br>• More efficient and timely decision making |
| Simple, intuitive, user friendly interface | • Allows even novice users the opportunity to build a representative gas system quickly & efficiently & start their gas planning activities<br>• Saves on training costs |
| SQL database, implemented remotely or locally using MS Access (or any other SQL compliant database as required) | • Enables data consistency between input, output and run administration<br>• SQL based query & reporting tools available |

For more information please visit **www.GasAssure.com**

Stochastic Simulation