

Atmos SIM helps to create next generation Pipeline Modelling system for GASSCO



GASSCO Pipeline Modelling System

Gassco (www.gassco.no) operate the integrated gas transport system from the Norwegian continental shelf (NCS) to continental Europe and the UK. This integrated network comprises of 8829 km subsea pipelines, processing plants, platforms and receiving terminals in five countries.

The Gassco Pipeline Modelling System (PMS) developed by Atmos International uses Atmos SIM for advanced hydraulic modelling to provide a powerful decision support tool. With the aid of Atmos SIM, Gassco control room operators are able to run the complex networks confidently and reliably.

Atmos SIM calculations are used to predict pipeline response to production disruptions. As very few subsea measurements are available on the Gassco pipeline network, the pipeline simulation functions are essential for Gassco to operate these pipelines safely and cost effectively.

The results of Atmos SIM for 23 separate Gassco pipeline models are displayed alongside measurement data within the SCADA system for operator interrogation. Atmos user controls embedded in the Gassco SCADA, provide a common user interface to Gassco operators, integrating model control (including Look Ahead and Peak Tracking configuration), PMS results and pipeline measurements.

GASSCO Pipeline Modelling System components

Atmos SIM Atmos SIM Offline supports planning and design analysis of pipeline networks. Atmos SIM Online gives pipeline operators a view into the un-instrumented areas of the pipeline to assist them in running their pipelines.



Åsgard gas pipe at Kalsto, Norway*

The same configuration applies to Atmos SIM Offline and Online. Online saved states can be imported to Atmos SIM offline for realistic scenario analysis and emergency studies.

Atmos SIM Look Ahead (LAH) LAH models the behaviour of the pipeline/network based on current operations or defined changes imposed on the system. This provides operators advance notification of issues that could impact security of supply. Scenarios, such as supply interruptions or customer production plans, can be pre-configured and scheduled to run automatically. LAH was also integrated with Gassco's gas nomination system to automatically generate scenarios to simulate planned future operation.

Peak Tracking Using Atmos SIM gas composition tracking functionality, peak tracking allows the automatic and manual tracking of batches, or 'peaks', of off-specification gas and trace components. The Atmos SIM pipeline model is tuned to give accurate prediction of peak locations and estimated times of arrival to points of interest.

Atmos SIM Leak Detection System (LDS) continuously calculates the pipeline volume balance.

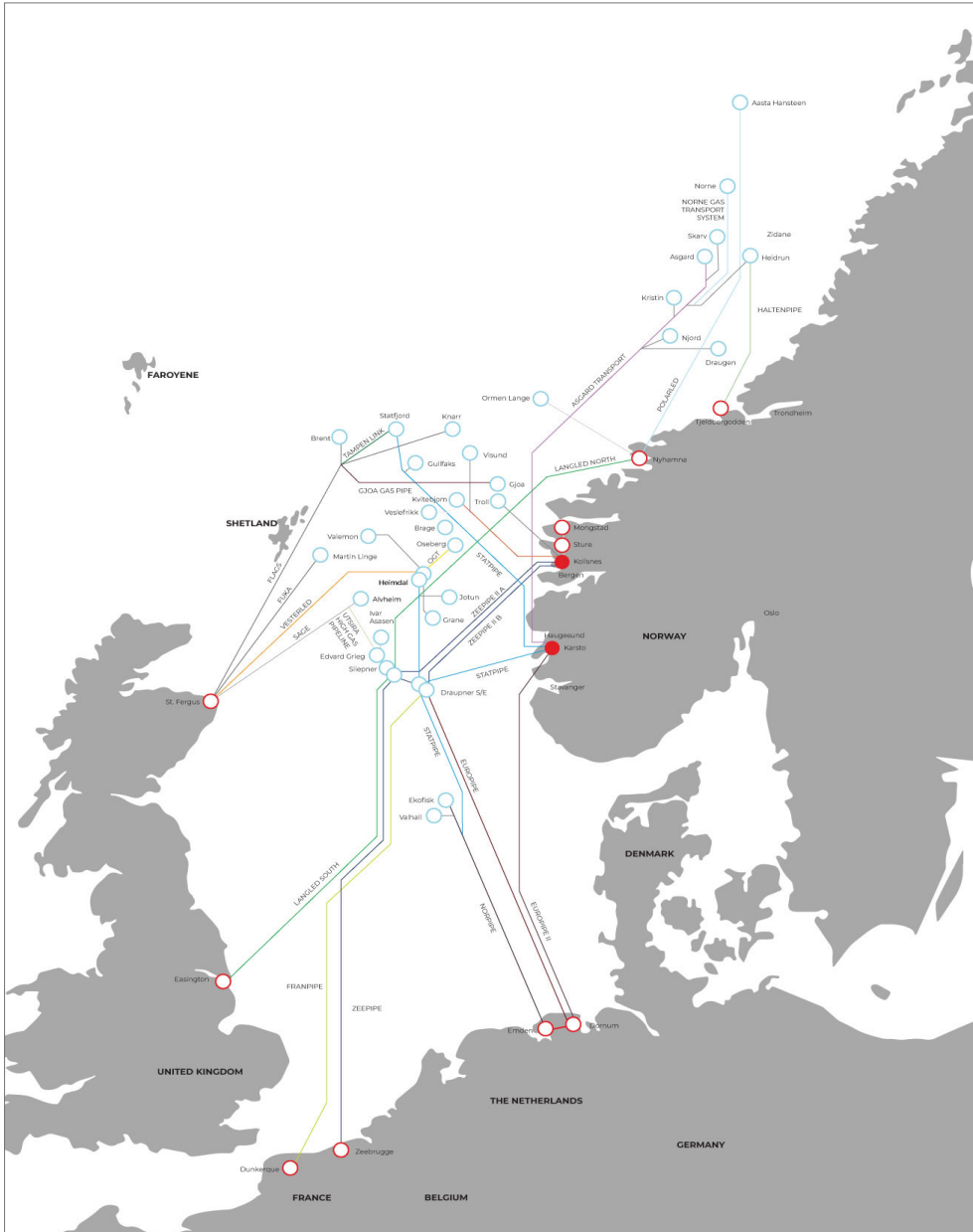
$$\text{volume balance} = (Q_{in} - Q_{out}) - \Delta \text{ inventory}$$

Where the calculated inventory is derived using advanced state estimation, a key component of the Atmos SIM model.

Atmos Data Manager connects all pipeline application and control systems e.g. SCADA/DCS using standard protocols. It gathers real-time and simulated data at configurable intervals. It can work alone or in a redundant environment. On failure of the primary server, Atmos Data Manager automatically and seamlessly switches to the secondary server.

Atmos Trend provides Gassco with comprehensive data charting and trending.

Gassco said: "The model accuracy is above expectation taking into account that there is very little instrumentation to feed the SIM models with signals. Atmos has worked hard and focused, and with their commitment and field knowledge, Atmos managed to develop our next generation of Pipeline Modelling System, which is fully integrated with the DCS/SCADA system. Since we went live, the system has been working reliably and the Gassco Operators are very pleased with the new functionalities."



We are deeply passionate about technology, innovation and customers, with a purpose to deliver the best pipeline leak detection, simulation solutions and customer service in the industry.

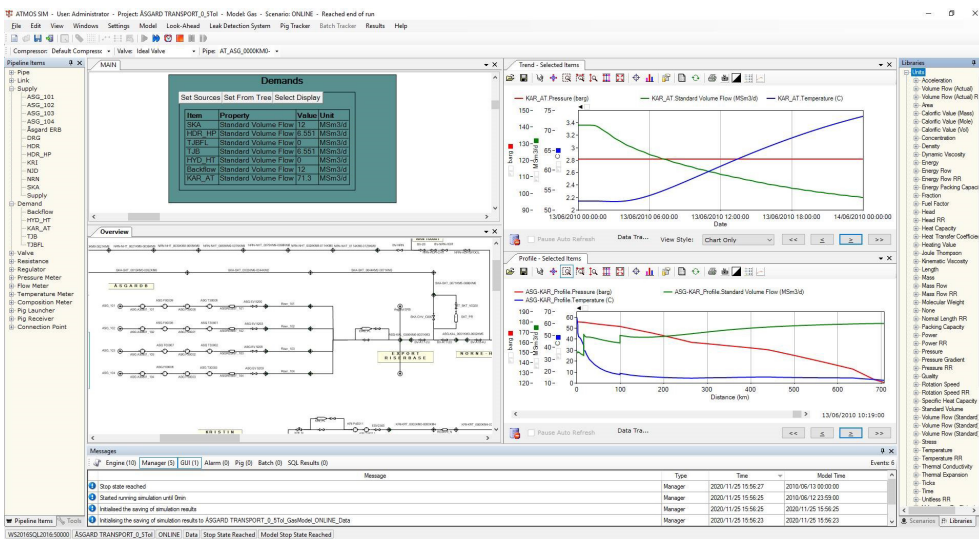
More than 1,500 pipelines and 60 countries within the oil, gas, chemical, water, aviation and mining industries benefit from our technology.

R&D's continuous innovation for better performance and reducing deployment costs makes it possible for every pipeline to have the best integrity monitoring tools.

Excellent customer service gives pipeline operators more sensitive and accurate solutions.

As the world's leading leak detection provider, we help ensure any leak is detected reliably and located accurately.

The Gassco network



Atmos SIM GUI