

# Atmos Intelligent Optimizer (AIO)



## Saving you up to 10% on energy costs\*

### The challenge

With hundreds or thousands of supply and delivery points on a gas transmission and distribution network, pipeline operations don't always go according to plan:

- Weather forecasts can abruptly change
- Unplanned compressor and pipeline outages can present operating scenarios never encountered by operators before
- Gas compositions can vary from day to day
- Multiple loads including power plants powering up on intraday nomination cycles can be difficult to efficiently manage

Sometimes multiple unexpected events can occur simultaneously, making it even more challenging for the controllers to decide what operational changes to make.

Even planned activity that has been years in the making, like the transition to hydrogen, can create challenges for gas transmission and distribution networks due to uncertainties around how hydrogen blends work in real pipelines.

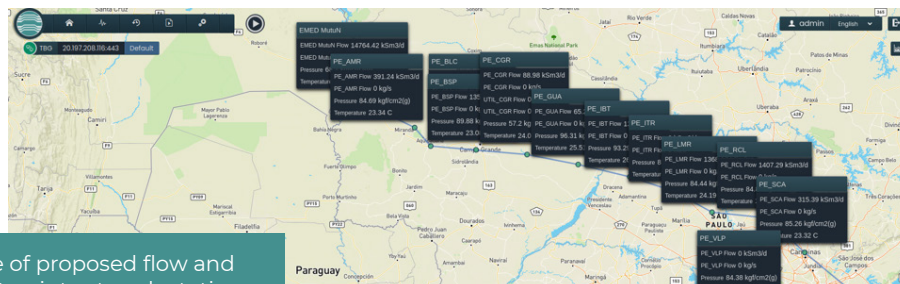
To optimize gas pipeline operations while meeting all contract requirements, Atmos Intelligent Optimizer (AIO) is the best tool to assist controllers in determining the most effective action for both planned and unplanned events.

### What is AIO?

AIO is the gas pipeline optimizer that applies machine learning to the Atmos SIM hydraulic simulation output data.

While the Atmos SIM hydraulic simulator models and analyzes the behavior of gas in a pipeline based on measured flows, pressures and temperatures, AIO uses the real-time data to help operators take the most efficient actions.

In line with the specific goals set by the operator, AIO is capable of automatically generating an optimal and actionable operational plan every day and will auto-update the plan every hour or when new nominations or schedules are added.



An example of proposed flow and pressure set points at each station



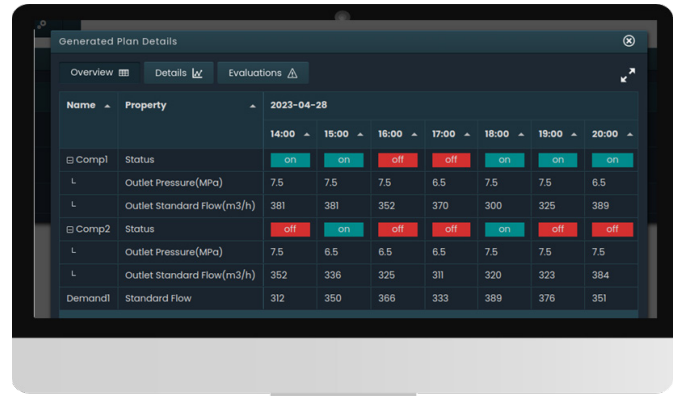
From the AIO optimal operational plan, pipeline operators can choose to efficiently operate the pipeline to meet scheduled deliveries or maximize pipeline throughput. The optimal operational plan has the potential to save pipeline companies millions of dollars per year\* while meeting customers' demands and keeping flow, pressure and temperature across the network within safe operating limits.

### Main features

- Machine learning with pipeline simulation and optimization
- Kubernetes deployment to any cloud environment including in-house systems
- Industry production level security audited by NCC Group
- Runs complex gas networks optimally
- Applicable to both gas and liquid pipelines

### As well as saving time and reducing costs, Atmos Intelligent Optimizer can:

- Be applied to all gas pipelines and networks, including hydrogen and biomethane, which helps to facilitate the transition to green energy
- Increase the certainty of available peak daily pipeline capacity, allowing for additional transportation to be marketed
- Provide faster and more reliable decision-making in the event of unplanned pipeline activity
- Improve safety by reducing the risk of pipelines operating outside allowable limits
- Reduce energy consumption and gas emissions, helping pipeline companies deliver on their Net Zero targets
- Lower stress on pipeline controllers and streamline operations through validated decision making



The results of AIO can be exported as CSV files for planning and control

AIO can be configured on all gas pipelines, including those with hydrogen blends and biomethane.

As pipeline operators start to introduce hydrogen to natural gas pipelines, an understanding of the complexity of hydrogen blends is crucial.

AIO can make informed, real-time decisions about all gasses, including hydrogen, as they move through gas transmission and distribution networks, reducing energy consumption and gas emissions and helping pipeline companies deliver on their Net Zero targets in the process.

As the challenges across the oil, gas, chemical, water, aviation and mining industries continue to grow, so does our technology.

AIO from Atmos International forms an essential part of pipeline simulation suites within the gas industry.

\*Estimated saving based on compressor running costs and pipelines being run with Atmos Intelligent Optimizer (AIO)

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.

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