



**LIWACOM** is a major global supplier of pipeline simulation and optimization software. **SIMONE** is the industry-leading and most advanced standard software application for simulating and optimizing natural gas flows in pipeline transportation and distribution systems. It covers system design, real-time operation, leak detection, and energy billing.

Beside of Support / Maintenance / Training for the Software **SIMONE**, **LIWACOM** offers the following engineering, consulting and study services:

## LIWACOM Engineering

### FEED, Basic- and Detail Design in Process, E / MSR-Techniques

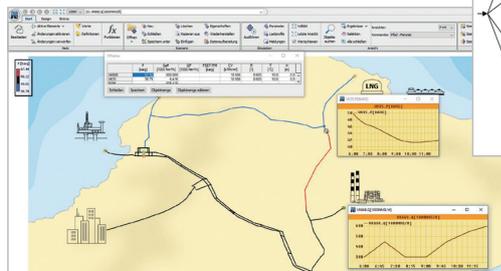
General support for engineering services for gas projects.

### Preparation, Examination and Documentation of HAZOP / SIL Studies

Preparation, examination and documentation of HAZID / HAZOP and SIL Studies.

### Hydraulic Studies for Gas Transport Systems

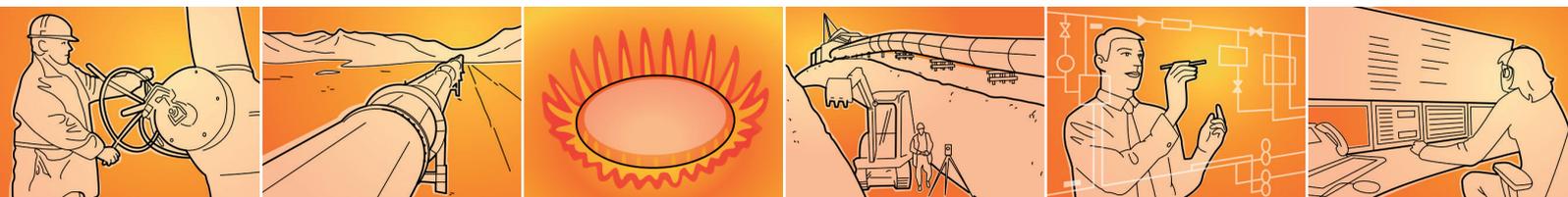
Preparation of hydraulic studies for the gas industry and creation of tailormade **SIMONE** models as support for **SIMONE** users.



Impact Severity	PROBABILITY / LIKELIHOOD				
	A	B	C	D	E
1. Catastrophic	High	High	High	Medium	Low
2. Severe	High	High	Medium	Medium	Low
3. Critical	High	High	Medium	Low	Low
4. Marginal	Medium	Medium	Low	Low	Low
5. Negligible	Low	Low	Low	Low	Low

The risk matrix is divided into three risk categories as defined below:

<b>High Risk</b>	Unacceptable high This level of risk exposes the Company to intolerable losses to People, Assets, Environment or Reputation. The hazard should be eliminated or its risk reduced to tolerable levels immediately.
<b>Medium Risk</b>	Acceptable but must be managed at ALARP (as low as reasonably possible) The hazard must be managed to reduce the frequency and / or the severity of the hazardous events to ALARP.
<b>Low Risk</b>	Risk reduction measures must be planned and documented Acceptable without required further action Corrective(s) may be applied as resources allow.



## Fact Sheet

### FEED, Basic- and Detail Design in Process, E / MSR-Techniques

Support for preparation of technical enquiries and specifications for gas transport and storage systems, especially

- Pipeline systems,
- Metering stations,
- Compressor stations,
- SCADA systems.

### Preparation and Examination of HAZOP / SIL Studies

- Preparation, examination, and documentation of HAZID / HAZOP and SIL studies for gas transport / storage systems.
- Follow up of the created action points.
- Close out report.

### Hydraulic Studies for Gas Transport Systems

- Capacity investigations.
- Support for specification of technical enquiries for compressors (e.g. required power, head and volume flow for several operation points).
- Transient pressurization / depressurization for commissioning / decommissioning scenarios.
- Pre-design of depressurization systems.
- Simulation of modifications in existing systems (capacity calculation, e.g. transient behavior of the network for several load profiles).
- Calculation for scenarios with changes in gas quality / calorific values (e.g. new biogas or H<sub>2</sub> injection).
- Training for SIMONE users with individual tailor-made key aspects.

## References



## Contact and Product Support



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