Operational excellence

Managing your industrial assets and their maintenance

YOU ARE:

- **Gas producers** (biomethane, hydrogen, syngas, etc.) wishing to control the costs, performance and safety of their facilities.
- **Operator of gas infrastructures** (transport, distribution, storage, LNG terminals, etc.) wishing to optimize operations and maintenance of their assets
- **Developers or suppliers of energy solutions** (biomethane, power-to-gas, etc.) wishing to guarantee maximum product and service quality.

YOUR CHALLENGES

From system design to operation, from production to energy consumption, the gas chain faces new challenges: new gases, innovative technologies, ecological transition, competitive markets, safety requirements, digital development... **Meeting tomorrow's energy challenges requires optimal management of industrial assets in terms of cost, performance and safety.**

The choice of equipment, systems architecture, operating conditions and maintenance policies are all levers for improving performance criteria while controlling costs and risks. Asset management meets these objectives through an integrated approach.

OUR RESOURCES

NaTran R&I expertise in **Systems Management and Optimization** in based on **recognized skills:**

- **Feedback and data science** ((statistical analysis, artificial intelligence, natural language processing, etc.)
- **Dependability** (reliability, availability, maintainability, durability)
- **Cost, performance and safety modeling** (probabilistic studies, simulations, etc.)
- **Maintenance optimization** (aging models, operations efficiency, predictive maintenance, optimization of maintenance plans and logistics)
- **Industrial asset management** (investment prioritization, OPEX and CAPEX trade-offs, operation and maintenance optimization, etc.)

NaTran R&I has **proven know-how** thanks to specialized resources and specific developments:

- **Data processing and analysis methods and tools** (in Python, R…)
- **Specialized artificial intelligence software** (Bayesian networks, machine learning, automatic language processing, etc.)
- **DataLab** support within NaTran
- **Laboratory** and on-site testing facilities
- **Dependability software** (fault trees, Petri nets, etc.) including specific developments carried out by NaTran R&I
- **External reliability** and maintenance databases (all industries)
- **RInternal operating** and maintenance feedback on millions of hours and assets

OUR REFERENCES

- Estimation of the reliability of LNG terminal equipment, using automatic natural language processing applied to maintenance procedure descriptions
- Characterization of reliability factors for gas transmission equipment, using multifactor statistical analysis
- Evaluation of the effect of age on incidents involving gas distribution equipment, using partial data
- Identification of factors in diffuse gas leaks, using artificial intelligence tools (Bayesian networks and machine learning)
- Estimation of the effect of maintenance actions on the service life of gas compression equipment
- Study of the service life of electrolyzers (alkaline and PEM) as a function of stress.
- Modeling (stochastic) degradation of gas pipelines as a function of monitoring and inspection policies
- Development of a tool to predict the evolution of cracks in gas pipelines
- Automated calculation of frequencies of feared events for gas delivery stations, based on experience feedback and material characteristics
- Probabilistic study of risks associated with gas return stations
- Comparative performance analysis of gas odorization strategies
- Development of predictive maintenance solutions for gas regulators
- Simulation of replacement policies for gas distribution equipment, based on characteristics and age
- Optimization of maintenance plans for gas compressor stations
- Optimization of spare parts inventory management for biomethane injection stations
- Prioritization of investments for the renovation of gas pressure-reducing stations, based on a cost/performance/safety approach
- Support for the deployment of new maintenance policies

YOUR CONTACT

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