



good new energy

Services Solutions

Our experience, our best guarantee

Enagás is an international standard bearer in the development and maintenance of gas infrastructures and in the operation and management of gas networks.

Over the course of our 50-year history we have developed the key infrastructures for the Spanish Gas System, transforming it into a benchmark for security and diversification of supply. Currently, we are present in nine countries across the world and we are certified as TSO (Transmission System Operator) by the European Union, which accredits

us as an independent operator in any European country. Besides, we are the Technical Manager of the Spanish Gas System.

Enagás Services Solutions provides the advice and know-how acquired by Enagás through all these years. It emerges to commercialize Enagás' engineering, operation, maintenance and training services based on the highest standards of quality and efficiency. These services have already been successfully applied and tested in our own infrastructures.

12,000 km of gas pipelines

3 underground storage facilities

8 LNG terminals

20 compressor stations

6 international connections

More than
1,400 highly-qualified professionals

Enagás across the world



A continued commitment to meeting targets

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EBITDA (€M)	596.0	636.2	701.3	780.8	885.5	934.3	995.9	939.8	900.5	882.6	1,110.3
Net profit (€M)	238.3	258.9	298.0	333.5	364.6	379.5	403.2	406.5	412.7	417.2	490.8

Our ratings S&P **A-** FITCH **A-**



Energy efficiency for a sustainable future

What?

Committed to improve energy efficiency and reduce carbon footprint in our facilities by:

- Fixing Energy Efficiency and Emissions Reduction targets.
- Developing an Energy Efficiency and Emissions Reduction Plan (EEERP) to reach the targets.

30%
emissions reduction target 2016-2018 vs. 2013-2015

How?

Reducing natural gas and electricity consumption.

Increasing power self-generation from renewable, clean and efficient sources.

Consequent GHG emissions reductions.

Why?

Reinforcing natural gas short-term competitiveness as a transition energy and LNG as fuel for a decarbonised future.

35%
self-generation target of the electric energy consumed from clean sources in 2020

Master guidelines

These projects have been implemented in **our own facilities** in order to accomplish the following objectives.

	Savings		
	GWh	€M	Ton CO ₂ eq
 Reducing natural gas consumption: Zero send-out emission compressors BOG/seawater heat exchanger Upgrading compressors at different CCSS	1,485	19.2	323,197
 Reducing electricity consumption: VFD in cryogenic pumps Lighting improvements Operational improvements	11	0.7	2,342
 Self-generation: Ormat Cycle (HVA, Almendralejo) Turboexpander	23	1.7	4,866

From 2015 to 2017

A tested maintenance management model

Thanks to Enagás' experience and following the guidelines established in the ISO 55001, we have developed and implemented our own maintenance management system. Now, we can offer you our support and knowledge to reapply this tested model in your facilities.

Main goal of each phase

Improvement

Phase 8: Continuous improvement and new techniques utilization

The continuous improvement of maintenance management will be possible using techniques and emerging technologies in areas that are considered high impact. Identification and monitoring of new technologies, as well as the digitalization and exploitation of information, through a signal monitoring and diagnostic system.

Evaluation

Phase 7: Asset life cycle analysis and replacement optimization

Advanced reliability techniques for analysing asset life cycle costs and for controlling them, such as "Life cycle cost analysis" or "Asset Health Index".

Phase 6: Maintenance execution assessment and control

Control and supervision of maintenance operations to achieve the business objectives and the stipulated values for maintenance KPI's.

100%
Increase in MTBM (Mediam Time Between Maintenance) in main equipment



19%
hours of corrective maintenance

Top
compliance with the annual maintenance plan

Our services in...



... engineering

Basic engineering (conceptual)

High level definition of design features and specifications

Extended basic engineering

Design specifications that allow taking GO/NO GO decisions

Detailed engineering

Detailed development of design specifications

Engineering, procurement and construction

Turnkey procurement

Services to EPCs

Provision of specific support services to EPCs

Property engineering

Consultancy and support to ensure compliance with contractual specifications



... O&M

Gas facilities O&M

Technical assistance

Incidents

Special maintenance

Queries on call

Implementation support

Maintenance Management System

Technical advice and improvements

Analysis and proposed improvement design

Technical Due Dlligence

Technical audits

Development of ranges of technical specifications

Energy efficiency evaluation

Feasibility studies

Interconnection of equipment and systems

Design of O&M models

O&M support tools



... other consultancies and training

Consultancy

Provision of consulting services:

- Regulation
- Gas system management

Training

Design and delivery of training actions in two modalities:

- Customised. Practical training (on the job training) adjusted to the needs of each client
- Standard training

Paseo de los Olmos, 19
28005 Madrid
(+34) 91 709 92 00
www.enagas.es



good new energy

