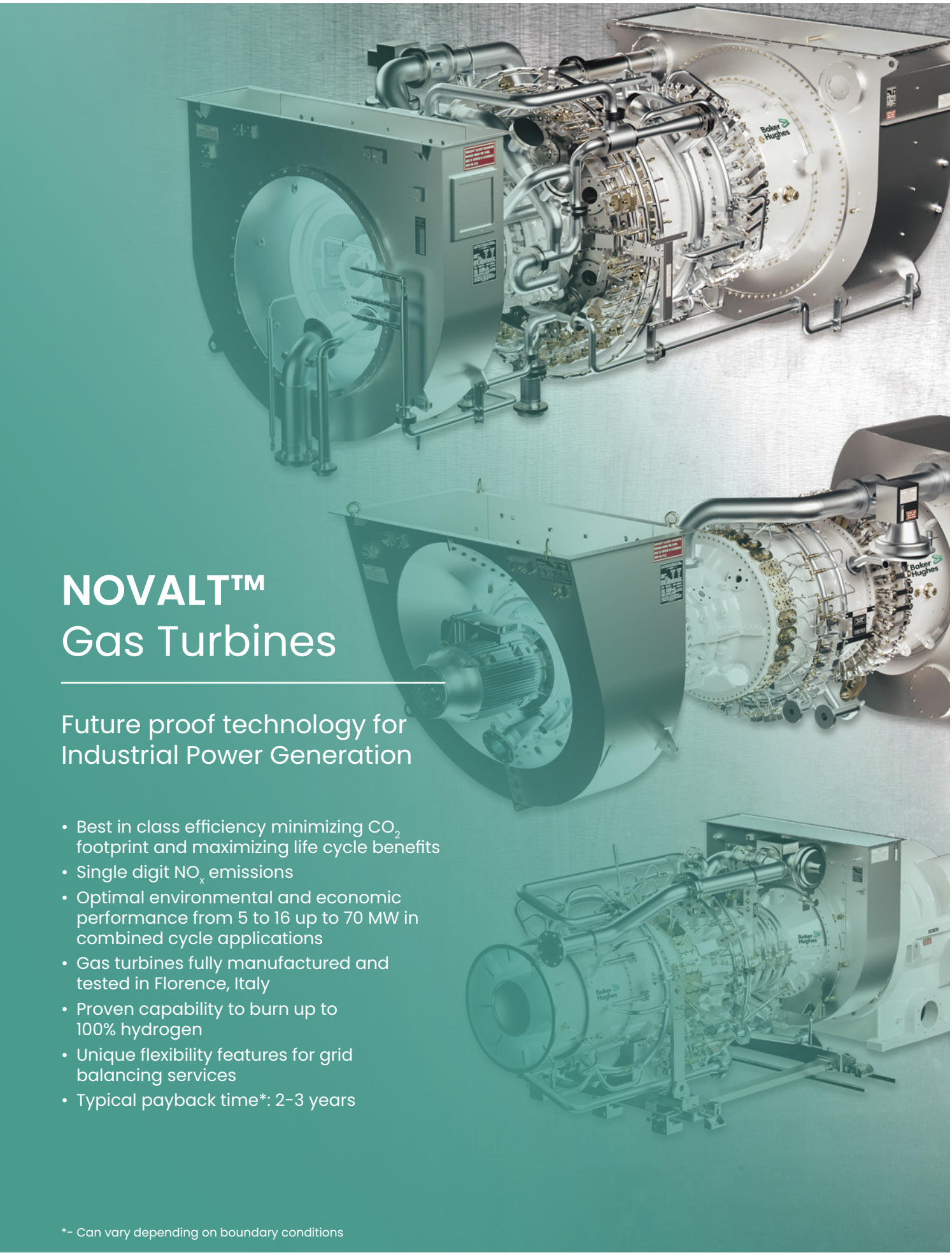
Baker Hughes

We are taking energy forward

The path to net-zero and a sustainable energy future with NOVALT™



NOVALT™ Gas Turbines

Future proof technology for Industrial Power Generation

- Best in class efficiency minimizing CO_2 footprint and maximizing life cycle benefits
- Single digit NO_x emissions
- Optimal environmental and economic performance from 5 to 16 up to 70 MW in combined cycle applications
- Gas turbines fully manufactured and tested in Florence, Italy
- Proven capability to burn up to 100% hydrogen
- Unique flexibility features for grid balancing services
- Typical payback time*: 2-3 years

*- Can vary depending on boundary conditions

NOVALT™

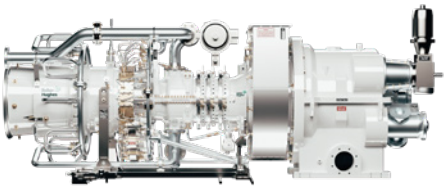
Power generation performance

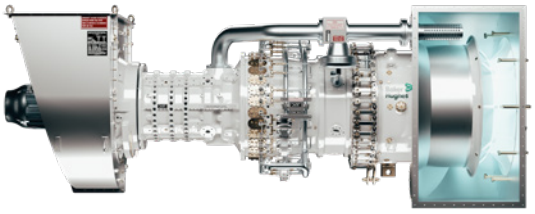
Performance	NovaLT™ 5-1	NovaLT™ 12	NovaLT™ 16
Generator electrical output	5.5MWe	12.5MWe	16.9MWe
Electrical efficiency @ full load	29.5%	35.3%	36.4%
Electrical efficiency @ 70% load	27.5%	31.8%	32.8%
Generator frequency	50/60Hz	50/60Hz	50/60Hz
DLN turndown	50% or better	50% or better	50% or better
NO_x emissions	15 ppm	15*ppm	15*ppm
Heat & power efficiency	>85%	>80%	>80%
Exhaust temperature	580°C	496°C	495°C
Exhaust flow	20.4Kg/s	42Kg/s	54.6Kg/s
Steam production @ 10 bar(a) dry	14.5tph	23tph	31tph
Fuel type**	NG/H2NG/HI	NG/H2NG/HI	NG/H2NG/HI/Diesel Oil
Fuel flow rate	0.4kg/s	0.7kg/s	0.9kg/s

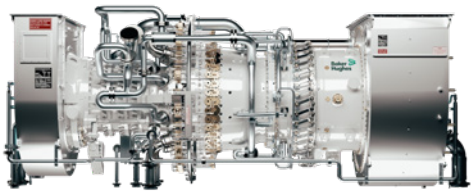
Performances at ISO conditions

* 9ppm upon request

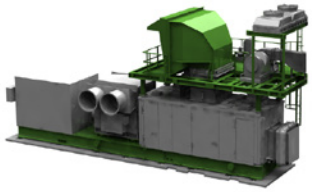
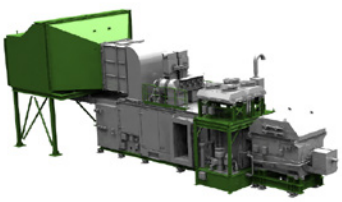
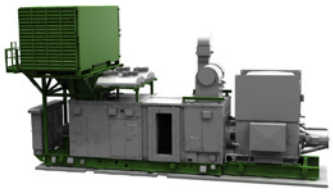
**Fuel Type:
NG= Natural Gas
H2NG= H2 blends with Natural gas
HI= high inerts







NOVALT™
Power generation packages

	NOVALT™ 5-1	NOVALT™ 12	NOVALT™ 16
			
Footprint: LxWxH (m)	14x2.5x7.9	14.3x2.5x6.4	15.62x3.15x9.52
Weight (ton)	65	113	134
Exhaust orientation	Axial	Lateral/Vertical	Lateral/Vertical

NOVALT™ 12 & 16 Maintenance
35K hours continuous run … no annual planned inspection

	Hot Section Overhaul
Hours	35,000
Starts	1,250

	Major Overhaul
Hours	70,000
Starts	2,500

Longest maintenance interval
Complete GT overhaul only after ~8 years

No annual inspection
2-3 days of additional operation per year

Fast exchange
24 working hours achievable for engine swap

Minimized inventory
Pool of engines available for exchange service

NOVALT™ 5=24,000-48,000hr maintenance intervals

CASE STUDY #1

Lucart: a success story for a cogeneration plant

Client

Lucart: European multinational leader in the production of tissue, airlaid, and MG paper

Challenge

Increase plant profitability and reduce emissions

Solution

- Introduce a Combined Heat and Power process driven by NovaLT™12 with an output 12 MWe, 24t/h of saturated steam
- Commissioning completed Q4'19

Actual Results

- 80% CHP efficiency
- 34% electrical efficiency
- 7,000 tons/y CO_2 emissions saved vs grid (equivalent 2.800 acres of forest)

NovaLT™12 installed at the site:
~14000 continuously running hours (24/7) already accumulated

CASE STUDY #2

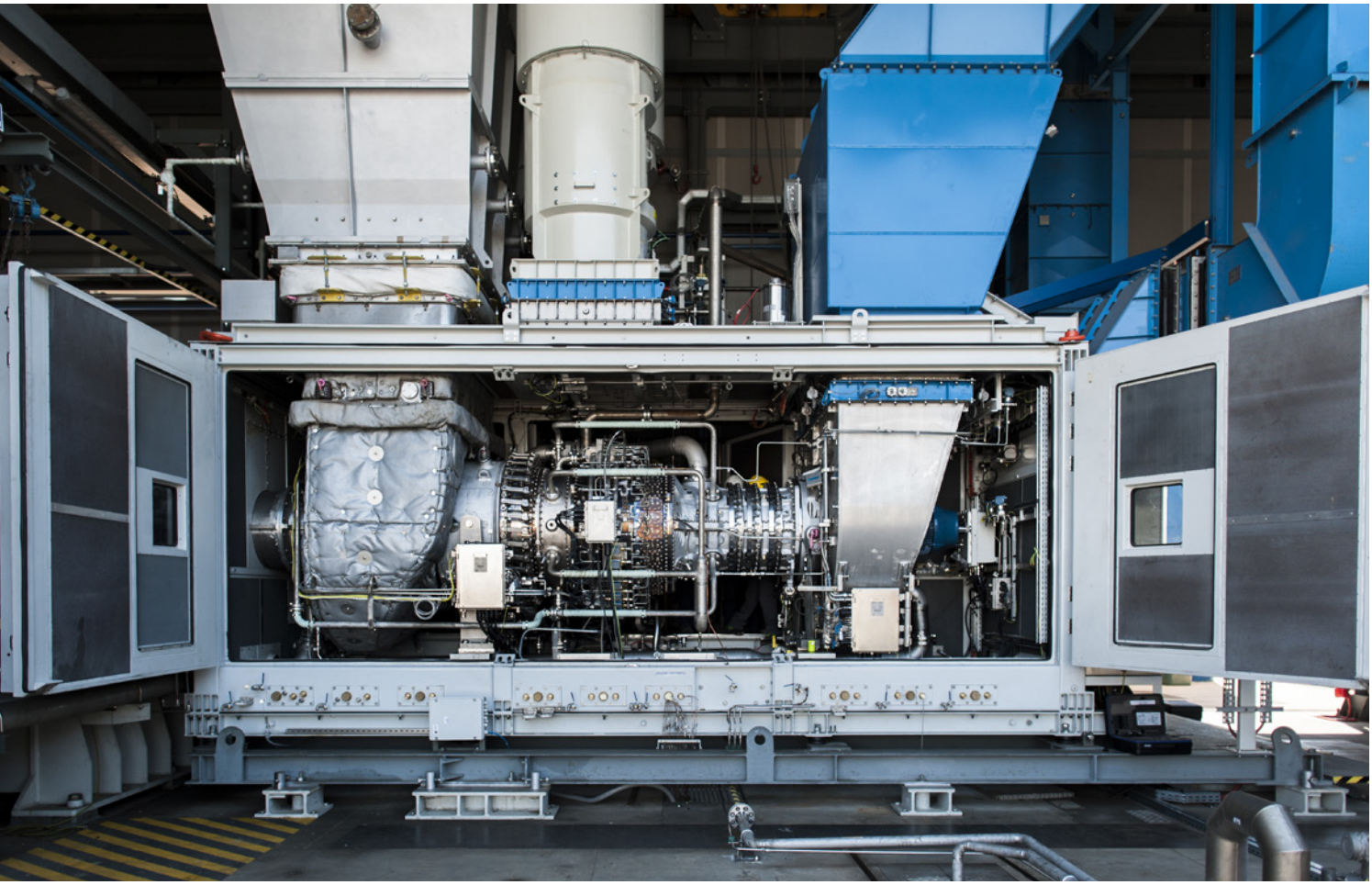
World's first hydrogen blend turbine for gas networks

In July 2020, Baker Hughes and Snam successfully completed testing of the world's first "hybrid" hydrogen turbine designed for a gas network. The test paves the way to implement adoption of hydrogen blended with natural gas in Snam's current transmission network infrastructure.

Powered by a blend of up to 10% hydrogen, the NovaLT™12 turbine was designed and manufactured by Baker Hughes in Italy.

NovaLT™12 will be installed at Snam's gas compressor station in Istrana, Italy.

The project represents a new milestone for Italian infrastructure as it continues to adapt to transport hydrogen and reduce CO_2 emissions: today 70% of Snam's pipelines are already built with "hydrogen ready" pipes.



Comprehensive industrial offering

- 5 to 17 MW (simple cycle) NovaLT™ DLN: Dry Low NO_x, GT: Gas turbine NG: Natural gas and DF: Dual Fuel and H2: Hydrogen
- Complete Combined Cycle/Combined Heat & Power plants up to 70MW
- Steam turbines up to 130MW
- Fuel treatment and compression systems
- CO_2 capture
- Energy storage
- Digital solutions
- Broad range of maintenance agreements
- Technical / operational training
- Financing solutions

Contact Us

Baker Hughes

bakerhughes.com