

Advanced Turbomachinery Services and Support

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The Energy industry requires continuous innovation to deal with the growing need for emissions reduction and production increases while reducing operational costs. This puts pressure on operators to push their equipment to perform beyond the typical 20+ year design.

With decades of experience and OEM expertise, we deliver top-quality maintenance services that help you achieve that goal. Our solutions guarantee the highest availability and reliability, smooth plant operations, and maximized production—while minimizing maintenance event cost.

Taking **energy forward**—with comprehensive capabilities that ensure the highest availability, reliability, and efficiency for the entire life of your equipment

Local OEM service

Baker Hughes Service Shops and Joint Ventures

Industry-leading equipment availability and reliability

There are five major Baker Hughes Service Shops and four Joint Venture Service Centers strategically located worldwide—providing a comprehensive range of reliable repair and upgrade services with unequalled OEM expertise. This global footprint ensures efficient and effective service to onshore and offshore customers in any location.

Each site performs standard and customized repairs on all our OEM components, leveraging our extensive engineering knowledge across product design, manufacturing, installation, operation, and performance enhancement.

Key features

- Full lifecycle services to optimize availability and reliability in mechanical drive, compression, and power generation
- The most advanced technology and repair solutions, with services designed to meet customer and application-specific needs
- Dedicated, specialized service engineering solutions

Applications

- Equipment upgrades for all onshore and offshore oil and gas and industrial applications
- Component life-extension management
- Full in-house test capabilities to guarantee best site availability



Authorized service network

Authorized Service Centers and Distributors

Shorter lead times on parts, repairs, and other field services

Our Authorized Service Centers (ASC) provide after-sale services for specific territories, technologies, or assigned fleets. Their scope can include supply of genuine Baker Hughes spare parts, licensed repairs in qualified workshops, and a range of field services.



FIELD SERVICE >

REMOTE SERVICES >

INNOVATIVE TOOLS >

4D DIGITAL OUTAGE >

AUTONOMOUS INSPECTION >

BOROBLENDING AND FPI >

Field service

OEM personnel with latest technologies

Fast responses, anywhere in the world to maximize reliability and availability

Baker Hughes customers worldwide have direct access to over 1,000 localized Field Service Engineers with additional support from our Field Service Center of Excellence at our headquarters in Florence, Italy.

Features

- Comprehensive capabilities adaptable to any customer requirements, from task-specific experts to multi-skilled personnel
- Advanced and innovative technologies to optimize execution and further improve HSE and productivity
- More than 600,000 hours of training in 2,300 sessions with 14,000 attendees

Applications

- Midstream and downstream oil and gas
- Planned/unplanned maintenance execution, troubleshooting
- Upgrade, installation, commissioning, start-up



FIELD SERVICE >

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Remote services

Advanced execution capabilities without mobilizing people to site

Faster response times and lower costs

We use the latest remote diagnostics and communications tools like Smart Helmet, 3D digital twin, RM&D, and remote HMI control to enhance remote Field Service capabilities. Enabling precise data analysis, troubleshooting, operational support, supervision and guidance, these avoid the need to be physically at your site—improving response times and costs for many service scenarios.



FIELD SERVICE >

REMOTE SERVICES >

INNOVATIVE TOOLS >

4D DIGITAL OUTAGE >

AUTONOMOUS INSPECTION >

BOROBLENDING AND FPI >

Innovative tools

State-of-the-art technologies to enhance on-site operations

Improved data quality, productivity, and safety for field operation

Baker Hughes Field Service Engineers are equipped with leading-edge technologies to deliver the best-in-class service quality, productivity, and safety.

They include:

- Capacitive-clearance measurement tool
- Dry-gas seal measurement tool
- Ultrasonic camera for gas-leak detection
- App for automatic troubleshooting
- Smart Helmet



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4D digital outage

Virtual simulation of the outage events

Flawless execution, reduced outage duration, quality and safety assessment

Leveraging the latest digital technologies, Baker Hughes' 4D digital outage is an evolution of our Maintenance Excellence Planning capabilities that combines 3D models of a site and Gantt Chart to virtually simulate the outage before execution. This enables pre-deployment improvements for quality and EHS execution—decreasing outage duration and increasing asset availability.



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BOROBLENDING AND FPI >

Autonomous inspection

Improve repetitive inspection execution in dangerous areas

Improved quality and HSE

Some routine inspections, checks, and measurements are required regularly, but with low human added value—especially when in dangerous areas or confined spaces.

To help field personnel with these repetitive inspections, we've adopted robots equipped with multiple sensors to work autonomously or with a local/remote operator.

This will increase safety for personnel while controlling cost and time.



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BOROBLENDING AND FPI >

Boroblending and FPI

Repair services for gas turbines and other assets

Cost optimization by avoiding disassembly for repairs

- Boroblending is used to repair small impact damage on no-cooled blades of gas turbine through the borescope ports
- A fluorescent-penetrant inspection (FPI) is executed by the borescope ports
- These activities can be done without hardware removal and with the engine still in its enclosure
- Both tools are also suitable for assets other than gas turbine blades. Limiting factors include accessibility of damaged area and damage size



BOROBLENDING SCOPE



FLUORESCENT-PENETRANT INSPECTION



GENUINE SPARE PARTS >

ADDITIVE MANUFACTURING
SPARE PARTS >

CUSTOMIZED SPIR >

Genuine spare parts

New technologies, enhanced designs, advanced materials, and more

Improved machine performance

- Genuine Baker Hughes spare parts maintain the highest level of the machine performance
- Our OEM knowledge and worldwide experience drives a cyclic technical refresh to always provide the best components with the proper interchangeability analysis or modification instructions
- We can suggest a prioritized list of parts for replacement based on each unit's running conditions, and can perform full engineering troubleshooting
- Timely parts availability thanks to large regional inventories, and worldwide delivery by air or sea
- Excellent warranties for all our spare parts
- For all Baker Hughes and heritage-brand equipment of any age
- Unique interface for warranty
- Best-in-class packaging and preservation
- Interchangeability guarantee if updated component is proposed
- Worldwide delivery by air or sea



GENUINE SPARE PARTS >

ADDITIVE MANUFACTURING
SPARE PARTS >

CUSTOMIZED SPIR >

Additive manufacturing spare parts

Manufacturing flexibility that enables optimized design

Improved performance, customization, and shorter lead time

Thanks to the high degree of freedom possible with production through additive manufacturing, spare parts (hot gas path component and combustion component) are redesigned, improved, and customized (if needed) to improve reliability and performance, extend life, and reduce lead time.

This innovative technology also enables the supply of obsolescent parts with a fully internal, smart, and more sustainable supply chain—Baker Hughes maintains tight control of quality and lead time.

Ideal for maintenance extension, performance improvement, obsolescence management.



GENUINE SPARE PARTS >

ADDITIVE MANUFACTURING
SPARE PARTS >

CUSTOMIZED SPIR >

Customized SPIR

SPIR: Spare Parts Interchangeability Record

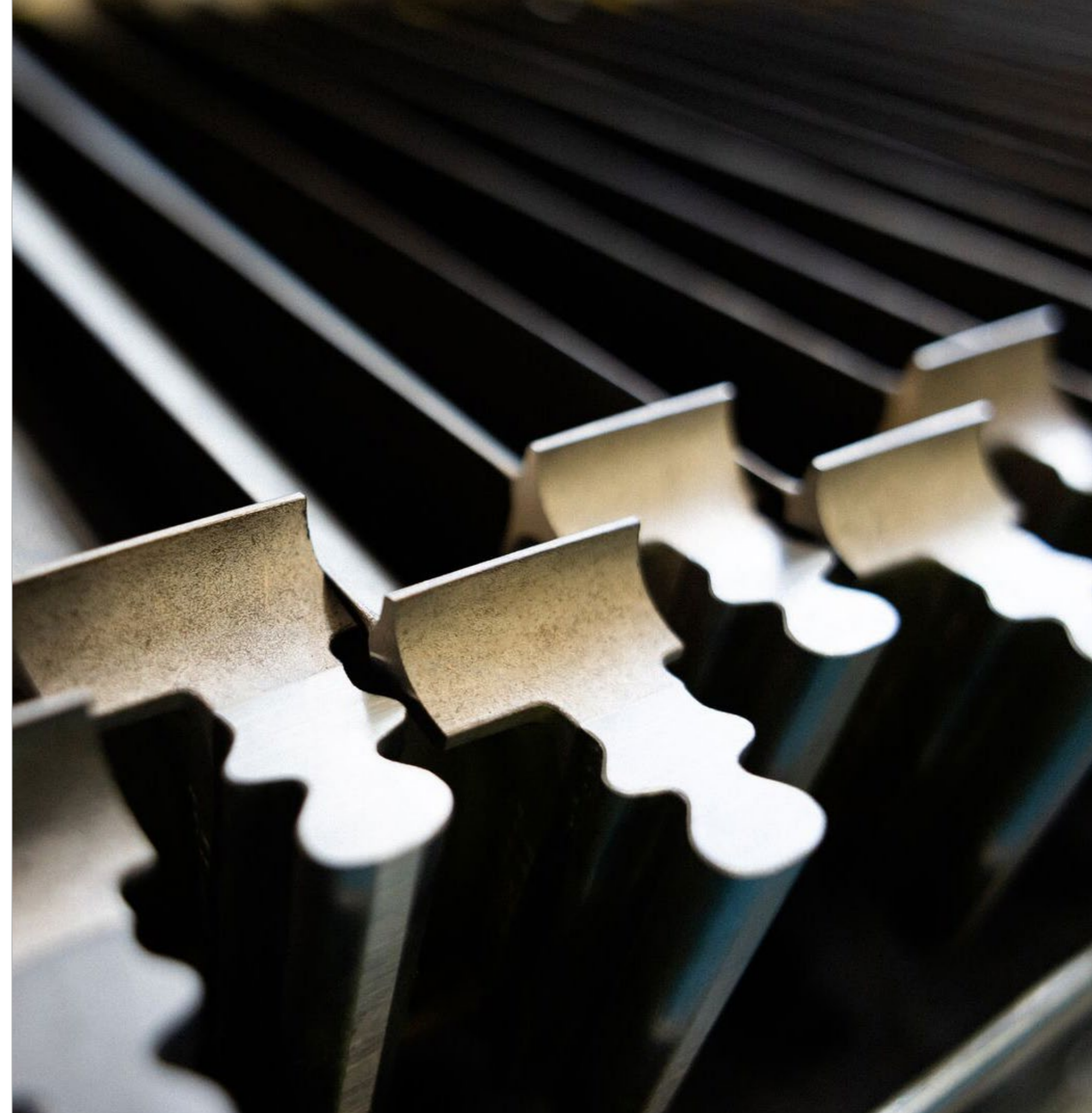
Simplified parts selection and reduced inventory costs

We can provide a customized spare parts list, developed in our proprietary Baker Hughes SPIR template—for your machine core (flange to flange) and relative auxiliary equipment.

It includes a recommended “safety stock” key for facing unplanned maintenance and protecting the availability and reliability of your business.

To minimize inventory cost, the selection is optimized and reduced to minimum quantities, based on component interchangeability.

Customers can avoid the complex process of identifying spare parts needed for maintenance through the part lists and drawings in equipment manuals—and instead can rely on a customized list prepared by our maintenance engineering specialists.



CERTIFIED RENEWED
EQUIPMENT: HEAVY-DUTY
GAS TURBINE MODULES >

CERTIFIED RENEWED
EQUIPMENT: HEAVY-DUTY
GAS TURBINE ROTORS >

CERTIFIED RENEWED
EQUIPMENT: HIGH-SPEED POWER
TURBINES AND PGT25S >

REFURBISHED AERODERIVATIVE
GAS TURBINES >

Certified renewed equipment: heavy-duty gas turbine modules

Reduced cost, shorter lead times, and guaranteed performance

Flange-to-flange modular replacement, like-for-like or upgrades

- This faster, cost-effective solution maintains site configuration and decreases outage downtime for current and out-of-production gas turbines—including a pool of spare components and modules at lower costs
- Backed by OEM warranties and can be purchased with advanced turbomachinery support services, including interchangeability studies, installation, and consultation

Through partnership in advance:

- Define yearly budgets for maintenance costs
- Reduce downtime during MI events and emergencies
- Fleet rejuvenation
- “Like for like” when required or optional upgrades
- Possible buyback or exchange of assets
- Potential on-site inspections after assets swaps

Gas turbine modules included:

- Frame51 L/LA/M/R/RNT/N/P/PA
- Frame52 B/C/D
- Frame32 F/H/J/J-HT
- PGT5/2 (Frame1B) up to PGT5/2D (7.300 HP)



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REFURBISHED AERODERIVATIVE
GAS TURBINES >

Certified renewed equipment: heavy-duty gas turbine rotors

Reduced cost, shorter lead times, and
guaranteed performance

Heavy-duty gas turbine rotors—ready to serve standard configuration rotors

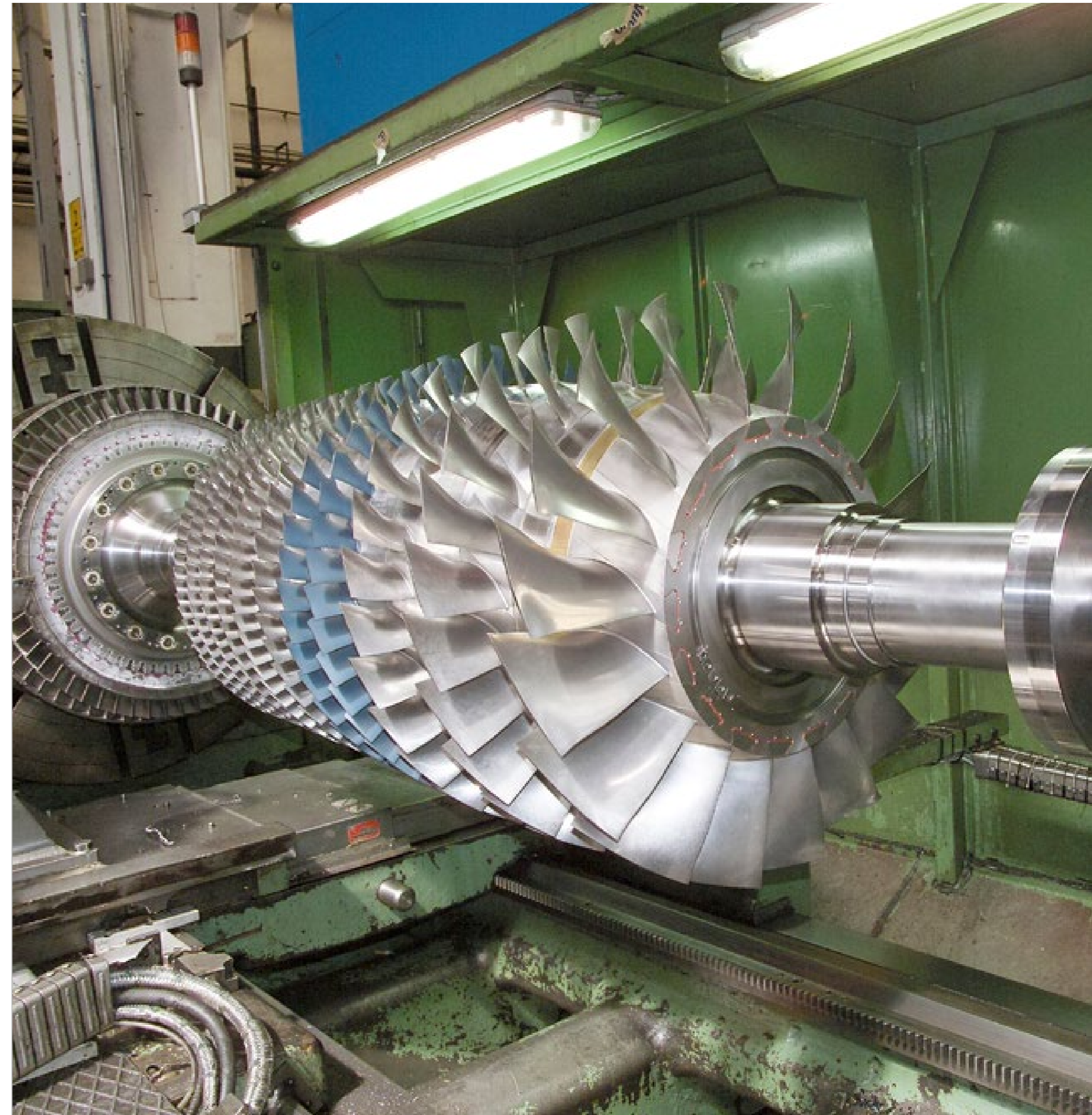
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Gas turbine rotors included:

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REFURBISHED AERODERIVATIVE
GAS TURBINES >

Certified renewed equipment: high-speed power turbines and PGT25s

Reduced cost, shorter lead times, and
guaranteed performance

**Aeroderivative high-speed power turbines (HSPT)—ready to serve or
upgrades included cartridges**

- This faster, cost-effective solution maintains site configuration and decreases outage downtime for current and out-of-production gas turbines—including a pool of spare components and modules at lower costs
- Backed by OEM warranties and can be purchased with advanced turbomachinery support services, including interchangeability studies, installation, and consultation

Through partnership in advance:

- Define yearly budgets for maintenance costs
- Reduce downtime during MI events and emergencies
- Fleet rejuvenation
- “Like for like” when required or optional upgrades
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- Potential on-site inspections after assets swaps

Technologies included:

- PGT25 (46/72 Holes Configurations)
- HSPT (STD-PIP-G4)



CERTIFIED RENEWED
EQUIPMENT: HEAVY-DUTY
GAS TURBINE MODULES



CERTIFIED RENEWED
EQUIPMENT: HEAVY-DUTY
GAS TURBINE ROTORS



CERTIFIED RENEWED
EQUIPMENT: HIGH-SPEED POWER
TURBINES AND PGT25S



REFURBISHED AERODERIVATIVE
GAS TURBINES



Refurbished aeroderivative gas turbines

Reduced cost, shorter lead times, and guaranteed performance

Aeroderivative gas turbines—flange-to-flange modular replacement, like-for-like or upgrades

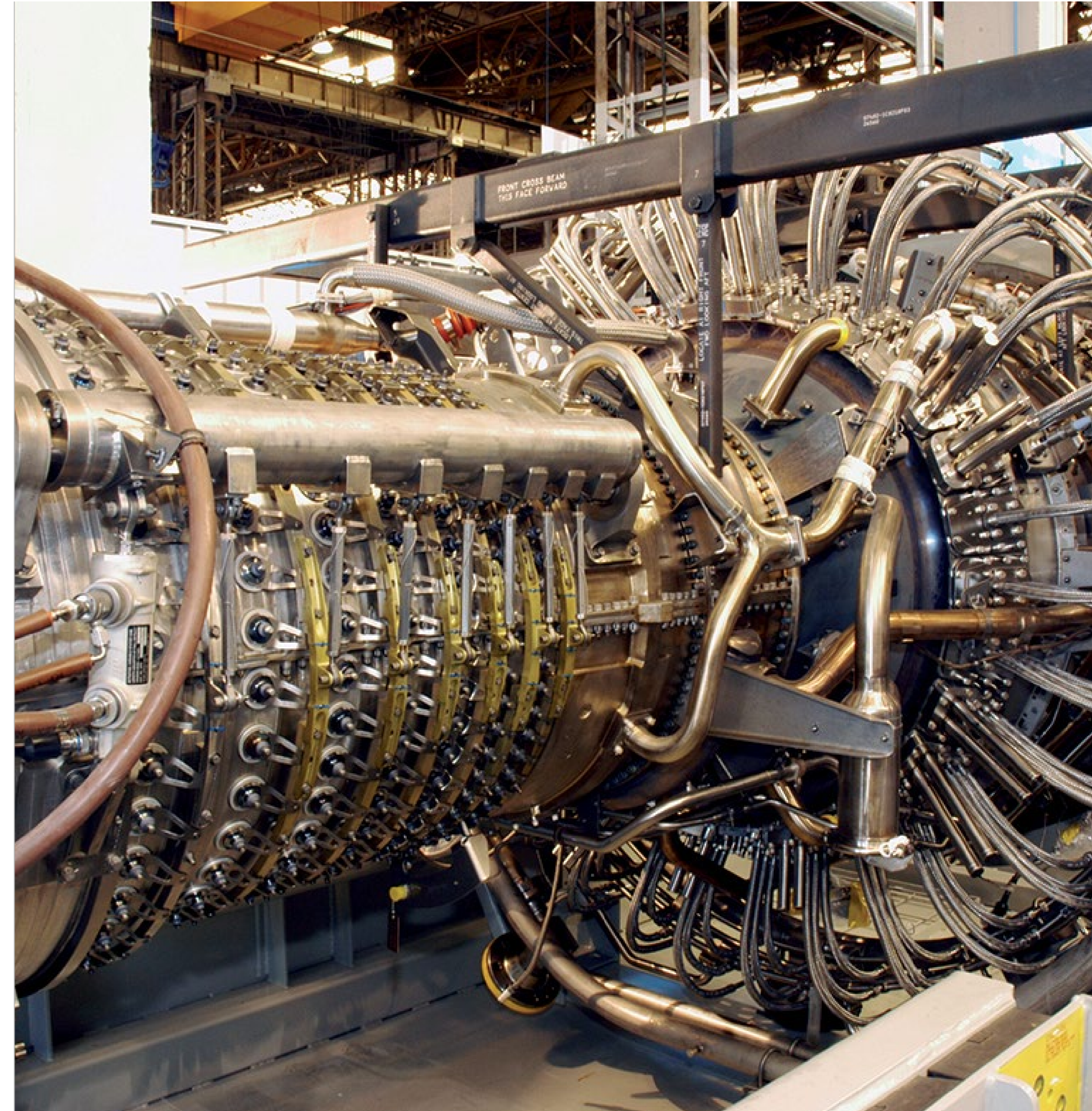
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Through partnership in advance:

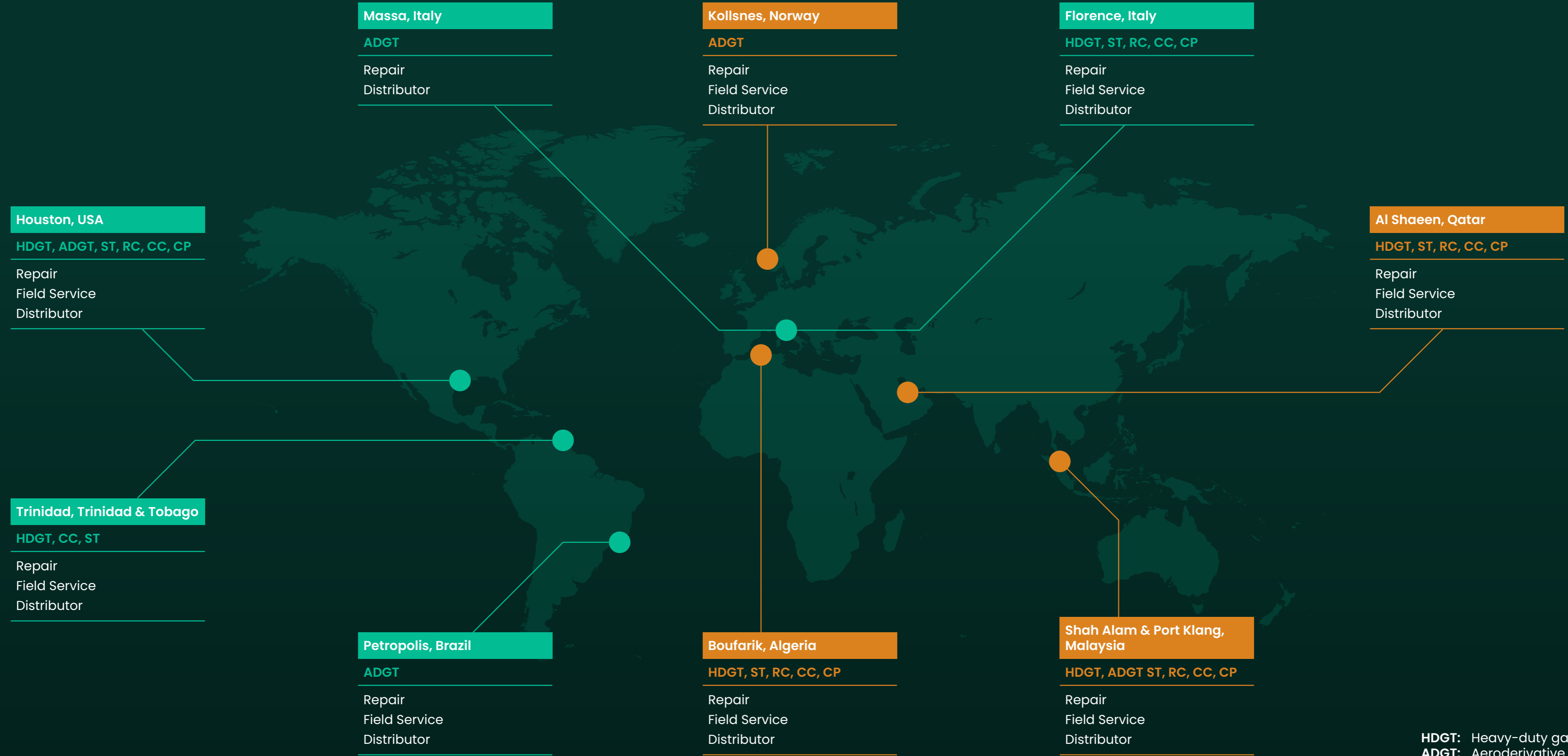
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Technologies included:

- LM2500
- LM6000
- LMS100



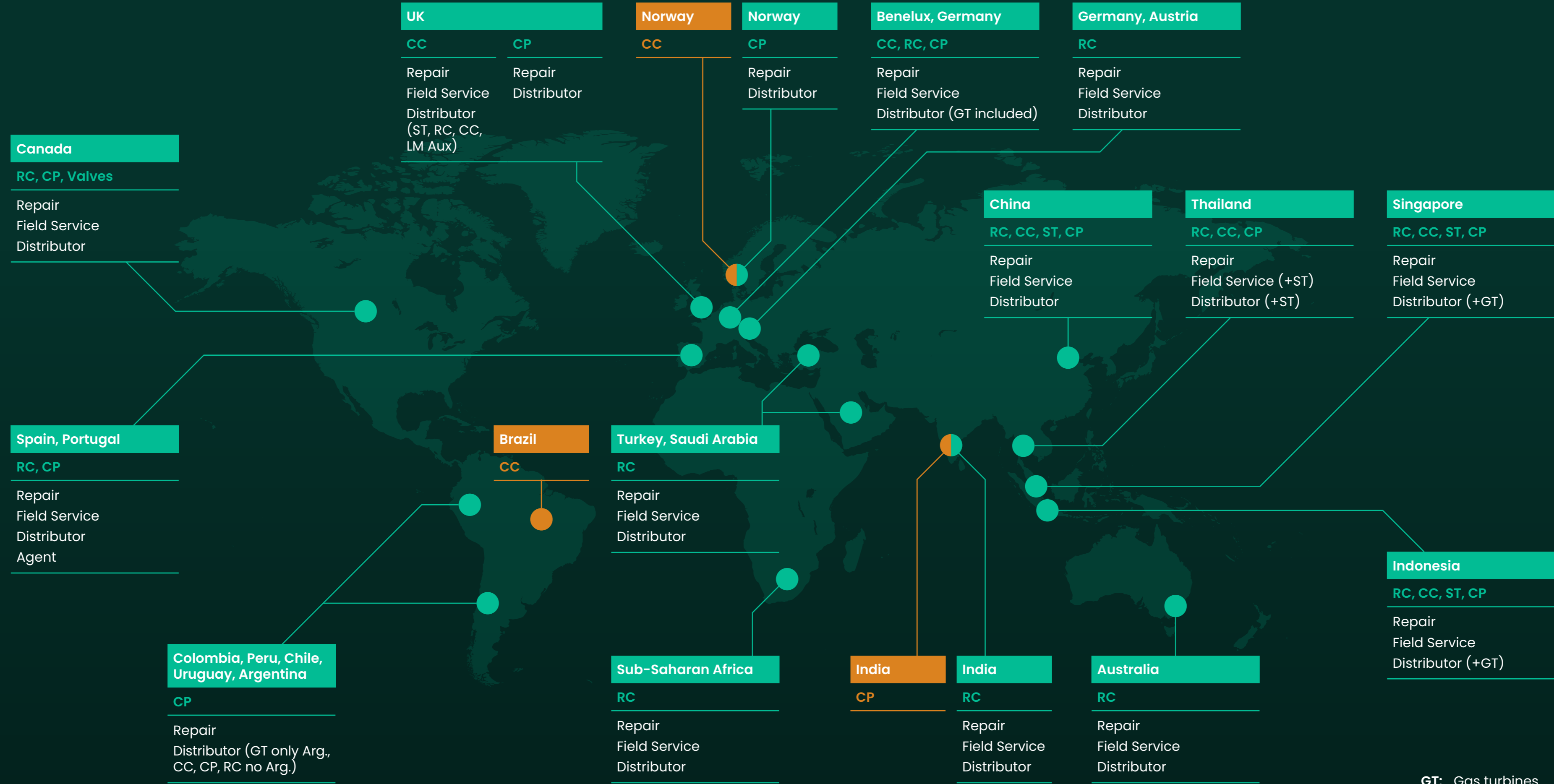
BAKER HUGHES SERVICE SHOPS AND JOINT VENTURES



HDGT: Heavy-duty gas turbines
ADGT: Aeroderivative gas turbines
ST: Steam turbines
RC: Reciprocating compressors
CC: Axial and centrifugal compressors
CP: Centrifugal pumps

● Baker Hughes Service Shop ● Baker Hughes Joint Venture

AUTHORIZED SERVICE CENTERS AND DISTRIBUTORS



● Baker Hughes Authorized Service Centers and Distributors

● Baker Hughes Authorized Service Suppliers

GT: Gas turbines
ST: Steam turbines
RC: Reciprocating compressors
CC: Axial and centrifugal compressors
CP: Centrifugal pumps

