GE Power & Water
Distributed Power

GE's TM2500+ solution offers fast, mobile and flexible power

Power whenever and wherever it's needed

a product of
ecomagination

GE imagination at work

HALLIBURTON EXHIBIT 1041
Halliburton Energy Services, Inc. v. U.S. Well Services, LLC, IPR2023-00558, Page 1

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31 MW
power potential on wheels

69 MILLION HOURS
accumulated hours of successful heritage operation

~1 MONTH
from contract signing to commissioning

11 DAYS
from parking first trailer to commissioning

10 MINUTES
full power production in less than 10 minutes

Focused on solving power challenges

Currently, more than 1.3 billion people globally lack access to electricity. GE, whose technologies already help deliver a quarter of the world's electricity, is working to bridge the gap through a portfolio of distributed power solutions. These technologies enable industrial businesses, developing communities and governments to meet their energy needs by positioning power at, or near, the point of use. The TM2500+ fast power solution from GE Power & Water's Distributed Power business enables governments, utilities, and businesses around the world to fulfill their generation requirements within days. Thanks to their modular concept, fast installation features and quick production schedules, these units typically can be ready to enter into commercial operation approximately 30 days after your order is placed.

The TM2500+ fast power solution harnesses the highly successful LM2500 aeroderivative gas turbine with more than 1,800 units deployed worldwide and almost 69 million hours of operation.

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Features of the TM2500+ fast power solution

Fuel flexibility
Can operate on gas and/or distillate liquid fuel

Lower emissions
50 percent lower emissions than diesel generators when operating on gas

Proven technology
More than 1,800 LM2500 gas turbines deployed with 69 million operational hours of experience

Enhanced design
Two-trailer footprint for high power density

Quick lead times
On-demand power plants delivered in weeks, not months

Scalable, reliable power
Able to add 31 MW blocks of power as demand increases

Distributed power
Localized power supply, eliminating the need for additional transmission and generation infrastructure

Project experience
More than a decade of experience in providing emergency power

Turnkey design
Delivery of complete energy solution

Benefits of a TM2500+ solution

Speed
The development of a new power plant could entail months of construction and commissioning. We can shorten that time from months to days under most conditions. Once on the ground, these mobile units can generate power in about 11 days.

Reliability & availability
Due to our aviation legacy with the LM2500+ gas turbine, GE's TM2500+ fast-power solution represents some of the most reliable distributed power units available. That means consumers will not face frequent interruptions and instabilities due to technical problems related to faulty equipment or an unstable electricity grid.

Dual fuel capability
TM2500+ solutions are capable of running on both natural gas and/or diesel at an output of up to 31 MW with water injection for NOx abatement.

Mobility
Mounted on a mobile, two-trailer assembly, TM2500+ generator sets can be transported via land, sea, and air to some of the most remote places in the world. Their mobile nature means that they can be swiftly deployed to other sites within days when they are no longer required at the original site.

Flexibility
Extremely flexible, they have a sub 10-minute start cycle to full power.

Scalability
The technology is also scalable, allowing you to buy the number of units you need with the option of adding more power quickly as demand increases.

Gradual financing
Because large capital expenditure costs can be a barrier for some projects, these units can be purchased gradually for financing ease. In addition, they can be deployed where-ever demand exists without the need to invest in capital-intensive transmission and distribution infrastructure.

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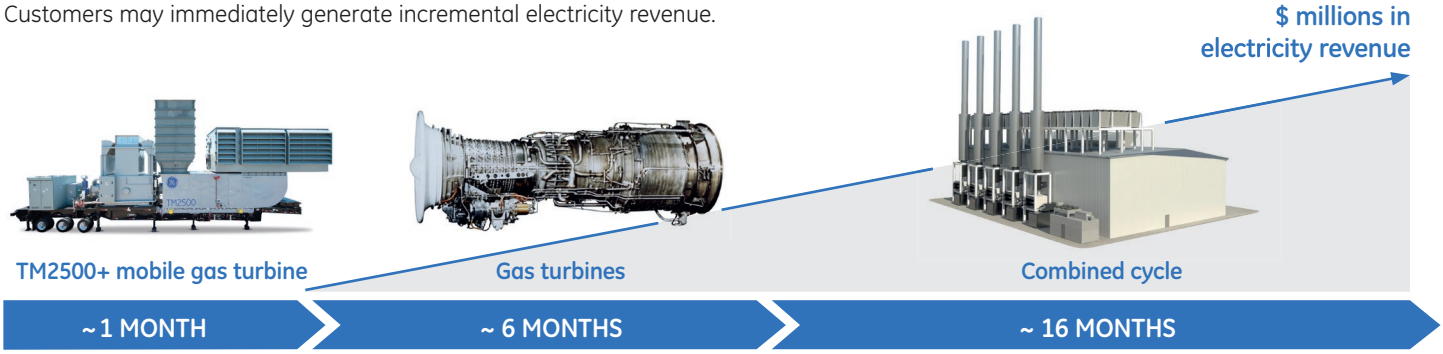
The TM2500+ solution can be deployed more than 6 times faster than other technologies

Customers may immediately generate incremental electricity revenue.



The TM2500+ can be in commercial operation approximately 30 days after an order is placed, but these times may vary based on project location, site readiness, permitting process, and other variables.

Multiple applications in a wide range of industries

The TM2500+ solution can solve a number of industry challenges. These include, but are not limited to, difficult access to the electric grid, an unstable grid, emergencies and natural disasters, rapid demand growth such as large construction projects, as well as escalating electricity prices and seasonal shortages. More details on applications of the TM2500+ mobile gas turbine generator are detailed below.

	The Challenge	Description	Potential Industries	TM2500+ as a solution
	Limited or no access to the electric grid	Cases with challenging access to the electric grid include: • Lack of robust transmission and distribution network • Delayed grid access • Remote, islanded and mobile operations	Oil and Gas Mining General industry Power generation	**Speed, Mobility, and Reliability** Can deliver power where and when it is needed and bring power online within 10 minutes to stabilize the grid
	Rapid energy demand growth	High and rapid demand for electricity in cases with restricted power availability such as new, large off-grid construction projects	Government Utilities General industry	**Speed, Reliability** Can fulfill power demand in the face of growing needs in a fast and reliable way
	Lengthy buildout of electricity generation infrastructure	Construction lead times on new generation facilities as well as unanticipated delays, meaning pressing electricity needs are not met	Government Utilities General industry	**Speed, Reliability** Can bridge power until new facilities are completed and go online
	Escalating electricity prices	Escalating electricity rates during seasonal or peak periods requiring technologies that enable peak shaving	Government Utilities General industry	**Fuel flexibility** Can be used as a peak shaving application to help transition off the grid during seasonal or peak periods
	Natural disaster & emergencies	Cases of emergency where power generation sources are impacted and direly needed	Government Utilities	**Speed, Mobility** Can provide emergency power in a fast, reliable and mobile way
	Flare gas	Natural gas flared in oil fields leading to billions of dollars wasted and millions of tons of greenhouse gas emissions	Oil and Gas	**Fuel flexibility, Mobility** Can help monetize gas flaring for power generation and help reduce diesel consumption

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Cases in point - Solving our customers' challenges

480 MW* of on-demand power for Algeria

Algeria faces a drastic need for more power, particularly during the hot summer months when there is close to 10 percent annual growth in electricity demand.

GE delivered 24 TM2500+ mobile gas turbine generators that provided more than 480 MW of power. The units were commissioned, delivered and operational in time to meet the northern districts of M'Sila and Fkirina's 2013 summer peak electricity demand. After the seasonal peaks, some of the units were deployed to other cities in the south of the country to serve as permanent power.

23 MW* for peak shaving in 10 days for Greece

The Greek island of Rhodes is a prime tourist destination. During the summer months, an influx of more than 2 million people from all over the world swells demand for power to the breaking point.

To avert blackouts, the island purchased a TM2500+ generator set, which was delivered before the summer season and commissioned within a few days of arrival onsite. This provided 23 MW of power generation in tandem with water injection to lower NOx levels to below 25 ppm.

120 MW for bridging power for Angola

Only 26 percent of Angola's population of 19 million have access to power. Rich in natural resources, the country is engaged in a priority program to create a modern energy infrastructure.

The government of Angola ordered five TM2500+ mobile gas turbine generator sets. 120 MW of onsite power is bridging the energy gap during ongoing plant construction, improving grid reliability and countering the rising cost of diesel fuel.

"GE's TM2500+ systems offer the right combination of efficiency and reliability needed to help the Angolan state utility, Empresa Nacional Electricidade-E.P. (ENE), reduce its fuel costs and increase the reliability of grid service in order to support continued economic growth in Angola."

Nyembo Ilunga, president, LS Energia Africa

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**Power output is based in site conditions.*

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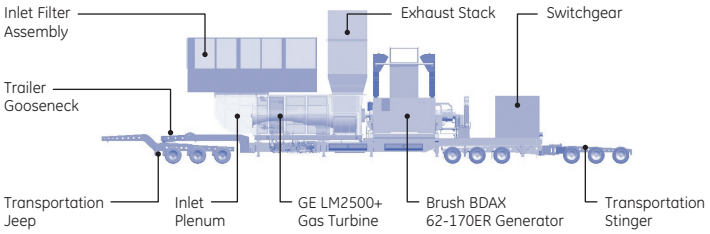
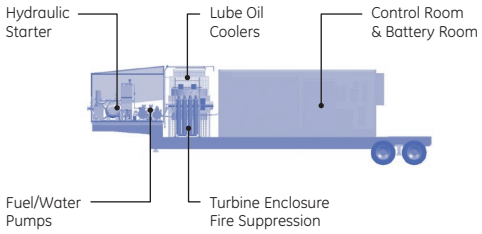
Performance you can count on for mobile Power

TM2500+ General Arrangement



Auxiliary Trailer



Model	Water Injection (NOx = 25 ppmvd @15% O2)	Output (MW)	Heat Rate (Btu/kWh)	Heat Rate (kJ/kWh)	Efficiency (%)	Pressure Ratio	Power Turbine Speed (RPM)	Exhaust Flow (lb/sec)	Exhaust Flow (kg/sec)	Exhaust Temp (F)	Exhaust Temp (C)
60 HZ											
TM2500+	None	30.688	8830	9316	39	22.5	3600	192.2	87.2	959.1	515
TM2500+	Yes	30.988	9285	9796	37	22.8	3600	196.6	89.2	906.0	485.6
50 HZ											
TM2500+	None	26.190	9246	9755	37	21.2	3000	184.5	83.7	925.0	496.1
TM2500+	Yes	26.190	9705	10239	35	21.3	3000	187.2	84.9	879.0	470.6

**The performance data shown above is at standard ISO (International Organization for Standardization) conditions. The ISO has defined the following standard conditions for comparing gas turbine engines Ambient air: 59°F/15°C, 60% RH; Barometric pressure (14.696 psia / 101.4 kPa); Sea level altitude. 60 Hz based on a Brush air-cooled generator w/brushless excitation @ 0.90 PF; 59°F/15°C cooling air; 13.8 kV (50 Hz @ 11.5 kV)*

The TM2500+ total solution and Services support

A TM2500+ fast-power solution project may include:

- Installation
- Commissioning
- Project management
- Decommissioning
- Consumable parts kit (filters/ lubricants for operation needs)

In addition, GE offers many services to support the ongoing operation and performance of the units including, but not limited to the following:

- On-call technical advisory services
- Maintenance planning and training
- On-site hot section, combustor, and other modular exchanges
- Depot Repair Services for scheduled overhauls and unscheduled repairs
- Performance testing

For more information on TM2500+ mobile gas turbines, visit us at **www.ge-tm2500.com**

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