HONFIN
ENERGY ASSETS
GLOBAL ENERGY ASSET PROCUREMENT

PROPOSAL

Two (2) × 2.3 MW Natural Gas Generator Sets

In stock, Available Immediately

MWM TCG 3020 V20 | 60 Hz

Proposal Date: May 20, 2026

Reference: HEA-2026-2300-001

Validity: 30 Days from Issue Date

Subject to Prior Sale

EXECUTIVE OVERVIEW

HONFIN Energy Assets is pleased to present this proposal for the supply of two (2) MWM TCG 3020 V20 natural gas generator sets, each rated at 2,300 kW continuous electrical output at 60 Hz. The proposed installation will deliver a combined nameplate capacity of 4.6 MW of reliable, fuel-efficient, low-emission baseload or backup power.

The MWM TCG 3020 represents the latest generation of MWM's flagship gas engine platform. Engineered in Mannheim, Germany and now part of the Caterpillar Energy Solutions family, the 3020 V20 offers up to 45% electrical efficiency on natural gas, up to 80,000 operating hours between major overhauls, and full digital plant control through MWM's integrated TPEM platform. It is the right engine when the project demands the lowest possible cost per kWh combined with the highest possible availability.

Each generator set is delivered complete — engine, alternator, base frame with anti-vibration mounts, gas train, full lubrication, cooling, intake/exhaust, electrical, and start systems — packaged in a heavy-duty 14-meter shipping container for plug-and-play site arrival. The two-unit plant is supported by a parallel-operation switchgear lineup and a Master Control System (MCS) that enables grid-isolated island operation with seamless load sharing between machines.

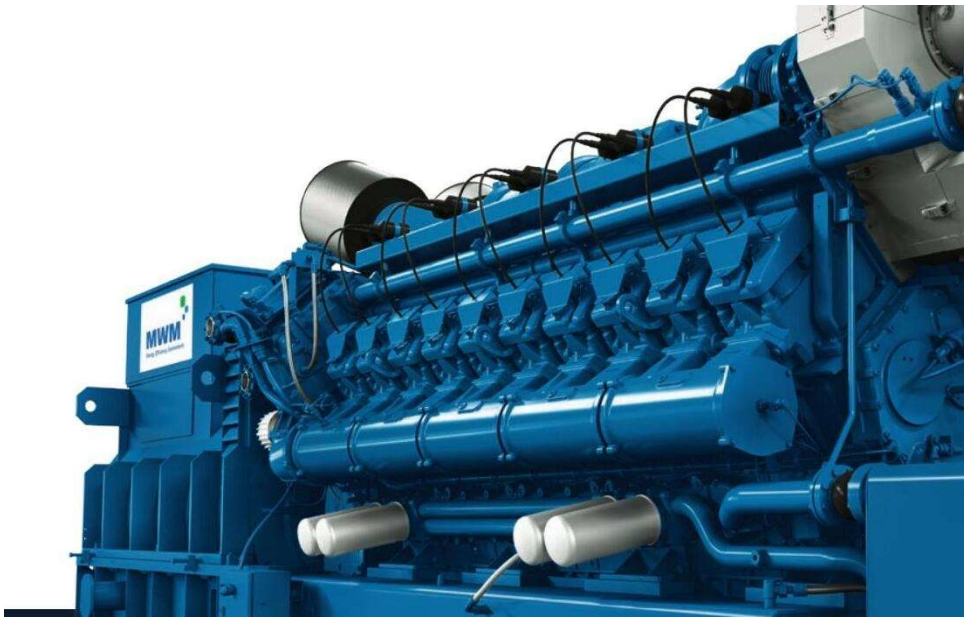
This proposal presents two voltage options to match the receiving electrical infrastructure: a 480-volt low-voltage configuration for direct distribution applications, and a 13.8 kV medium-voltage configuration for utility-grade interconnection or step-down through a project transformer. Pricing, technical specifications, scope of supply, and commercial terms are detailed in the pages that follow.

At a Glance

- Equipment: 2 × MWM TCG 3020 V20 Natural Gas Generator Sets
- Continuous Output: 2,300 kW per unit | 4,600 kW combined
- Frequency: 60 Hz | 1,800 rpm
- Voltage Options: 480 V (3-phase) or 13.8 kV (3-phase)
- Fuel: Natural Gas (suitable for biogas, landfill, propane on request)

THE MWM TCG 3020 V20

The All-Round Talent



The TCG 3020 series represents an entirely new development in MWM's proven gas engine family — perfectly tailored to the challenges of Industry 4.0 and the demands of a dynamic energy market. State-of-the-art components, a compact design, and high-efficiency combustion deliver up to 18% more power output than its predecessor in the same physical footprint.

The V20 configuration is the flagship of the 3020 series, delivering 2,300 kW of electrical power at 60 Hz from twenty cylinders of 89-liter displacement. Operating at 1,800 rpm with a moderate 9.9 m/s mean piston speed, the engine is engineered for both efficiency and longevity — providing up to 80,000 operating hours between major overhauls with extended maintenance intervals.

150 Years of Engineering Heritage

MWM (Motoren-Werke Mannheim) has been building gas and combustion engines in Mannheim, Germany since 1871. Since 2011, MWM has been part of the global Caterpillar Inc. network, serving as Caterpillar Energy Solutions' center of excellence for gas engine technology. The combination of 150-plus years of German engineering with the worldwide reach of Caterpillar gives operators of MWM equipment access to a level of expertise, parts availability, and after-sales support that no standalone manufacturer can match.

TECHNICAL SPECIFICATIONS

MWM TCG 3020 V20 — 60 Hz Natural Gas Configuration

The data below corresponds to MWM's factory-rated 60 Hz "P" (High Efficiency) configuration of the TCG 3020 V20 at NOx ≤ 250 mg/Nm³, ISO 8528-1 reference conditions, methane number MN 80, and PF 1.0. Values are provided for technical reference; binding values are issued with the factory offer at order confirmation.

Engine Model	MWM TCG 3020 V20
Engine Origin	Mannheim, Germany
Configuration	P (High Efficiency, optimized for maximum electrical output)
Continuous Electrical Output	2,300 kW – 2,300 kVA @ PF 1.0
Frequency	60 Hz
Engine Speed	1,800 rpm
Number of Cylinders	20 (V-configuration)
Bore / Stroke	170 mm / 195 mm
Displacement	89.0 dm³ (89 liters)
Mean Effective Pressure	21.5 bar
Electrical Efficiency	44.4% (P configuration)
Thermal Output (recoverable)	2,201 kW ± 8% (exhaust cooled to 120 °C)
Total Efficiency (CHP)	86.9%
Lube Oil Consumption	0.15 g/kWh
Hours to Major Overhaul	Up to 80,000 oh
NOx Emissions	≤ 250 mg/Nm³ (5% O, dry)
Engine L × W × H	7,738 × 1,815 × 2,551 mm
Dry Weight	21,200 kg
Fuel	Natural Gas (MN 80) — H up to 25 vol.% with retrofit kit
Alternator Model	Leroy Somer LSA 54.2 XL11 (or technical equivalent)
Alternator Origin	China
Alternator Output	Configurable for 480 V or 13.8 kV at 60 Hz, 3-phase
Insulation / Protection	Class H (IEC 60034-1) / IP 23
Genset Controller	3020 HAS with integrated breaker
Plant Control	MWM TPEM (Total Plant & Energy Management)

KEY FEATURES & BENEFITS

The TCG 3020 V20 is engineered to deliver class-leading performance across five dimensions that matter most to plant operators: profitability, reliability, efficiency, fuel flexibility, and digital intelligence.

High Profitability

- High electrical efficiency (up to 44.4% in 60 Hz P configuration) and overall efficiency above 86% when configured for combined heat and power
- Low lube oil consumption at 0.15 g/kWh — significantly reducing operating-cost-per-kWh over the life of the engine
- Up to 80,000 operating hours between major overhauls — fewer maintenance interventions, more revenue hours

High Reliability

- Reliable, proven core engine — the V20 platform has been deployed in thousands of installations worldwide
- Upgraded with state-of-the-art combustion-control, ignition, and turbocharging technologies
- Extended maintenance intervals — lower downtime per operating hour

High Efficiency

- Increased electrical efficiency — up to 45% for natural gas applications
- Increased electrical output — up to 2,300 kW per engine
- Optimal combination of efficiency and reliability — no trade-off between fuel economy and machine life

Fuel Flexibility & Future-Proofing

- Available for natural gas, biogas, landfill gas, sewage gas, and propane gas — same engine platform, application-optimized variants
- Hydrogen-ready: accepts up to 25 vol.% hydrogen admixture in natural gas with available retrofit kit — a meaningful step toward decarbonization without abandoning installed assets
- Available in both 50 Hz and 60 Hz

High Power Density

- Compact design: the TCG 3020 series delivers up to 18% more power output at the same physical size as its predecessor — reducing the civil footprint and power-house cost
- Self-contained skid design simplifies shipping, installation and shortens project schedule

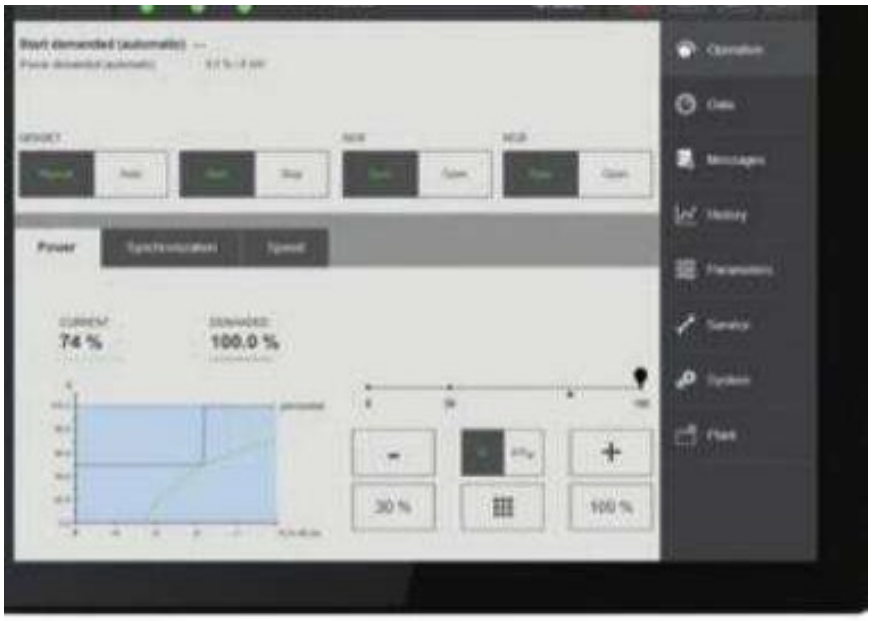
Tailor-Made for Your Application

- Optimized variants for combined heat and power, electrical-only, biogas, propane, and high-flexibility applications
- Same proven core engine across applications — spare parts and field-service knowledge transfer between site types

TPEM — THE DIGITAL CONTROL SYSTEM

Total Plant & Energy Management

With its comprehensive digital power plant control TPEM, MWM redefines the control standard for energy solutions. TPEM eliminates the need for additional control systems — all power plant data for the genset, generator, electrical system, and balance of plant are combined in a single integrated platform, provided from a single source. This greatly simplifies commissioning, training, troubleshooting, and long-term operational management.



Modern

- One integrated, flexible control system for all electric power generation applications — genset, generator, electrical system, and balance of plant
- State-of-the-art color touchscreen user interface with integrated service tool

Connected

- Integrated remote access for all operation and service tasks — reduces site visits and accelerates fault resolution
- Free "TPEM Remote Client" software provides real-time visibility from any authorized workstation
- Multiple standard interfaces for integration with existing SCADA, BMS, or EMS control systems

Efficient

- Optimized service tool for commissioning, maintenance, and repairs — same toolset, same workflow, every site
- Guided commissioning workflows and configurable functions for island, grid-parallel, load-following, and prime-power operation
- Security-oriented technology with a hardware-based safety chain for cogeneration plant monitoring

What This Means for the Plant Operator

In a two-engine installation like this project, TPEM enables true plug-and-play parallel operation. The Master Control System (MCS) supplied with this proposal monitors both engines in a single panel, automatically starts and stops units according to power demand, manages load sharing, and provides full visualization of all plant data. In island operation — where the engines feed local loads without grid connection — TPEM provides complete frequency and voltage stability and ensures genset power is not back-fed to the grid.

STANDARD SCOPE OF SUPPLY

Per Generator Set (Each of Two Units)

Each MWM TCG 3020 V20 generator set is delivered as a fully integrated package ready for site installation and commissioning. Standard scope per unit includes:

Engine

- Engine: MWM TCG 3020 V20, 20-cylinder gas engine — manufactured in Mannheim, Germany

Alternator (Generator)

- Alternator: Leroy Somer LSA 54.2 XL11 or technical equivalent — manufactured in China
- Voltage: Selectable per Option A (480 V) or Option B (13.8 kV) — see Commercial section

Skid & Mounting

- Heavy-duty common base frame designed for direct foundation mounting
- Anti-vibration mounts — isolate engine and alternator from foundation

Gas Train

- Solenoid valve (safety shut-off)
- Pressure regulator
- Gas filter
- Manual ball valve

Auxiliary Systems

- Complete lubrication system with engine-mounted oil pump and integrated filtration
- Cooling system — radiator and engine-jacket cooling circuit
- Intake and exhaust system — air cleaner, turbocharger, intercooler, exhaust manifold
- Electrical system — battery, battery charger, instrumentation harness
- Start system — electric starter with battery start
- Genset controller — model 3016 HAS with integrated breaker

Packaging

- Container: Heavy-duty 14,000 × 3,200 × 3,500 mm transport container per unit
- Radiator Protection: Wrapped in polyethylene plastic for transit

Common Plant Equipment

Switchgear Cabinets

- Inlet Cabinets — two (2) units, one per generator
- Outlet Cabinets — two (2) units, one per generator
- PT (Potential Transformer) Cabinet — one (1) unit
- DC Panel — one (1) unit
- Differential Transformers — six (6) units (three per generator)
- Grounding Resistor Cabinet — NGR-12, 60.6 Ω, 100 A / 10 s, one (1) unit

Master Control System (MCS) Cabinet

- Dimensions: 800 × 300 × 1,200 mm
- Monitors both generators from a single panel with multi-unit power plant control — automatic start/stop of generators according to power demand
- Complete functionality for island operation — grid electricity to load, with generator power not fed back to grid; comfortable visualization of both units in one consolidated panel

Option A — 480 Volt Output Configuration

Option B — 13.8 kV Output Configuration

Cogeneration Option: Cogeneration (combined heat and power) and trigeneration pricing is available upon request. Nearly doubles power output and efficiency.

Noise Attenuation Option: The gensets ship standard with industrial exhaust at ~85db at six meters. For added cost residential noise attenuation can be added for ~65db at six meters.

Optional — On-Site Commissioning

On-site commissioning is offered as an optional service for both options. The price below covers a five (5) working-day commissioning period per unit (ten working days total for two units) with two (2) MWM-certified engineers.

Item	Description	Qty	Unit Price (USD)	Total (USD)
OPT	Commissioning at project site — two (2) MWM-certified engineers for both units; customer to provide round-trip air travel, local accommodation, and local transportation. Additional days are $1,500 per engineer per day.	Lot	$20,000	$20,000

COMMERCIAL TERMS & CONDITIONS

Payment Terms

- 30% of total contract value as deposit by wire transfer upon order acceptance
- 70% balance by wire transfer prior to shipment from the factory
- All payments in U.S. Dollars (USD) by international wire transfer to the HONFIN Energy Assets designated account

Delivery Terms

- Incoterms: CIF Hong Kong (Incoterms 2020)
- Buyer is responsible for all shipping, handling, customs clearance, marine insurance, and inland transportation from the port of Hong Kong to the buyer's final destination
- Risk of loss transfers to the buyer upon delivery of the goods on board the vessel at the loading port, with insurance coverage maintained to Hong Kong per CIF terms

Origin

- Engine: Manufactured in Mannheim, Germany by MWM (Caterpillar Energy Solutions GmbH)
- Alternator: Manufactured in China by Leroy Somer / Nidec
- Packaging & Containerization: Performed at the engine-skid assembly facility prior to ocean transport

Packing

- Each generator set is delivered in a dedicated 14,000 × 3,200 × 3,500 mm heavy-duty shipping container
- Radiators are individually wrapped in polyethylene plastic for transit protection
- Switchgear and control cabinets are crated separately

Lead Time

- Normal delivery is approximately (12) months from receipt of deposit for two (2) units with current factory engine allocation, ex-works. These two units are in stock and can ship in days, but are subject to prior sale.
- Ocean transit and CIF Hong Kong delivery: approximately additional thirty (30) to forty-five (45) days depending on sailing schedule to Long Beach, California. Similar shipping times to other ports in the Americas.
- A binding production schedule is issued upon receipt of the deposit and confirmation of final technical specifications

Warranty

- Eighteen (18) months from date of delivery to the end user or twelve (12) months from commissioning, whichever expires first
- Warranty covers defects in materials and workmanship under normal operating conditions, in accordance with the MWM warranty schedule
- Consumable spare parts and any damage caused by incorrect operation, fuel-quality deviations beyond specification, or unauthorized modifications are excluded

Validity

- This proposal is valid for thirty (30) days from the proposal date shown on the cover page
- Prices are subject to revision based on exchange rate movements and factory pricing changes beyond the validity period

Standards & Certification

- MWM engines: manufactured under ISO 9001 quality management
- Genset assembly: CE marked and ISO 9001 certified facility
- Alternator: IEC 60034-1 compliant

GLOBAL SUPPORT & SERVICE NETWORK

MWM is part of Caterpillar Energy Solutions GmbH, a wholly owned Caterpillar company since 2011. The MWM brand continues to operate as Caterpillar's global gas engine center of excellence headquartered in Mannheim, Germany. MWM gas generator sets are sold worldwide through authorized MWM distributors, direct sales channels, and the broader Caterpillar support ecosystem.

MWM Customers Benefit From

- Global parts availability
- Factory-trained technical support
- Worldwide field service capabilities
- Remote monitoring and diagnostics
- Long-term lifecycle support
- Access to Caterpillar Energy Solutions resources and infrastructure

Why this matters: A 2.3 MW gas generator set is a twenty-year asset. The value of the equipment is realized over decades of operation, and that value depends entirely on the support infrastructure that stands behind it. With MWM, the buyer is purchasing not only a machine but a relationship with the global Caterpillar service network — with proven parts logistics, factory-certified technicians, and remote engineering support reachable from any installation site in the world.

ADDITIONAL TERMS

Standards & Certification

- MWM engines: manufactured under ISO 9001 quality management
- Genset assembly: CE marked and ISO 9001 certified facility
- Alternator: IEC 60034-1 compliant

Validity

- This proposal is valid for thirty (30) days from the proposal date shown on the cover page
- Prices are subject to revision based on exchange rate movements and factory pricing changes beyond the validity period

NEXT STEPS & CONTACT

To proceed with this proposal, request technical clarifications, schedule a factory reference call, or discuss tailored configurations for your project, please contact:

Tom

HONFIN Energy Assets

Telephone: 630-768-1546

Email: Tom@honfinenergyassets.com

HONFIN Energy Assets appreciates the opportunity to support your power generation project. We look forward to discussing how the MWM TCG 3020 V20 platform can deliver the reliable, efficient, and future-ready baseload capacity your operation requires.

Thank you for your consideration.