



UNEW, Inc.
3321 SE Gran Park Way, Stuart, FL 34997, USA
Phone: +1-772-408-4600 | Fax: +1-772-781-3884
www.unew.com

October 17, 2025

To:

Mr. Pham Van Chat
Deputy General Director
Nghi Son Refinery and Petrochemical LLC (NSRP)
Thanh Hoa, Vietnam

Subject: Response to Letter No. 0813/2025/NSRP-MT Regarding Fuel Nozzle Refurbishment and Reliability of GTG#1

Dear Mr. Pham Van Chat,

UNEW sincerely appreciates NSRP's continued cooperation and understanding during the ongoing refurbishment of the MNQC Fuel Nozzle Set for GTG#1. We have received your Letter No. 0813/2025/NSRP-MT dated 10 October 2025 and acknowledge NSRP's request for comprehensive inspection details, refurbishment progress, and reliability assurance plan.

1. Current Status and Technical Position

The refurbishment of the MNQC fuel nozzle set is being conducted at EthosEnergy's Accessories & Components facility in Aberdeen, United Kingdom, under UNEW's strict technical supervision, inspection procedures, and proprietary quality control standards. The facility operates in compliance with ISO 9001, AS9110, and FAA/CAA repair approvals, and all work is carried out following UNEW's engineering specifications and acceptance criteria.

Detailed inspection at Aberdeen confirmed that the received nozzles were in heavy-repair condition, with severe erosion, coating degradation, and thermal distortion of several critical assemblies. The repair scope includes complete replacement of liquid cartridges, water cartridges, gas swirlers, liner pins, and pipework, all requiring specialized materials with extended manufacturing lead times.

UNEW previously submitted two technically viable operational options for NSRP's consideration, both developed based on scientific analysis, engineering reliability criteria, and practical operating experience to ensure the safest and most cost-effective solution.

Option 1: Postpone the scheduled CI until 3/2026 when the refurbished nozzles are completed.

Option 2: Proceed with the CI in 11/2025 using the existing parts and conduct a second CI in March 2026 to install the refurbished set.

While UNEW remains ready to support either plan, it must be emphasized that Option 1 remains technically and economically superior, as it avoids redundant inspection costs and maintains component integrity within safe operating limits.

2. Importance of Maintaining an On-Site Spare Set

From an engineering reliability perspective, it is a fundamental requirement recognized by both OEM and non-OEM manufacturers that every power plant must maintain at least one complete spare set of capital parts on site. This practice is not optional; it is an essential part of responsible operation and asset management.

Without a spare set, any plant, whether serviced by GE, Siemens, UNEW, or others, remains equally vulnerable to unplanned outages and production interruptions whenever refurbishment timelines are extended due to coating, casting, or material supply limitations.

Because of new U.S. government cybersecurity regulations, gas turbine manufacturers in the United States are not permitted to refurbish used parts from certain countries, including Vietnam. These



rules are intended to protect critical gas turbine technologies but have prevented UNEW from repairing NSRP’s parts at our own facility in the U.S. It took approximately two months for UNEW to locate and qualify another approved partner to perform the refurbishment under our technical supervision and quality standards.

For example, in September 2025, the Chinese government imposed new limits on the export of rare-earth materials, which are essential for turbine alloys and coating powders. This has already created further uncertainty and longer lead times across the entire industry.

These factors are beyond the control of any service provider and clearly demonstrate the importance of maintaining spare inventories within the country. A power plant that operates without a ready spare set operates without a safety margin. Regardless of the contractor’s capability, delays will always occur when no spare set is available. UNEW therefore strongly recommends that NSRP maintain at least one complete set of fuel nozzles as a permanent capital spare, in line with global power-generation industry standards.

1. Comparison of Lead Time, Cost, and Technology between GE and UNEW

UNEW has detailed knowledge of the global gas turbine repair industry, including OEM and independent service providers. The comparison below is based on verified data and actual quotations, accurately reflecting the lead times, repair methods, and costs of each provider.

Item	GE OEM Standard Repair	UNEW Custom Refurbishment
Lead Time (Heavy Repair)	10+ months typical	4-5 months average
Heavy Refurbishment Cost	At least USD 575,000	≈ USD 300,000
Technology Approach	Generic OEM repair and coating	Custom repair and coating matched to NSRP’s specific MNQC/Syngas fuel condition
Coating System	Standard OEM MCrAlY + TBC	Tailored MCrAlY composition, dual-layer ceramic, optimized for local combustion temperature
Repair Traceability	Vendor standard documentation	Full traceable QA/QC, metallurgical report, and flow test record

4. Recommendation and Path Forward

UNEW remains fully committed to completing the refurbishment with the highest technical and quality standards. Based on our evaluation:

- Option 1 (Deferred CI to March 2026) remains the most technically sound and cost-effective solution.
- If NSRP proceeds with Option 2 (two CI executions), UNEW will help minimize operational risk and cost impact and will ensure that the turbine continues to operate safely until the refurbished fuel nozzles are installed.
- NSRP should urgently initiate procurement of an additional spare nozzle set to permanently eliminate this recurring risk for GTG#1 and GTG#2.

5. Conclusion

The delay in refurbishment is not due to performance issues but results from several objective factors.

1. **Regulatory restrictions:** U.S. cybersecurity rules prevent gas turbine repair facilities from refurbishing used parts from certain countries, including Vietnam. This restriction stopped UNEW from repairing NSRP’s nozzles at our U.S. facility and required about two months to arrange a qualified partner.



UNEW, Inc.
3321 SE Gran Park Way, Stuart, FL 34997, USA
Phone: +1-772-408-4600 | Fax: +1-772-781-3884
www.unew.com

2. **Maintenance decision:** UNEW advised that the first nozzle set had already been refurbished multiple times and was not repairable. At NSRP's request, a full detailed inspection was still performed, which took additional time.
3. **Lack of spare set:** The absence of a full spare nozzle set leaves the plant vulnerable. Without a standby set ready for use, any unforeseen repair or logistics issue can immediately affect turbine availability and operating reliability.
4. **Unexpected heavy repair:** The current set was expected to require only medium repair, but inspection revealed extensive damage that required a full heavy repair process.
5. **First refurbishment cycle:** This is the first refurbishment performed for NSRP, requiring additional time to establish and validate technical procedures, coating parameters, and inspection baselines. Future cycles will follow these proven methodologies and are expected to be much faster and more efficient.

To resolve the issue, UNEW has proposed two technical options:

- Option 1: Defer the CI to March 2026 when the refurbished set is ready.
- Option 2: Perform the CI now and repeat it in March 2026 to install the refurbished set.

UNEW would like to emphasize that in this situation, with the technical challenges and restrictions involved, no other contractor could handle the work more effectively. We have all the required expertise, equipment, and engineering capability in-house, supported by long experience in both manufacturing and refurbishment. Our flexibility allows us to adapt quickly, find solutions, and keep the project moving under any condition. UNEW does not focus on difficulties but on solutions, and we remain fully dedicated to supporting NSRP with trust, quality, and reliable performance.

Despite these challenges, UNEW's refurbishment process remains technically, scientifically, and industrially justified. UNEW appreciates NSRP's understanding and cooperation. We assure continued transparency, weekly progress reporting, and full technical support to complete the refurbishment at the earliest possible time.

Sincerely,

A handwritten signature in blue ink that reads "Long M. Le".

Long Le
President
UNEW, Inc.

Possibility

There is still a possibility to reduce the lead time by about 50 percent, which would allow the refurbishment to be ready for shipment shortly after the New Year. We have a product line that is dedicated to Pratt and Whitney to manufacture the aviation parts. UNEW has submitted a request to Pratt & Whitney to temporarily use that production line during the Thanksgivings Holidays for this project. They will reply to us next week.