

GE Gas Power Supplier Handbook

DISCLAIMER

The information in this handbook is provided for convenience of our suppliers/customers and may be subjected to change from time to time without prior intimation. This document may be used as a guide but not as a substitute to GE Gas Power Global Sourcing Procedures, Work Instructions or Quality Management System.



GE Gas Power

Integrity

GE considers the professional behavior of its people and its interfaces in all business relations to be of paramount importance. Improper behavior in business has the potential to jeopardize the image of GE's employees, suppliers, customers, clients and other partners.

GE Gas Power agrees to comply with the GE Integrity Guide for Suppliers, Contractors and Consultants, located at: <u>http://www.gesupplier.com/html/Suppliers</u> <u>IntegrityGuide.htm</u>.

Building Success

GE Gas Power is committed to customer success. Key to achieving that success is the application of consistent, effective processes for designing and manufacturing products and delivering services. These processes extend beyond GE Gas Power to include our entire supply chain.

This handbook is intended to explain how each of the key processes involving suppliers works. In the pages that follow, each of these processes is explained in further detail. Please take the time to review these processes. They are key to GE Gas Power supplier's effective involvement in the GE Gas Power supply chain.

If you have any questions, contact your GE Gas Power Sourcing Commercial Leader or your GE Supplier Quality Engineer. Thank you for your contributions to our mission of furthering our customers' success.





Our Integrated Supply Chain Processes

The first step we take with any prospective supplier is to obtain a signed **Non-Disclosure Agreement (NDA)** between GE and the supplier.

Once the NDA is on file, we can send the supplier a **Request For Quote (RFQ)**.

Having identified a candidate company, we take steps to assess the supplier's capabilities, according to our formalized Supplier Evaluation & On-boarding Process.

Once we have determined the appropriateness of forming a commercial relationship with the supplier, we can initiate our **Qualification/New Product Introduction (NPI)** process, which helps ensure that the products made by that supplier will be right the first time and every time.

If at any point prior to shipment the supplier identifies a nonconformant condition that it believes may still be acceptable, the supplier can request permission to ship the product, despite its condition, through our Supplier Deviation Process.

Once ready, products are transported to our facility in compliance with the requirements of our **Shipping Process**, which includes requirements related to packaging, bar coding and other activities.

If a non-conformance is found after a product has been shipped, a Non-conformance Material Report will be written against it as part our Non-conformance Material Process. In cases in which a supplier's defects have significantly adverse consequences, the Supplier Recovery Process may be employed.

If the non-conformances are severe or chronic, the issue may be more formally addressed with our **Corrective Action Process**.

Throughout the relationship, **our eCAV Monitoring/SPC Process** (as applicable, specific to products) helps suppliers continually strive for improvements that achieve higher levels of customer success.

The **Supplier Surveillance Audit Process** likewise ensures a continued focus on quality improvement to support customer success.





RFQ Process

NDA Υ Ν 🕹 RFQ Ŵ Request V Ν Y Ŵ (if req'd

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The identification of potential suppliers may involve approved suppliers as well as those new to GE Gas Power.

Before proceeding, GE will ensure that a Non-Disclosure Agreement (NDA) with the supplier is on file. To be current, the NDA must have been signed within the previous three years. The NDA is a document required for any type of collaboration between GE and its suppliers. The document binds both parties not to divulge technical information or any other type of proprietary information to third parties without prior written consent of the other party.

Once NDA is signed by supplier, the drawing can be sent out for quote.

If the quote is found to be acceptable technically & commercially in line with general details such as shipping logistics, agreement to terms and conditions, etc., the process can proceed to clarification of finer purchasing details including initiation of supplier evaluation and onboarding.

Direct Material suppliers especially those providing items critical to the proper functioning of GE's product will be evaluated in greater depth prior to being approved as a supplier. A Technical Commodity Assessment is typically done.



The Supplier Evaluation Process begins with identification of a prospective supplier. A Sourcing Commercial Leader takes this step.

In cases in which the product to be supplied is costly or especially critical to the proper functioning of GE's product, greater scrutiny is applied to the supplier evaluation process.

Additional scrutiny may include:

- REACH & Compliance Survey are conducted when regulatory requirements need to be evaluated.
- Supplier Responsibility Governance
 questionnaire/audit
- EHS questionnaire

Supplier On-boarding Process

GE personnel visit the site where the supplier's product(s) are to be manufactured. The evaluation examines a variety of aspects of the supplier's operation. These aspects are listed in greater detail in the following page.

If the supplier has provided acceptable responses to all areas of questioning and the results of the evaluation is at or above the minimum acceptable level, the supplier can be approved. If not, shortcomings can be addressed and the supplier may be reappraised. Once found to be acceptable, the supplier may then be approved.



Supplier

For a company to become an approved supplier to GE Gas Power, it must





Supplier Responsibility Governance (SRG)

Expectations from Suppliers:

- Compliance with laws and regulations protecting the environment
- Provision of a safe and healthy workplace
- No workers below the legal minimum age or 16, whichever is higher
- No forced, prison, or indentured workers or workers subject to any form of coercion
- Compliance with minimum wage, hour of service and overtime wage laws
- Freedom of association
- No discrimination at work in any form
- No harassment of employees

Key Steps:



NOTE : EHS approval is a pre-requisite for vendor on-boarding. Periodicity of re-audit is based on supplier risk assessment followed by GE Gas Power, time to time.



Supplier Responsibility Guidelines (SRG) Program		Supplier: Attendees:	Date:	
Areas to Look at When Visiting a Supplier Site	Yes or No	SRG Master Checklist Question(s) Ref #	Flag Ref.	Auditor Notes
Housekeeping and Working Conditions				
The general work area is clean, organized, free from debris/obstacles and clutter.		2.6;	Red	
Illumination and temperature are adequate for the tasks being performed by workers.		2.7; 2.10;	Red	
Aisles and walkaways are clearly marked, maintained free of debris and not obstructed.		2.6;	Red	
There are no slips/trips/fall hazards in the work area (floors not wet/greasy, no externsion cords/wiring, no holes etcl.		2.6;	Red	
Electrical pannel boxes and controls are free of obstructions and labelled.			Red	
Emergency Preparedness , Fire Prevention & First Aid	2		-	2
Emergency exit routes are clearly marked (visible signs), illuminated, access is not obstructed and doors not locked.		2.4; 2.5;	Yellow	
Emergency map/evacuation routes and information to reach meeting point is displayed/posted.		2.5; 2.18	Red	
Fire extinguinshers are placed in the immediate work area (check signs), inspected (see tag) and easily accessible.		2.19;	Red	

New Product Introduction /Qualification Process Flow

The first step in the New Product Introduction Process or Qualification, Project Scoping, is undertaken by GE internally. It involves an assessment of whether or not the pursuit of an NPI/Qualification for a particular component is warranted. This decision considers such factors as resources required to pursue the project and the benefits it would provide.

Product Definition

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This step is also undertaken internally by GE. The objective is to define the requirements of the component in question, verifying that all critical characteristics have been identified and all specifications have been correctly documented.

This step is also undertaken internally by GE. The objective is to detail the activities the supplier must perform in order to validate the component to be supplied. Validation requirements may include (but are not limited to) such activities as First Piece Inspection, material certifications, functional testing and reliability testing. Supplier Quality Requirements are covered under document P28-A-AL-0002 (will be shared with supplier in ITO (Inquiry to Order) Phase.

This is the first step in the NPI process that is completed by the supplier. The series of activities defined in the Product Validation Plan are intended not only to validate that the product has been made correctly, but that the processes used to make that product are well-controlled and sustainable. The activities in this step must be completed and their results supplied to GE for approval. These activities are described in further detail in following pages.

This step involves an assessment by GE of the validation information provided by the supplier to ensure its acceptability. If the information is determined to be acceptable and complete, the project will be closed. NOTE: Once suppliers have reached this stage, they should NOT make any changes to manufacturing processes involving GE products without first obtaining written approval from GE Gas Power.

Depending on specific criteria, certain products may need to be revalidated at some point after the project was initially closed. This step consists of verifying that documented processes are still being followed, that process capabilities remain acceptable and that control plans continue to be sustained. This is carried out through periodic supplier surveillance and reliability audits.

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NPI/Qualification Process Steps:

This graphic depicts the processes used to manufacture the given product. The more detailed the descriptions of these activities, the more likely any failures can be anticipated and avoided. This document should list all GE reference documents, supplier reference documents, GE material specifications, Equivalent supplier material specifications and list of sub-tier suppliers. Verify by "Walking the Process"

This activity involves verifying that any chemicals accompanying the product when it is shipped to GE Gas Power have been approved by GE Gas Power and accompanied by MSDS (Material Safety Data Sheet). This includes any Chemicals, paints, coatings or rust preventatives. Terms such as "additives" or "Pigments" are not acceptable.

With the Process Flow Diagram (PFD) as its basis, this activity considers the various errors that could occur at each process step (the various "failure modes"). The work here involves evaluating the severity of each failure mode's consequences, the likelihood of its occurrence and its detectability prior to the product's release. This aids in identifying and mitigating the most troublesome failure modes.



NPI/

The means of controlling each product characteristic (and any critical process parameters) are to be formally documented in a matrix. The control plan will include details such as specification limits for the characteristic, the means and frequency of checking the characteristic, and the method of ensuring that the characteristic will be kept in control.

The measurement system for any characteristics defined as Critical To Quality (CTQ) must be validated to have an acceptably small amount of error. The goal is to have measurement error of no more than 10% of the associated tolerance. In the case of a characteristic that is discrete in nature, an Attribute Gage R&R score of 90% is the minimum acceptable standard.

The short-term process capability (Z-score) for all characteristics should be at least 4.0 (implying a long-term capability of at least 2.5). In cases of CTQ characteristics, those that exceed this goal may be inspected on a sample basis, and those not reaching the goal must be checked on a 100% basis.

Complete First Piece Inspection The First Piece Inspection must be approved by a GE Qualification Team (Supplier Quality Engineer, Design Engineer, Material Process Engineer) prior to parts shipment. The Validation Matrix may include a variety of checks including functional, environmental and reliability testing as well as manufacturability and maintainability considerations.

NOTE : Certain parts may be subject to Post-Validation Requirements (PLQ, Surveillance audits etc.) at some point after initial approval to ensure that process control and process capability are being sustained.



Supplier Deviation Process:





Product Packing, Preservation and Shipping Process

resolution

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Requirements for packaging and bar coding are covered by the P23E-AL-0255 packaging specification which is communicated to vendor as part of RFQ package and Purchase Orders.

GE contracts the services of a third-party logistics company to co-ordinate shipments to our facility. Inco-Terms shall be clearly mentioned in supplier quote as well as GE Purchase Order.

Supplier makes entry in Oracle Transport Management System – OTM or WMSA (in case shipment in GE's scope) so that shipping marks are provided and pick up is arranged. Supplier must provide the commercial invoice and packing List for all international shipments.

Most shipments are received without any problems. If a problem does arise with an order, the GE buyer should be called so that the problem can be resolved.

In issuing the receiver, GE's inventory records are updated in the computer system and the material can be stacked to a specific location.

For an order to be paid, a three-way match must be made between the part number, the purchase order number and the price.



International Shipping Requirements



Commercial or Pro forma invoice and packing list must be provided on all international shipments.

Critical Information required on Customs Invoices include:

- Shipper Name, Address and Tax ID \checkmark
- ✓ GE Buyer and Seller Contact Name and Phone Number
- \checkmark **GE Consignee Name, Address and Contact**
- Invoice Number and Date of invoice creation \checkmark
- Identify total & current page number for multiple page invoices \checkmark
- Invoice must be LEGIBLE and in English or if requested by Buyer, the language of the destination \checkmark country. Nothing handwritten (except the signature)
- Purchase Order Number, order line item, release number (in the case of a "blanket order") and GE Part Number and Detailed Description of Part (s)
- Unit & Total Value (Purchase Order value) in the currency of the transaction
- Quantities (pieces, weight, unit of measure) easily identifiable \checkmark
- Country of origin (must be listed) of the goods as determined under applicable customs laws \checkmark
- ✓ INCO Terms of sale
- Non-commercial shipments should include wording "Value for Customs Purposes Only" \checkmark
- ✓ Appropriate export classification code for each item as determined by the law of the exporting country (i.e. for exports from the U.S., the U.S. Commerce Department's Export Control Classification Number).

Key Customs Data Considerations

Valuation... "Customs value" required for duty assessment

- Usually customs value is based on the purchase price. However, there may be adjustments required for items like "assists". Assists are anything given to a supplier free or at reduced cost that are used to produce a product that will be imported. Any assists or other valuation adjustments should be noted on the Customs invoice.

Classification... used to determine rate of duty assessment

- Part description **must** be detailed enough on convey the fit, form, and function of the part shipped. Classification delays, usually driven by poor descriptions, are the main contributor for delayed shipments.

Country of Origin... declaration requires product origin which is generally the country of manufacture

- Determines duty rates and other Government agency requirements.

Special Programs... country-specific, to obtain duty benefits

- Where products are eligible or required by PO, suppliers should provide required documentation to demonstrate that products can be declared under reduced duty programs.



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Non Conformance Material & Supplier Recovery Processes





Corrective Action Process



Any employee of GE may identify an issue requiring Corrective Action, although an SQE, Manufacturing Quality Engineer or other quality representative most often handles this step.

Corrective Actions (CA) are required for any issues involving product safety, infancy failures, chronic or severe quality problems that escape their area of origin, and deficiencies found during audits.

A Corrective Action Request (CAR) is generated through Clearorbit application. The CAR identifies the nature of the problem as well as when and where it was found. The request also designates who will be responsible for identifying the corrective action to be taken and who will be responsible for approving the plan and its implementation.

The individual who has been assigned the Corrective Action determines the root cause of the problem, the action to be taken in addressing the root cause and the date by which the action will be taken. If the person assigned is not the appropriate person, the Corrective Action can be reassigned.

The person assigned at the time of the CAR's origination as the Plan approver (Usually also the originator) evaluates the response for its acceptability. If the response is rejected, the Responder must modify and resubmit the proposal.

Note that supplier may be required to submit process or product data in order to verify the plausibility of a root cause and the feasibility of corrective action.

Once approved, the plan is implemented and the Corrective Action System updated with this information.

Once implemented, the Corrective Action is evaluated to determine if it is sustainable and whether or not it is effective. If the evaluation reveals the action is no longer being taken or is ineffective, the Corrective Action will be rejected and another CAR will be initiated.



Corrective

Action

Process

CTQ Monitoring

CTO is

CTQ is

is given CTQ#

calculated

The characteristic Monitoring Process begins when a characteristic is specified as a CTQ (Critical to Quality) in a Monitoring drawing. Once the drawing has been completed, the Engineering team releases it to the Supply Chain team.

The CTQ is entered into the e-SPC (Supplier Process Capability) database. In the case of new drawings, this is done automatically. In the case of previously existing drawings, it is done manually. The SOE links the drawing to the supplier that will be making the part. If more than one supplier will be making the part, each will have its own link to the drawing.

The SQE communicates the CTQ number to the part supplier. The supplier subsequently uses this number in association with any data submitted for that CTQ characteristic. The SQE will also instruct the supplier to submit required data for the CTQ characteristic through the e-SPC system as applicable / Supplier Defined Format.

The supplier then makes the parts, takes measurements of the CTQ characteristics and records the measurements. The supplier submits the measurement data to GE through e-SPC system as applicable / Supplier Defined Format. CTQ Process Capability data collection requirements are covered under document P28-A-AL-0001 which will be shared during ITO Phase.

The SPC calculates the Z-score for the associated characteristic. If the Short Term Z-score is below 4.0 (implying a Long Term Z-score below 2.5), the SQE works with the supplier to raise the Short Term Z-score above 4.0

Additionally, if receipts are generated for a part with CTQs for which corresponding data has not been received, the SOE is notified and will request the missing data from the supplier.



CTQ

Supplier Surveillance







In Case of any questions, please reach out to your

Sourcing Commercial Leader or Supplier Quality Engineer

in GE Gas Power.



