

Quality principles for SE suppliers

Valid for Organization	All Siemens Energy Units and Affiliated Companies
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Process	Procurement
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Scope / Target Group

This document is shared with our suppliers. The purpose of the Quality Principles for SE suppliers is to specify and explain the procedures and requirements that affect the cooperation between Siemens Energy and affiliated companies and its suppliers of quality relevant materials and critical services with the goal of ensuring excellent quality for our customers throughout the entire supply chain.

This document describes the minimum requirements for doing business with Siemens Energy. Any additional requirements will be communicated on a case-by-case basis and/or will be addressed in other business-related documents.

It is valid for all quality relevant SE suppliers and as an external document to be shared with these suppliers and is available on SE supplier portal.

Management Summary

This document describes our procedures for onboarding and qualification of suppliers and their deliveries. It outlines our expectations and the necessary steps and activities to be performed by our suppliers to become and maintain the ready-to-order (R2O) status.

Quality-relevant suppliers

Quality-relevant suppliers are suppliers which supply any type of product (raw materials, materials, components, assemblies, production materials, software, etc.) or service (engineering services, contracted services, etc.) that has an impact on the extent to which a finished product or service provided to the customer meets internal and external customer requirements (i.e. compliance with specifications, laws, standards, safety requirements, etc.). Within the scope of quality-relevant suppliers we may find direct or indirect material, tangible or non-tangible products, SE design or vendor design, as long as they are considered quality-relevant for our business. Each Company Unit must ensure that it identifies all suppliers relevant to quality by using the corresponding procedures and the associated IT-tools.

In simple terms: If insufficient quality of a supplier significantly impacts on our customer, the supplier is considered quality relevant.

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1. Scope and Purpose

This document is shared with our suppliers. The purpose of the Supplier Quality Principles is to specify and explain the procedures and requirements that affect the cooperation between Siemens Energy and affiliated companies and its suppliers of quality relevant materials and critical services with the goal of ensuring excellent quality for our customers throughout the entire supply chain.

This document intends to give the necessary background information for doing business with Siemens Energy and affiliated companies. Any additional requirements will be communicated on a case-by-case basis and/or will be addressed in other business-related documents, like a Quality agreement.

This document applies to all quality relevant suppliers. Quality relevant suppliers are suppliers which supply any type of product (raw materials, materials, components, assemblies, production materials, software, etc.) or service (engineering services, contracted services, etc.) that has an impact on the extent to which a finished product or service provided to the customer meets internal and external customer requirements (i.e. compliance with specifications, laws, standards, safety requirements, etc.). Within the scope of quality-relevant suppliers we may find direct or indirect material, tangible or non-tangible products, SE design or vendor design, as long as they are considered quality-relevant for our business.

In simple terms: If insufficient quality of a supplier would significantly impact our internal processes (e.g. manufacturing) or our customer directly, the supplier is considered quality relevant.

2. Mandate & Mission

2.1. Quality

We expect our suppliers to fully own their produced quality, fulfill or exceed our requirements, attend to nonconformances in a way that prevents recurrence and maintain an overall high level of quality standard and quality organization.

Supplier Quality (SQ) aims to optimize suppliers' process and quality capabilities permanently right along the value chain. It is preventively reducing non-conformities and is thus a cornerstone of our ongoing success in operations in close collaboration with our cross-functional partners in the business.

2.2. Health and Safety

For Siemens Energy, people are a fundamental value, integrating the health and safety of employees and partners of our projects as an inseparable part of our strategy as a company. Siemens Energy expects from suppliers, based on risk assessments, to take the responsibility of contributing to the process of achieving a Zero Harm Culture and require suppliers to inform about severe incidents or fatalities.

2.3. Environment

Siemens Energy harmonizes economic, ecological, environmental and societal requirements and responsibilities. Siemens Energy can rely on a single source of concentrated expertise: competitive, environmentally friendly product design, the improvement of resource efficiency, the evaluation of environmental risks and the provision of advice on this subject, and the support of legal certainty. Environmental protection is a fundamental aspect of the culture of Siemens Energy. We expect our suppliers to share our commitment to the environment and to demonstrate environmentally friendly

practices. We also expect our suppliers to take environmental responsibility and to ensure compliance with the local and international regulations.

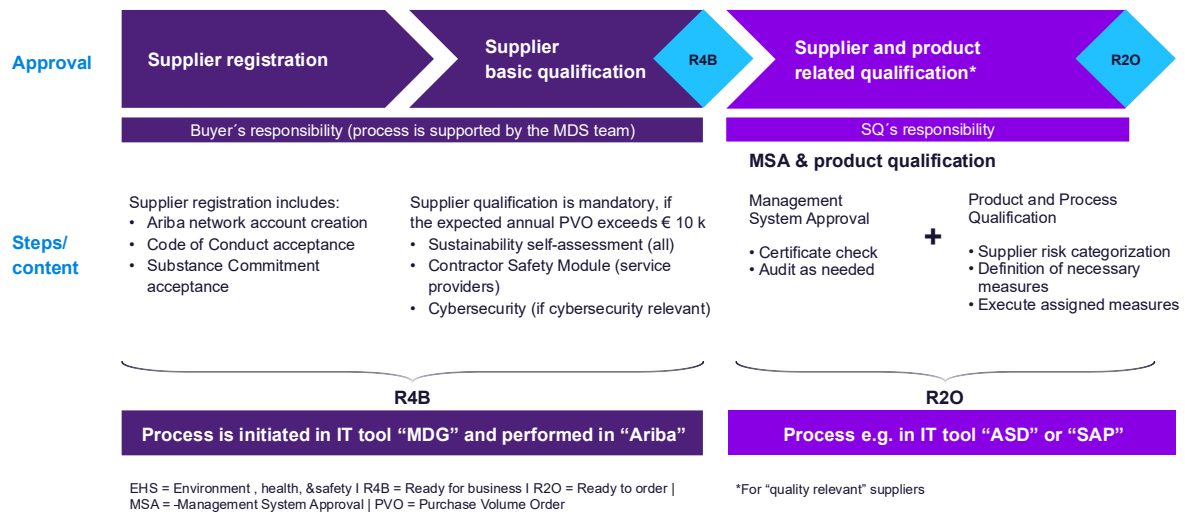
3. Supplier qualification

The supplier qualification process is used to verify a supplier's ability to meet defined requirements and includes all the steps necessary to approve a quality relevant supplier.

Becoming an approved supplier or contractor follows a 2-step process:

1. Ready for Business (R4B)
2. Ready to Order (R2O)

As Quality & Sustainability (incl. EHS) are key elements for our success, becoming an approved supplier or contractor follows a 2 -step process



3.1. Supplier registration and Supplier Basic Qualification (R4B)

Supplier registration is a company-wide, mandatory and standardized supplier-related qualification which serves as first release level for a potential Siemens Energy supplier. It is initiated by Siemens Energy's procurement function and forms the basis for additional supplier, product and process related qualification requirements.

The supplier basic qualification (Ready for Business – R4B) process is used to verify a supplier's ability to meet defined requirements and consists of the vendor's CoC (Code of Conduct) acceptance and substance commitment.

In addition the process might include:

- Sustainability Self-Assessment
- Contractor EHS Qualification Questionnaire
- Cybersecurity check

Find more information at our [supplier portal](#).

3.2. Supplier and Product/Process related qualification (R2O)

All Supplier Quality (SQ) related qualification activities like Management System Approval (MSA) as well as product- / service- and process related qualification (PPQ) are part of the further qualification process

and conclude with the supplier achieving Ready to Order (R2O) status for the materials / service in scope of the qualification. The R2O qualification steps are mandatory for all quality relevant suppliers.

3.2.1. Risk evaluation/ risk categorization

Siemens Energy Supplier Quality ensures that quality-relevant suppliers are cross-functionally rated with regard to the risk of the product or services and the risk of the respective supplier.

This risk identification and evaluation step provides a transparent basis for defining the measures required to minimize risk. Suppliers are categorized into one of three possible categories (C1-C3). The first category (C1) entails the most stringent requirements for the qualification and monitoring of the supplier and its supplies.

Additional requirements for the 3 categories can be defined by Siemens Energy.

3.2.2. Management system approval and Supplier Audit

Depending on the results of the risk assessment, required Management Systems for Quality (ISO9001), Environmental Protection (ISO14001), Health and Safety (ISO45001) are to be determined. Additionally beneficial can be (integrated) Management Systems for Energy Management (ISO50001) and Information Security (ISO27001).

The Supplier Quality function of Siemens Energy will inform suppliers which management systems and certificates are mandatory.

Alternatively, and depending on the risk categorization, a supplier audit can be the alternative for a missing certificate. The Qualification activities will be repeated every 3 to 4 years and can include both collecting ISO certificates and Audit.

A supplier audit is an evaluation of a supplier's management system to determine compliance with SE requirements and standards, identify process risks and support the continuous improvement of suppliers' capability. It is based on quality, EHS, CoC and additional requirements. The supplier audit can be a mixture of system and process audit. Existing results of third-party audits are taken into account.

Suppliers that initially do not score acceptably are required to develop action plans and timelines to correct any deficiencies and then request a re-audit to verify implementation of these actions.

3.2.3. Product and Process Qualification

Depending on the risk categorization, a product/service and process qualification (or re-qualification) might be required.

A decision to initiate PPQ is determined by SE Supplier Quality, based on standardized internal criteria. The need for a Product and Process Qualification (PPQ) should be considered by SE Supplier Quality when any of the following applies, but is not limited to:

1. New supplier approved per Supplier Basic Qualification Process (R4B).
2. Existing supplier expanding its scope of delivery, or qualification of a new product.
3. Existing supplier requiring full or partial product and/or process re-qualification due to significant quality issues or significant changes.

Not every product requires a formal qualification, therefore the specific details of a PPQ are described in a separate document. For certain suppliers to SE Wind Power / Siemens Gamesa, reference is made to [APQP4Wind](#).

In case there is a PPQ required, suppliers need to be prepared to:

- Participate in the PPQ Supplier Kick-Off Meeting
- Deliver required product and process documentation based on PPQ-Elements (e.g. MQCP, certificates, test reports, FMEA, etc.)
- Deliver samples and first article as part of the PPQ
- Open the door for SE visits to perform audits and further checks agreed for the PPQ

3.3. Change management

Changes can be initiated during or after a PPQ-process, either by SE or by the supplier.

Supplier initiated changes are forwarded to the pre-determined SE representative by submitting a Product Process Change Notification (PCN) or, if implemented, a Quality Note (QN) via SAP before implementing the change. Changes might be e.g. design, location and/or changes to the frozen process. SE Supplier Quality evaluates the risk and the impact of the change and defines the change implementation actions. Supplier Quality informs the supplier about the decision and necessary additional activities, e.g., re-qualification.

See Annex 1 for Change Notification template. This is used if no other form was established or agreed.

3.4. Sub-Tier suppliers

Sub-tier suppliers have a tremendous impact on the quality of the final product. Whether they provide raw materials, services or sub-components their influence is so profound that it is critical for each of Siemens Energy's suppliers to have a supplier management system in place that is adapted to the purchasing scope and ensures acceptable and stable quality from its sub suppliers.

The supplier has a procedure within its Management System to guarantee an acceptable and stable delivery performance from its sub suppliers. In addition, the supplier ensures that the content of SE CoC is applicable also to its sub supplier.

The supplier ensures that the auditing rights also apply in respect of supplier's sub suppliers.

In cases where sub-suppliers are delivering critical products or services to the supplier and SE is defining the sub-supplier (2nd tier, direct sourcing), then the sub-supplier can also be already qualified by SE.

3.5. Quality agreement

The purpose of a Quality Agreement (QA) is to manage expectations of the parties involved from the perspective of quality of work and compliance with applicable regulations.

The goal of a Quality Agreement is to:

- control all quality assurance measures,
- agree upon a necessary level of quality between the supplier and Siemens Energy and affiliated companies and, by doing so,
- ensure the quality of deliveries / services from suppliers.

The supplier agrees to adhere to the applicable quality management system for the site(s) and region(s) in which they operate. Quality Agreement negotiations are led by the responsible buyer. A Quality Agreement is a contract or part of a master purchasing agreement and may be amended by Siemens Energy from time to time.

4. Supplier performance management

4.1. Final inspection of goods

The supplier is responsible for the execution or assignment of the inspection according to the requirements of the agreed inspection plan. The results of the inspection need to be documented.

The inspection type and frequency are determined by specific inspection characteristics and previous inspection results.

Although Siemens Energy may plan additional inspections, the overall responsibility for testing and faultless delivery ALWAYS lies with the supplier. Siemens Energy may perform regular cross-checking of the supplier inspection results data to measure the supplier's quality performance.

4.2. Source inspection

Source Inspection is referring to Source Inspections at supplier site and to remote activities on quality relevant material during Product and Process Qualification and on serial parts to ensure the supplier's quality performance process.

The respective Siemens Energy Supplier Quality function is responsible for the execution or assignment of source inspections according to the requirements of the inspection plan.

It is the supplier's responsibility to support the planning and execution of source inspections (inspection notification time, parts availability/readiness) and to act on findings by using established methods like RCA and CAPA, if required by Siemens Energy.

4.3. Supplier performance monitoring

Supplier Monitoring aims to present an overall picture and to identify trends of supplier performance by reporting of appropriate Key Performance Indicators (KPI). It provides an overview about the quality performance of the supplier over time and enables to identify at-risk suppliers at an early stage.

In general supplier performance metrics are a set of characteristics that refer to a set of quantitative and qualitative characteristics.

Quantitative characteristics are data driven figures and can include some agreed key performance indicators (KPIs), like e.g.

- Non-Conformance Costs (ScNCC),
- Supplier Delivery Reliability (SDR),
- Supplier Incident Rate (SIR)
- Supplier Failure Rate (SFR).

Qualitative characteristics are the non-data driven evaluation of the supplier performance, like e.g.

- Supplier proactiveness,
- Supplier collaboration
- Supplier availability.

4.4. Nonconformance management & Quality Performance Development

One cornerstone for supplier performance monitoring is systematic and consistent management of nonconformances in delivered products and services. This includes nonconformances that suppliers have identified themselves (concession) and those that have been detected by Siemens Energy or commissioned 3rd parties (discovery). It is the duty of the supplier to report any detected nonconformance to the relevant Supplier Quality Representative of Siemens Energy and to request a concession/deviation approval. **See Annex 2 for a Nonconformance Report template.** This is used if no other form, like e.g. the use of our supplier portal, was established or agreed.

In case the supplier's nonconformance management methodology and reporting format is not accepted by Siemens Energy, please **see Annex 3 for an 8D report example**.

Supplier improvement action(s) are to be initiated when a supplier's performance deviates from business expectations.

Note: Follow-up costs due to errors that are demonstrably caused by the supplier will be claimed.

Supplier quality related nonconformance management follows the steps:

- identification & correction
- containment (if required)
- root cause analysis
- corrective & preventive action(s)
- continuous improvement
- recording & reporting

Based on the amount and magnitude of nonconformances, the time and quality of the supplier response as well as the effectiveness of corrective and preventive measures, the actions below are examples of potential additional measures that could be taken by Siemens Energy, but not limited to all possible actions:

- Tactical supplier corrective actions (e.g. CAPA, 8D)
- On-site workshop
- Increased supplier surveillance/expediting
- Audit or reaudit
- Technical trainings
- Lessons learned recap prior to manufacturing
- Load vs capacity assessment
- Resident engineer
- Qualification or requalification by using relevant PPQ elements
- Establish / revise Quality Agreement
- Meeting with supplier Top Management
- Initiate supplier development project/program

4.5. Supplier strategic development

Supplier Developments are strategic initiatives aimed at improving performance, capabilities, and collaboration with specific suppliers to enhance the overall effectiveness of strategic procurement function and create long-term strategic partnerships.

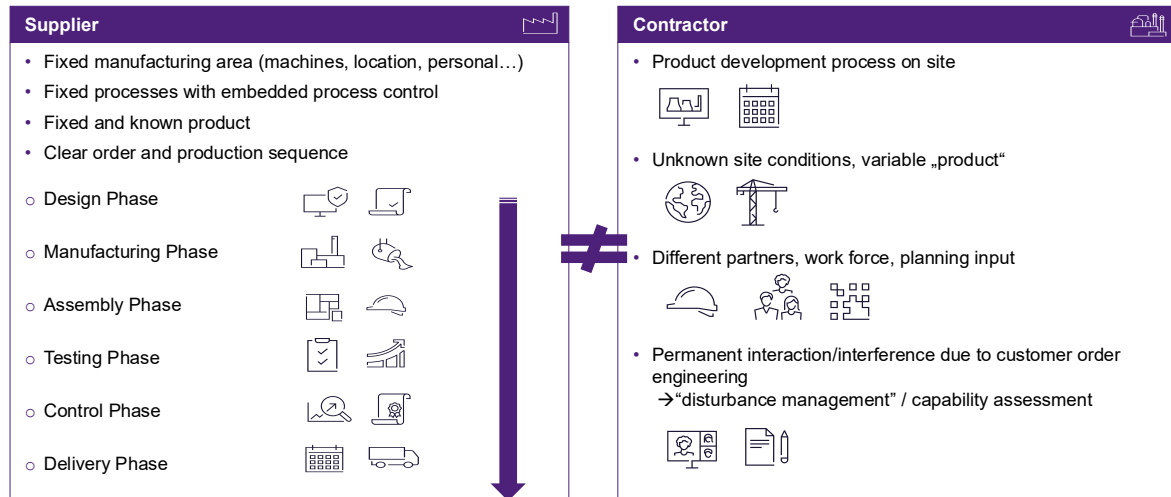
Supplier Development initiates proactive and reactive improvement steps to leverage identified opportunities or address potential issues.

With global strategic thinking, Supplier Development can invoke change within the supplier ecosystem to enhance competitiveness and gain long-term benefits through improved supplier relationship, collaboration, and performance.

5. Supplier Quality in project business

Siemens Energy does appreciate the different approach required between product business and project business. Supplier Quality activities and requirements to suppliers / contractors are adjusted accordingly.

Supplier Quality in Projects PPQ in the Solution (Project) Business



[Go back to SQ process overview](#)

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Inspection and testing are the operational parts of quality control, which is the most important factor to the verification of compliance with all requirements during the execution phase up to handover and takeover of a project. To guarantee the application of all the standards, fabrication procedures and the required properties for the product, appropriate inspections and tests have been implemented during the manufacturing process.

Quality Assurance / Quality control of purchased supplies and services includes following activities:

- Compliance of manufactured parts, assemblies and final items with product specifications, drawings, fabrication procedures, standards and good engineering practice
- Periodic inspection of Contractor's design, manufacturing, components transportation, installation work and the production of progress reports
- Intermediate inspections and tests
- Final Acceptance Test (FAT) / Final Inspection
- Packing for shipment including check for completeness of shipment, handling requirements, marking and identification
- Quality Documentation

6. Abbreviations, Definitions

6.1. Abbreviations

8D	8 Disciplines (problem solving process)
CAPA	Corrective Action Preventive Action
EHS	Environment, Health and Safety
GQA	General Quality Agreement
KPI	Key Performance Indicators
OTD	On Time Delivery
PPQ	Product and Process Qualification
PVO	Purchasing Volume
QA	Quality Agreement
ScNCC	Supplier caused Non-Conformance Costs
SDR	Supplier Delivery Reliability
SE	Siemens Energy
SFR	Supplier Failure Rate
SIR	Supplier Incident Rate
sNCR	Supplier Non-Conformance Report
SPM	Supplier Performance Management
SQ	Supplier Quality

6.2. Definitions

APQP4Wind	APQP4Wind is a common Advanced Product Quality Planning method for the global wind industry that helps your company reduce risk and lower the costs of poor quality.
Commodity circle	Cross-functional working model to develop and implement sourcing strategies and bring in expertise from all functions to generate maximum impact for SE.
Corrective action	An action to eliminate the cause of a nonconformity and to prevent the recurrence
Inspection plan	Ensures that products or processes meet the specified quality standards. Contains detailed information about which characteristics or properties to be inspected, inspection methods to be used, inspection frequency, acceptance criteria and other relevant information.
Nonconformity	Non fulfilment of a requirement
Preventive action	Action to eliminate the cause of potential nonconformity or other potential undesirable situation
Product	A product is a tangible or digital item (e.g., raw material, component, assembly, equipment, or software package) that is delivered to Siemens Energy with ownership transfer and defined technical specifications, and for which conformity is demonstrated through product focused evidence (drawings/specs, material certificates, inspections/tests, markings).
Product business	<ul style="list-style-type: none"> ▪ Standardized products or components incl. standard software ▪ Typically, without or with marginal customer specific adjustments ▪ Success factors: Scale, product cost and complexity, design to cost

Project business	<p>System business:</p> <ul style="list-style-type: none"> ▪ Order, customer or industry specific combination of standard products or software components (may include ally sourced products) ▪ Typically includes customer specific engineering / integration value add ▪ Success factors: Platform design, modular architecture, IT competency <p>and Solution business:</p> <ul style="list-style-type: none"> ▪ Tailor made orders, customer or industry specific hardware or software deliveries (may include ally sourced products / systems) ▪ Typically includes project management design, installation, functional warranty ▪ Success factors: Project management and integration competency, experience, customer and process understanding, partner network
Qualitative	E.g. Supplier proactiveness, supplier collaboration or supplier availability
Quality relevant suppliers	If insufficient quality of a supplier would significantly impact our internal processes (e.g. manufacturing) or our customer directly
Quantitative	Non-Conformance Costs (ScNCC), On Time Delivery (OTD) / Supplier Delivery Reliability (SDR), Supplier Incident Rate (SIR) and Supplier Failure Rate (SFR)
Root cause	The most basic cause (or causes) that can reasonably be identified that management has control to fix and, when fixed, will prevent or significantly reduce the problem's recurrence
Service	A service is an activity performed by a contractor that delivers an outcome (e.g., installation, maintenance, inspection, engineering, logistics, training), typically evidenced by reports or records rather than a physical good; ownership transfer of a good is not the primary value.
Supplier caused Non-Conformance Costs %	<p>Non-conformance costs (NCC) generally occur when products, projects and process do not meet requirements. ScNCC are non-conformance costs which the supplier is responsible for. It is distinguished between gross and net ScNCC, whereby the net costs consider potential recovery payments granted by the supplier or insurances. Formula used:</p> $= \frac{\text{ScNCC Gross (€)}}{\text{PVO (€)}} \times 100$
Supplier Ecosystem	A network of organizations that work together to create the processes needed to source, design, produce, and deliver products to customers
Supplier Performance Management	Managing supplier performance through monitoring and improvement actions to ensure suppliers are delivering on time and to quality
Supplier Development	Supplier Development (SD) are strategic initiatives aimed at improving the performance, capabilities, and collaboration with specific suppliers to enhance the overall effectiveness of Strategic Procurement and create long-term strategic partnerships.
Supplier Delivery Reliability %	The SDR is the percentage of actual delivery date minus last planned delivery date (confirmed from both parties) for fully delivered items being within defined boundaries (-x days early / +y days late).
Supplier Failure Rate %	<p>Refers to the occurrence of a defect, based on the complained quantity (=deviation from specification), divided by the delivered quantity (=semi part or semi-finished product) from an external supplier. The external supplier is responsible for the occurrence of the defect. Formula used:</p> $= \frac{\text{Complained Quantity}}{\text{Delivered Quantity}} \times 100$

Supplier Incident Rate %	<p>Refers to the occurrence of a defect, based on the number of supplier incidents (=deviation from specification divided by the number of delivered lots (=semi part or semi-finished product) from an external supplier. The external supplier is responsible for the occurrence of the defect. Formula used:</p> $= \frac{\text{Supplier Incidents (\#)}}{\text{Delivered Lots (\#)}} \times 100$
Supplier Quality Function	Anyone performing the supplier quality function from Supplier Quality, Engineering; Project Management or Quality Management.
Supplier Improvement	Supplier improvement is closely related to supplier performance management and is the process of working with certain suppliers on a one-to-one basis to improve their performance for the benefit of the buying organization.
Supplier Performance Management	Managing supplier performance through monitoring and improvement actions to ensure suppliers are delivering on time and to quality
Supplier Development	Proactive enhancement of the overall supply chain capability through mid and long term targeted strategic initiatives. Some suppliers identified for improvement, when applicable can be included into a supplier development initiative if it is identified as strategic relevant by the cross functional leadership and commodity circle (based on time, the topic or strategic importance of the supplier to the business).
Strategic Procurement	The strategic procurement function which is responsible for the supplier relationship (e.g. commodity management, commodity experts, strategic buyers)
Validation	Confirmation, through the provision of objective evidence, that the requirements for a specific intended use have been fulfilled
Verification	Confirmation, through the provision of objective evidence, that the specified requirements have been fulfilled

Document Index

References

No.	Name/Title
Annex 1	Change notification
Annex 2	Supplier non-conformance report (sNCR)
Annex 3	8D Form
Download center	Siemens Energy supplier portal Siemens Gamesa supplier portal
APQP4Wind	APQP4Wind official web page

Change History

Version	Date	Remarks
3	Publication Date +3 years	Next Review
2	Jan 2026	Changed Title (removed EHS), removed Annex 1 (PPQ elements)
1	Sep 2024	First Publication