

Ensuring Quality
Going Down the Supply Chain
(Including Vendor Qualification)

What is the Role of Operators, Vendors and Regulators?

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- **Nuclear Safety**

- Generally understood to incorporate the nuclear safety of systems, structures and components, the radiological protection of workers, the public and environment, and the health and safety of those who might be affected by the facility throughout each phase of its lifetime. (NEA, 2011)

- **Nuclear Quality**

- All matters which may affect the safety during all lifecycle phases in terms of design, safety case, procurement, manufacture, construction, commissioning, operation, decommission and even training.



- **Lessons Learned from TMI, Chernobyl, Fukushima, ...**
 - For nuclear safety, preventing overlooking basics/principals/procedures, underestimating risks, and concealment and reduction of suspicions is essential.
 - Nuclear safety depends on the attitude and culture within the organization.
 - New perspective has been presented for consideration on **Safety Culture**.
 - A lesson that has a preventive therapeutic value such as transparent & effective communication and industrial cooperation.



- **New Opportunity by Sharing and Communication**
 - Difficulties were never signs of the decline of the nuclear industry, but rather acted as opportunities to be newly reborn from the past.
 - The nuclear industry is trying to restore stability from stagnant atmosphere.
 - A buzzword of the management in nuclear-related industries is the sustainable development of enterprises and society to improve the quality in nuclear-related industries.
 - Importance of the nuclear quality assurance is growing bigger than ever before.



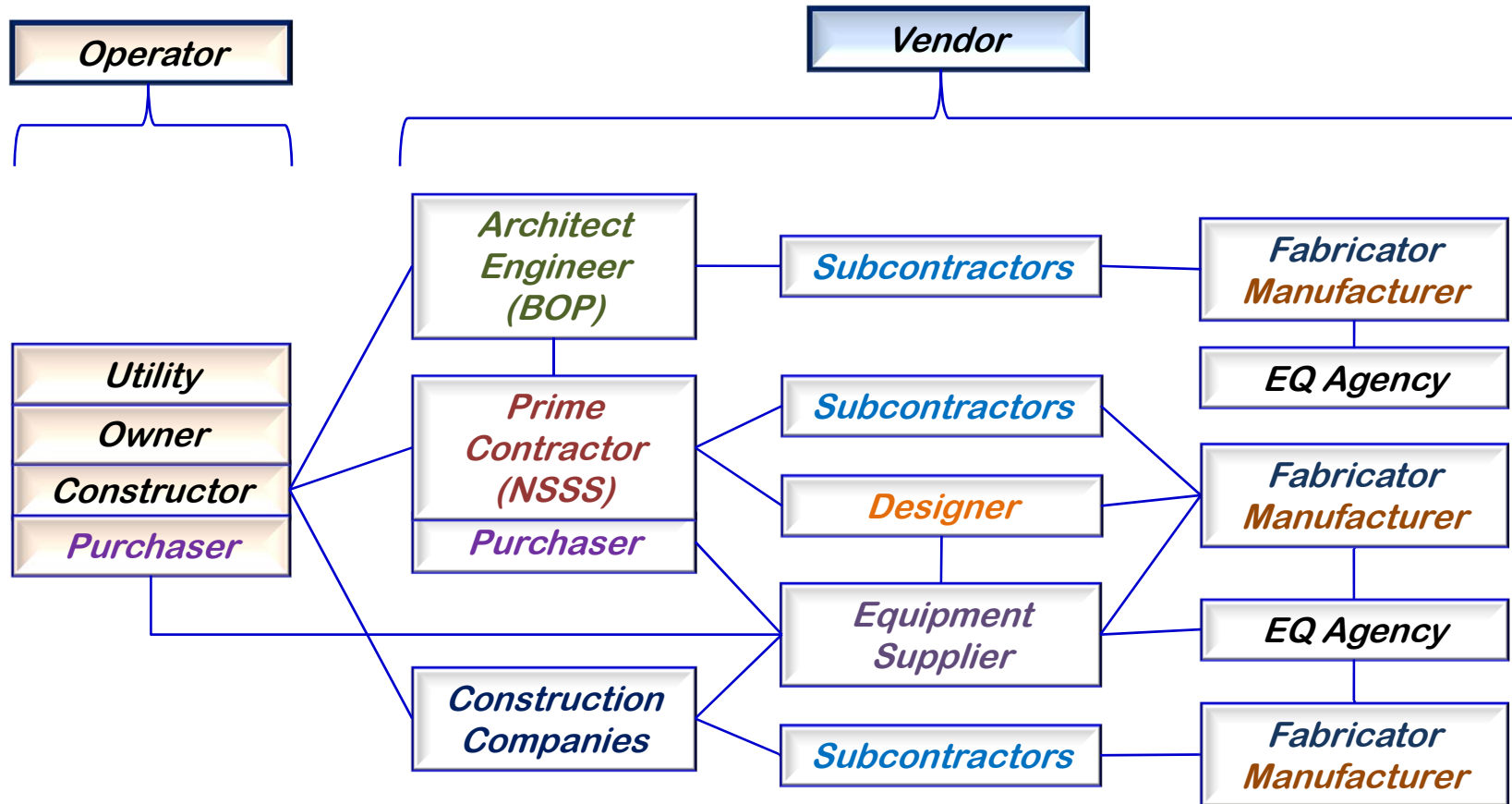
- **Systematic Challenges to Overcome for Ensuring Quality**
 - **Purchasing System**
 - Insufficient collaboration system
 - Shortage of specialist personnel
 - Mismanagement of supplier and certificate(supply chain)
 - **Components and Parts Supply System**
 - Irregularities in the acceptance test process
 - Lax internal controls and embezzlement associated with delivery
 - **Environmental Factor Demanding Time Reduction and Cost Down**
 - Counterfeit documents due to quick purchase
 - More time and costs for qualification by overseas organization
 - Low-cost supply contract due to the excessive competition

Nuclear Quality Issues

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Supply Chain: A Diverse and Complex Structure



Example of Supply Chain Structure



- **Operator(Utility) Quality Management System**
 - **Operator's Responsibility**
 - Operator has the **ultimate responsibility for the safety aspects of the NPP project** and for ensuring that the construction of the plant meets the necessary quality and safety standards(IAEA Standard GS-R-3).
 - Ensuring that the **national safety requirements** are well understood throughout the supply chain.
 - **Operator(Licensee)'s approach to Oversight of Contractors by NEA report**
 - Management system
 - Contract document
 - Contractor oversight process
 - Qualification of potential contractors(Vendor qualification)



▪ Vendor Qualification

- **Why: It's because the purchaser's responsibility**
 - To provide security to ensure products and services consistently meet the requirements.
 - Purchasers should bear responsibility for the condition of the items or quality of the services that they purchase.
 - To promote setting up the trustworthy relationships and confidence.
- **How: By sharing transparent information about qualification**
 - Process should be defined as per Utility's Standard Operating Procedures.
 - The vendor's decisions about where to purchase materials and services need to be well informed and documented.
 - Opening to the public about the qualified supplier registration/ cancellation transparently on real-time basis.

Operator's Role

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- **Improving Vendor Management**
 - Enhancing communication with vendors to break bottlenecks
 - Conducting actual investigation/survey and having a listen
 - Technical support for new suppliers/manufacturers
 - Constructing clean and cooperative partnership with suppliers
 - Continuous searching for and picking out excellent and superior vendors
 - Giving priority to quality over the concerns with schedule or cost.



▪ Vendor's Responsibility in General

- Vendor's responsibility depends on the nature of the contracts and should be defined in the contracts.
- Vendor should provide the operator with plant design and performance information, safety studies and other information that the operator needs to satisfy the regulatory requirements.
- Vendors / Suppliers are expected to act with integrity and adhere to the highest standards of ethical behavior in nuclear businesses.

Vendor's Role

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- **Key Elements in the Vendor's Role**
 - QA programs and Corrective Action Programs
 - Internal Audit Program
 - Management of Commercial Grade Dedication(CGD)
 - Establishing and Maintaining A Safety Culture
 - Purchaser / Supplier Communication



- **Contractual QA Responsibilities**
 - Establishment and implementation of QA plan
 - Management plan for CFSI(counterfeit, fraudulent, suspect item) and confirmation of product integrity
 - Self-inspection of all quality verification documents
 - Prevention of forgery, falsification or false submission of any documents for QVD, EQ, and CGD



▪ Regulator's Mission

- Ensuring that activities related to the peaceful use of nuclear energy are carried out in a safe manner, in accordance with international safety principle and with full respect of the environment(NEA)
- Protecting public health and safety related to nuclear energy(NRC)
- Securing the protection of people and society from the hazards of the nuclear industry(ONR)
- Generally including area of regulation for nuclear safety, radiation safety, R&D for safety standard, and public communication, etc.



▪ Regulator's Role

- Expanding the infrastructure to have appropriate regulations, regulatory codes and standards related to the construction and operation of NPPs.
- Overseeing nuclear safety and radiological protection, and emergency management
- Setting up suitable system to keep the communications with operators transparently and timely.
- Interacting with the operator at every stage of the NPP project, for successful completion of the project.



- **Key Elements in Assessing Oversight of Vendors(NEA , 2011)**
 - **Regulatory Management System** with sufficient expertise and with special emphasis on quality and safety
 - **Inspection and Assessment Process** to verify that the licensee establishes and implements a contracting process with reasonable assurance of quality and safety.
 - **Access to All Information and All Places of Work**, where it is relevant to the current and future safety of the licensed facility.
 - **Keep Communicating with Stakeholders** to discuss the regulatory strategy, the regulatory system and the safety goals.
 - **Procurement Oversight** for maintaining objectivity, fairness and transparency of the procurement process

Summary

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- Most important thing is that each entity plays its role to ensure the quality throughout the supply chain in the nuclear industry.
- **The Operator**, throughout any contracting process, must retain ultimate responsibility for the establishment and operation of deliberate QA system.
- **The Vendors/Suppliers** are expected to act with integrity and adhere to the highest standards of ethical behavior.
- **The Regulator** should play a key role to secure the quality and safety with ;
 - Dissemination of safety culture
 - Enhanced international standardization and greater cooperation of regulators
 - Establishing formal lines for good communication with stakeholders

Thank You!