

CBI

New Build Supplier Challenges

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Regulatory Information Conference
March 13, 2013*



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CBI **New Build Supplier Challenges**

About CB&I

Through the acquisition of the Shaw Group, CB&I is the most complete energy infrastructure focused company in the world. Our talented employees have the capabilities and the expertise to provide our clients with a world of solutions, and a tremendous strategic advantage in responding to the growing demand for energy infrastructure around the globe.

CB&I offers a world of solutions to our customers in the energy, natural resources, environmental and infrastructure markets. Drawing upon more than a century of experience and the expertise of approximately 50,000 employees worldwide, CB&I provides reliable solutions while maintaining a relentless focus on safety and an uncompromising standard of quality.



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CBI **Nuclear New Build Supplier Challenges**

- Identification, selection and management of safety-related suppliers presents significant challenges to effective execution of nuclear new build projects.
- Many power industry suppliers have not provided equipment and materials to new nuclear plant construction projects for several decades.
- Nuclear suppliers generally have been focused on modification and maintenance work scopes, which are very specialized



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Scope of Commodities

- Due to the complexities of a new build nuclear power plant the scope of commodities is extensive.
- This list is an example of materials that are typically needed for the construction of a nuclear power plant.

Concrete	Tanks
Structural Steel	Pressure Vessels
Large & Small Bore Pipe	Pumps
Pipe Hangers/Supports	Heat Exchangers
Cable Trays	Condensers
Conduits	Turbines
Power Cables	Diesel Generators
Instruments	Rebar
Cable/Terminations	Valves



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Unit 2 Nuclear Island Foundation and Forms

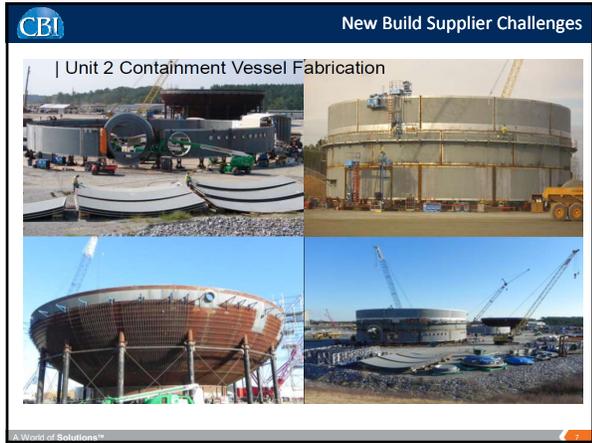
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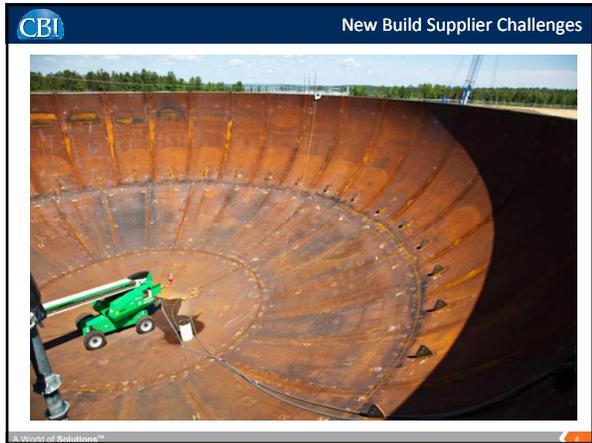
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Supplier Understanding of Requirements

- Inexperience with nuclear compliance expectations or implementing procedures lacking specificity to ensure compliance
- Need to recognize/acknowledge regulator, owner and purchaser expectations
- Concerns exist as to whether suppliers have capacity, processes, plans and procedures in place to adequately fulfill the nuclear new build demand
- Competition between purchasers may lead to limited supplier resources potentially impacting the supplier's ability to perform

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Procurement/Subcontracts

- Cost associated with required rigor of oversight must be sufficiently planned and budgeted
- Oversight activities of suppliers/subcontractors must be integrated between functional organizations/licensees
- Supplier Corrective Action Programs are critical to ensuring compliance and quality
- Oversight of supplier and sub-suppliers via source inspection
- Timely communication of emergent issues between purchaser/suppliers



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Supplier Selection – Expectations/Communications/Execution

- Need clear and early communication to suppliers to establish performance and compliance expectations
- Supplier capabilities and performance history must be thoroughly vetted – using all available sources of information
- Exceptions to purchase orders by suppliers must be clearly identified at time of award and effectively addressed
- Executing new unproven fabrication processes or newly implemented QA programs
- Inexperienced nuclear staff



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Placement of Plant Vogtle Unit 4 circulating water system piping
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Pressurizer with bottom head

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Solutions - New Build Supplier

- Consider requesting mock-ups (performance demonstration) for new suppliers or new processes
- Requiring that suppliers not only commit to have a nuclear safety culture, but demonstrate implementation of that culture.
- Ensure comprehensive and complete understanding by suppliers for:
 - Post-award documentation
 - Transition of technical requirements to shop floor
 - Flow down of requirements to sub-suppliers
 - Commercial grade dedication program
 - Software QA and counterfeit, fraudulent part programs



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Solutions - Cross Functional Involvement in Key Supply Chain Process Steps

Effectively execute:

- Inspection planning
- Initial supplier survey
- Selection of the supplier
- Qualification audits
- Supplier quality plan
- Pre-award meetings
- Pre-inspection meetings
- 1st article survey
- Performance-based audits/surveillances
- Continuous supplier monitoring



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Solutions - Confirming/Understanding/Applying Acceptance Criteria

- Inclusion and coordination of owners' final inspection, acceptance criteria of products for Source Inspection and periodic QA surveillances at suppliers facilities
- Effectively communicating specifications and design changes from the design authority all the way to the manufacturer



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Solutions - Industry Influence on Supplier Performance

- Build on the successes and accomplishments as well as the minor errors and set-backs, as a renaissance (a new beginning) requires flexibility and patience to obtain a satisfactory level of performance and compliance
- Influence Supplier execution through affiliations with NUPIC, NIAC, NEI, INPO and EPRI
- Monitor supplier performance with relevant and meaningful metrics



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Reactor Vessel

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