

# Creating Cost Certainty For Nuclear Development



Nuclear Innovation North America LLC

October 26, 2009

# NRG and Toshiba A Powerful Partnership



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## Development Capability

- ✓ Licensing Expertise
- ✓ Financing Expertise
- ✓ Partnering and Offtake Relationships
- ✓ Continued Funding of Development Efforts
- ✓ Additional Opportunities
- ✓ Existing Development Program



## TOSHIBA

### EPC Capability

- ✓ 40 Years of BWR Construction Experience
- ✓ Committed Capital
- ✓ Existing Manufacturing Supply Chain
- ✓ Modularized Design Engineering and Construction
- ✓ Positive Subcontractor Relationships

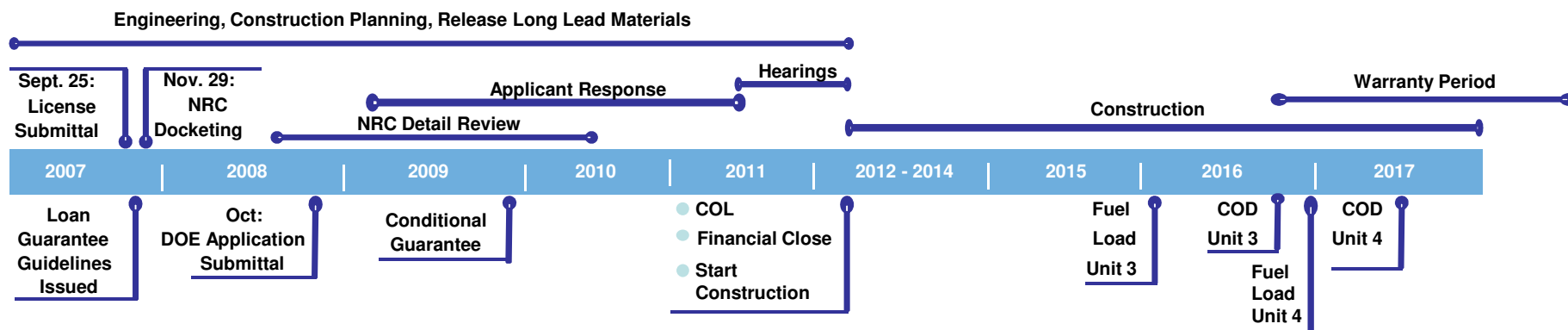


Bringing Innovation to Nuclear Generation

# STP 3&4 Project Timeline

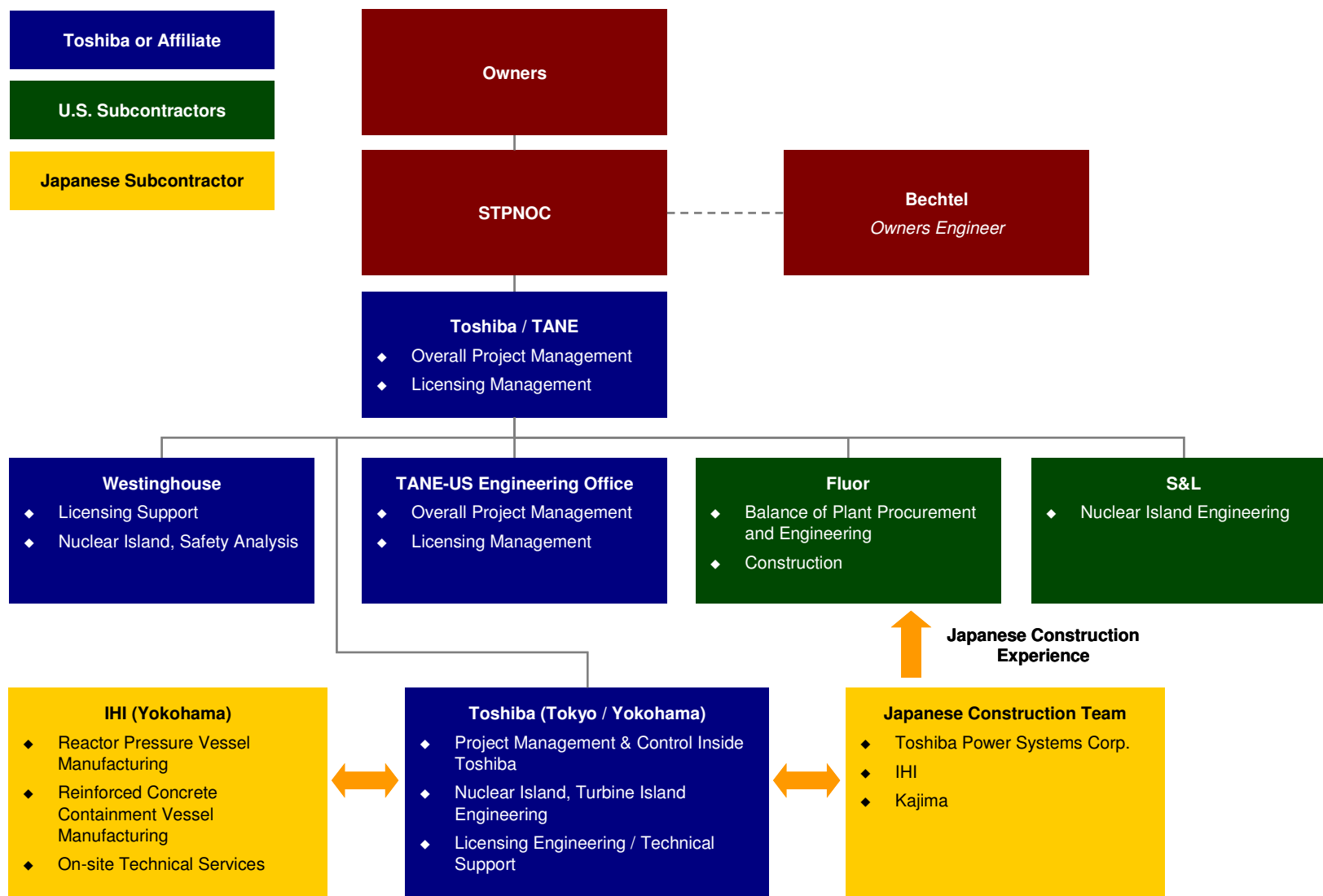


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Key Success Factors	Approach Benefits / Mitigations
<b>Technology Selection – Proven vs First of a Kind</b>	<ul style="list-style-type: none"> <li>• ABWR built four times, in as little as 39 months</li> <li>• 12 year operating history</li> </ul>
<b>Experienced Operator – Cost / Performance</b>	<ul style="list-style-type: none"> <li>• STPNOC – Capacity factor of 95%+ last three years</li> <li>• Top decile cost management as rated by EUCG</li> <li>• TEPCO, largest ABWR operator, provides technical services to STPNOC</li> </ul>
<b>Experienced Contractor with Wherewithal</b>	<ul style="list-style-type: none"> <li>• Toshiba and its partners bring world-class experience in ABWR construction</li> <li>• Able to understand and assume risk that others cannot</li> </ul>
<b>Contracted Offtake vs. Merchant</b>	<ul style="list-style-type: none"> <li>• MOU's with investment grade counterparties for over 100% of NINA's net ownership</li> </ul>
<b>Manage Construction Risk</b>	<ul style="list-style-type: none"> <li>• EPC contract, long-lead materials being secured by Toshiba, who is a vertically integrated manufacturer of equipment</li> </ul>
<b>Optimize Brownfield Advantage</b>	<ul style="list-style-type: none"> <li>• Substantial cost benefits from existing fixed assets at the site</li> <li>• Minimize environmental impact</li> <li>• Substantial support in local community</li> </ul>

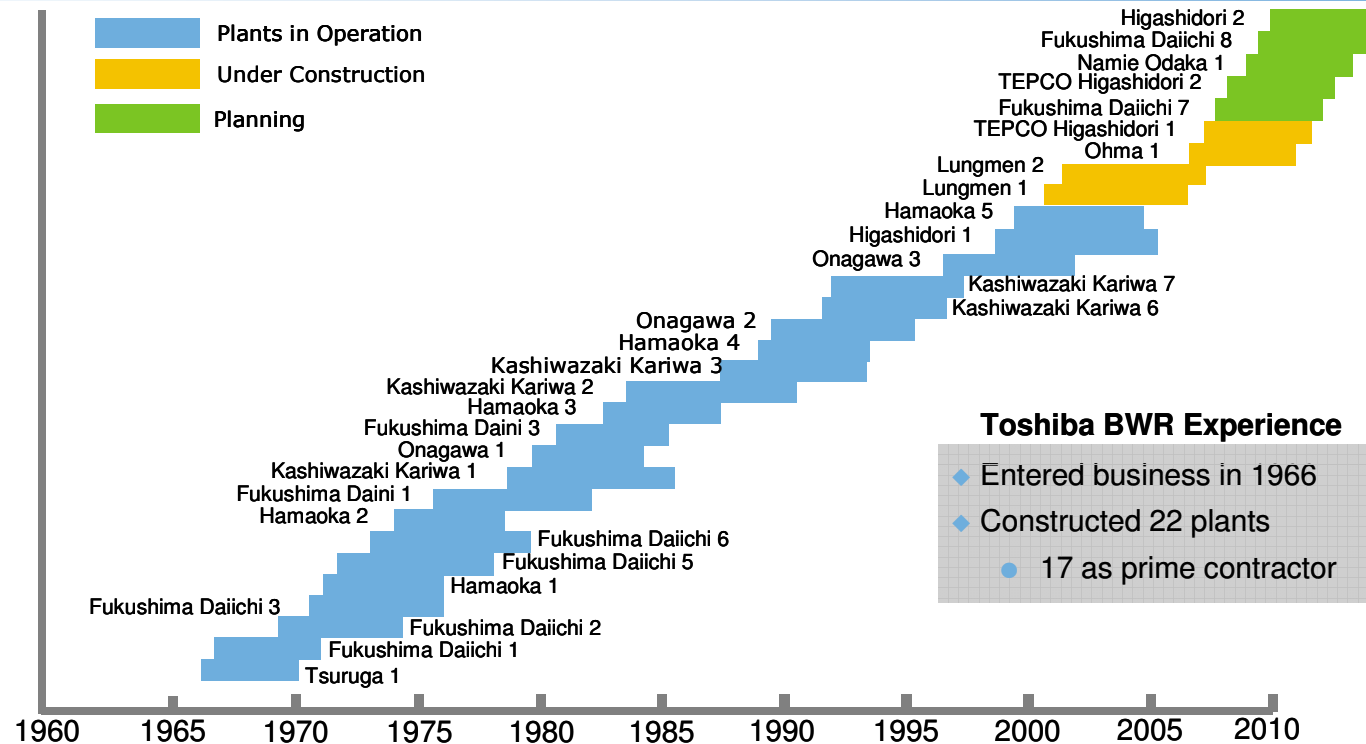
# Project Organization Chart



# Toshiba's BWR and ABWR Experience



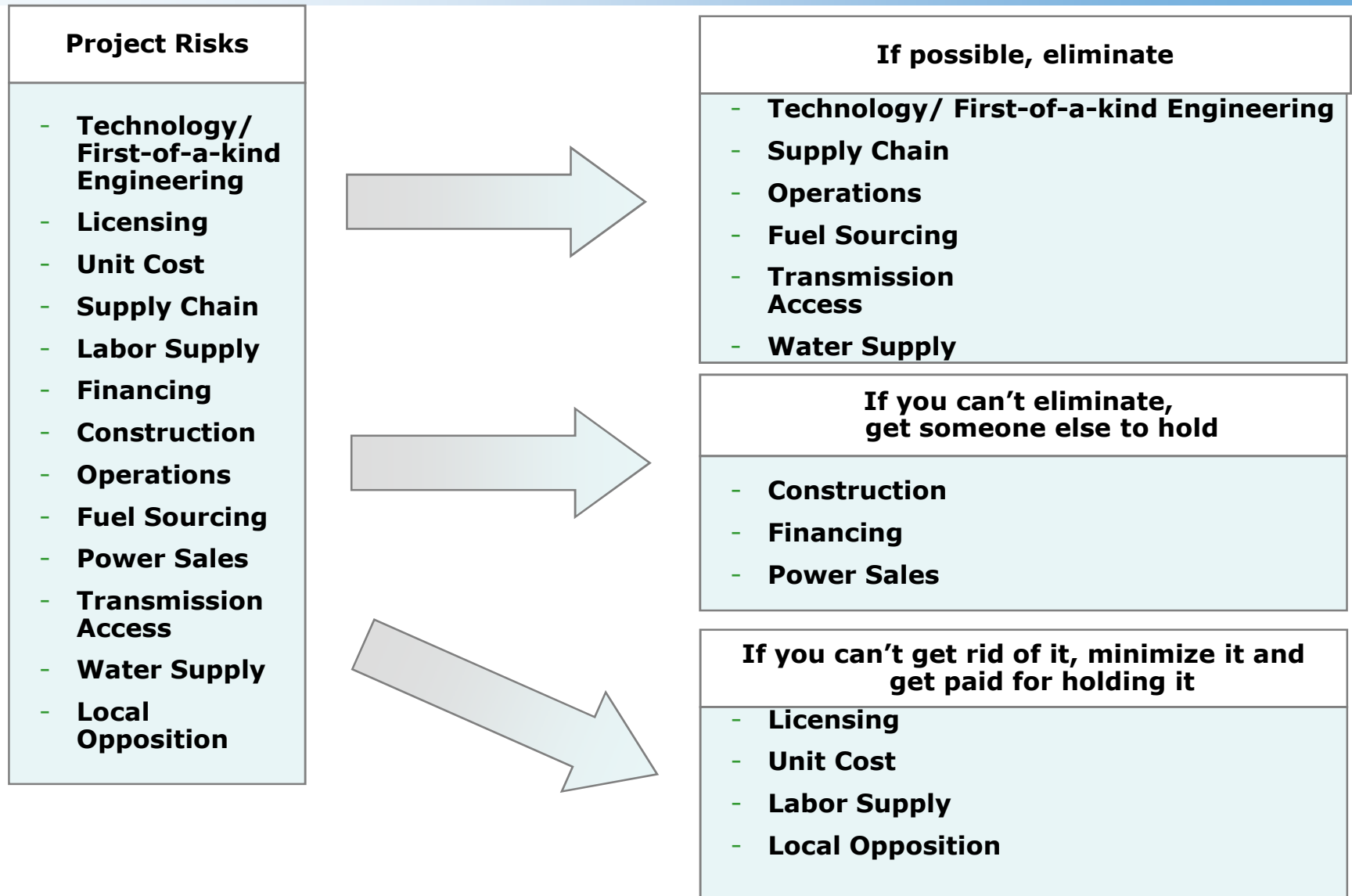
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- Constructed 1 ABWR nuclear units Kashiwazaki Kariwa 6 & 7 in 37 and 40 months respectively
- Formed Toshiba American Nuclear Energy (TANE) to focus on ABWR licensing and engineering in the US
- Migrating Japanese successful construction methods to US constructor
- As owner of Westinghouse largest US manufacturer and service provider of Pressurized Water Reactor (PWR)
- Led 2004 TVA/DOE Bellefonte Study of ABWR construction in US

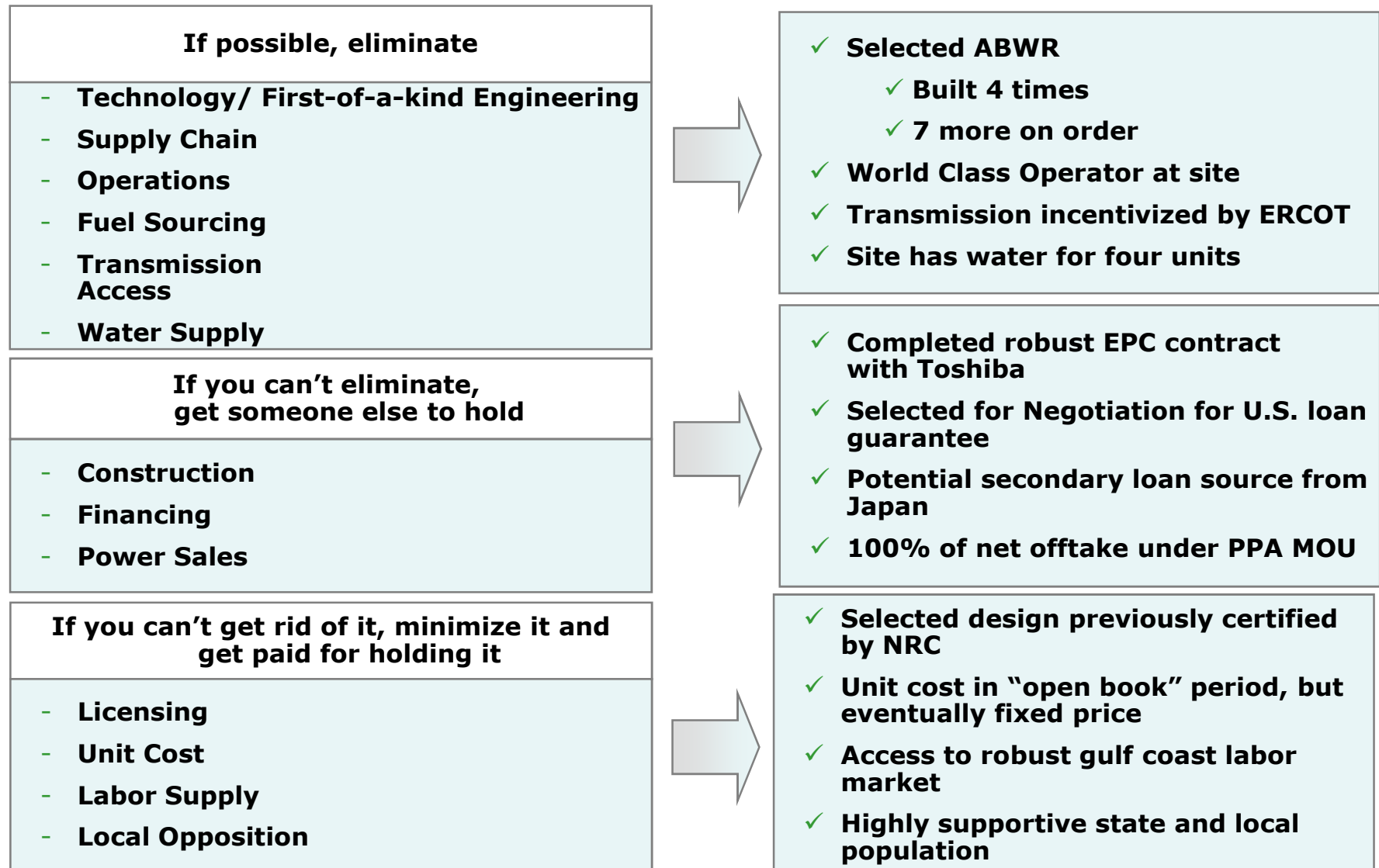


# All Development Is Risk Management





# NINA Has Worked to Manage It's Risk



# EPC Contract Negotiations Complete



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- EPC Contract negotiations complete on February 11, 2009
  - MOU with all key terms signed in September 2008
  - CPS Board approval in January
- Key features
  - Open book period followed by Fixed Price Turnkey construction period
  - Contractual terms substantially the same as large fossil project
  - Subcontract between Fluor and Toshiba negotiated
- Other benefits
  - Triggers \$500mm long lead material credit facility
  - Triggers two additional EPC contracts with the same terms



STP 3&4's EPC contract sets the standard for risk sharing  
between project developers and vendors

# \$500mm Long-lead Material Credit Facility



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- Toshiba is extending a \$500mm credit facility to NINA that supports the purchase of NINA's share of all materials and equipment purchased prior to Full Notice to Proceed (FNTF)
  - Non-recourse to NRG and Toshiba
  - Supports material purchases during open book phase
  - Repaid with DOE/ Japanese guaranteed loan proceeds at FNTF
- Key benefits
  - Defers significant equipment spend until FNTF
  - Aligns vendor and customer on equipment cost



The LLM facility aligns the vendor with the equity owner

## Remaining Components of Cost Risk



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<b>Risk Component</b>	<b>Rough % of Unit Cost Exposed</b>	<b>Relative Volatility</b>	<b>Comment</b>
Yen/ Dollar For-Ex	20%	High	All U.S. units will be exposed to a significant percentage of foreign sourced components
Transport	5%	High	Highly volatile over the last twenty four months, touches every delivered material. Correlated with overall economic activity
Labor Cost	25%	Low	Wages are sticky and generally modestly upward sloping
Manufactured Goods	10%-20%	Moderate	ABWR has previously manufactured components with known suppliers
Base Commodities	30%	High	Steel, Concrete and similar items are correlated with overall economic activity
Interest Rates	20%	Moderate	Due to loan guarantees, interest during construction tied to U.S. and Japanese sovereign interest rates



STP 3&4 will eliminate nearly all of these risks by FNTP (2012)