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# WNA NEW BUILD LICENSING CONFERENCE 2015

## MANAGING THE LICENSING RISK IN CONSTRUCTION CONTRACTS

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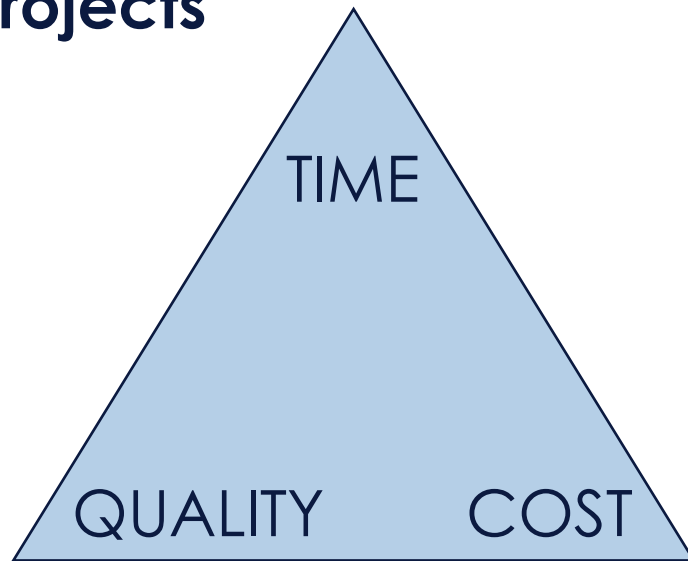
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- What are the contracting options?
- What are the key 'construction' risks when developing nuclear new build projects?
- What are the pricing options?
- Understanding the licensing / regulatory regime
- Understanding the "hold points" within the licensing / regulatory regime
- Managing the licensing / regulatory risk
- Key issues to consider when proposing/negotiating terms



### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

#### Conventional power projects



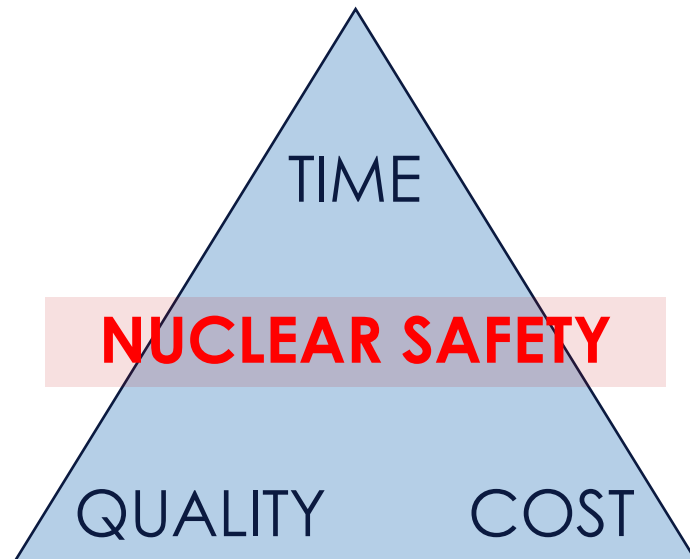
- Owners / Suppliers juggle the competing constraints of time, quality and cost → compromise to meet Owners' commercial objectives

#### Examples:

- Suppliers work 'at risk' in order to manage time and cost
  - Placing long lead item procurement contracts before contract awarded
  - Constructing before design has been issued 'for construction'
- Suppliers free to manage their internal processes with minimal supervision/intervention
  - Design development
  - Change management (design and on site)
  - Supply chain
  - Revising construction, erection and commissioning sequencing
- Owners free to agree substitutes and compromises

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

#### Nuclear power projects

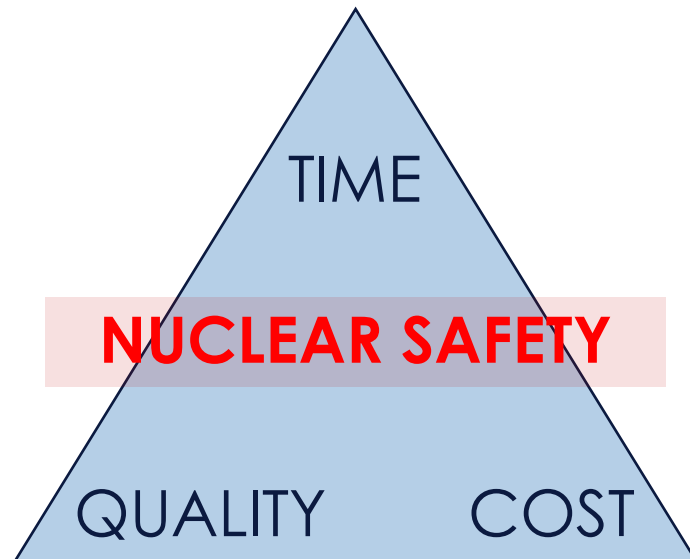


- **Nuclear safety** → three risk 'streams'

1. Licensing
  - Will the plant be licensed at all?
  - When will the plant be licensed?
  - What conditions will be attached to the license?
2. Constructing in a nuclear environment
3. Nuclear liability

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

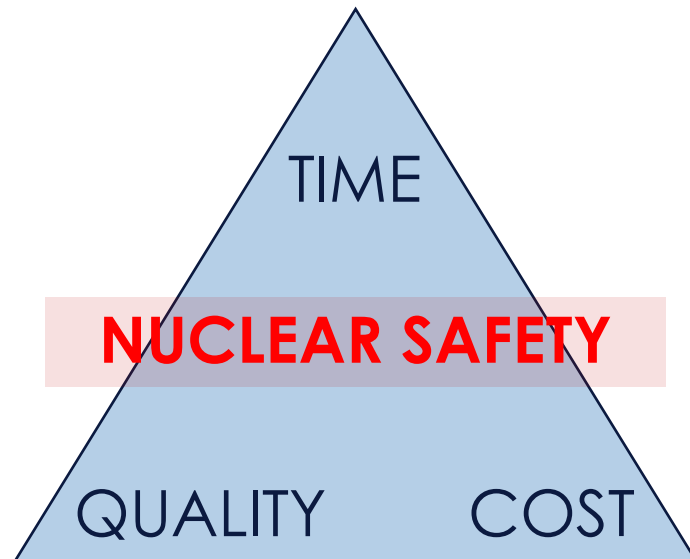
#### Nuclear power projects



- **Nuclear safety** → three risk 'streams'

1. Licensing
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### WHAT ARE THE CONTRACTING OPTIONS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



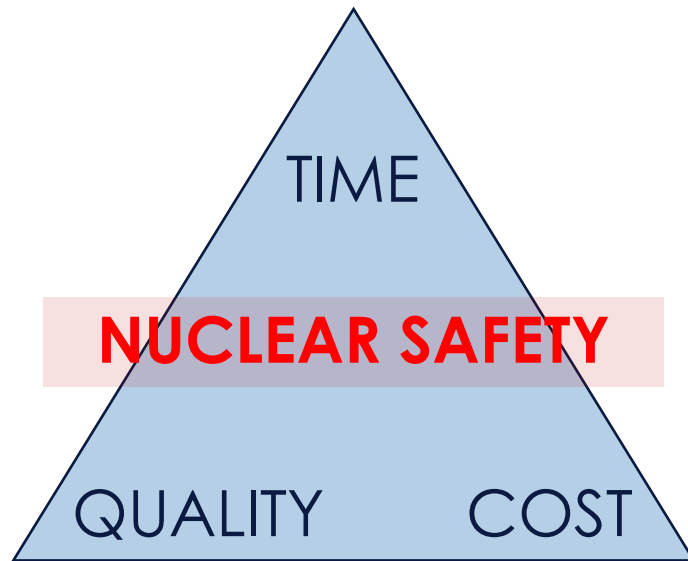
## 1. EPC = Engineering, Procurement and Construction

→ the contracting counterparty provides these three services within the defined scope

- Everything else is what you agree in writing
- EPC does not mean
  - lump sum or fixed price
  - one supplier delivers the entire project
  - no purchaser oversight / interference

## 2. Letting the Projects in packages

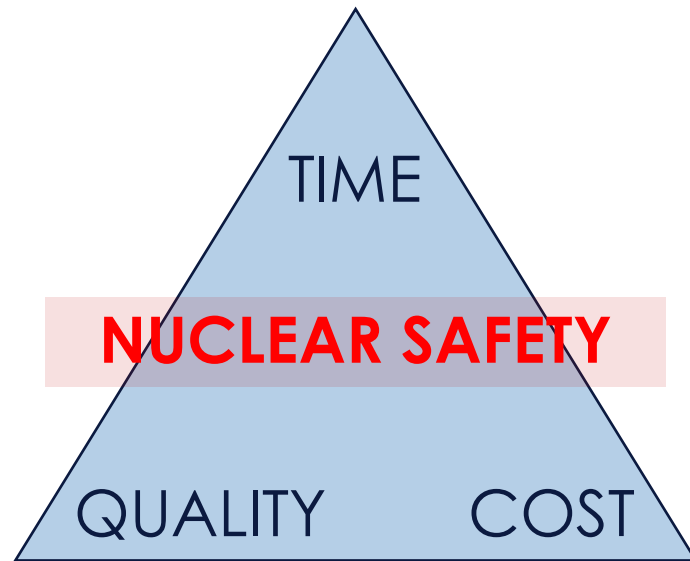
### WHAT ARE THE PRICING OPTIONS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



1. Cost plus
2. Cost plus with target price
3. Cost plus moving to lump sum
4. Lump sum with potential for price adjustments
5. Fixed lump sum



### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



- **Constructing in a nuclear environment**

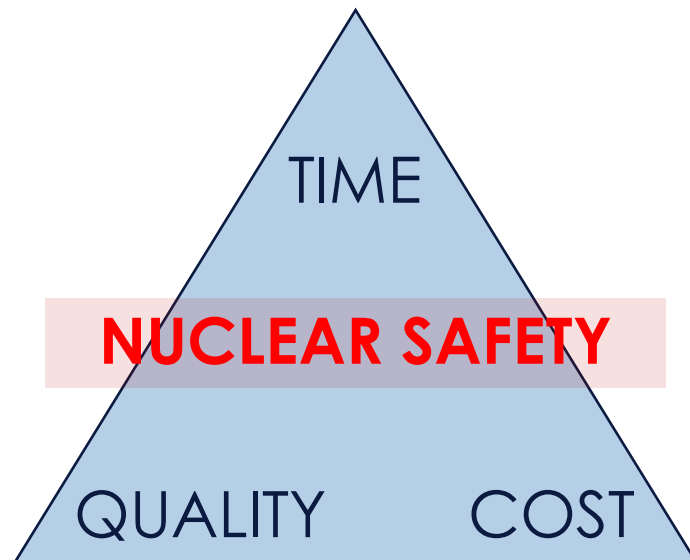
- Nuclear safety / regulation has priority
- Quality is not negotiable and supervised closely by regulator

Practical consequences for project:

- Limited ability for Suppliers to work 'at risk'
- Limited ability for Suppliers to manage their internal processes
- Limited ability for Owners to agree substitutes and compromises
- Normal management techniques to control time and cost are not available → extreme risk of significant cost and schedule overruns

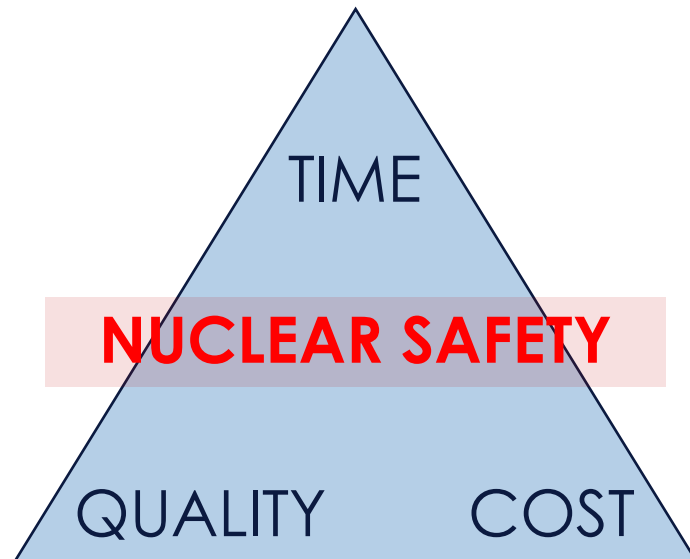


### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



- **Understanding the licensing / regulatory regime**
- Generally two track
  1. High level
  2. Day to day detailed regulation

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

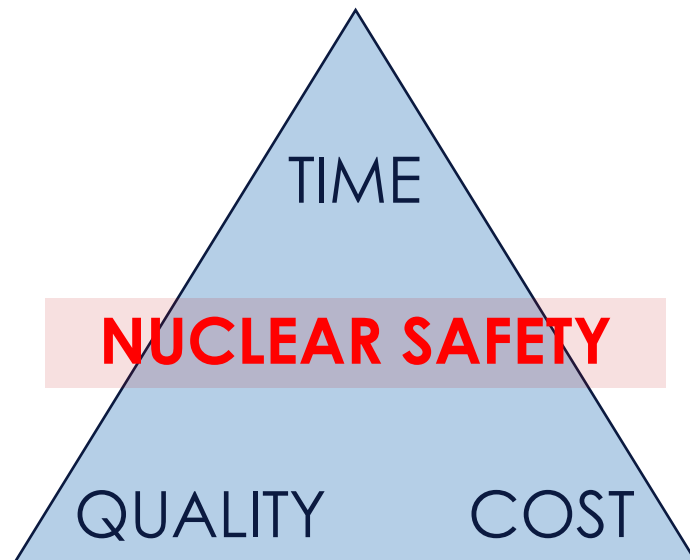


- Understanding the “hold points” within the licensing / regulatory regime

#### High level licensing

1. Initial licence to build a NPP
2. Construction licence (typically the “hold point” for First Concrete and/or safety classified manufacture)
3. Licence to load fuel
4. Operating licence

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

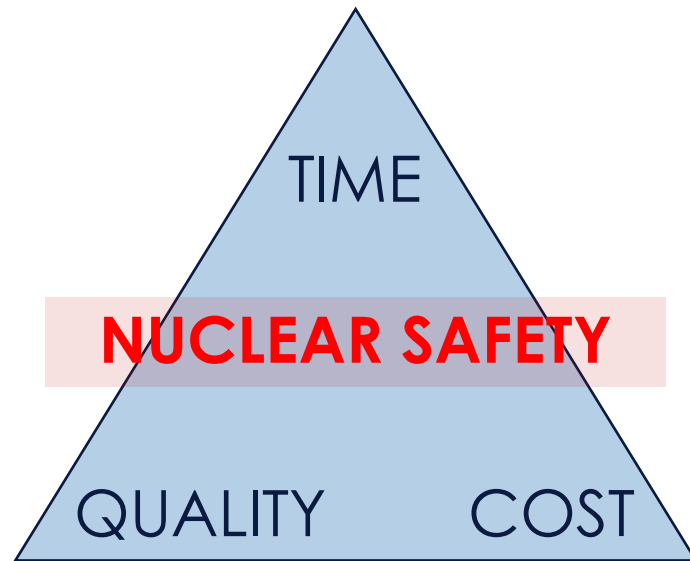


- **Understanding the “hold points” within the licensing / regulatory regime**

#### Detailed regulation

- Oversight, supervision and intervention into the day to day workings of the full supply chain
  - Participants
  - Basic and detailed design
  - Manufacturing processes
  - Construction techniques
  - Documentation (including contracts)
- Extensive use of “hold points” (work cannot proceed unless regulator says so) → significant scope to cause schedule and cost overruns for the Supplier/vendors/subcontractors

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

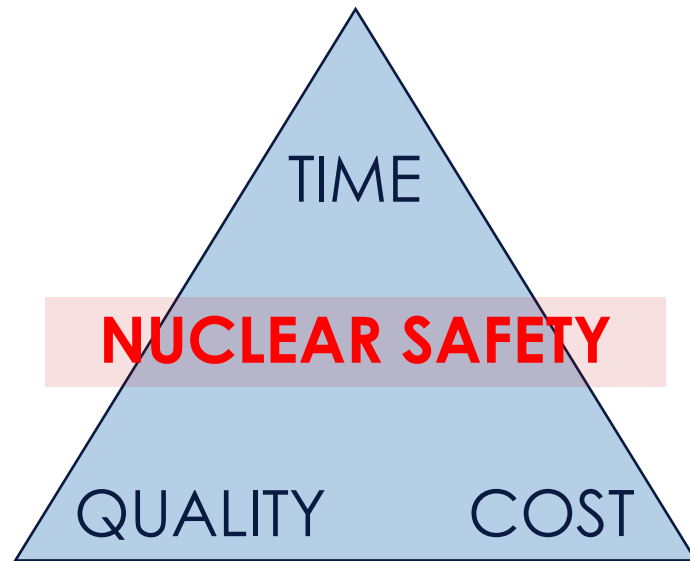


- **Understanding the “hold points” within the licensing / regulatory regime**

#### Detailed regulation (key risks)

- Delayed approvals / approval cycles
- Additional and/or revised requirements imposed during the approval process
  - Regulator requiring additional justification of design
  - Regulator requiring additional demonstration of the quality of components, materials and as-built works
  - Regulator requiring particular ways of working (manufacture, construction and/or commissioning)
  - Regulator requiring changes to the design

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?

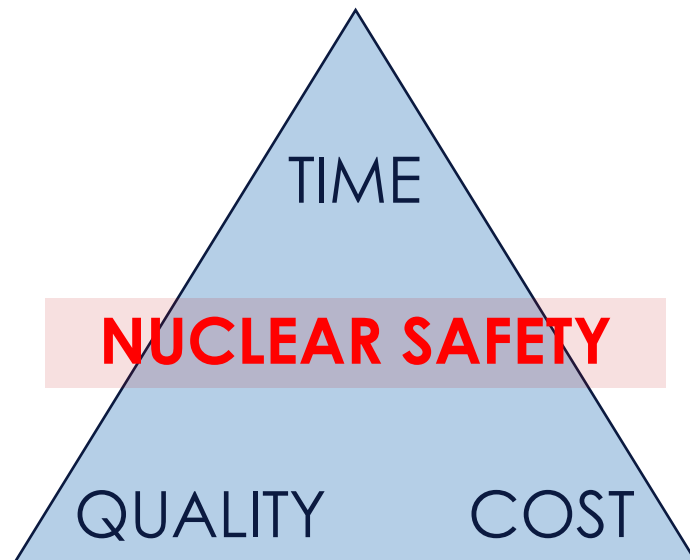


- **Managing the licensing / regulatory risk**

Detailed licensing/regulatory regime

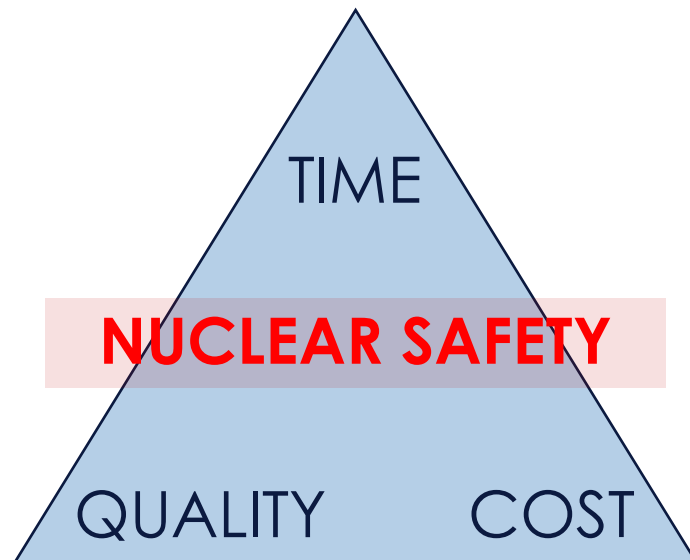
- Co-operation between regulators
  - Harmonising regulatory processes
  - Agreed protocols re: equivalence
- Transparent dialogue between participants and the regulator
  - In advance of Supplier / supply chain committing to schedule and price
  - Throughout the delivery process
- It is unrealistic to anticipate no change / surprises, but the participants should have a base line against which to measure change

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



- **Key issues to consider when proposing / negotiating terms (1)**
- What does it mean if you sign up to supply a licensable vs. licensed plant?
- How to address changes in the licensing process / requirements? What 'baseline' should you adopt?
- Given developments in plant design / licensing requirements, is it helpful to use the 'reference plant' concept to address licensing risk?
- To what extent can the supplier interface directly with the regulator?
- What are the "hold points" for the regulator?
- Will the regulator supervise by QA and audits, or more directly?

### WHAT ARE THE KEY 'CONSTRUCTION' RISKS WHEN DEVELOPING NUCLEAR NEW BUILD PROJECTS?



- **Key issues to consider when proposing / negotiating terms (2)**
- Who bear the risk of changes in plant design, methods of working and/or justifications imposed by the regulator?
- What dispute resolution mechanisms are appropriate for nuclear supply contracts?
  - Long term project → disputes cannot wait until the end for resolution
  - Dispute board with chairman able to draw from pool of relevant experts for specific disputes
  - Enforceability of dispute board decisions in local jurisdiction
  - Local court assistance?
  - Arbitration (by contract, or under project umbrella agreement)



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