Risk challenges & management for offshore wind farms

Intertek
Energy & Water Consultancy Services

Malcolm Garrity

12 June 2013, Manchester

RenewableUK Offshore Wind Conference 2013

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Outline

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- Why are Intertek here?
- Risk profiles, a perspective.
- The key risks
- Risk management

Our extensive global network

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- Testing
- Inspection
- Certification
- Auditing
- Outsourcing
- Advisory
- Training
- Quality Assurance

Intertek is the leading quality solutions provider to industries worldwide.

- 30 years O&G experience
- 16 years in Marine Cables,
- 15 years Offshore Wind
- 11 years Wave & Tidal

More than **100** countries

More than **1,000** laboratories and offices

over **35,000** people

- Market capitalisation over £5 billion
- Revenue generation of over £2.0 billion in 2012

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Lender Technical Due Diligence

Projects

Germany

- Borkum West II
- Global Tech I
- Butendiek

UK

- Ormonde
- Thanet
- 9 OWF – OFTOs

Scope of Services

- Metocean assessments and advice (design basis, fatigue analysis, operability / downtime)
- Geophysical / Geotechnical (foundation concept; design basis; adequacy of seabed survey data; etc)
- Permit compliance & timescales
- Construction planning, schedule & risks
- Vessels, marine supply base & logistics, operability
- Cables (Inter-array)
- Risk and Contingency

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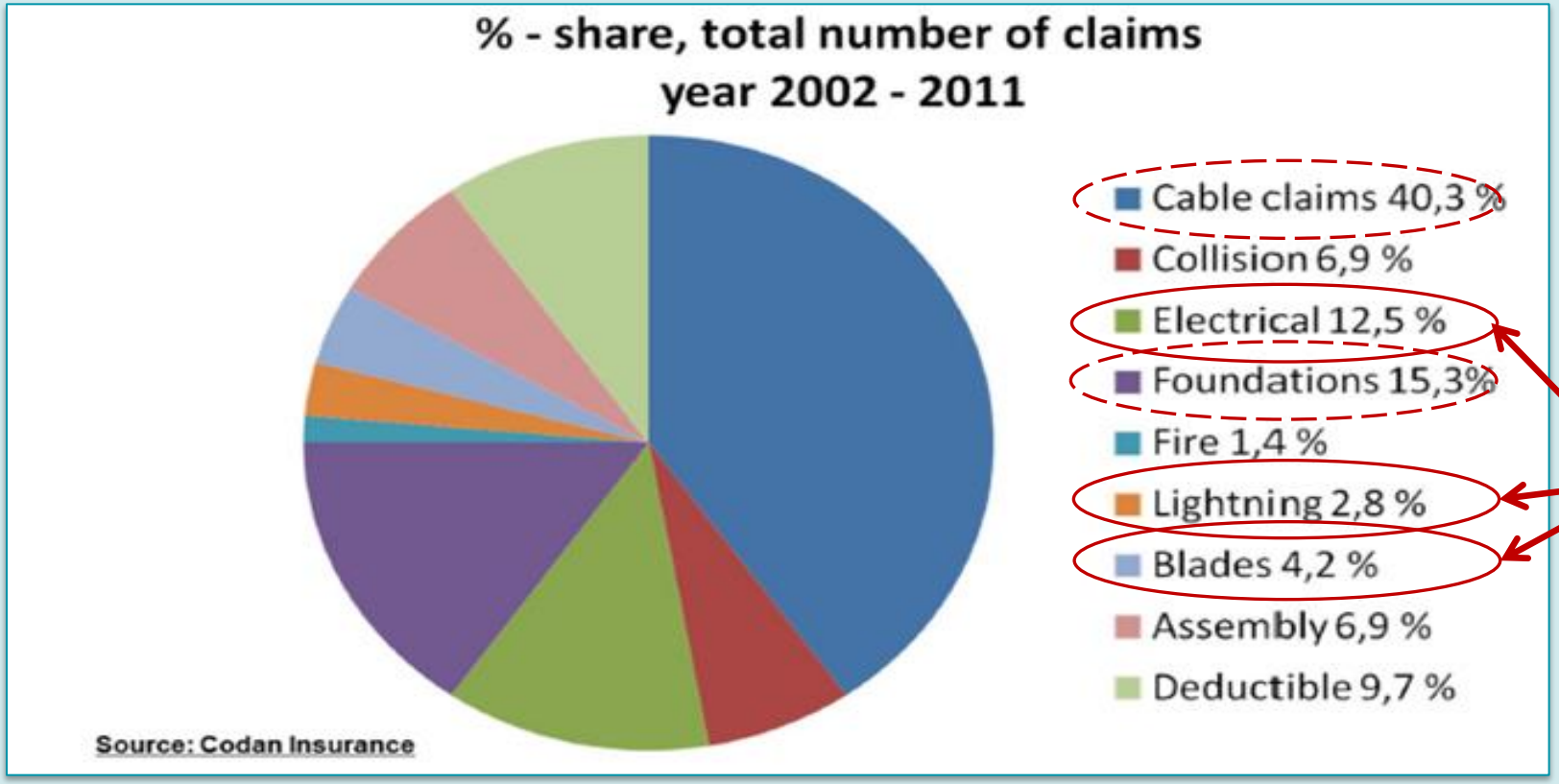
Claims in Offshore Wind



Cables:
- 10% of Capex
- 80% of claims value

Certified

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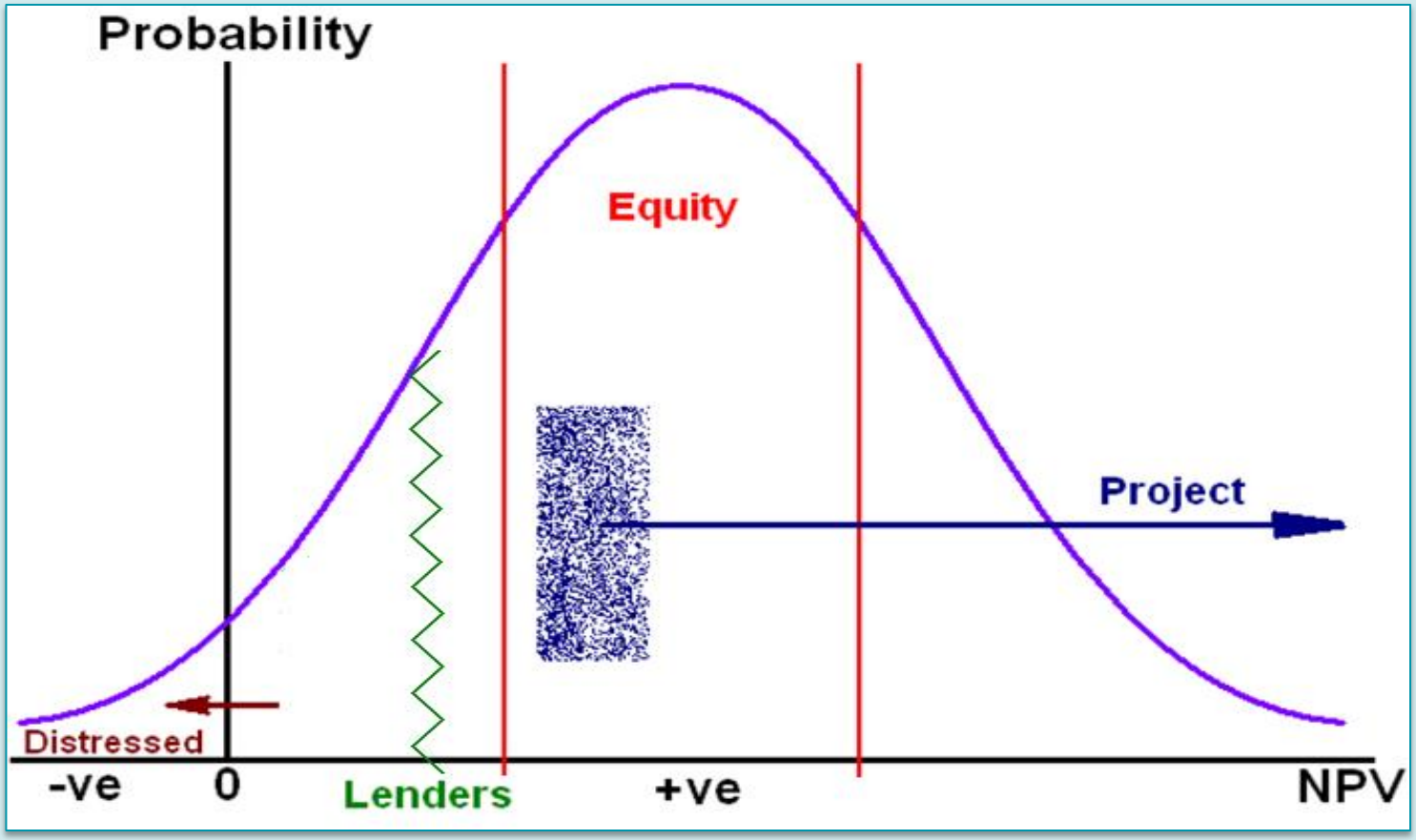
The Financial Imperative



Risk Profiles, a perspective

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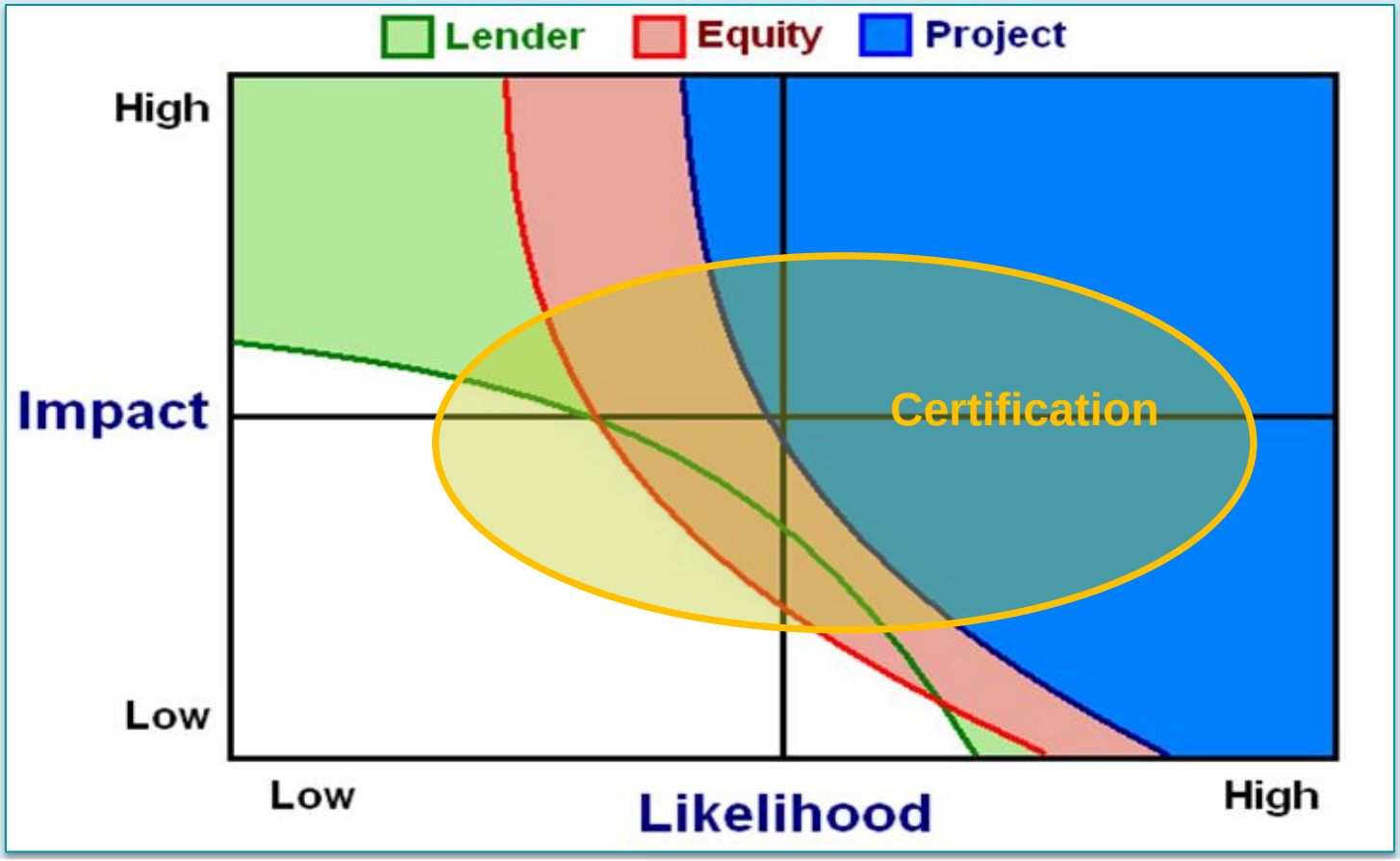
The Risk Imperative



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Contracting Strategy – EPC v Multi-contract

- **With EPC - <u>all</u> risk transferred to the contractor (?) = less contingency**
- **True to a degree, unless the project starts to become distressed!**
- **Contractor will monitor and forecast LDs**
  - Committed to spend on the project but LDs will be limited, esp. schedule related
  - Better at managing these contracts than the project
  - Have full financial visibility – the project doesn't
  - Will have a point where they become 'variation focussed'
- **Conclusions for the project**
  - Robust capability to manage and monitor
  - Still needs significant contingency – delay costs
  - Be prepared to go to court if it goes wrong

Key Risks

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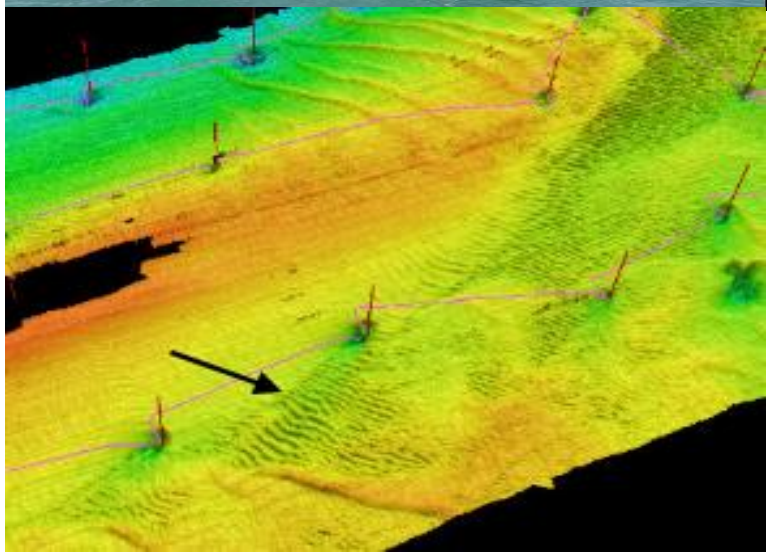
Foundations

- 40+% of Capex costs and rising
- Pile refusal – function of large diameter, long piles being over-driven
- Pile buckling – over-driving in cemented and hard sediment
- Scour prediction and mitigation
- Foundation settlement
- Needs quality data and interpretation
- Transition Piece interface



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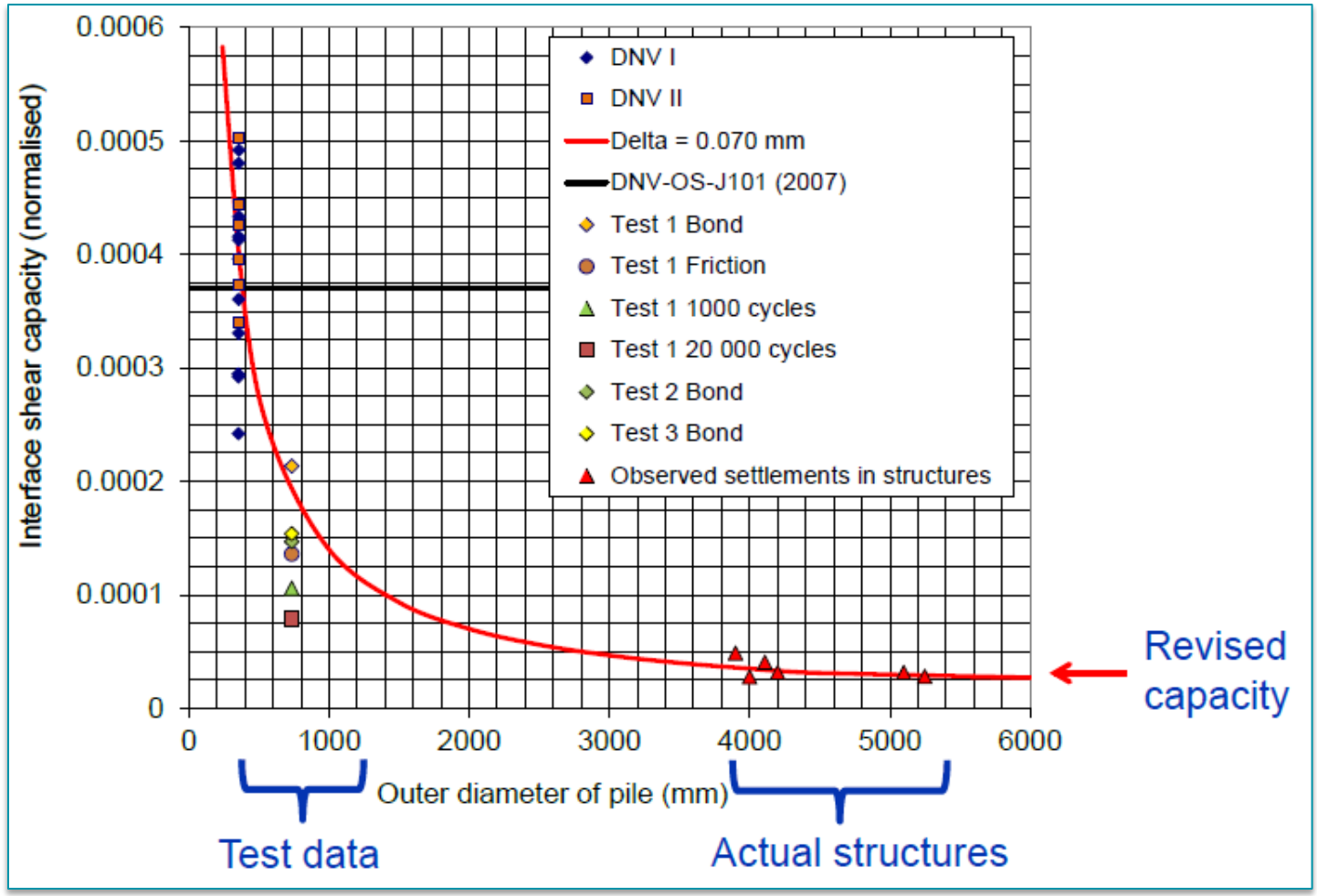
Foundations (2)



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Schedules and Interfaces

- Good on paper – experience dictates otherwise
- Float between operations often starts open but gets squeezed...interfaces become critical, increases risks
- Weather downtime allowance based upon P50 ... Seek knowledge of P90 – vessels ‘fit for purpose’?
- Sequencing generally robust – sequence float analysis critical
- Interface Management key part of Risk Management – not what we are seeing....irrespective of EPC or multi-contract

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When?

Establish during consent process

- Project focus shift from planning to delivery
- Can take stock of ‘what’s missing’
- External perspective on risks
- Recognises that opportunity to de-risk project narrows as contracts placed

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How?

Project approach to risk management and status varies

- Highly procedural....tick box exercise
- Incomplete and unmanaged
- Overstretched Risk Manager(s)
- External consultants engaged and fully integrated approach

Well-known 'Risk Management' providers:

- Good experience and capabilities
- Monte Carlo analysis – but can over-simplify ....

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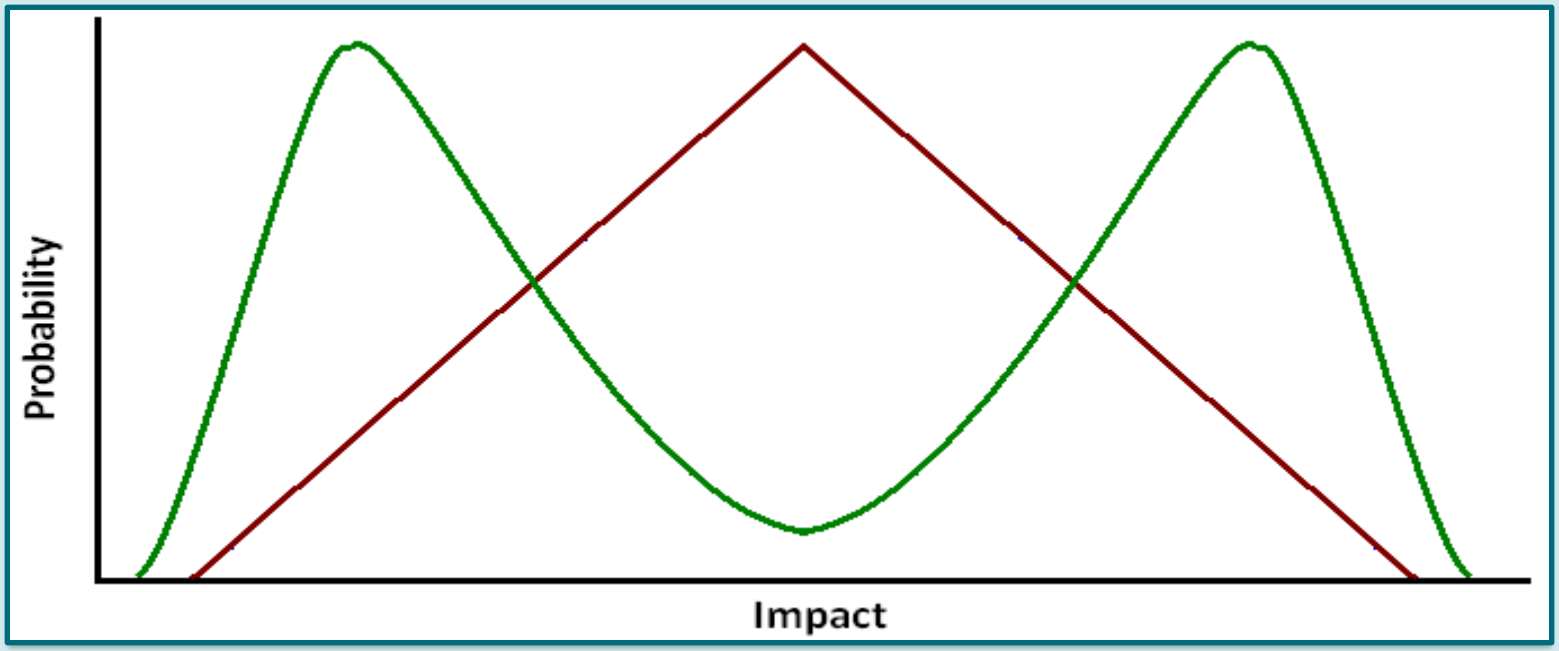
Monte Carlo - think it through…..



- **Example – claim for foundation failure early in construction.** Owner – blames poor design by Contractor. Contractor – blames quality of data and design basis provided by Owner.

Summary

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- Financial Institutions want comfort that **ALL** Risks have been addressed
- Identify, Quantify and Mitigate Risks at earliest stage possible.
- Risk Register as an Active Document.
- Understand the capabilities and experience of the delivery team.
- Apportion Risk to those most suitable to address.
- Carefully consider Contract Strategy in light of above
- Maintain element of Contingency

Contact Details

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