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Australia

Deacons Australia joins
Norton Rose Group

01.01.10

Two major legal practices
Norton Rose Group and Deacons Australia
are joining forces from 1 January 2010

ALL-ENERGY AUSTRALIA

Managing Risks in Renewable Energy Generation Projects

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The intelligent alternative



Introduction

- The need for risk management
- What causes project failure
- The risk management process
- The law of contract as risk allocator and the EPC Contract
- Some particular risk issues
 - liquidated and performance damages
 - risks in the international supply of turbines
- Take home message



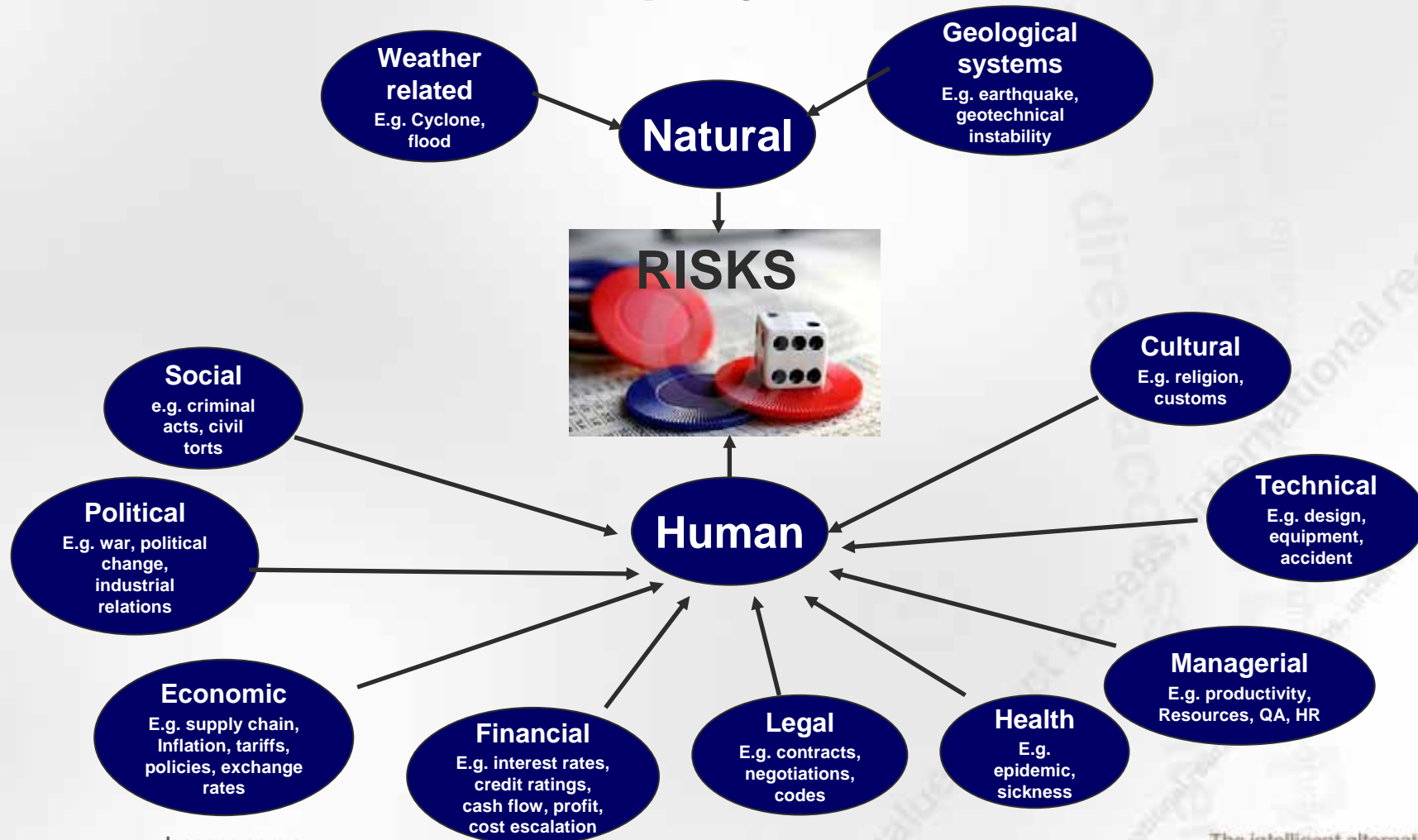
The Need for Risk Management

No project is risk free. Risk can be managed, minimised, shared, transferred or accepted. It cannot be ignored.

Sir Michael Latham, 1994

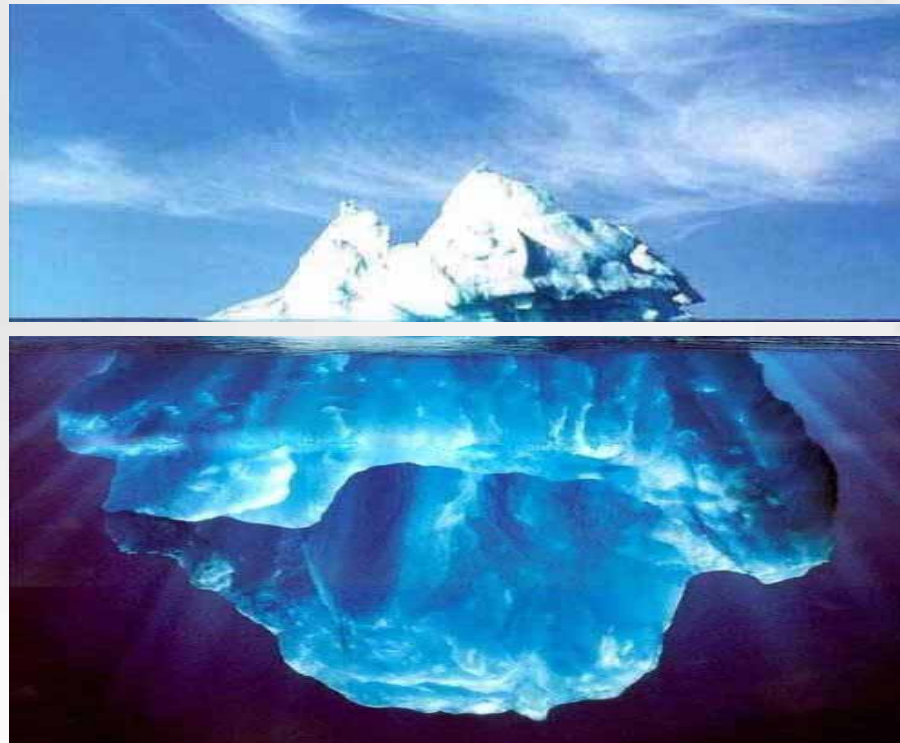


What are project risks?





What causes project failure





Common Causes of Project Failure

- Lack of clear links between the project and the organisation's key strategic priorities, including agreed measures of success.
- Lack of clear senior management leadership.
- Failure to establish a project framework.
- Lack of effective engagement with stakeholders.
- Lack of skills and proven approach to project management and risk management.
- Too little attention to breaking development and implementation into manageable steps.
- Evaluation of proposals driven by initial price rather than long-term value for money (especially securing delivery of business benefits).
- Lack of understanding of, and contact with the supply industry at senior levels in the organisation.
- Lack of effective project team integration between clients, the supplier team and the supply chain.



Common Causes of Renewable Energy Project Failure

RET type	Key risk issues	Risk management consideration
Geothermal	<ul style="list-style-type: none">▪Drilling expense and associated risk (e.g. blow out)▪Exploration risk* (e.g. unexpected temperature and flow rate)	<p>Limited experience of operators and certain aspects of technology in different locations.</p> <p>Limited resource measurement data. Planning approvals can be difficult. "Stimulation technology"*** is still unproven but can reduce exploration risk.</p>
Large PV	<ul style="list-style-type: none">▪Critical component failures such as pump breakdowns▪Component breakdowns (e.g. short-circuits)▪Weather damage▪Theft/vandalism	<p>Performance guarantee available (e.g. up to 25 years). Standard components, with easy substitution.</p> <p>Maintenance can be neglected.</p>
Solarthermal	<ul style="list-style-type: none">▪Prototypical/technology risks as project size increases and combines with other RETs e.g. solar towers.	<p>Good operating history and loss record (since 1984). Maintenance can be neglected.</p>

*UNEP, Financial Risk Management Instruments for Renewable Energy Projects, 2004, p.18.

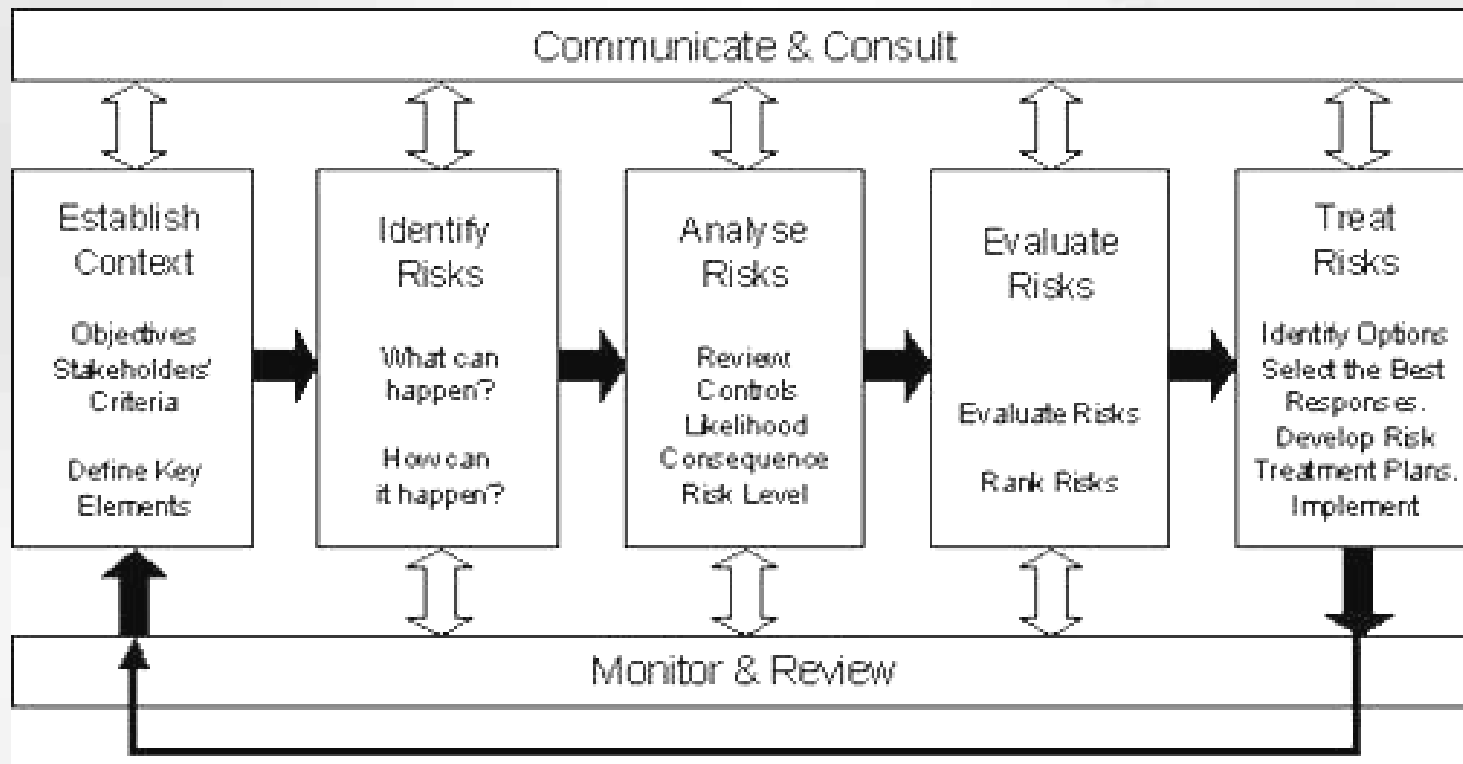


Common Causes of Renewable Energy Project Failure, cont'd

RET type	Key risk issues	Risk management consideration
Small hydropower	<ul style="list-style-type: none">▪ Flooding▪ Seasonal/annual resource variability.▪ Prolonged breakdowns due to offsite monitoring (long response time) and lack of spare parts.	Long-term proven technology with low operational risks and maintenance expenses.
Wind power	<ul style="list-style-type: none">▪ Long lead times and up-front costs (e.g. planning permission and construction costs)▪ Critical component failures (e.g. gear train/box, bearings, blades etc).▪ Wind resource variability.▪ Offshore cable laying	Make and model of turbines Manufacturing warranties from component suppliers. Good wind resource data. Loss control e.g. fire fighting can be difficult offshore due to height/location Development of best practice procedures.
Tidal/wave power	<ul style="list-style-type: none">▪ Survivability in harsh marine environments (mooring systems etc)▪ Various designs and concepts but with no clear winner at present.▪ Prototypical/technology risks.▪ Small scale and long lead times.	Most prototypical and technology demonstration projects. Good resource measurement data.



The importance of a risk management process



Australian/New Zealand (AS/NZS) Standard - AS/NZS 4360:2004 – Risk Management



The Contract as a risk allocator

- Finding the right contractual model:
 - The level of control and involvement required
 - The approach to design solution
 - The time available for construction
 - The source of funding



The Contract as a risk allocator: procurement models for renewable energy projects

- Separate Construct and Supply
 - AS2124, AS4000, AS4911
- Construction Management
 - AS4916
- Engineer Procure and Construct
 - FIDIC (Silver Book) Amended AS4300 or AS4902
- Alliance / Relationship based
 - NEC

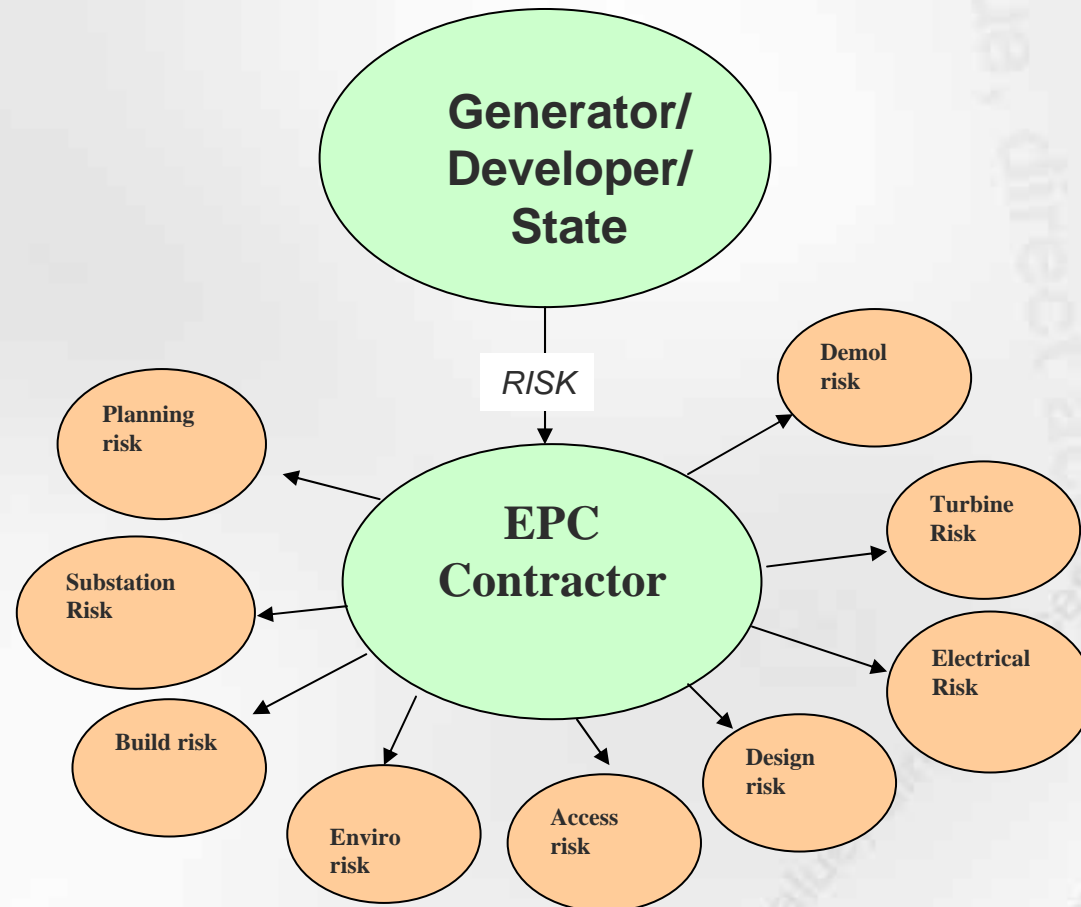


The Contract as a risk allocator: Procurement Models

▪Model	▪Pro's	▪Con's
▪Construct / Supply Only	<ul style="list-style-type: none">▪certainty▪pricing▪understanding	<ul style="list-style-type: none">▪timing▪liability gaps
▪EPC Contract	<ul style="list-style-type: none">▪timing▪“one stop” liability▪design management skills	<ul style="list-style-type: none">▪pricing implications▪“value management” down
▪Construction Management	<ul style="list-style-type: none">▪buying-in expertise at lower cost▪greater transparency	<ul style="list-style-type: none">▪pricing and timing risks▪increased management time
▪Alliance	<ul style="list-style-type: none">▪aligned interests▪encourages innovation/risk taking▪less incentive for dispute	<ul style="list-style-type: none">▪no price certainty▪requires “alliance attitude” to work▪query whether bankable
▪BOOT	<ul style="list-style-type: none">▪avoid finance risk▪risk transfer▪Timing	<ul style="list-style-type: none">▪less control▪higher total cost▪quality risk

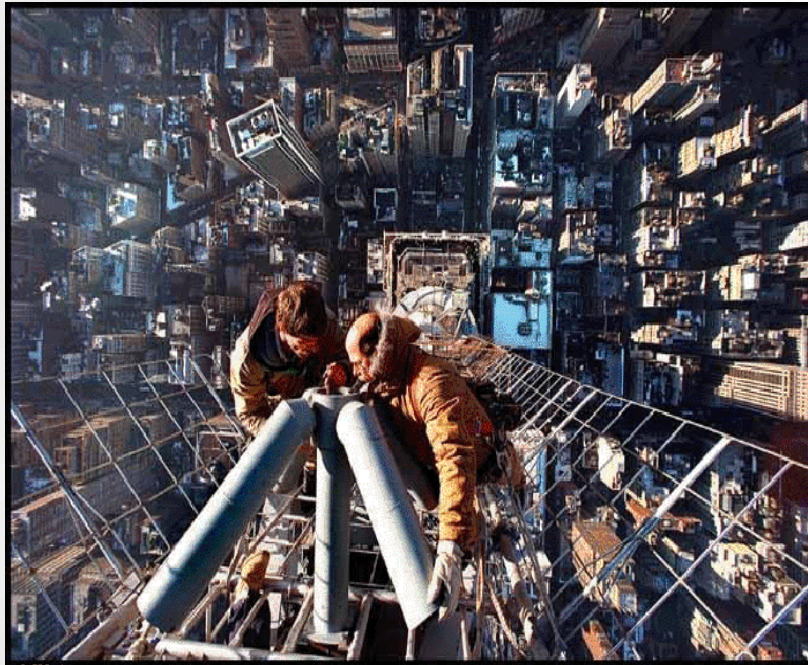


The EPC Contract as a risk allocator





Particular High Risk EPC Contract Issues



- Liquidated damages (time and performance)
- Risks in the international supply of turbines



Final Thoughts – The key message

- Identify the risk using an appropriate process and develop a relevant risk response
- Consider the procurement method
- Consider the best form of contract
- Prepare documents and procedures that best reflect the Project risk
- Continue to monitor, review and use the risk management tools adopted throughout the Project



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