The Actuarial Profession
making financial sense of the future

Current issues in general insurance
Richard Lobley, PwC

Risk in the energy sector

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Agenda

- Introduction and relevance to/definition of risk
- Classifying risk in the Energy Sector
- Risks in the Nuclear Sector
- Questions and Comments

Introduction

Classifying risk in the Energy Sector

Risk categories

- Operational
- Commercial and Reputational
- Health, Safety and Environment

Classifying risk in the Energy Sector

Operational and Reputational Risk

- Generating, Transmission and Distribution
  - Stop the lights going out
  - Gas leaks
  - Burst Pipes
- Security of Supply
  - Redundancy of equipment, “gold plating”
- Reputational
  - Fines / Government Intervention
  - NI – job losses

Classifying risk in the Energy Sector

Commercial Risk

- Trading strategy – Big 6
  - Balance supply and demand
  - Balance portfolio of generation (physical hedge)
  - Hedge Contracts (futures)
  - Short term trading
- Non-compliance
  - Mis-reporting around infrastructure replacement
  - Anti competitive behaviour
  - Cartels

Classifying risk in the Energy Sector

Health, Safety and Environment

- Energy environments are potentially dangerous and pose material risks to the environment
  - Upstream (and downstream) Oil and Gas
  - Offshore wind
  - Power transmission
  - Nuclear Power

Risks in the Nuclear Sector

Three Key lessons from international safety events

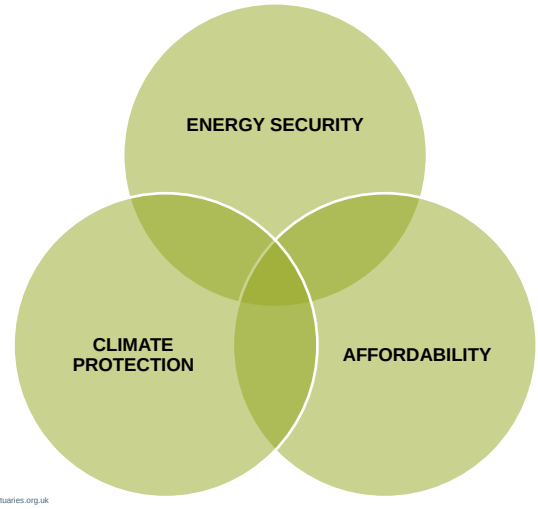
Need for independent regulator
- Hands off approach
- Operator retains responsibility for safety (so needs technical knowledge)

Need for "safety case" including
- Identification and analysis possible accidents
- Identification of safety system requirements
- Identification of training requirements
- Identification of emergency arrangements

Importance of a safety culture
- Awareness of safety at all levels

Risks in the Nuclear Sector

The market drivers: Merchant Power – public need vs commercial return



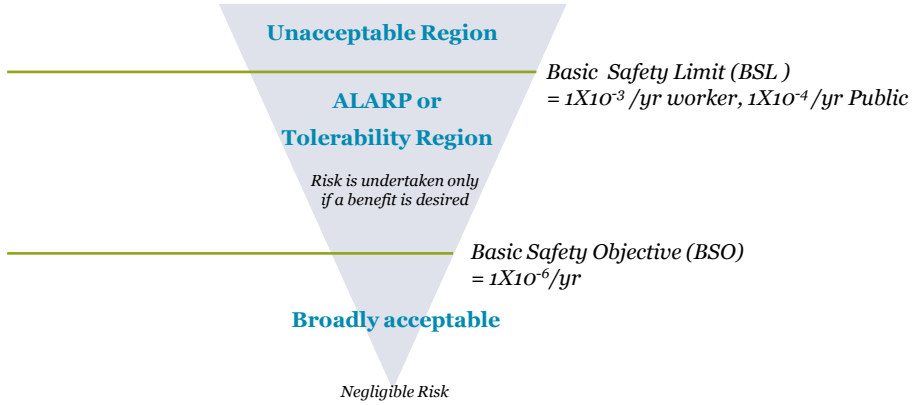
Risks in the Nuclear Sector

Levels of Fatal Risk

per annum	
1 in 100	risk of death from 5 hours of solo rock climbing every weekend
1 in 1,000	risk of death due to work in high risk groups within relatively risky industries such as mining
1 in 10,000	general risk of death in an accident at work in the very safest parts of industry
1 in 100,000	risk of death in an accident at work in the very safest parts of industry
1 in 1 million	general risk of death in a fire of explosion from gas at home
1 in 10 million	risk of death by lightning

Risks in the Nuclear Sector

ALARP and the Tolerability Of Risk



Risks in the Nuclear Sector

The economics of risk reduction

Nuclear Businesses are driven by the need to reduce RISK	
•improve safety management arrangements	•reduce frequency of initiating event
•introduce additional safety systems	•improve operator procedures
•improve emergency response procedures	•eliminate / reduce hazard
•improve reliability/availability of safety equipment	

Cost / benefit analysis of ALARP

•Comparing financial costs of options with dose reduction / lives saved benefits needs a value for preventing fatality or £/Sv saved

•VPF (Value For Preventing a Fatality) = £1m in 1998

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.