

Agenda

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- Constituencies
- Survey
 - Framework
 - Questions
 - Test survey results
- Delphi study
 - Framework
 - Test results
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Project objectives

- To gain an understanding of how energy security risks are perceived by policy-makers and decision-makers in the relevant constituencies
- To identify perceptions of
 - which risks represent the greatest threat to energy security
 - where efforts to eliminate or reduce risks should be focussed as a matter of priority
- To promote agreement and to stimulate action on
 - what strategies should be pursued in order to mitigate these risks
 - how these strategies should be implemented, and
 - by whom they should be implemented

focused on hydrocarbons (oil and gas)

Definitions of energy security

- **Consuming/importing countries**

Availability of supply

- where required
- when required
- in adequate quantities
- economically priced

- **Producing/exporting countries**

Consistent ability

- to produce
- to deliver
- to receive payment

Constituencies

- Governments
- Energy/power industry
- Financial services
- International organisations

Project elements

- Survey
- Delphi study

Survey framework

- On-line questionnaire-based survey of 250 policy-makers and decision-makers in the selected constituencies
- 34 risk factors, comprising 100 specific risks, in four categories:
 - Production/transportation
 - Economic and financial
 - Political and social
 - Geopolitical
- About 20 mitigating strategies, with 46 specific applications
- Different questionnaires for producing and consuming countries

Survey questions

- **Identify**

Which risks represent a significant threat to energy security?

- **Prioritise**

Which of the selected risks are the most significant?

- **Mitigate**

Which risk strategies would be effective in mitigating the threats to energy security? Which strategies should be given priority?

Test survey results

- **Consuming countries**

- Extensive consensus
- Risks of particular concern
 - Producing country quotas
 - Transit obstacles
 - Pricing
 - Political instability
 - Domestic conflicts and terrorism
- Recommended solutions
 - Improved transparency
 - Increased storage
 - Technological R&D
 - Energy conservation

- **Producing countries**

- Less consensus
- Risks of particular concern
 - Impediments to increasing production
 - Decreasing demand
 - Political instability
- Recommended solutions
 - Improved technology
 - Diversification

Delphi study - framework

- Five potentially disastrous scenarios
 - Physical
 - Legislative
 - Economic
 - Geopolitical
 - Combined (physical, economic and geopolitical)
- Five panels of 10 - 12 experts, one from each of the four constituencies plus one combined panel
- Questions
 - What are the probabilities of the five given scenarios arising?
 - What probability would constitute a major threat?
 - How should the threat best be mitigated?
 - What factors could hinder the implementation of the preferred mitigating strategy?

Delphi study – test results

Scenario	Probability	Timescale
▪ Significant declines in <ul style="list-style-type: none">- Saudi Arabia crude oil production- Russian gas production	<5% - 25% <5% - 75%	> 10 years 5 – 10 years
▪ Restrictions on Russian gas exports due to domestic protectionism	5% - 10%	> 15 years
▪ World economic growth outpaces energy supplies	5% - 75%	< 3 years
▪ Middle East war	<5% - 50%	< 5 years
▪ A combination of the above	5% - 50%	< 3 years

Next steps

- Full survey and Delphi study
- Report on the results of the survey and Delphi study

Output

- Report on
 - what risks are perceived to represent significant threats to the energy security of consuming and producing countries
 - the top five perceived risks in terms of probability and impact
 - what strategies are considered to be potentially the most effective in mitigating those risks
 - differences, if any, between individual perceptions and generally agreed actuality

- in the context of
 - the market characteristics of different countries (types of energy used, sources of supply, degree of liberalisation, international links etc)
 - prevailing economic circumstances

Future

- It is intended that the survey and Delphi study should be repeated annually
 - to assess how perceptions change in the light of changes in economic circumstances, new/reducing supplies, technological developments and, more particularly, the implementation of mitigating strategies and improved information
 - to measure the effectiveness of the mitigating strategies and any educational processes that have been implemented