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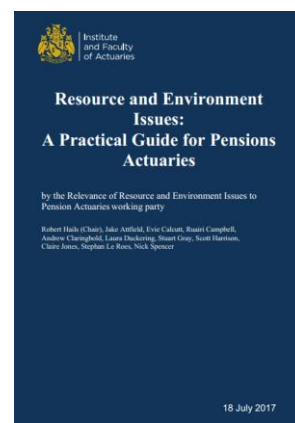
# Resource & Environmental Issues: A Practical Guide for Pensions Actuaries

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06 November 2017

## Agenda

- Climate change, environmental issues and resource constraints
- Risk Alert
- Relevance to pensions actuaries
- Resource and Environment Issues: A Practical Guide for Pensions Actuaries



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## Climate change, environmental issues and resource constraints

### The headlines

- Warming of the climate is “unequivocal” (IPCC Fifth Assessment Report – 2014)
- Paris COP21:
  - Goal of keeping below 2°C average global temperature rise
  - Aspiration to keep to 1.5°C
  - “Non-binding commitments”
- “40m people live in UK areas with illegal air pollution” (Guardian, April 2017)
- We live in a finite world: constraints on key resources represent a significant risk to future growth.

## Risk Alert: Climate-Related Risks, 12 May 2017



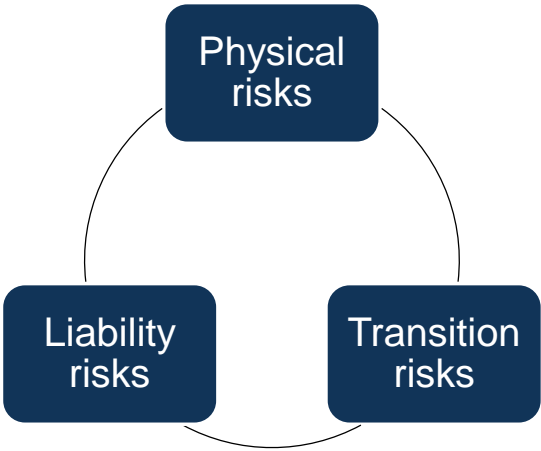
**Risk Alert:**

Climate-Related Risks

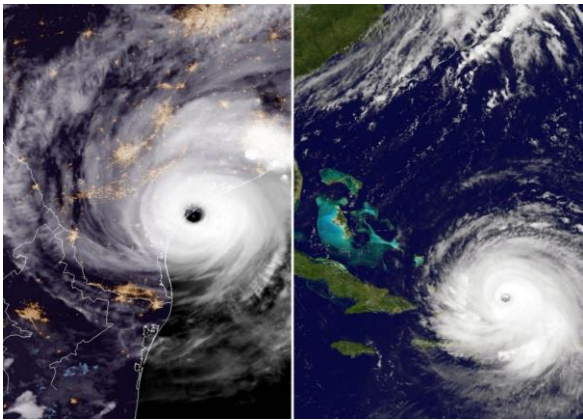
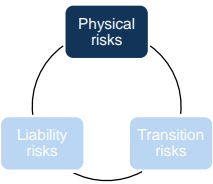
**Key message:**

Actuaries should ensure that they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice.

Risk Alert: Climate-Related Risks, 12 May 2017



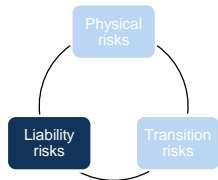
Risk Alert: Climate-Related Risks, 12 May 2017



**“AccuWeather  
predicts economic  
cost of Harvey, Irma  
to be \$290 billion”**

AccuWeather, 10 September

## Risk Alert: Climate-Related Risks, 12 May 2017



Just 90 companies caused two-thirds of man-made global warming emissions

Guardian, 20 November 2013

**California coastal communities sue 37 fossil fuel companies for 'knowingly contributing to climate change'**

Independent, 1 August 2017

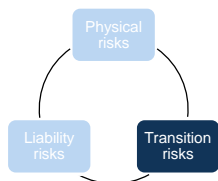


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## Risk Alert: Climate-Related Risks, 12 May 2017



- Changing government policy
- Disruptive technologies
- “Stranded assets”

***“If progress continues at the same pace as the last 10 years then the transition risks for companies and investors could well crystallise within the next 10 years.”***

Professor Lord Stern, May 2017



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## Relevance to pensions actuaries

*Actuaries should ensure that they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice.*

- Climate and resource risks are starting to be felt now, even though the most serious direct impacts may not emerge in next 20 years.
- “Tragedy of the horizons”
- What about transition risk?
  - Asset re-pricing
  - Significant shift in government policies
- Can we, and should we, take account of these risks in funding advice?



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## Relevance to pensions actuaries

- Regulatory context and guidance



- Pensions press coverage

Fossil fuel investing a risk to pension funds, says Ed Davey

Telegraph, 6 December 2014

UK pension funds launch climate change 'toolkit'

IPE, 11 January 2017

Over 80% of LGPS schemes omitted climate risk from investment strategies

Pensions Age, 8 May 2017

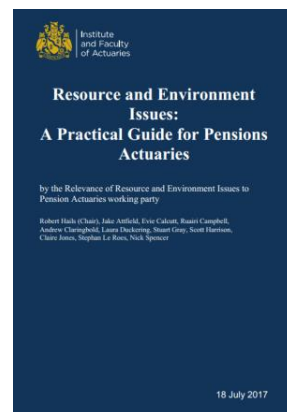


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## A practical guide for pensions actuaries

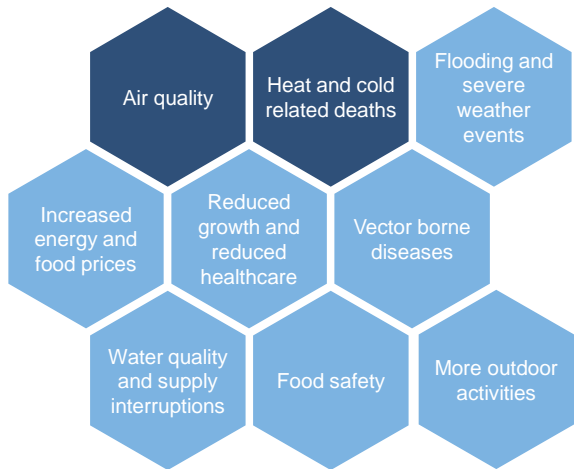
- Financial assumptions
- Mortality assumptions
- Covenant assessments
- Integrated Risk Management



## Financial assumptions

- Market-based financial assumptions may not reflect R&E risks
- Should market-based assumptions be adjusted?
- Lots of uncertainty about the impact of R&E issues on market variables
- Research commissioned to help better understand potential impact on:
  - Investment returns
  - Market yields / inflation expectations
- More to follow!

## UK Mortality: Sources of Risk and Opportunity



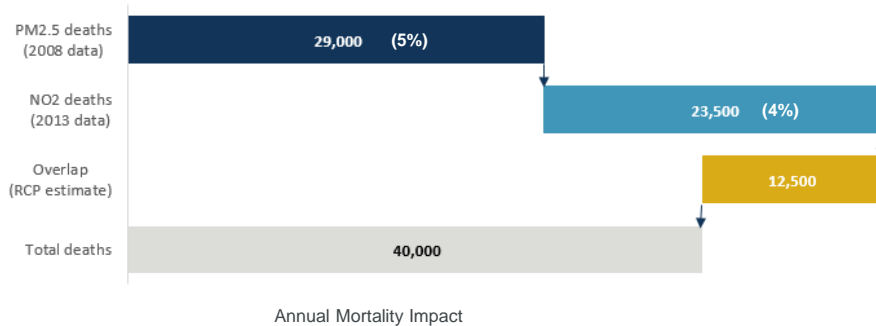
### Increasing Mortality

- Lower economic growth
- Higher energy prices
- Higher food prices

### Decreasing Mortality

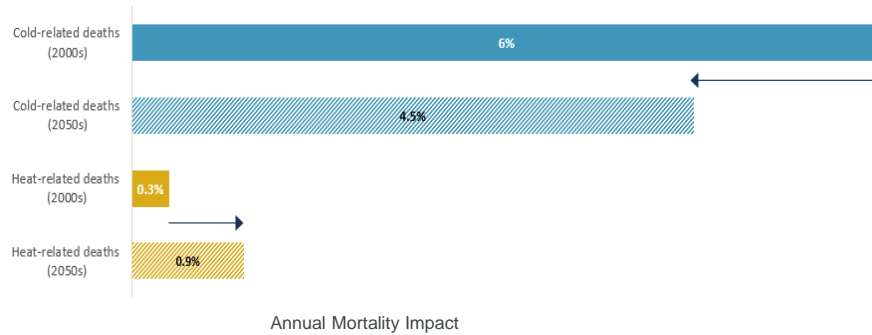
- Improved air quality
- Milder winters

## UK Mortality: Air Quality



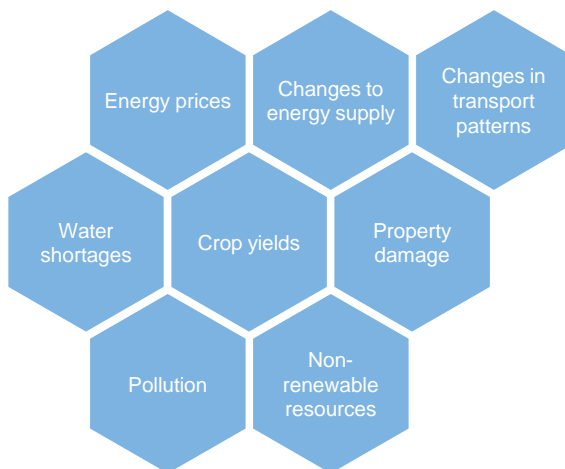
- Wide uncertainty bars around these figures
- May be equivalent to shortening life expectancy by 6 months
- Scope for significant improvements

## UK Mortality: Temperature related deaths



- Projections have many sources of uncertainty
- Less impact than air quality in short-medium term?
- Will vary by region

## Covenant: Sources of Risk

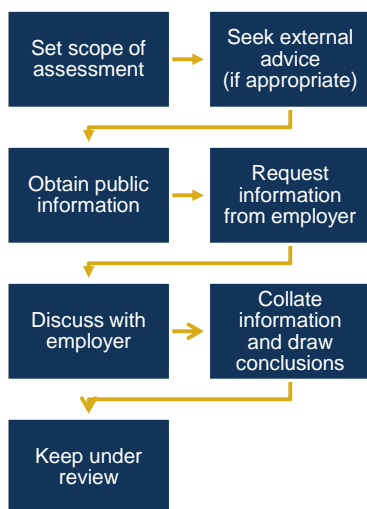


### Example: Supermarket

- Increasing transport costs may encourage localisation of supply chains and distribution networks
- Changing transport patterns could make out-of-town stores less popular
- May face economic and legislative pressure to reduce energy use in stores and depots
- Consumers may demand greater efforts to reduce packaging and food waste throughout the supply chain
- Changing temperature and rainfall patterns may affect food availability and prices
- Ability to deliver food with lower inputs and less environmental impact may become a key factor in competitive success



## Trustee covenant assessment: process



- May require greater emphasis on longer term, more qualitative information about risk management and business resilience
- Risks will vary considerably between companies
- R&E and covenant expertise not typically possessed by Scheme Actuaries
- Scheme Actuaries can
  - Help formulate questions
  - Critically review answers
  - Allow for risks in funding advice



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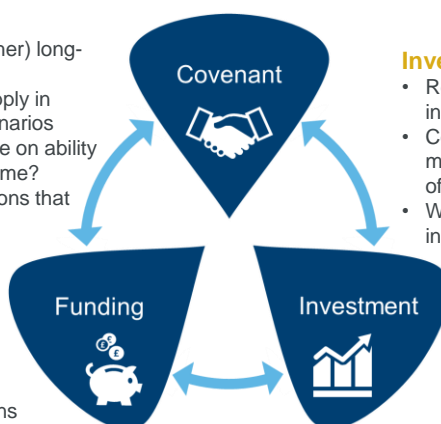
## Integrated Risk Management

### Covenant

- Identify R&E related (and other) long-term risks
- Consider which risks may apply in different climate change scenarios
- What impact would they have on ability of Company to support scheme?
- Are there any mitigation actions that can be taken?
- Monitor KPIs

### Investment

- Review current approach to R&E within investment processes
- Consider what actions can be taken to minimise risk/ maximise opportunities of R&E
- What are the potential implications for investment returns and risk?



### Funding

- Review assumptions and Recovery Plan based on long-term covenant
- Review range of mortality assumptions considered
- Consider impact of different climate change scenarios on funding



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## Next Steps

- More detailed reports on Mortality and Covenant
- Results of scenario analysis
- What can you do?
  - Learn more about R&E risks so can discuss with clients
  - Encourage trustees to raise R&E issues with covenant adviser
  - Find out how clients are addressing R&E risks in investment processes
  - Review whether your models and documentation incorporate R&E risks adequately
  - Use scenario analysis to explore uncertainty
  - Help trustees include R&E risks in their IRM approach



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**Questions**

**Comments**

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