What Do Actuaries Know About Cows and Energy?

Neil Cantle *Principal, Milliman*
What do actuaries know about cows and energy?

Cows > Methane > Electricity?

What do cows and energy have in common?

Complexity and Uncertainty
So what *do* actuaries know about cows and energy?

*We can explain the uncertainties involved*

What do actuaries do...
Homo Actuarius

• Typical characteristics
  – Uncanny dress-sense
  – Panache
  – Unhealthy love of the mathematical sciences
  – …
  – Make sense of uncertainty about future events
  – Builds models to describe possible outcomes
  – Explain what models mean

Actuaries in the wild

• Native habitat:
  – The insurance company
• Typical behaviours:
  – Valuing liabilities
  – Pricing risks
  – Valuing economic profits
  – Evaluating financial risk
Actuaries and Uncertainty

Our Vision
We will serve the public interest by ensuring that where there is uncertainty of future financial outcomes, actuaries are trusted and sought after for their valued analysis and authority.

VISION STATEMENT
Actuaries are recognized for their authoritative advice and valued comment wherever there is financial risk and uncertainty.

Actuaries at the heart of uncertainty
Manifesto for Wider Fields

We will serve the public interest by ensuring that where there is **uncertainty** of future **financial** outcomes, actuaries are trusted and sought after for their valued analysis and authority.

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New opportunities

- Generic environment...
  - Uncertainty over future outcomes
  - A need and desire to understand different futures and how they arise
  - The audience is a mix of technical and non-technical people

- But...
  - We are not the only ones who do models
  - We tend to be associated with insurance risk
Evolution of Homo Actuarius

Models…Statistics…Prediction

"...some well-respected statisticians have begun to argue that frequentist statistics should no longer be taught to undergraduates. And some professions have considered banning Fisher’s hypothesis test from their journals.”

John von Neumann

"With four parameters I can fit an elephant...And with five I can make him wiggle his trunk.”

Nate Silver: The Signal and The Noise
“Understanding” is the key to wider fields

Getting to grips with uncertainty
Tools for the voyage into uncertainty

- Communication
- Systems Thinking
- Systems Mining
- Explanatory and Predictive Modelling

New Opportunities – Close to Home

- Healthcare
- Banking
- Asset Management

- Stresses and scenarios
- Multivariate indicators
- Policyholder behaviours
- Operational risk
- Risk appetite
- Culture diagnostics
New Opportunities – Further From Home

Energy
Mining
Construction
Retail
Farming
Telecoms

Summing up

Wherever there is uncertainty (financial or not)

...actuaries can add a lot of value
Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

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