



Institute
and Faculty
of Actuaries

GIRO40

8 – 11 October, Edinburgh



14 October 2013



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What Do Actuaries Know About Cows and Energy?

Neil Cattle *Principal, Milliman*

ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

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What do actuaries know about cows and energy?



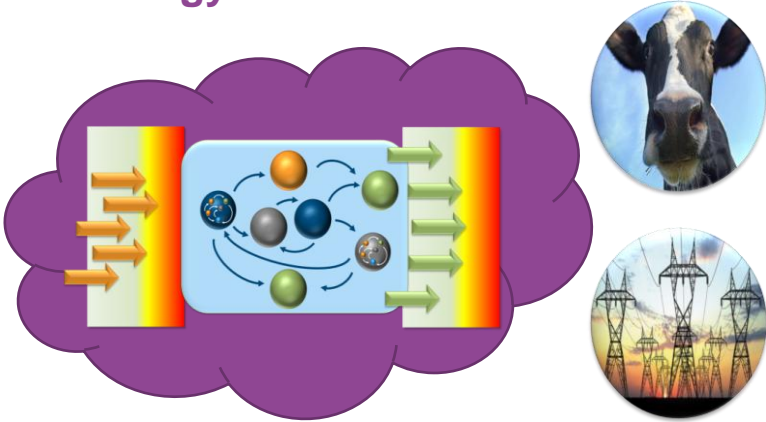
Cows > Methane > Electricity?

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

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What do actuaries do...



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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

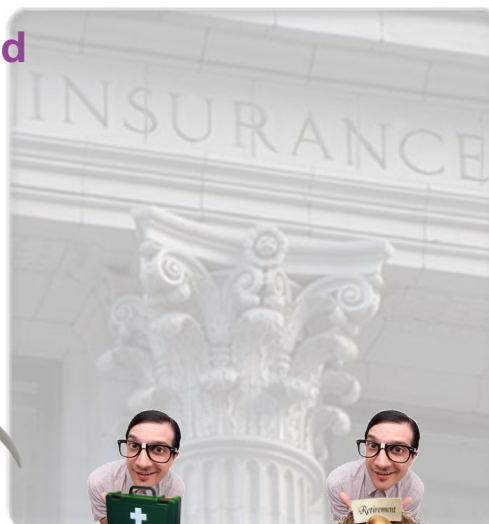


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Actuaries in the wild

- Native habitat:
 - The insurance company
- Typical behaviours:
 - Valuing liabilities
 - Pricing risks
 - Valuing economic profits
 - Evaluating financial risk



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Actuaries and Uncertainty



VISION STATEMENT

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



Institute and Faculty of Actuaries



Vision

To position the profession so that wherever there is **uncertainty** of future financial outcomes, actuaries are sought after for their valued advice and authoritative comment.

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



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Evolution of *Homo Actuarius*

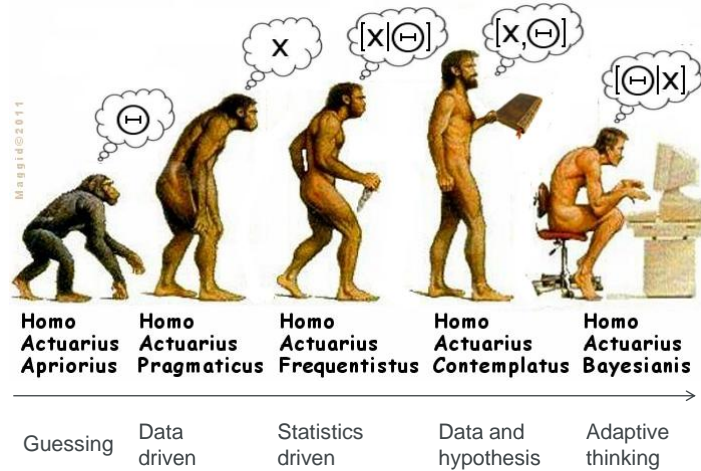


Image by Joshua Maggid

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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

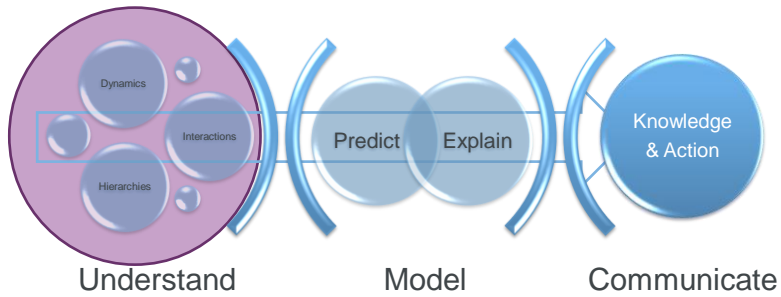
"With four parameters I can fit an elephant...And with five I can make him wiggle his trunk."

Nate Silver: The Signal and The Noise

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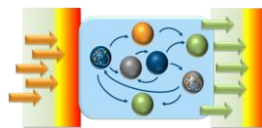
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Getting to grips with uncertainty

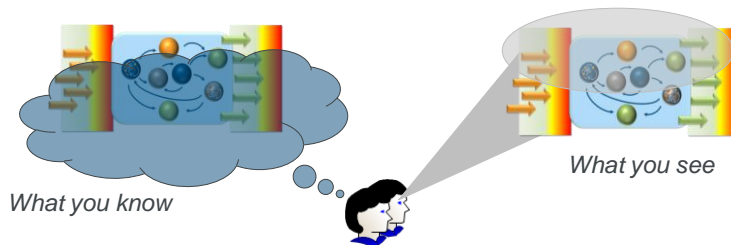


“Understanding” is the key to wider fields

Getting to grips with uncertainty



The System



Tools for the voyage into uncertainty



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New Opportunities – Close to Home

Healthcare

Banking

Asset Management

- Stresses and scenarios
- Multivariate indicators
- Policyholder behaviours
- Operational risk
- Risk appetite
- Culture diagnostics

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New Opportunities – Further From Home



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Summing up

Wherever there is uncertainty (financial or not)



...actuaries can add a lot of value

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Questions



Comments

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.