The Aqua book:
Guidance on quality analysis and modelling for government

Alec Waterhouse – December 2014
Model Quality

Three civil servants suspended after government is forced to rerun bidding process for West Coast rail route because it got its sums wrong

West Coast bid: Minister admits 'unacceptable mistakes'
Recommendations

1: business critical models … should have appropriate quality assurance

2: business critical models … managed within a framework that ensures appropriately specialist staff are responsible …

3: Single Senior Responsible Owner for each model … model should summarise the QA that has been undertaken, … expert scrutiny and challenge … SRO is content with QA process

4: The Accounting Officer’s governance … confirmation that an appropriate QA framework …

7: expert cross-departmental working group to share best practice
Modelling Quality Assurance

- Changed environment for models in government
- Increased focus on assurance
- Demonstrating application
- Applies to all
Genesis

- Many books
- None covering modelling assurance
- Extended to cover analytical quality assurance

Modelling in DECC an Overview
AQuA principles

1. Proportionality of response
2. Assurance throughout development
3. Verification and validation
4. Analysis with RIGOUR
   - Repeatable
   - Independent grounded in reality,
   - Objective,
   - understood and managed Uncertainty
   - address the initial question Robustly
Proportionality of response
Assurance throughout development

- Scope & specify
- Design & Build
- Populate (with data / assumptions)
- Test (including regressions) & sign off
- Use
- Review

Document and Communicate
Implications for analysts

• Identify sources of uncertainty

• Quantify them, if possible

• Assess their impact on outcomes
Communication

Layered approach:
concise summary: range and likelihood of outcomes, deep uncertainties, reasons, options
more detail for those who want it

Acknowledged outcomes are uncertain
Focus on communicating the strategy: how it addresses uncertainties, and the quality of analysis it is based on
AQuA principles

• Apply to third parties
  • Non-departmental bodies
  • Consultants
  • Academics

If you want your work to be used – make sure it is AQuA compliant.
Thank you

Questions?