Developing Models with RIGOUR

Department for Business Energy and Industrial Strategy

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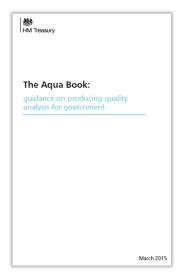
Purpose

Introduce a scenario based model

"The Mackay Carbon Calculator"

- Describe our assurance process for models we develop
 - In-house
 - Outsourced





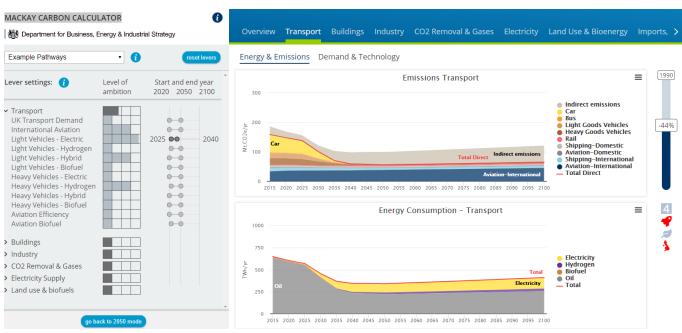
Based on the Analytical Quality Assurance Book – The AQuA Book

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The model - Mackay Carbon Calculator

- UK developed the first calculator
- Many others developed since then
- The new model introduces
 - Modelling to 2100
 - Ability to change start and end dates
 - Completely updated technology "levers"
 - Fractional values for levers
- Assumptions and data align with
 - Current science and
 - More complex models



So how do we know it works?



Principles

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- 1. You can't assure your own model
- 2. Assurance time depends on importance and complexity
- 3. Set time for re-reviewing models and assumptions

- Building on the simple QA methods outlined below, complex models affecting internal Model Audit major business decisions will in addition justify resource intensive QA Internal Peer review

 Periodic Review

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 For simple models with low levels of risk, minimal QA is proportionate

 Relatively simple models

 Relatively simple models
- 4. See the process in action not just the results important for commissioned work
- 5. RIGOUR repeatable, independent, grounded in reality, objective, understood uncertainty, results address the question



business risk

business risk



Modelling Quality Assurance - Steps

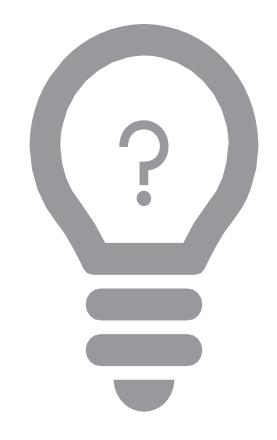


- 1. Documenting a model: scope, specification, "map", technical guide, "sign off"
- 2. Structure & Clarity: depends on language
 - Excel example
- 3. Validation is the model doing the right thing
- 4. Verification is the model doing it right
- 5. Assumptions: Using the assumptions log

Documented using a log book Single location—Rates assurance 0-100, locates documents, provides audit trial



Thank you





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