

RIIO-ED1 Risk Modelling

Methodology

- Background and rationale for risk analysis
- Description of model restructuring to enable risk modelling



Background and Rationale for Risk Analysis

As in other UK utility sectors (e.g. water), Ofgem now requires DNOs to conduct risk assessments and risk modelling



Ofgem requires DNOs to submit well-justified business plans that set out their strategy to manage risks and uncertainties in an efficient way.

“DNOs will (...) be required to demonstrate that their proposals take account of the various risks and uncertainties and provide a strategy to deal with these efficiently and maintain delivery.” (p.31)

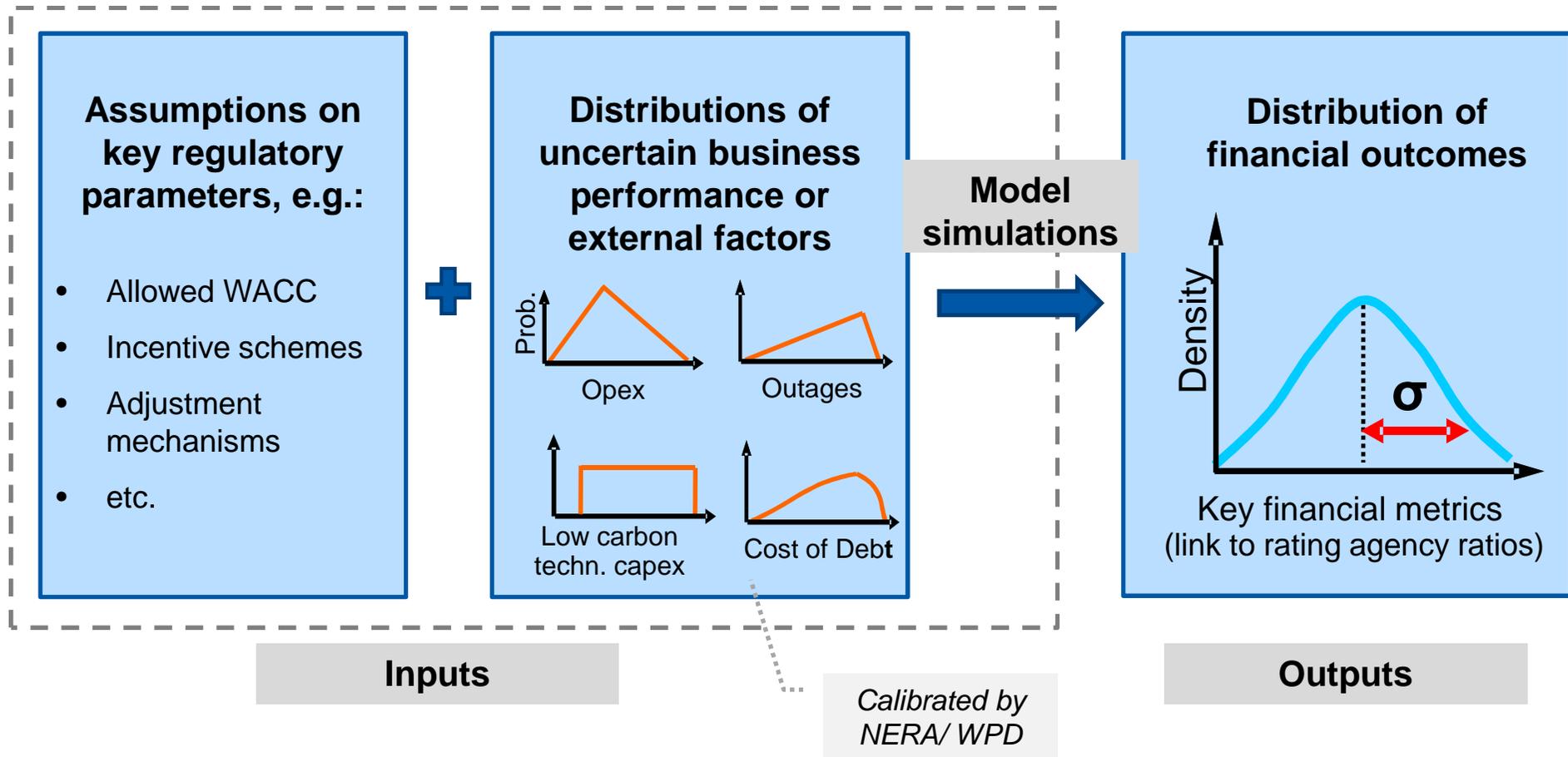
“The overarching principle for uncertainty mechanisms under the RIIO model is that we expect network companies to manage the uncertainty they face.” (p.39)

Ofgem expects DNOs to propose appropriate levels for notional gearing and cost of equity that are consistent with their cash flow risk.

“It is for the DNOs to set out in their business plans their proposals for notional gearing and where we should land within this cost of equity range (6.0-7.2 per cent), based on detailed evidence of their cash flow risk.” (p.6)

“We expect all business plans to contain (...) a holistic view of the package the DNO believes to be appropriate, i.e. the company’s view on financeability metrics (with evidence), against their view on expenditure and outputs.” (p.32)

We perform risk analysis for the RIIO-ED1 price control period



We use the risk model to examine the implications of Ofgem proposals on WPD's distribution network businesses

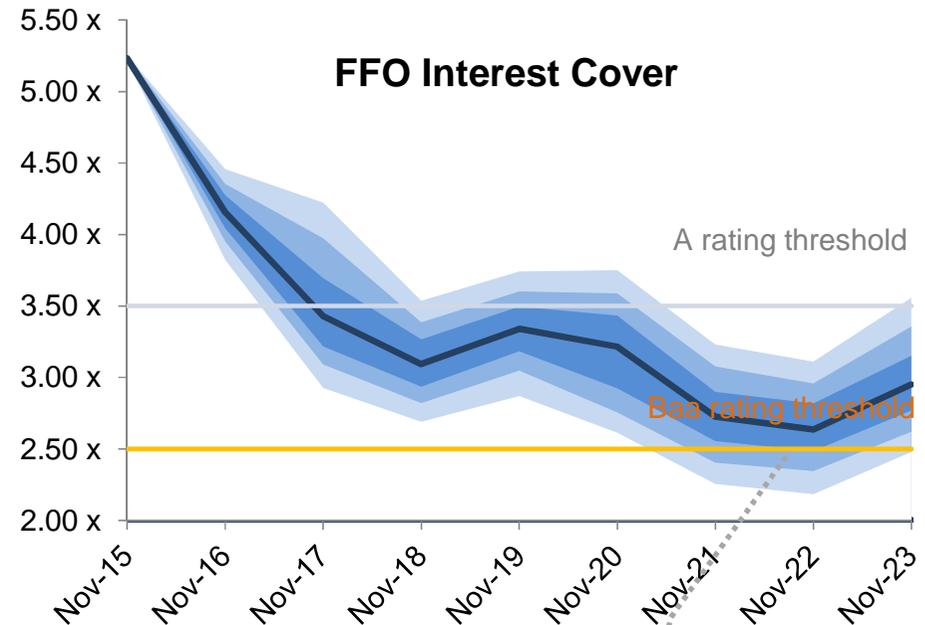
We use the model to assess the financeability of WPD's DNOs, by deriving distributions for key metrics (such as FFO interest cover)



Illustrative Output (e.g. FFO Interest Cover)

We use WPD's cost forecasts and apply Ofgem's proposed regulatory mechanisms to derive statistical distributions for key financeability metrics for WPD's four DNOs. We define scenarios regarding key regulatory parameters.

Regulatory Parameter	Value
Notional Gearing	65%
Allowed Cost of Equity	6.7%
Incentive Schemes Active?	Yes
Capitalisation Rate	85%



In this illustrative scenario, the median FFO interest cover ratio lies below the A rating threshold, with some risk of breaching the Baa rating threshold in the second half of RIIO ED1.



Model Development

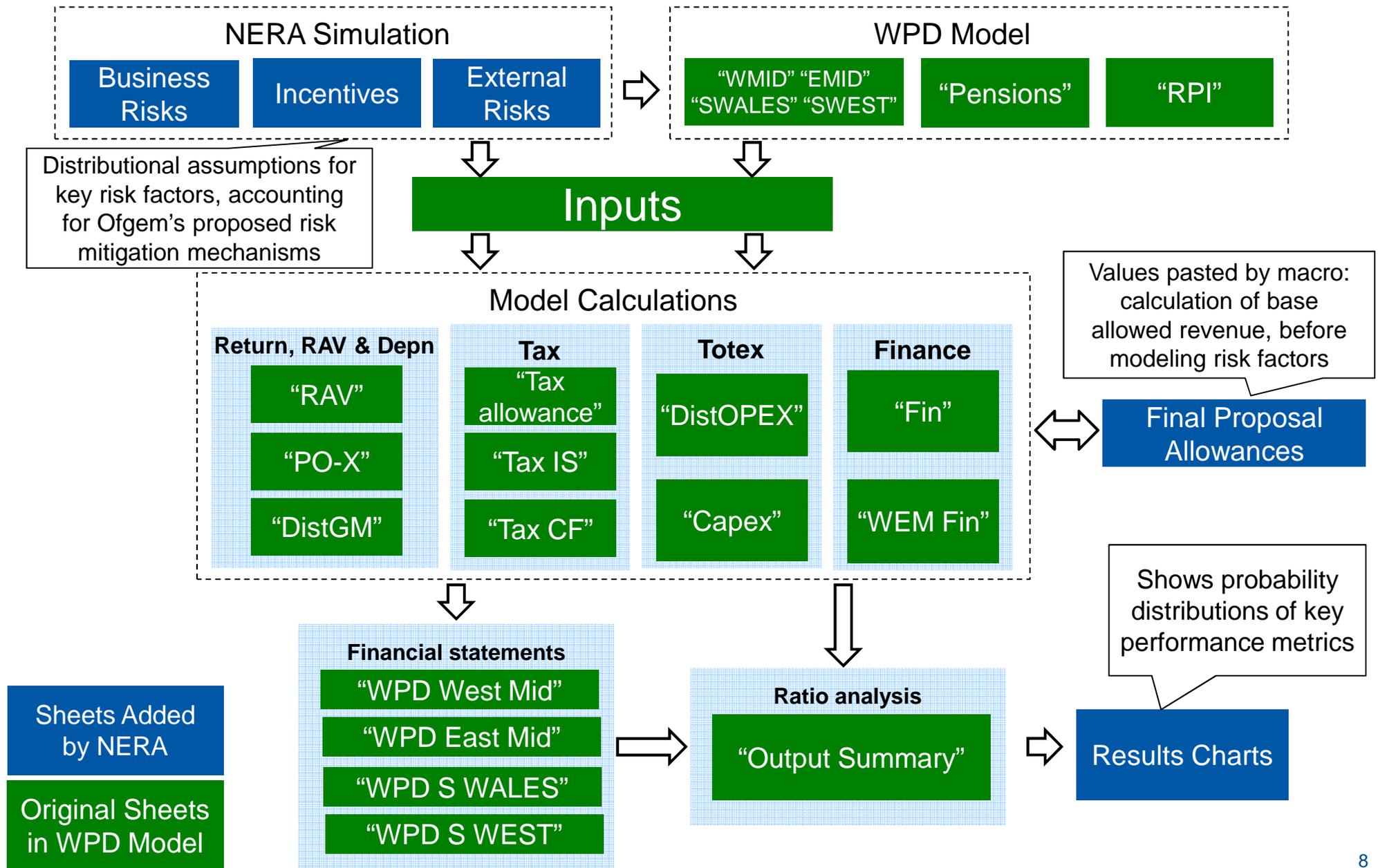
Model Restructuring to Enable Risk Modelling

To enable risk modelling, we changed the existing WPD model structure



- We added sheets to simulate the range of uncertainty around key risk factors
- We created a distinction between actual and allowed costs
- We integrated the Excel model with simulation software called “Crystal Ball”
- We constructed tables and charts to show probability distributions around key financial metrics

We built on WPD's model structure to enable Monte Carlo analysis



We inserted worksheets to simulate three categories of risk factors



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Category of Risk

Risk Modelling

Business risk related to cost over/underspends



We model the cost uncertainties that create risks for WPD, but also accounting for Ofgem's proposed sharing mechanisms, re-openers, and volume drivers that mitigate risk

Incentive mechanisms



We model risks created by schemes such as BMCS, IIS, etc.

External (e.g. macroeconomic) risks



We model effects on costs and revenues due to exogenous shocks (e.g. RPI, cost of debt, etc).

- We added sheets that model these risks, and the regulatory mechanisms that mitigate them
- We linked the additional sheets to the existing “model calculations” so they feed through into the financial statements
- We calibrated the sheets with WPD data (incl. distributional assumptions)

We take assumptions from a range of sources



- 4 sources:
 1. Data from original financial model
 2. Response from WPD to our data requests
 3. Publicly available data (e.g. macro variables)
 4. Regulatory parameters (RIIO ED1 Consultation Strategy Consultation and Decision papers)

- We incorporate WPD's views on distributions for key risk factors

We modelled financing separately for each DNO, following Ofgem's approach to assessing financeability



Original WPD model

- Deterministic assumptions on short term (floating rate) debt and long term (bond) issuance
- Cash shortfalls offset by dividends (both negative and positive)
- Some financing conducted through intercompany loans

NERA adjustments

- We modelled each DNO as a separate ring-fenced entity, as per Ofgem's approach
- We model each DNO with its own short-term floating rate debt facility of £200m, with long-term bonds issued in £250m increments once this short-term facility is exhausted
- The model issues debt to preserve assumed notional gearing (debt/RAV)
- Cash shortfalls are financed through equity issuance, cash surpluses are paid through dividends
- We assume a 5% equity issuance cost, following Ofgem's GD1 approach



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