

Regulatory Model Architecture Summary 2020-25

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Part of the Energy Queensland Group

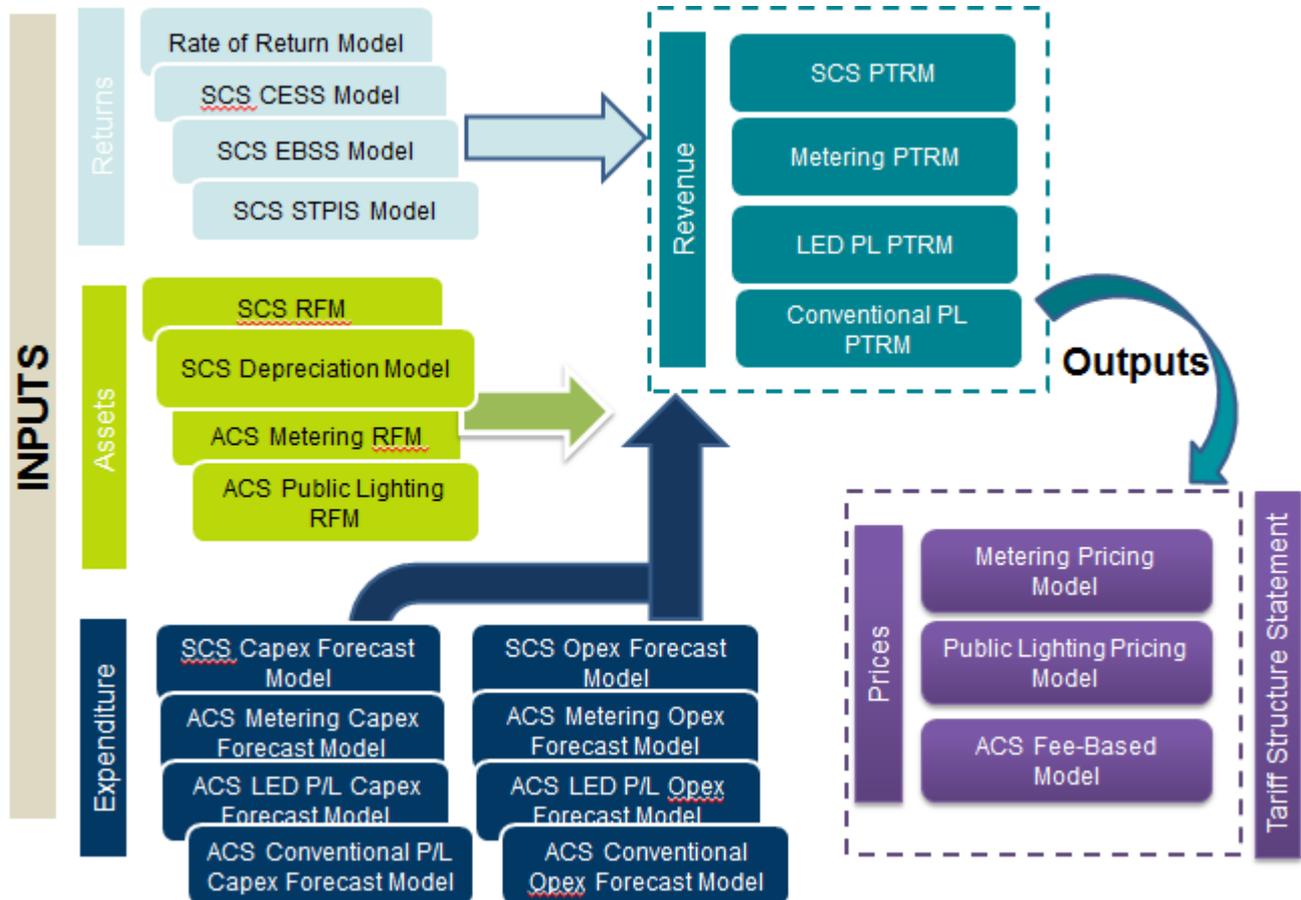
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1. Model Overview

Energy Queensland uses a portfolio of models to prepare the Regulatory Proposals for Energex and Ergon Energy. These models are a series of interrelated Microsoft Excel spreadsheets as illustrated in Figure 1.

Figure 1 Submission models



Energy Queensland models the assets, expenditure and allowed revenue of each business element populating the Australian Energy Regulator’s (AER) Roll Forward Model (RFM) and Post-Tax Revenue Model (PTRM). Separate PTRMs are developed for each of:

- Standard Control Services (SCS)
- Metering
- Public Lighting – Conventional, and
- Public Lighting – Light Emitting Diodes (LED).

The purpose of each component is to:

- Roll forward the SCS, Public Lighting (conventional and LED) and Metering services' asset bases from 2018-19 through to 2024-25, and
- Determine the revenue building blocks and annual unsmoothed and smoothed annual revenue requirement (ARR) values for the SCS, Public Lighting and Metering services for the regulatory control period 2020-2025.

2. High level model description

The forecast, estimated and actual direct costs for capital expenditure, operating expenditure, disposals and capital contributions are sourced from the business units of Energy Queensland. The finance team implement the Cost Allocation Method thereby consistently applying indirect and overhead costs across the distribution businesses. Regulatory models then calculate the allowed revenue models, including application of inflators and the base step trend approach. Regulatory models are then used to populate the RFM and PTRM models.

In parallel, the business collates and stores information for populating the Regulatory Information Notices. This involves presenting escalated, overheads inclusive capital expenditure and operating expenditure by:

- Category of spend
- Asset Class (capital expenditure only), and
- Labour Materials Contractor and Other splits.

The remainder of this document sets out a high level summary of the individual workbooks that comprise each of the model components. It considers the inter-linkages between the workbooks across and within the modelling suite, the inputs, calculations and outputs that define the data flows through the model.

3. Input Modelling Components

3.1 Rate of Return Model

An excel spreadsheet setting out the input parameters to calculate the weighted average cost of capital. Details are set out in Chapter 9 of Regulatory Proposal. Energy Queensland has applied the AER's Rate of Return Instrument to calculate the allowed regulatory rate of return.

3.2 SCS CESS Model

The Capital Efficiency Sharing Scheme (CESS) is the mechanism used by the AER to provide network businesses with an incentive to undertake efficient capex during a regulatory control period by rewarding businesses that outperform their capex allowance and penalising businesses that spend more than their capex allowance. It also provides a mechanism to share efficiency gains and losses between network service providers and network users. The AER's CESS model calculates the rewards or penalties for the current regulatory period. CESS is discussed in Chapter 11 of each Regulatory Proposal.

3.3 SCS EBSS Model

The Efficiency Benefit Sharing Scheme (EBSS) provides network businesses the incentives to spend their opex efficiently and share the benefits of efficiencies with customers. The AER's EBSS model calculates the incremental efficiency gain/ loss and the carry-over amounts into the next regulatory period. EBSS is discussed in Chapter 11 of each Regulatory Proposal.

3.4 SCS STPIS Model

The AER's Service target Performance Scheme (STPIS) provides network businesses with incentives for maintaining and improving network performance, to the extent that customers are willing to pay for such improvements. The STPIS model is used to calculate the service targets and incentive rates to be applied in 2020-25 regulatory control period.

STPIS is discussed in Chapter 11 of each Regulatory Proposal.

3.5 Roll Forward Models

The AER's RFM establishes the method used to roll forward the regulatory asset base (RAB) for SCS from one regulatory year to the next regulatory year. The closing RAB value for the last year of a regulatory control period becomes the opening RAB of the new regulatory control period, and is used in the building block determination. Energex and Ergon Energy adopt the forecast depreciation, indexation and additions to the asset base to roll forward our RAB. The SCS RFM is discussed in Chapter 8 of each Regulatory Proposal.

The SCS Depreciation Model calculates the straight-line depreciation applicable by individual asset or asset type for inclusion in the SCS RFM.

We use the AER's RFM model to roll forward the Energex and Ergon Energy legacy Metering Asset Bases (MABs) and Public Lighting Asset Bases (PLABs). These models are applied in the same way as for SCS. We cover the Alternative Control Services (ACS) Metering and Public Lighting outcomes in Chapter 15 of each Regulatory Proposal and in the referenced ACS supporting documents.

3.6 Capital Expenditure Forecast Model

Energy Queensland separately models the capex for each regulated distribution business, including separate consideration for the asset bases supporting ACS. The SCS asset base for each of Energex and Ergon Energy separately consider the replacement capital expenditure, augmentation capital expenditure and capital expenditure associated with connections. We outline our capex forecasting in Chapter 7 of each Regulatory Proposal.

The Metering Capex Forecast Model covers the legacy metering assets of each distribution business. These asset bases are now reasonably static following the introduction of competitive metering services under the Australian Energy Market Commission's Power of Choice reforms. In relation to public lighting, we have created two separate asset bases for conventional lights and LEDs. This approach allows us to support our proposed differentiated pricing for the installation of LEDs following extensive consultation with customers. Chapter 15 of each Regulatory Proposal discusses the metering, public lighting and fee-based ACS.

3.7 Operating Expenditure Forecast Model

We have used the AER's base step trend (BST) approach to model the SCS operating expenses for the regulatory control period for each distribution business. We rely on a forecast of 2018-19 operating costs as our base year, and will update this with actual data in our Revised Regulatory Proposal. Our approach is described in Chapter 6 of each Regulatory Proposal.

We also use the BST approach for ACS Public Lighting and Metering. As with capex, we have separate models for metering, LED and conventional lighting.

4. Post-Tax Revenue Models

The AER's PTRM is a building block model used to determine the revenue requirement for each year in the regulatory control period. We have separate PTRM models for SCS for each distribution business, as well as separate models for metering, LED and conventional public lighting. The PTRMs incorporate the content of the input models and contain critical assumptions and allowances used to determine the proposed revenue requirement. Chapters 8, 9 and 10 of each Regulatory Proposal outline our approach to populating these models.

5. Price Models

To prepare the Tariff Structure Statement (TSS) for each distribution business we prepared separate pricing models for SCS, metering and LED and conventional public lighting. The TSS documents detail the approach taken to calculate these prices.