# Distribution and Supply Price Control Review


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Authority for Public Services Regulation Oman



**ERRA EMER Virtual Committees Meeting**

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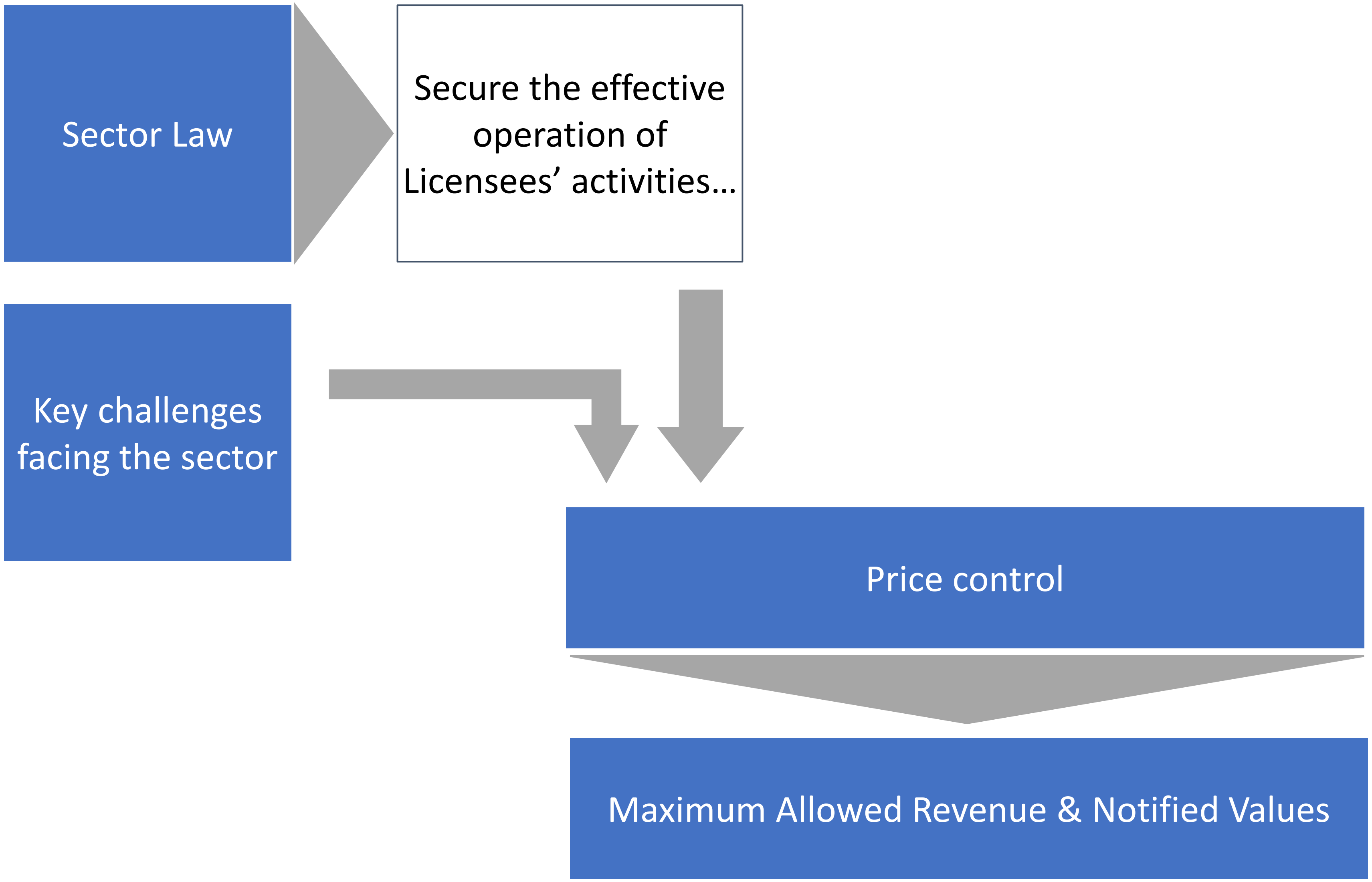
# Structure of Presentation

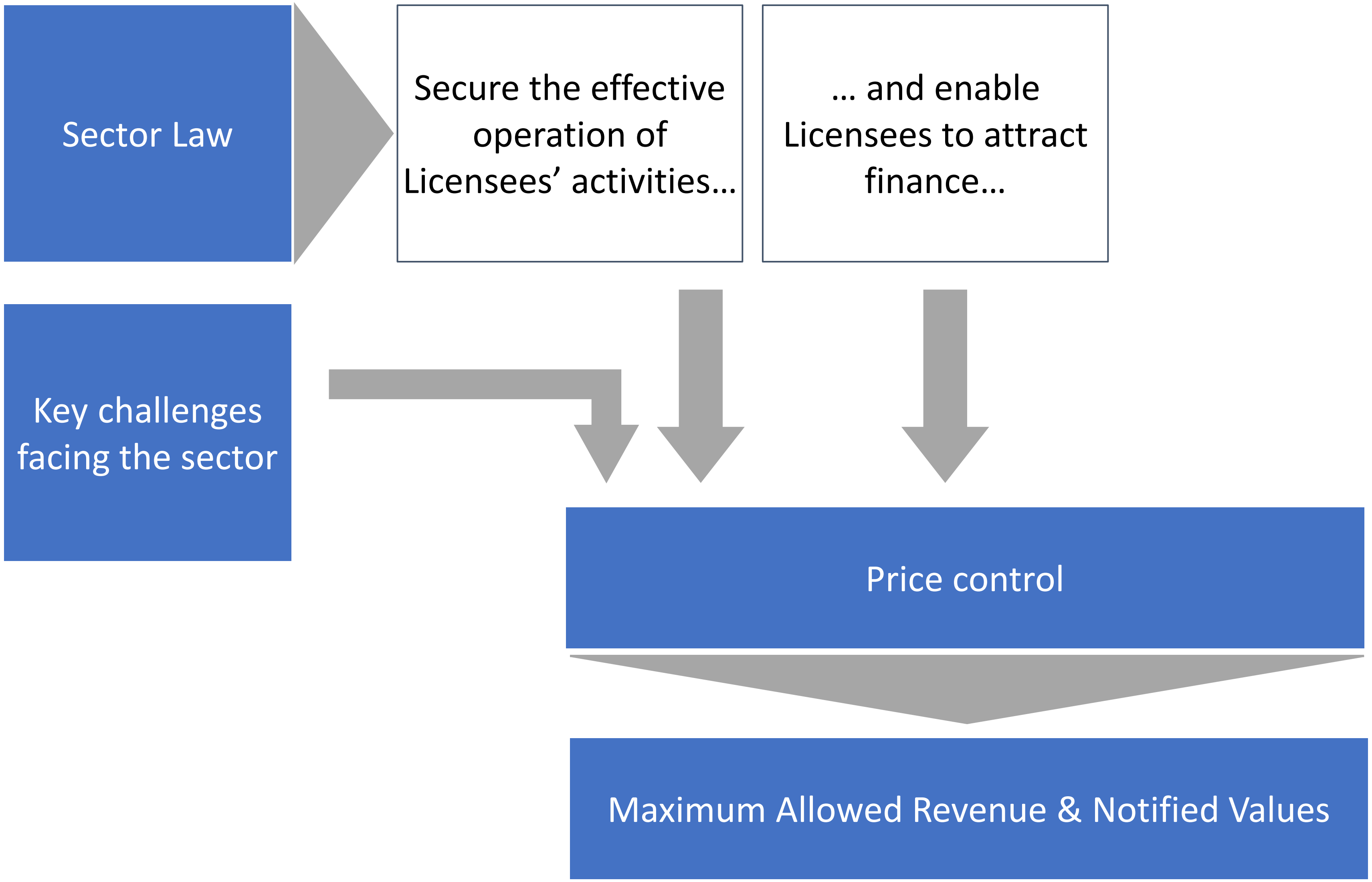
هيئة تنظيم الخدمات العامة
Authority for Public Services Regulation

- Objectives of the Price Control
- Form and Duration of the D&S Price Control
    - *Methodology of the Price Control*
    - *Duration*
    - *Revenue Drivers*
    - *Uncertainty Mechanism*
- Operating Expenditure
- Weighted Average Cost of Capital and Supply Margin
- Improving Performance
- Financeability

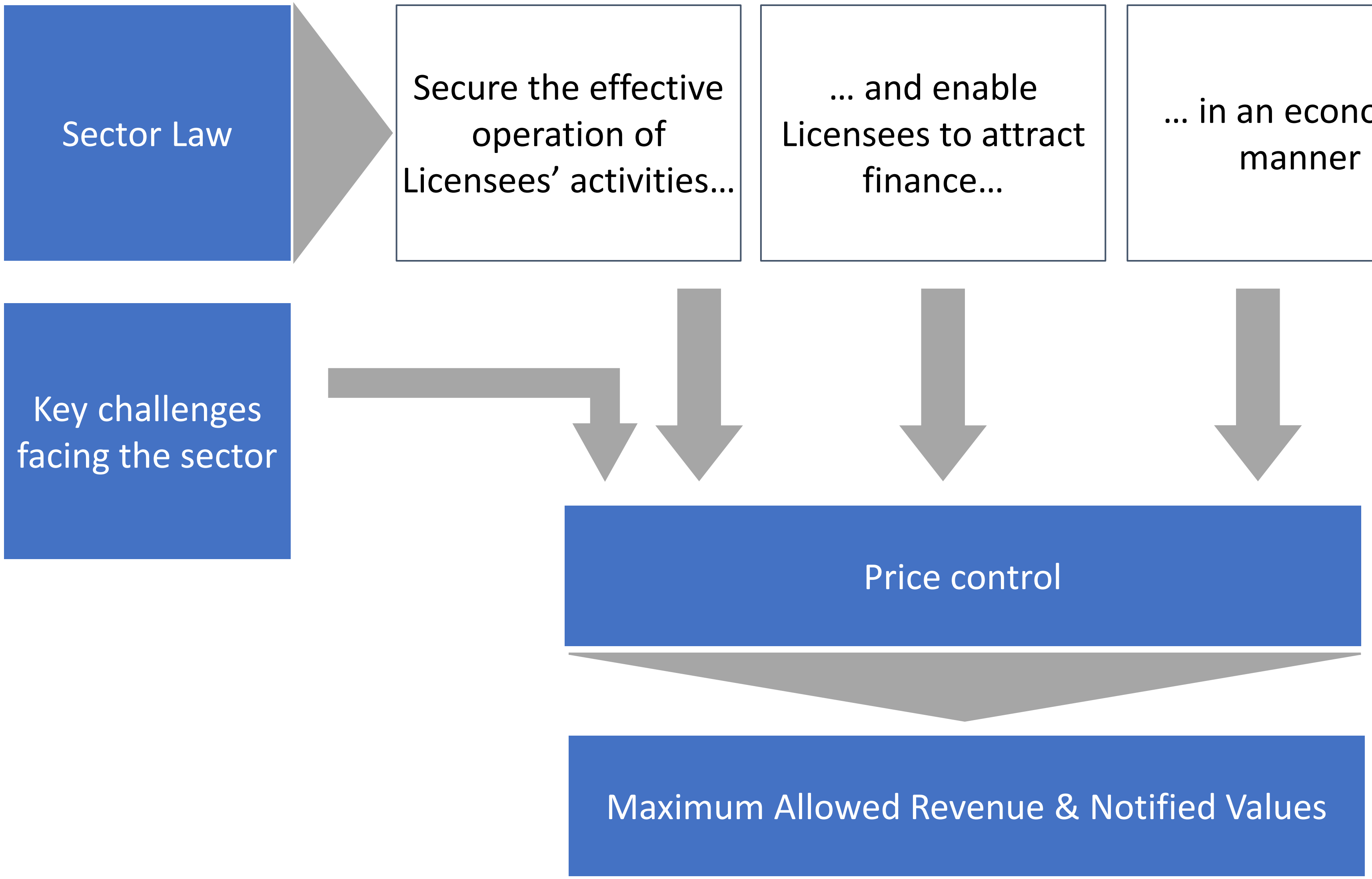
# Objectives of the price control



# Objectives of the price control



# Objectives of the price control

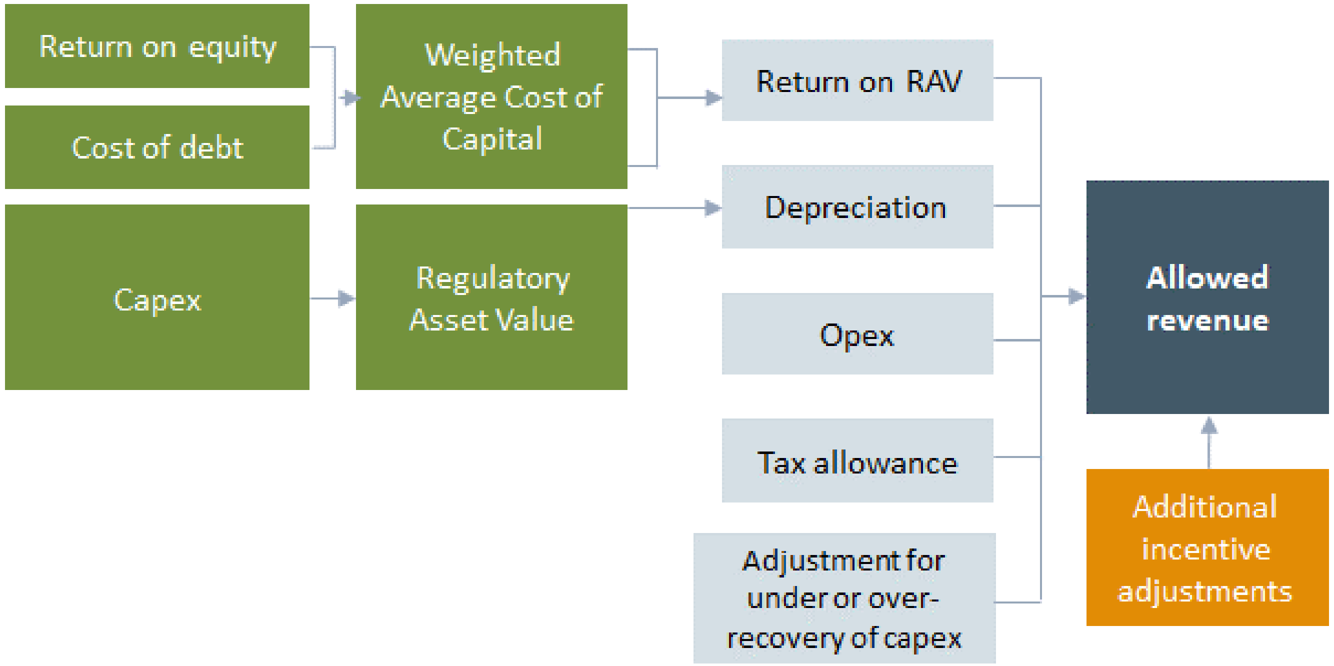


# Form & Duration

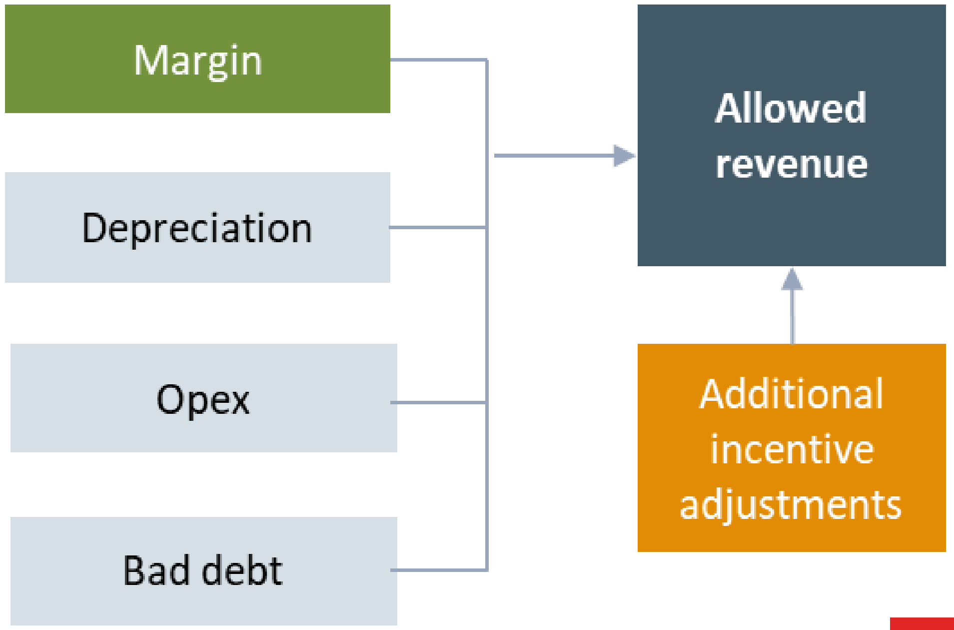
# Methodology for determining allowed revenue

The Licensees are regulated under incentive based 'RPI-X' type Price Controls.
The Authority sets the maximum allowed revenues that Licensees are allowed to earn.

**Building blocks of distribution price control**




**Building blocks of supply price control**



# Duration

- The Authority maintained the current Price Control duration of four years, covering the period 2022-2025.

# Revenue Drivers

Distribution

- Removed RUD as a distribution revenue driver;
- Applied 20% weighting on Customer Account; and
- increased the fixed component to 80%

Supply

- Retained a 100% weighting on customer accounts in the determination of Supply Business revenue

# Uncertainty Mechanism

The Authority considered uncertainty mechanisms in relation to:

- Force majeure events;
- AMR capital expenditure;
- Omanisation; and
- Transfer/interlinks of Rural Areas.

# Maximum Allowed Distribution Business Revenue

The new Maximum Allowed Distribution Business Revenue in Relevant Year t ($MADR_t$) is calculated as follows:

$$MADR_t = DB_t + C_t + LOSS_t + NSF_t + NPI_t + FM_t + OMt + AMR_t + LF_{Dt} - K_{Dt}$$

- **$DB_t$:** Distribution Businesses transferred to the Licensee;
- **$C_t$ :** amounts due for the Connection to a to a Distribution System or Transmission System;
- **$LOSS_t$:** means the reward or penalty calculated under the losses incentive mechanism;
- **$NSF_t$:** means the penalty calculated under the Network Security Factor incentive mechanism;
- **$NPI_t$:** means the Network Performance Incentive mechanism;
- **$FM_t$:** means the amount determined by the Authority for the recovery expenditure arising from force majeure events;
- **$OM_t$:** means the amount of expenditure allowed for the Omanisation initiative;
- **$AMR_t$**: means the amount approved for by the Authority for capital expenditure for the automated meter reading;
- **$LFD_t$:** License fee payable in Relevant Year t; and
- **$KD_t$:** is the correction factor for differences between Maximum Allowed Distribution Business Revenue and Actual Regulated Distribution Business Revenue in Relevant Year t-1.

# Maximum Allowed Distribution Business Revenue

The new Maximum Allowed Distribution Business Revenue in Relevant Year t ($MADR_t$) is calculated as follows:

$$MADR_t = \underbrace{a_t + (c_t + CA_t)}_{DB_t\text{: Distribution Business Revenue}} + TRD_t + C_t + LOSS_t + NSF_t + NPI_t + FM_t + OMt + AMR_t + LF_{Dt} - K_{Dt}$$

- **$DB_t$:** the distribution business revenue
- **$a_t$** and **$c_t$** are the Notified Values provided by the Authority
- **$CA_t$:** means the number of Customer Accounts
- **$TRD_t$:** means the amount approved by the Authority for the recovery and / or adjustment of costs associated with Distribution Businesses transferred to the Licensee

# Maximum Allowed Supply Business Revenue

The new Maximum Allowed Supply Business Revenue in Relevant Year t ($MASR_t$) is calculated as follows:

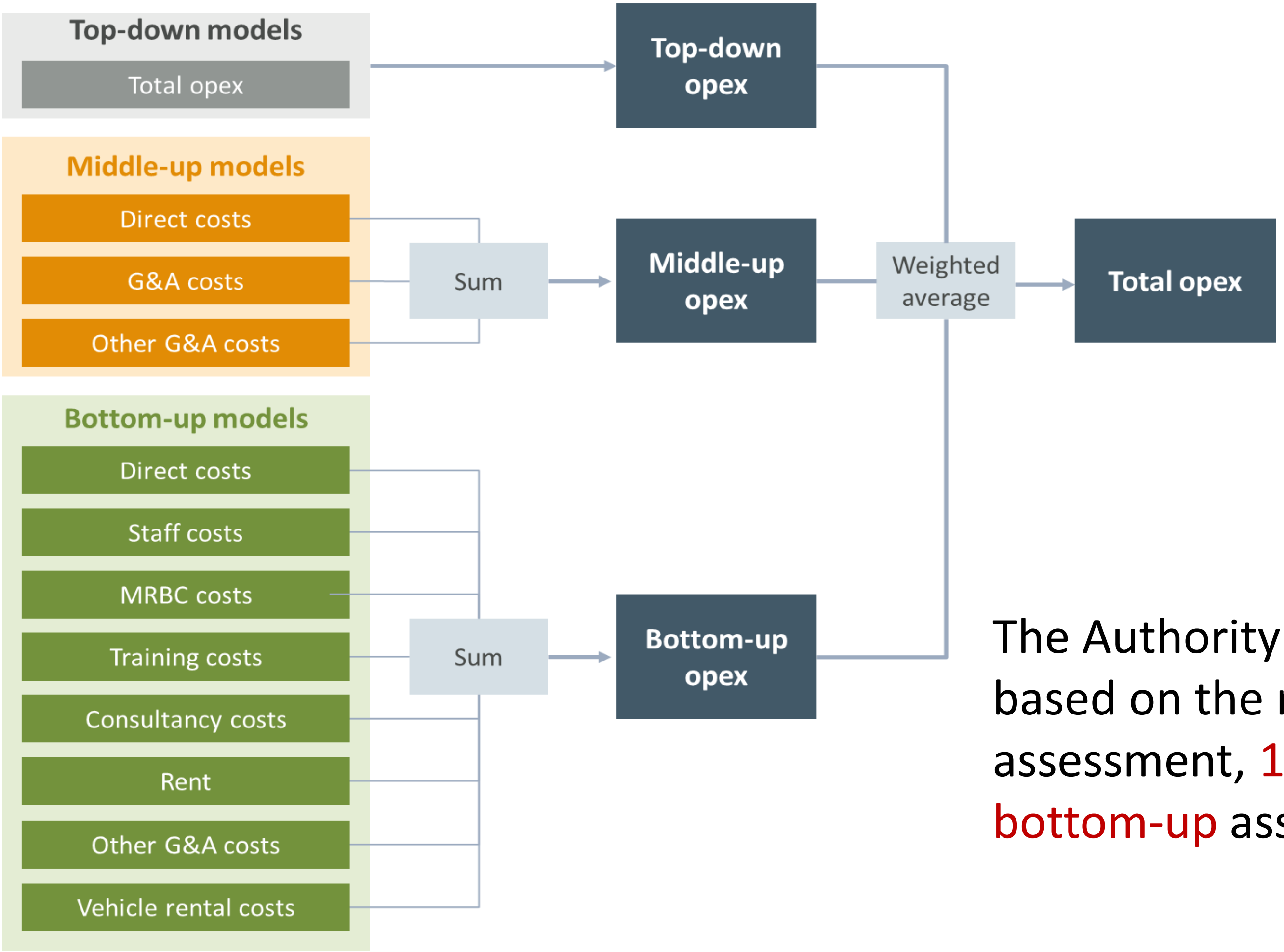
$$MASRt = PCt + TUoSt + DUoSt + \underbrace{d_t \times CA_t + TRS_t}_{\textbf{SB}_t\textbf{: Supply Business Revenue}} + CSt + CTCt + LFSt - KSt$$

- **$PC_t$:** means amounts due in respect of purchases of electricity in Relevant Year t;
- **$TUoS_t$:** means amounts due in respect of charges for the use of a Transmission System in Relevant Year t;
- **$DUoS_t$:** means amounts due in respect of charges for the use of a Distribution System in Relevant Year t;
- **$SB_t$:** means the Supply Business revenue in Relevant Year t;
- **$CS_t$:** means the Customer Satisfaction Incentive Revenue in Relevant Year t;
- **$CTC_t$:** means expenditure to assist the introduction of a competitive retail electricity supply market in Relevant Year t;
- **$LFS_t$:** License fee payable in Relevant Year t; and
- **$KS_t$:**is an adjustment to MASRt for under- or over-recovery (e.g. if the Licensee collects more revenue than allowed) in the previous year.

# Operating Expenditure

# Operating Expenditure

Schematic of Opex modelling streams:




The Authority continues to triangulate its opex allowances based on the model weighting of a 10% weight on the top-down assessment, 10% on the middle-up assessment, and 80% on the bottom-up assessment

# Weighted Average Cost of Capital

# WACC

Applied a Real Vanilla WACC of 5.40% and provision of separate tax allowance compared to a pre-tax WACC in previous price controls;

**Nominal and real vanilla WACC formula**

$$\text{Nominal vanilla WACC} = W_e \times K_e + W_d \times K_d$$

$$\text{Real vanilla WACC} = (1 + \text{Nominal vanilla WACC}) / (1 + \text{inflation}) - 1$$

Where:

- $K_e$ is the nominal cost of equity, the return required by the providers of equity;
- $K_d$ is the nominal cost of debt, the return required by the providers of debt;
- $W_e$ is a weighting applied to the cost of equity, which is the market value of equity (E) divided by the total market value of equity and debt (E+D) (though book values of debt and equity are often used in practice); and
- $W_d$ is a weighting applied to the cost of debt, which is the market value of debt (D) divided by the total market value of equity and debt (E+D) (though book values of debt and equity are often used in practice), otherwise known as the gearing ratio.

| | Final Proposals | Basis of estimate / comments |
|---|---|---|
| | | |
| **US Inflation** | 2.45% | different sources IMF, Congressional Budget Office and EIU suggested higher inflation. The Authority applied 2.45% US inflation, the mid-point of the range 2.3% to 2.6% |
| **OMR inflation** | 1.8% | Based on IMF forecast from April 2021. |
| **Statutory tax rate** | 15.0% | Applicable statutory rate. |
| **Gearing** | 60.0% | Notional gearing – informed by regulatory precedent |
| **Cost of Debt** | | |
| **Cost of debt (pre-tax)** | 5.65% | Calculated as a weighted average of new and embedded debt. Weighting of 35% applied to new debt, informed by estimated new debt requirement.<br>A range was used for the cost of new debt. Both low and high values included the same risk-free-rate and 20bps for transaction costs |
| **Cost of equity** | | |
| **Risk-free rate (USD)** | 2.00% | Based on evidence including the 10-yr moving average of US Treasury nominal bond yields (2.05%), and spot yields and forward curves of US 10-yr bonds. |
| **Market risk premium (USD)** | 6.00% | Considered in conjunction with risk-free rate to form a total market return (TMR). |
| **Total Market Return (USD)** | 8.00% | Proposed an ERP of 6.0%, which together with the proposed risk-free rate of 2.0% provides a TMR of 8.0%. |
| **Asset beta** | 0.40 | Based on the median (0.39) and mean (0.41) of 5-year (weekly) asset betas of filtered Bloomberg electricity transmission and distribution companies |
| **Equity beta (post-tax)** | 0.91 | Calculation |
| **Country risk premium** | 3.02% | The Authority proposed a CRP of 3.02% based on Professor Damodaran's most recent estimate and the cross-check provided by the analysis of bond spreads |
| **USD Cost of equity (post-tax)** | 10.48% | Calculation |
| **OMR Cost of equity (post-tax)** | 9.78% | Calculation |
| **WACC** | | |
| **Nominal vanilla WACC** | 7.30% | |
| **Real vanilla WACC** | **5.40%** | |

# Supply Margin

The Authority set a supply margin of 1.2% EBIT because:

- Regulatory benchmarks support setting a 1.0% EBIT margin; and
- An additional 0.2% is required to ensure that all the Licensees are expected to achieve a return on capital employed that exceeds 6.08% pre-tax (equivalent to the vanilla WACC of 5.4%)

In calculating return on capital employed, the Authority used the following working capital assumptions:

- Subsidy revenue average days receivable – 90 days (as per Initial Proposals);
- Tariff revenue average days receivable – 90 days (compared to 100 days in the Initial Proposals, aligning closer with historical outturns for the better performing Licensees); and
- Pass-through costs average days payable – 30 days.

# Improving Performance

# Improving Performance for D&S-PCR

Losses Incentive

Customer Satisfaction Incentive scheme

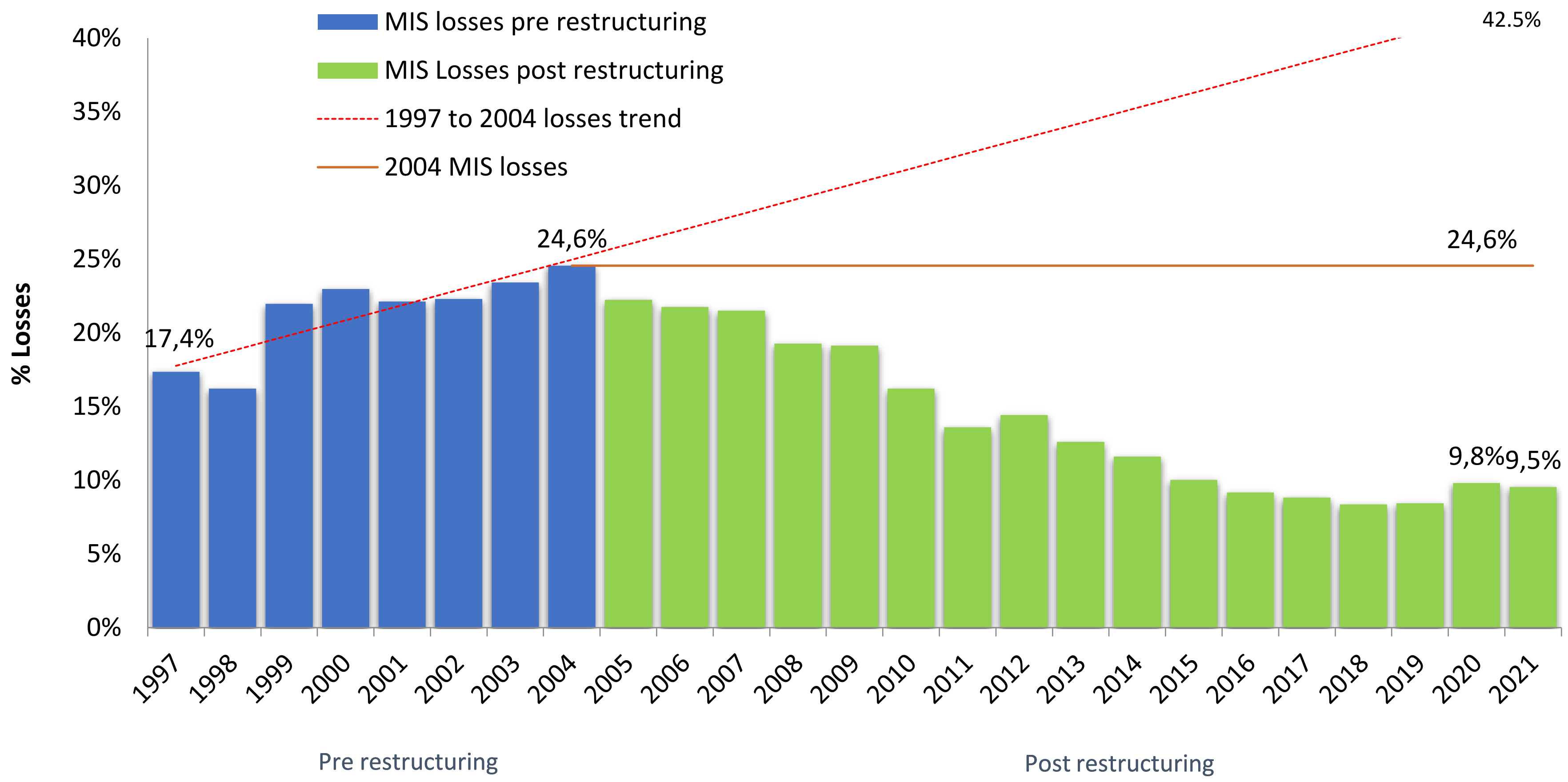
NSF / Network Performance Incentive Scheme

Guaranteed Standards of Service

# Losses Incentive

- Applied long-term technical Losses targets;
- Applied a uniform one percentage point uplift to these targets for non-technical or commercial losses;
- The target date for achieving the long-term targets should be 2029, effectively allowing two full Price Control periods;
- Other things equal, reductions in losses should be greater in the subsequent Price Control period allowing for full AMR deployment;
- The deadband around the Losses target is applied symmetrically, so that both penalties and rewards are activated when performance is outside this range; and

# Losses performance: Pre and Post Restructuring Comparison



# Losses Incentive

| Licensee | Final Proposals |
|---|---|
| Technical losses | |
| MEDC | 4.0% |
| MJEC | 4.7% |
| MZEC | 6.1% |
| DISC | 6.6% |
| Non-technical losses | |
| MEDC | 1.0% |
| MJEC | 1.0% |
| MZEC | 1.0% |
| DISC | 1.0% |
| Total system losses | |
| MEDC | 5.0% |
| MJEC | 5.7% |
| MZEC | 7.1% |
| DISC | 7.6% |

# Network Security Factor (NSF)

The Authority has regulated distribution network security in the form of:

- **Security standards** – the Licensees are required by their licence to comply with their approved Distribution System Security Standards (DSSS); and
- **The security incentive mechanism** - to reinforce the DSSS, the Authority introduced a Security of Supply incentive for MIS Licensees and DISC (the Network Security Factor, or NSF, term) into the calculation of allowed revenues, whereby financial penalties are imposed if the DSSS are not met.

# Customer Satisfaction Incentive scheme

- The Authority developed a Customer Satisfaction Incentive (CSI) scheme. This scheme built on the customer KPIs which Licensees had been reporting on since 2015, albeit with some modifications to create a Licensee performance score;
- The payments and rewards are symmetrical and subject to a cap equal to 0.5% of annual Supply revenue;

# Guaranteed Standards of Service

- Under a guaranteed standards framework, guaranteed service levels are established and if these are not met the customer is entitled to receive (or request) a specified amount of compensation from the Licensee;
- The Authority introduced this incentive along side the price controls;
- the GSoS scheme aims to ensure that no customers are "left behind", notwithstanding average performance at the system level.

# Guaranteed Standards of Service

## Proposed GSoS and customer compensation:

| Customer issue | Guaranteed standard of service | | Customer payment if standard not met (OR / incident) |
|---|---|---|---|
| Meter reading | GS-1 | Customer's meter is read at least once in 6 months | 20 |
| | GS-2 | New account first reading must be on the first or second reading cycle | 10 |
| Complaint handling | GS-3 | Customer's complaint (excluding GS-5 complaints) must be dealt with in 10 day or less | 5 |
| | GS-4 | Customer's complaint must be dealt with in 40 days or less | 20 |
| | **GS-5** | **A full written explanation must be sent, or a visit must be arranged to investigate, within ten working days of receiving customer notification of a voltage problem to their property** | **15** |
| Customer connections | GS-6 | Time taken to provide customers with a substantive response to initial application must not exceed 15 days | 10 |
| | **GS-7** | **Time taken to provide the final connection from receipt of customer payment and the completion of any required network extension must not exceed 15 days** | **20** |
| Reconnections | GS-8 | Time taken to reconnect customers after disconnection for non-payment must not exceed 24 hours from receipt of payment | 30 |
| | GS-9 | Time taken to reconnect a customer after a supply failure must not exceed 24 hours | 30 |
| | GS-10 | Customers must be notified of planned outage at least 2 days in advance | 5 |
| General | GS-11 | Licensees must credit the customer's account within 10 days in the event of a breach of a guaranteed standard | 20 |

# Financeability

# Financeability

The Authority has duties (among others) to secure the provision of electricity in all parts of Oman, and to enable Licensees to undertake their regulated activities and to attract finance.

| Metric | Value |
|---|---|
| Min. EBIT interest coverage | 1.5x |
| Min. EBITDA interest coverage | 2.25x |
| Min. FFO interest coverage | 2.0x |
| Min. FFO to total debt | 12.0% |
| Max. Balance sheet gearing | 70% |
| Min DSCR Ratio | 1.25x |

# Example of financeability

| Indicator | Target | 1. Base Case | 2. Opex 10% higher | 3. Cost of debt 6.65% | 4. Opening debt 70% RAV |
|---|---|---|---|---|---|
| **MEDC** | | | | | |
| EBITDA interest coverage (minimum) | 2.25 | 2.79 | 2.61 | 2.37 | 2.38 |
| Funds from operations to debt (minimum) | 12.0% | 15.7% | 14.7% | 15.7% | 13.5% |
| Calculated gearing: Net Debt / RAV (maximum) | 70.0% | 58.8% | 59.3% | 59.3% | 68.7% |

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# THANK YOU
# FOR YOUR ATTENTION!

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# Back-up slides

# Uncertainty Mechanism - Force majeure events

- Certain events outside the control of the Licensees, with a low probability of occurrence but with a potentially big impacts of costs are sometimes referred to as “force majeure”;
- The Authority introduced a new term (FMt) into the Maximum Allowed Distribution Revenue to provide recovery of the efficient costs (opex and capex);
- The Authority applied a materiality threshold of greater than 2.5% of Distribution Business (DBt) – which covers the building blocks of opex, depreciation and return on capital;
- The Authority decided to set the opex threshold at 5% of a Licensee’s opex allowance as set in the Final Proposals document; and
- Detail guidance for recovery of force majeure costs was established

# Uncertainty Mechanism - AMR Capital Expenditure

- In line with Government vision, the Authority ….
- The Authority has approved the recovery of the project cost by incorporating a new term in the Price Control formulae (AMRt);
- The Authority is not including AMR capital expenditure in the ex-ante allowances, to allow the Licensees the flexibility in determining the most suitable funding and delivery model

# Uncertainty Mechanism - AMR Capital Expenditure

The Authority considers the main options for AMR infrastructure procurement are through:

- The Regulatory Asset Base (RAB) Model - Allow the investment by companies and include the same in regulated asset base and pay operating allowance through opex; and
- The Project Finance Model (broadly termed as PPP - Public-Private Partnerships) - Encourage companies to do a self-funding model from the benefits realization and support the operational cost partially. The commonly adopted model of PPPs includes:
    - Build-Operate-Transfer (BOT);
    - Design-Build-Operate-Transfer (DBOT)
    - Operate-Maintain-Transfer (OMT)

# Uncertainty Mechanism - AMR Capital Expenditure

The Licensee can select the appropriate investment and funding option which suits the company. The criteria for such selection should be based on:

- Efficiency in AMR infrastructure delivery – i.e. the ability to deliver projects (capital expenditure) without excessive cost overruns and delays and at a quality and price optimal from a life cycle perspective;
- Efficiency in AMR infrastructure operation – i.e. the ability to produce a given output with the minimum possible input (operational expenditure in this case)

# Uncertainty Mechanism - Omanisation

- Under the Omanisation initiative, suppliers to the Licensees are expected to increase the hiring and proportion of Omanis in their workforce;
- This initiative will increase the costs of the Licensees’ Distribution Businesses over the next Price Control period;
- the Authority had decided to introduce an uncertainty mechanism for the recovery of costs associated with the Omanisation initiative rather than setting an ex-ante allowance.

# WACC – Cost of Debt

| | Initial Proposals (mid-point) | Final Proposals | | | |
|---|---|---|---|---|---|
| | | Low | Mid | High | Basis of estimate / comments |
| **US Inflation** | 2.4% | 2.60% | 2.45% | 2.30% | Updated different sources IMF, Congressional Budget Office and EIU suggested higher inflation. The Authority applied 2.45% US inflation, the mid-point of the range 2.3% to 2.6%. |
| **OMR inflation** | 1.8% | 1.8% | 1.8% | 1.8% | Based on IMF forecast from April 2021. |
| **Statutory tax rate** | 15.0% | 15.0% | 15.0% | 15.0% | Applicable statutory rate. |
| **Gearing** | 60.0% | 60.0% | 60.0% | 60.0% | Notional gearing – informed by regulatory precedent, previous notional gearing, and Licensees' actual gearing. |
| **Cost of Debt** | | | | | |
| **Cost of debt (pre-tax)** | 5.65% | 5.51% | 5.65% | 5.79% | Calculated as a weighted average of new and embedded debt.<br>Weighting of 35% applied to new debt, informed by estimated new debt requirement.<br>A range was used for the cost of new debt. Both low and high values included the same risk-free-rate and 20bps for transaction costs. In the low scenario a spread was added, informed by spreads of Omani utility bonds over current spot yields and the average spreads pre-Covid. The high scenario was based on mean average spreads including the Covid pandemic period.<br>The cost of embedded debt was informed by evidence including yields on Omani utility bonds, CBO's reported lending rates, the actual cost of debt, and Licensees' proposed embedded debt costs. |

# WACC – Cost of Equity

| | Initial Proposals (mid-point) | Final Proposals | | | |
|---|---|---|---|---|---|
| | | Low | Mid | High | Basis of estimate / comments |
| **Cost of equity** | | | | | |
| **Risk-free rate (USD)** | 2.10% | 2.00% | 2.00% | 2.00% | Based on evidence including the 10-yr moving average of US Treasury nominal bond yields (2.05%), and spot yields and forward curves of US 10-yr bonds. |
| **Market risk premium (USD)** | 5.90% | 6.00% | 6.00% | 6.00% | Considered in conjunction with risk-free rate to form a total market return (TMR). |
| **Total Market Return (USD)** | 8.00% | 8.00% | 8.00% | 8.00% | Proposed an ERP of 6.0%, which together with the proposed risk-free rate of 2.0% provides a TMR of 8.0%. |
| **Asset beta** | 0.40 | 0.40 | 0.40 | 0.40 | Based on the median (0.39) and mean (0.41) of 5-year (weekly) asset betas of filtered Bloomberg electricity transmission and distribution companies. Cross checked against regulatory precedent. |
| **Equity beta (post-tax)** | 0.91 | 0.91 | 0.91 | 0.91 | Calculation |
| **Country risk premium** | 3.49% | 3.02% | 3.02% | 3.02% | The Authority proposed a CRP of 3.02% based on Professor Damodaran's most recent estimate and the cross-check provided by the analysis of bond spreads. On balance, and giving consideration to S&P's updated outlook, the Authority considers that it is appropriate to maintain its previous approach to estimating the CRP/ |
| **USD Cost of equity (post-tax)** | 10.96% | 10.48% | 10.48% | 10.48% | Calculation |
| **OMR Cost of equity (post-tax)** | 10.31% | 9.62% | 9.78% | 9.94% | Calculation |