

Explanation of the process for planning and approving grid investment

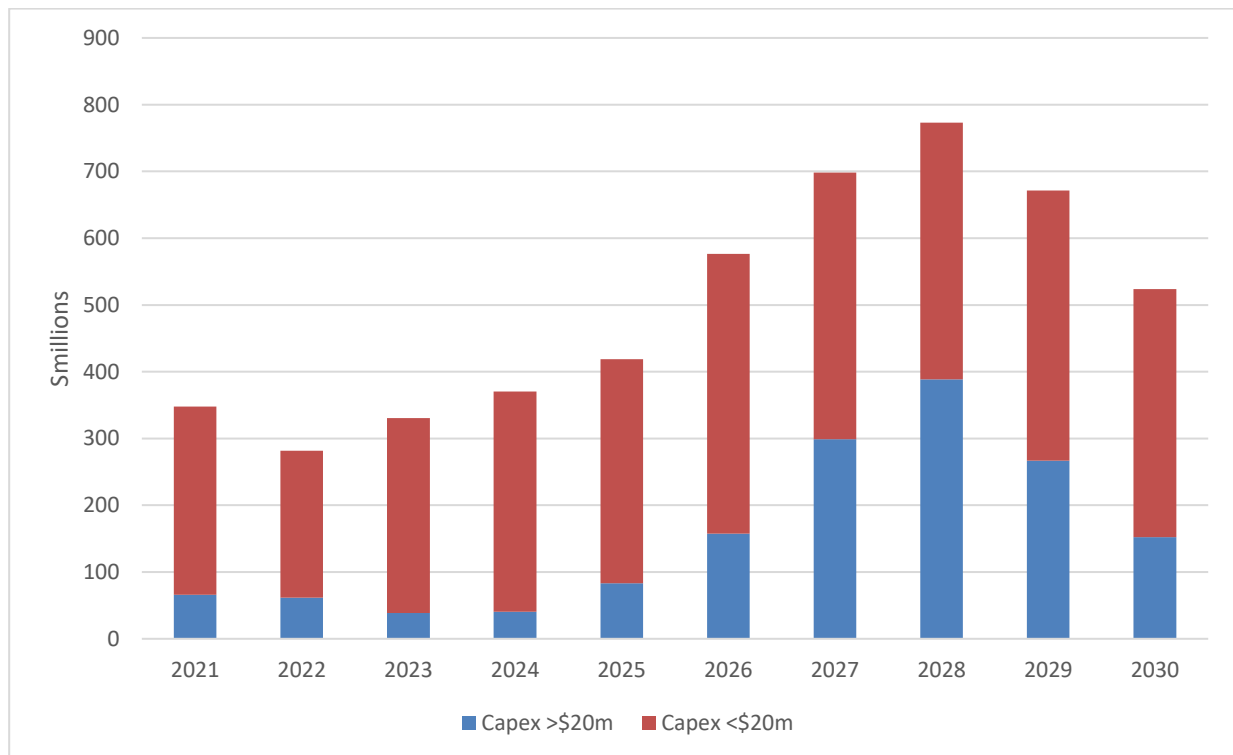
1 Purpose

- 1.1 This document provides an overview of the investment processes for the transmission grid that Transpower undertakes within the Commerce Commission's (Commission) regulatory regime.

2 What are the relevant features of the Commission's regime?

- 2.1 The Commission regulates Transpower's price-quality path by setting its maximum revenues and minimum quality standards with respect to its regulated transmission business. A price-quality path generally lasts for five years (a 'regulatory control period' (RCP)). Transpower is currently in the middle of RCP3 (2020 to 2025). Transpower and the Commission are currently planning for RCP4 (2025 to 2030).
- 2.2 The Commission's regulation is supported by input methodologies, the most relevant of which is the Transpower Capital Expenditure Input Methodology Determination 2012 (the Capex IM). The Capex IM's two major functions are to set out the rules and processes for scrutinising Transpower's proposed investments, and incentivising Transpower to deliver those investments efficiently.
- 2.3 The Commission's regime scrutinises Transpower's capex investments according to their cost. Projects over \$20 million can be subject to higher scrutiny than those under \$20 million. The majority of the value of capital investment (80% for RCP3) relates to projects under \$20 million. Figure 1 below breaks down Transpower's capex for RCP3 and RCP4 into projects over and under \$20 million.

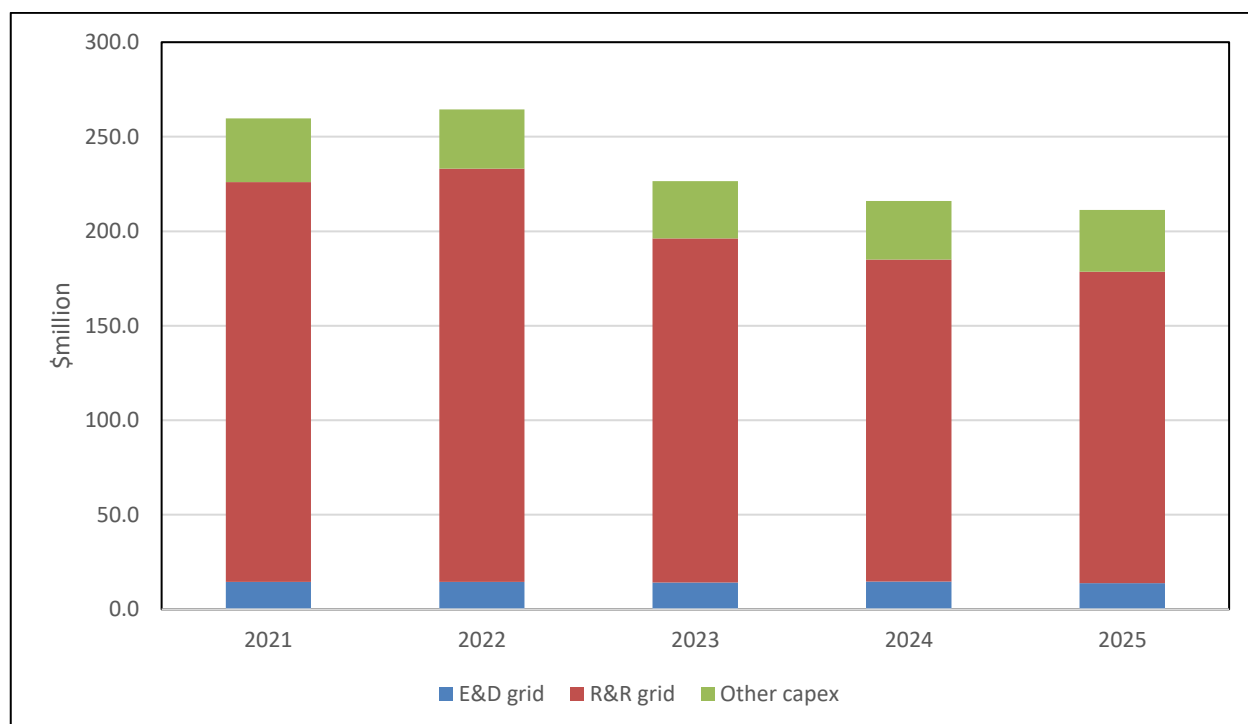
Figure 1: The majority of capital expenditure is for projects under \$20m RCP3 and RCP4)¹



2.4 Transpower's capex can be alternatively categorised as R&R ('replacement and refurbishment' of the grid, ie, maintaining the existing grid), or E&D ('enhancement and development' ie, adding to the existing grid). The remainder of capital expenditure is on ICT and business support. Figure 2 below breaks down Transpower's base capex for RCP3 into grid R&R, grid E&D, and 'other capex' (ICT and business support).

¹ Figures are in real terms using 2021/22 prices, Transpower 2022 Integrated Transmission Plan Schedules.

Figure 2: Most capital expenditure is for grid replacement and refurbishment²



- 2.5 Note this paper does not focus on Transpower’s operating expenditure (which is approximately \$290 million per year in RCP3).

Projects over \$20 million

- 2.6 Some Capex projects over \$20 million are scrutinised and approved by the Commission individually. This category covers **major capex projects**, which are for enhancement and development of the grid, and **listed projects**, which are for replacement and refurbishment of the grid that have a high level of uncertainty in timing or cost.³ The Commission uses a similar cost-benefit analysis (CBA) in its decision-making criteria for both types of projects. In the sections below we describe the process and scrutiny applied to major capex projects, the process and scrutiny applied to listed projects, and the CBA and beneficiaries and charging analysis prescribed in the Capex IM.

Enhancement and development projects over \$20 million (major capex projects)

- 2.7 Major capex projects are proposed, scrutinised and approved outside of the price-quality path setting process that applies to other types of capex and opex. Transpower may submit a major capex project proposal at any time during an RCP.
- 2.8 The flowchart below (Figure 3) sets out a typical process for approving a major capex project. Although many parts of the process are prescribed in the Capex IM, there is a large amount of discretion as to how the process works in practice. In addition to the process set out in Figure 3, Transpower is free to (and does) consult with stakeholders (such as landowners) outside of the process set out in the Capex IM.

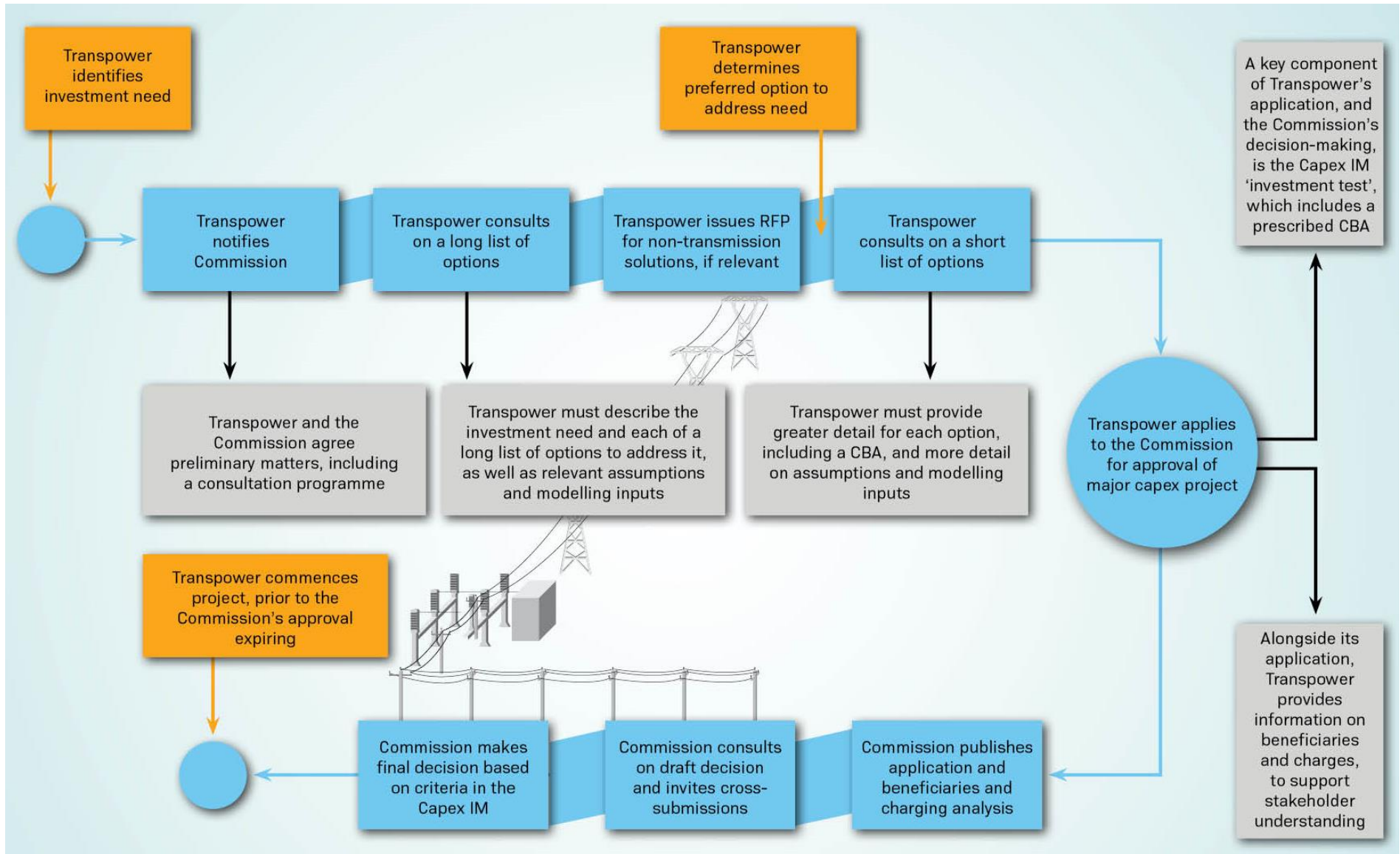
² Figures are in real terms using 2016/17 prices, Transpower RCP3 regulatory Template (RT01).

³ The Capex IM recognises another type of R&R investment over \$20 million other than listed projects, but they do not arise in practice.

Examples of major capex projects

- 2.9 A recent example is the Waikato and Upper North Island voltage management project. The project need is driven by Genesis' announced retirement of its Huntly coal generation plants in 2022. In relation to that project:
- (a) Transpower and the Commission agreed to a consultation programme and other preliminary matters in July 2016
 - (b) Transpower consulted on a long list of options in July 2016
 - (c) Transpower consulted on a short list of options in June 2019
 - (d) Transpower submitted its application in December 2019
 - (e) the Commission made its final decisions In September 2020.
- 2.10 The above processes are recorded on [Transpower's](#) and the [Commission's](#) websites.
- 2.11 Other examples include the Net Zero Grid Pathways major capex proposal. Transpower expects to submit this proposal for the Commission's approval by December 2022.

Figure 3: Process for application and approval of major capex projects



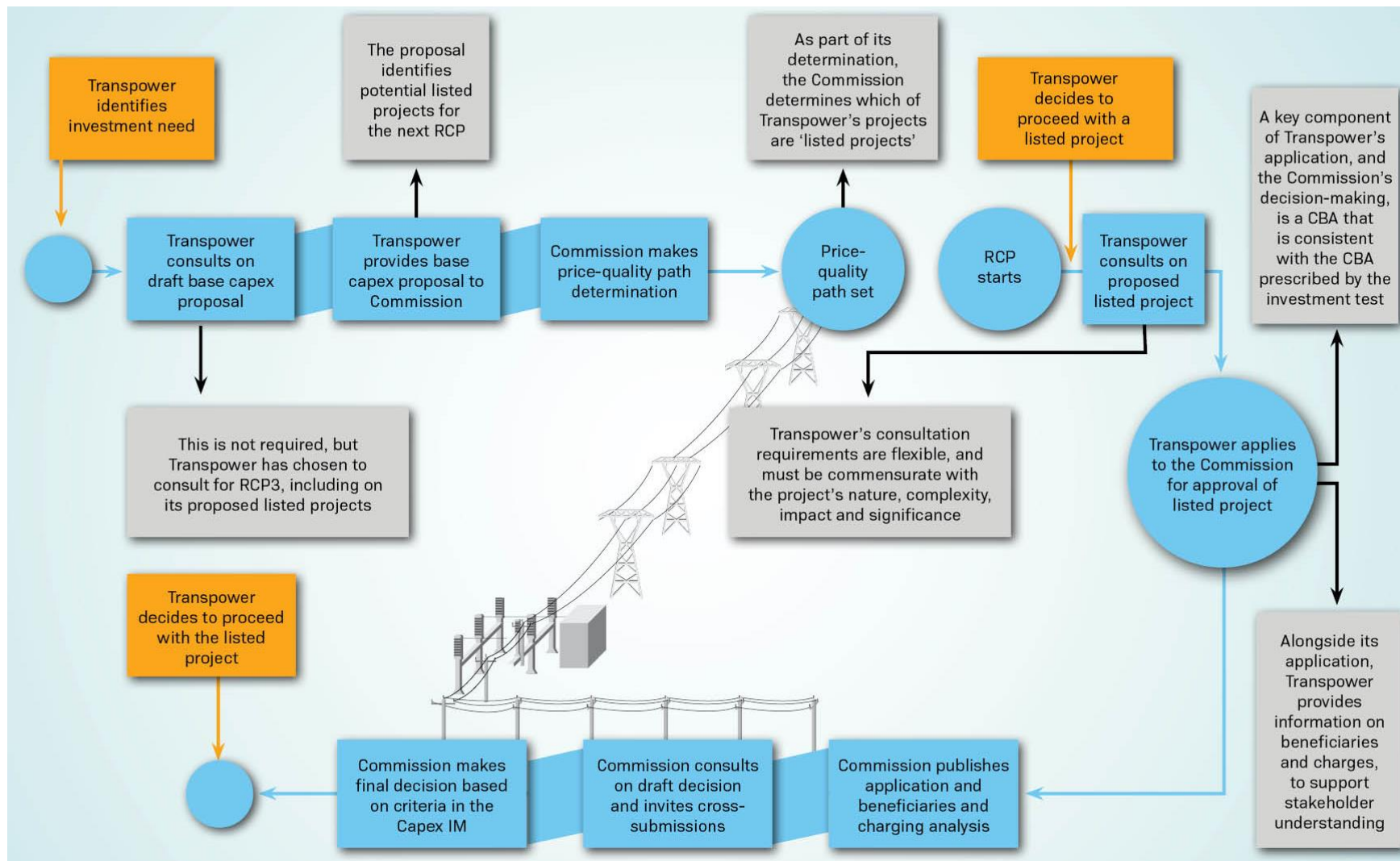
Large replacement and refurbishment projects (listed projects)

- 2.12 Listed projects are proposed, scrutinised and approved within the framework of Transpower's price-quality path. The process for setting Transpower's price-quality path is set out in the next section. Transpower must apply to the Commission to 'list' potential large R&R projects in its price-quality path determination. If a project is listed by the Commission, Transpower may apply during the RCP for approval to proceed with the project.
- 2.13 The flowchart below (Figure 4) sets out the process for approving a listed project. As with major capex projects, many parts of the process are prescribed, but there is a large amount of discretion as to how the process works in practice. Transpower is also able to undertake additional consultation outside of the prescribed process. Key differences between the major capex project process and the listed project process include that:
- (a) Transpower may apply for major capex projects at any time, whereas listed projects must be applied for within the price-quality path framework;
 - (b) the Commission's approval of a listed project will result in an increase to Transpower's base capex allowances. There is no individual project allowance (unlike for major capex projects); and
 - (c) major capex projects have more consultation requirements than listed projects, and the Commission's decision-making criteria for major capex projects is more focussed on the CBA results.

Examples of listed projects

- 2.14 The most recent listed project was the Oteranga Bay/Haywards A Line reconductoring project with an estimate cost of \$22.5 million. The Commission approved this project in October 2018.
- 2.15 Transpower applied for approval of the project in May 2018. In response, the Commission:
- (a) published its draft decision for consultation in August 2018
 - (b) published submissions in September 2018 and called for cross-submissions
 - (c) made its final determination in October 2018.
- 2.16 The processes are recorded on [Transpower's](#) and the [Commission's](#) websites.

Figure 4: Process for proposal and approval of listed projects⁴



⁴ The price-quality path set at the start of the RCP does not include listed projects, however the Commission resets the price-quality path after it approves a listed project.

CBA and beneficiaries' analysis for major capex projects and listed projects

The investment test

- 2.17 The Commission can only approve major capex projects that meet the 'investment test' in the Capex IM. The CBA prescribed by the investment test is also a key part of the Commission's decision-making for listed projects.
- 2.18 The investment test requires that a proposed investment option:
- (a) has a positive CBA result, unless it is a reliability investment
 - (b) has the best CBA result of the options considered
 - (c) is sufficiently robust under sensitivity analysis.

Investment test CBA

- 2.19 The investment test prescribed by the CBA is aimed at determining the net electricity market benefit of a particular investment (for example, it does not consider the visual amenity benefit of undergrounding lines).
- 2.20 The costs and benefits are prescribed in the Capex IM, and must be calculated over a 20-year period, starting from the date of commissioning of the last component of the investment. However, this period can be changed to the last date that significant costs or benefits are expected to arise.
- 2.21 The prescribed costs and benefits are:
- (a) fuel cost incurred by generators
 - (b) cost of involuntary demand curtailment incurred by end-users, calculated using \$20,000/MWh (unless a different value is justified)
 - (c) cost of demand side management
 - (d) cost of projects that are modelled to exist in electricity demand and generation scenarios published by MBIE
 - (e) cost from operating and maintaining existing assets, planned assets, and assets modelled to exist in electricity demand and generation scenarios published by MBIE
 - (f) cost of ancillary services
 - (g) cost of losses, including local losses
 - (h) any real option value, meaning the value attaching to the flexibility of an electricity market participant to make investment decisions
 - (i) value of benefits from a third-party contribution to the cost of the project
 - (j) subsidies or other benefits, relating to any of the above costs or benefits, arising from electricity related legislation and determinations
 - (k) competition effects, meaning the value of the expected change in economic surplus due to a change in competition among participants in the electricity market
 - (l) project costs, meaning costs which are incurred by Transpower associated with the investment option
 - (m) other costs or benefits occurring in the electricity market, proposed and consulted on by Transpower, and agreed by the Commission.

- 2.22 The value of costs and benefits are probability weighted to reflect uncertainty, discounted to present values, and subject to sensitivity analysis.

Transpower must provide additional information regarding beneficiaries and charging implications

- 2.23 When submitting a major capex project or a listed project application, Transpower must also provide the Commission with:

- (a) a description of the benefits the expenditure will deliver to its customers
- (b) to the extent possible, a quantitative estimate of the benefits the expenditure will deliver to its customers
- (c) an estimate of the proposal's effect on transmission charges, including for each affected grid exit point and grid injection point.

- 2.24 This additional information is not relevant to the Commission's decision-making process (as it is interested in net benefits overall, not distributional (wealth transfer) matters). However, it is designed to give affected parties better information to help them to engage on proposals.

Projects under \$20 million

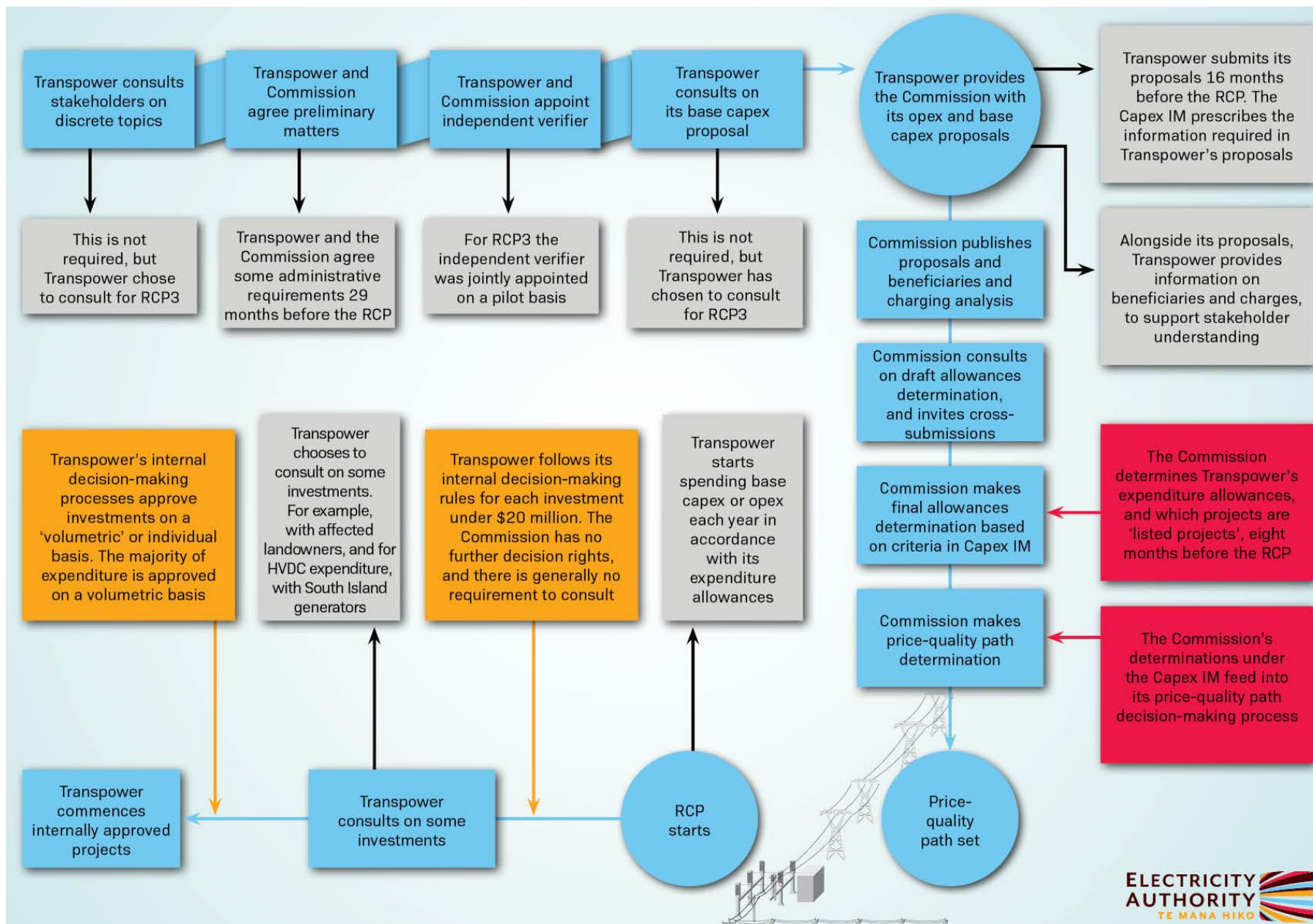
- 2.25 The Commission does not individually scrutinise or approve opex projects, or capex projects under \$20 million. Instead, as part of determining Transpower's price-quality path, the Commission sets several expenditure allowances for each year of the RCP, before the RCP starts. Those allowances are an opex allowance, a standard incentive rate base capex allowance,⁵ and a low incentive rate base capex allowance.⁶ Transpower spends each allowance as it sees fit.
- 2.26 Because of the five-year RCP cycle, the allowances for the last year of the RCP may be determined by the Commission up to six years in advance (and the investment needs underlying the allowances will be forecast by Transpower even further in advance).
- 2.27 The flowchart below (Figure 5) sets out the process for setting Transpower's price-quality path (in particular its expenditure allowances), and the process Transpower follows when deciding how to invest its expenditure allowances. Key differences between investments over \$20 million and investments under \$20 million include:
- (a) Transpower does not apply for approval of individual projects. Instead, it proposes expenditure allowances. The allowances, once approved, can be spent as Transpower considers appropriate.
 - (b) Transpower's proposals contain portfolios of spending, not individual projects.
 - (c) The Commission has a large number of factors it takes into account in assessing Transpower's proposals, including, for example:
 - (i) whether the proposal as a whole was prepared in accordance with internal policies that promote efficiency, and whether key assumptions are reasonable and appropriate

⁵ The standard incentive rate is 33%, it applies symmetrically to over and under spends on the allowance.

⁶ The low incentive rate is 15%.

- (ii) whether each of the portfolios of spending are reasonable and cost effective, and consistent with good asset management practice.

Figure 5: Process for proposal and approval of projects under \$20 million



Independent verification of Transpower's proposal

- 2.28 The Commerce Act provides that the Commission may require Transpower to independently verify the information in its expenditure proposals. The Commission agreed with Transpower to pilot the use of an independent verifier for Transpower's RCP3 base capex and opex proposals. The verifier evaluated and reported on whether Transpower's proposal is consistent with an expenditure outcome which represents the efficient costs of a prudent supplier, having regard to:
- (a) good electricity industry practice
 - (b) the Commission's evaluation criteria, as set out above.
- 2.29 The Commission supported Transpower's trial to engage an independent verifier because it would reduce the time needed for the Commission's assessment, provide useful feedback to Transpower, and result in better scrutiny of Transpower's proposals.

Transpower must provide additional information regarding beneficiaries and charging implications

- 2.30 When submitting a base capex and opex proposal (which include its proposed expenditure allowances for the next RCP), Transpower must also provide the Commission with:
- (a) a description of the benefits the expenditure will deliver to its customers
 - (b) an estimate of the proposal's effect on transmission charges, including for each affected grid exit point and grid injection point.
- 2.31 This additional information does not inform the Commission's decision-making in respect of Transpower's expenditure allowances.
- 2.32 The requirements are similar, but less onerous, than those for major capex and listed projects.

Example of small project approval process

- 2.33 The timetable for setting the price-quality path for RCP3 was as follows:
- (a) November 2016: Transpower began consulting stakeholders on its service measures
 - (b) May 2018: Transpower and the Commission appointed independent verifier
 - (c) August 2018: Transpower consulted on its draft base capex and opex proposals
 - (d) December 2018: Transpower will provide base capex and opex proposals to the Commission. The Commission will publish these and the independent verifier's report
 - (e) February 2019: the Commission will publish, and consult on, an issues paper in response to Transpower's base capex and opex proposals
 - (f) May 2019: the Commission will publish, and consult on, its draft determinations in response to Transpower's proposals, and its draft price-quality path determination
 - (g) August 2019: the Commission will publish final determinations in response to Transpower's base capex and opex proposals, and publish and consult on a revised draft price quality path determination
 - (h) November 2019: the Commission will publish a final price-quality path determination
 - (i) April 2020: RCP3 starts.

- 2.34 During an RCP, Transpower will begin investing in accordance with its expenditure allowances each year. Transpower has advised that each of its investments is subject to an internal business case (some are grouped together and approved on a 'volumetric' basis).